

***Institute of Experimental Endocrinology
Slovak Academy of Sciences
Centre of Excellence Supported by European Commission***

Summary of the main activities of a scientific Organisation

*Period:
January 1, 2007 - December 31, 2011*



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² Excluding projects for the popularisation of science

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Summary of the main activities of a scientific Organisation of the Slovak Academy of Sciences

Period: January 1, 2007 - December 31, 2011

I. Formal information on the assessed Organisation:

1. Legal name and address

Institute of Experimental Endocrinology Slovak Academy of Sciences
Centre of Excellence Supported by European Commission
Vlarska 3
833 06 Bratislava
Slovak Republic

2. Executive body of the Organisation and its composition

Directoriat	name	age	years in the position
director	prof. MUDr. Iwar Klimes, Drsc.	60	2007
deputy director	RNDr. Alexander Kiss, DrSc.	63	2007
scientific secretary	Ing. Julius Brtko, DrSc.	63	1995

3. Head of the Scientific Board

Ing. Julius Brtko, DrSc.

4. Basic information about the research personnel

- i. **Number of employees with a university degree (PhD students excluded) engaged in research and development and their full time equivalent work capacity (FTE) in 2007, 2008, 2009, 2010, 2011 and average number during the assessment period**

2007= 45 (42,5) / 2008= 46 (44,6) / 2009= 47 (41,2) / 2010= 42 (34,9) / 2011= 41 (32,4)

ii. Organisation units/departments and their FTE employees with the university degree engaged in research and development

Research staff	2007		2008		2009		2010		2011		average	
	No.	FTE	No.	FTE	No.	FTE	No.	FTE	No.	FTE	No.	FTE
organisation in whole	45,0	42,5	46,0	44,6	47,0	41,2	42,0	34,9	41,0	32,4	44,2	39,1
Laboratory of Cellular Endocrinology	4,0	4,0	3,0	3,0	3,0	2,5	3,0	2,2	3,0	2,2	3,2	2,8
Laboratory of Diabetes and Metabolic Derangements	6,0	5,5	7,0	5,8	8,0	5,9	8,0	6,4	8,0	6,0	7,4	5,9
Laboratory of Human Endocrinology	6,0	5,5	6,0	5,2	6,0	4,7	5,0	4,5	4,0	3,5	5,4	4,7
Laboratory of Pharmacological Neuroendocrinology	7,0	7,0	6,0	6,7	5,0	4,9	4,0	3,9	2,0	1,2	4,8	4,7
Laboratory of Functional Neuromorphology	3,0	2,5	3,0	3,0	4,0	2,7	4,0	2,7	5,0	3,7	3,8	2,9
Laboratory of Molecular Endocrinology	4,0	2,7	5,0	5,0	5,0	4,5	5,0	3,6	4,0	3,5	4,6	3,9
Laboratory of Neurohormonal Regulations	3,0	3,0	4,0	4,0	5,0	5,0	5,0	4,1	5,0	3,3	4,4	3,9
Laboratory of Stress Research	6,0	6,0	6,0	6,0	5,0	5,0	3,0	3,0	4,0	4,0	4,8	4,8
Laboratory of Metabolic Regulations	4,0	4,4	4,0	4,0	4,0	4,0	3,0	2,5	3,0	2,5	3,6	3,5
Laboratory Developmental Genetics	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	3,0	2,5	2,2	2,1

5. Basic information on the funding

- i. Total salary budget⁴ of the Organisation allocated from the institutional resources of the Slovak Academy of Sciences (SAS) in 2007, 2008, 2009, 2010, 2011 and average amount for the assessment period

Salary budget	2007	2008	2009	2010	2011	average
total salary budget (millions of EUR)	0,553	0,603	0,621	0,634	0,608	0,604

6. URL of the Organisation's web site

www.endo.sav.sk

⁴ Volume wage resources without enlistment in insurance company with inclusive sums manupretium THS, who organization offer ETO Office SAS. Budget in Sk coder on eur by conversion course 1€ = 30,126. (in like manner too in another tablet.)

II. General information on the research and development activity of the Organisation:

1. Mission Statement of the Organisation as presented in its Foundation Charter

The Institute of Experimental Endocrinology of the Slovak Academy of Sciences (SAS) is concentrated at basic research in medical, pharmaceutical sciences and neurosciences, with a deep focus toward normal and pathological physiology of the endocrine system with an accent on elucidation of its role in regulation of various physiological functions of the organism, utilising model situations in ontogenesis, in stress, and in relation to the ethiopathogenesis of selected diseases with special emphasis on the induction and development of metabolic, cardiovascular and nervous system diseases.

The Institute performs mechanistic studies of hormone actions, utilising the methodological portfolio of cellular biology, molecular biology, genetics and immunology, with the aim to elucidate the role of hormones in regulation of metabolic processes in the organism with emphasis to the effect of age, nutrition, sedentary life style as well as to their significance for induction and development of severe, socially important civilisation diseases.

The Institute elaborates new research and/or diagnostic procedures in order to improve the clinical care of endocrine and metabolic diseases throughout the country.

The Institute provides consulting and expertise services which are in harmony with its main activities.

The Institute represents an official training place, fully licensed to carry out the third and highest level of university studies leading to the PhD degree.

The Institute is publishing results of its research activities in periodical and non periodical, domestic and foreign professional scientific journals, books and other standard or electronic press.

2. Summary of R&D activity pursued by the Organisation during the assessed period, from both national and international aspects and its incorporation in the European Research Area (recommended 5 pages, max. 10 pages)

Research of the Institute of Experimental Endocrinology (IEE) over the last five years have followed up the most progressive trends in endocrinology, metabolism and molecular regulatory mechanisms of higher vertebrates, including humans. A special attention has been paid to selected research directions, in particular to

- **Genetics of monogenic diabetes** and other selected endocrine & metabolic diseases in man;
- Investigations on **neuroendocrine regulations in stress** and their significance for diseases of the cardiovascular and immune system, of the brain functions and mental states;
- Investigation of **biological action of a variety of hormones, cytokines** and other biologically active molecules of endo- or exogenous origin at the DNA/RNA/protein level as a consequence of their molecular action within the cell, both at the *in vitro* and *in vivo* conditions in order **to identify principles of selected diseases** and/or to improve and **to innovate diagnostics** and treatment of selected diseases.

The Institute has been **further concentrated** also at the **role of endocrine system** in the development and progression of **serious civilisation diseases** as obesity and the

metabolic syndrome, type 2 diabetes, and selected oncological diseases, or mental impairments.

The Institute was quite **successful in grant application submissions** whether at the **domestic or international research grant agencies at the European level.**

In particular, two research projects of the **6th Framework Programme (FP)** of the EC and one project of the **7th FP** of the EC were successfully concluded within the evaluated period. **The Danubian Biobank Initiative (6th FP EC, 2006-2008, I.Klimes)** has opened the gate for the Institute's successful application for a project of the **7th FP** of the EC. The aforementioned yielded into a new project on **Lipid droplets as dynamic organelles of fat deposition and release: Translational research towards human disease (2008-2011, D.Gasperikova).**

Original results have been also achieved on the effects of selected endocrine disruptors on ligand inducible transcription factors regulatory pathways within the CASCADE project **Chemical Contaminants in Food Chain (6th FP EC, 2007-2010, J.Brtko)**. Twenty-three European countries took part in the **COST BM0602 international project (2007-2011, I.Klimes) Adipose tissue: A key target for prevention of the metabolic syndrome.**

The Institute has been awarded by several bilateral or multilateral projects, e.g. bilateral the Netherlands – Slovakian Projects: **Bioactive food components, mitochondrial function and health (2007-2011, J.Ukropec)**, the multilateral project **CYBERONICS** focusing on the **Effect of the vagal nerve stimulation on tumor development and progression (2007-2009, B.Mravec)**, the project enabling establishment of the **Austrian-Slovak research unit focusing on evaluating stress in relation to brain and cardiovascular system, (2006-2007, D.Jezova)**, the **France-Slovakian** bilateral project elucidating **Transmembrane interactions in cellular signalling (2006-2007, M.Fickova)**, the multilateral project **New analytical and diagnostic approaches towards identification of apocrine and holocrine mechanism (2009-2011, R. Farkas).**

During the recent years, researchers of the Institute were also successful in achieving novel bilateral projects, namely, from the **European Foundation for the Study of Diabetes (EFSD)**, the **Adipose tissue and skeletal muscle plasticity in metabolic health and in insulin resistance (J. Ukropec, 2010-2013)**, and also from the **EFSD**, on the **Metabolic health and muscle secretory profile in aerobic and resistance trained obese pre-diabetic individuals (2010-2013, B.Ukropcova). J.Ukropec (plus D.Gasperikova and I.Klimes)** has successfully applied for the **Pfizer Global Investigator Initiated Research grant „The Effect of a Long-Term Growth Hormone Supplementation on the Whole-Body Metabolic Characteristics and Adipose Tissue Phenotype in Growth Hormone Deficient Adults: the 5-yr follow-up“ (2011-2016, J. Ukropec).**

Financial grant support was also given to **D.Jezova** for her application on the **Interaction of nutrients and oxytocin in modulating neuroendocrine, metabolic and cardiovascular functions (2011-2013, D.Jezova); Developing a rat model of depression based on tryptophan deficiency (2011-2012, D. Jezova).**

Important data were achieved also within bilateral USA – Slovakian projects, namely on the **Clinical and laboratory evaluation of the autonomic nervous system in primary Sjögren's syndrome (2008-2010, R.Imrich)**, the **Stressor-specific regulation of catecholamine biosynthetic enzymes gene expression (2007-2008, R.Kvetnansky)** and the **Altered ethanol effects on osteocalcin null mutant mice (2007-2008, R.Kvetnansky).**

During the evaluated period the researchers of the Institute successfully concluded and/or still are running a high number (**21**) grant projects supported by the prestigious **national APVV (Agency for Support of Science and Research)** projects. Further financial support is provided by grants from the **Scientific Grant Agency (VEGA)** or The **Slovak Ministry of Health**.

The Institute was successful in activities linked to the **Structural Funds Projects of the EU**, in **TRANSMED 1** (Centre of Excellence for Translation Research in Molecular Medicine), Institute as a partner (**I.Klimes**). The second project **TRANSMED 2** is coordinated by the Institute of Virology, Institute as a partner (**I.Klimes**). The third Structural Funds Project **TRANSENDOGEN** is coordinated directly by the IEE (**I.Klimes**).

The most remarkable results of the Institute were selected by the **Scientific Board** of the Institute. Each year this Board has been selecting 3 best sets of research data obtained in **3 different categories, i.e. basic research, applied research and international scientific collaboration**. This approach enabled us to present to the reviewer “the best” of our research.

2007

- **Role of alpha2 – adrenoceptors in the regulation of the hypothalamic magnocellular oxytocinergic neurons** (**A. Kiss – Basic Research Category**).

In our studies it has been revealed that not vasopressinergic but oxytocinergic neurons are sensitive to the $\alpha 2$ AR stimulation. Our results indicate that $\alpha 2$ AR play a significant role in the regulation of magnocellular oxytocinergic system of the hypothalamus, which may significantly influence the plasma levels of OXY and consequently modulate its antidiuretic effect.

- **Pirnik Z., Mravec B., Kiss A.:** Fos protein expression in mouse hypothalamic paraventricular (PVN) and supraoptic (SON) nuclei upon osmotic stimulus: colocalization with vasopressin, oxytocin, and tyrosine hydroxylase. *Neurochem Int* 45(5), 597-607, 2004 **IF=3.211**
- **Pirnik Z., Jezova D., Mikkelsen JD., Kiss A.:** Xylazine activates oxytocinergic but not vasopressinergic hypothalamic neurons under normal and hyperosmotic conditions in rats. *Neurochem Int* 47:458-465, 2005 **IF=3.159**
- **Bundzikova J., Pirnik Z., Mikkelsen JD., Zelena D., Kiss A.:** Activity variations in the hypothalamic oxytocinergic neurons under stimulation of alpha-2 adrenoceptors in osmotically stressed Brattleboro rats. *Ann NY Acad Sci* 1148, 154-160, 2008. **IF=1.930**

- **Channelopathy, Permanent Neonatal Diabetes, functional analyses of the novel mutations and international diagnostic and therapeutic guidelines for MODY diabetes** (**I. Klimes – Applied Research Category**).

The research monogenic diabetes is largely focused to Neonatal Diabetes Mellitus (NDM) and Maturity Onset Diabetes of the Young (MODY) diabetes. We searched for NDM patients in the Slovak Children Diabetes Registry and calculated the real incidence for the permanent NDM in Slovakia /1: 215,417/ (Staník et al., *JCEM* 2007). In cooperation with colleagues from Oxford, we identified genetic background of the Slovak NDM cases. Functional analyses of the novel identified mutations were carried out by electrophysiological methods in *xenopus laevis* oocytes. We found that these patients could be resistant to sulphonylureas and, therefore, they should be treated with insulin. In another Slovak family with multi-generation diabetes, a novel mutation in the gene for insulin as the cause of NDM was found (Edghill et al., *Diabetes* 2007). In a further Slovak case with clinical diagnosis of permanent NDM and proven mutation in the *KCNJ11* gene, diabetes disappeared during the first year of life, and the patient had to be reclassified as transient NDM. This was also confirmed by the methylation analysis of the chromosome 6q. Our experience in the field of MODY diabetes facilitated our enrollment on the list of

co-authors of the international diagnostic and therapeutic guidelines for MODY diabetes (Ellard et al., Diabetologia 2008).

- **Stanik J., Gasperikova D.**, Paskova M., Barak L., Javorkova J., Jancova E., Ciljakova M., Hlava P., Michalek J., Flanagan S., Pearson E., Hattersley A., Ellard S., **Klimes I.**: Prevalence of permanent neonatal diabetes in Slovakia and successful replacement of insulin with sulfonylurea therapy in KCNJ11 and ABCC8 mutation carriers. *J Clin Endocrinol Metab* 2007; 92(4):1276-82. **IF = 5.80**
- E.L. Edghill, S.E. Flanagan, A.M. Patch, C. Boustred, A. Parrish, B. Shields, M.H. Shepherd, K. Hussain, R. Kapoor, M. Malecki, M.J. MacDonald, J. Støy, D. F. Steiner, L.H. Philipson, G.I. Bell, the Neonatal Diabetes International Collaborative Group (including **I. Klimes, D. Gasperikova, J. Stanik**) A.T. Hattersley, and S. Ellard: Insulin Mutation Screening in 1044 Patients with Diabetes: Mutations in the INS gene are a Common Cause of Neonatal Diabetes but a Rarer Cause of Diabetes Diagnosed in Childhood or Adulthood. *Diabetes*, 57(4): 1034-1042, 2008 **IF = 7.96**
- P. Tammaro, S.E. Flanagan, B. Zadek, S. Srinivasan, H. Woodhead, S. Hameed, **I. Klimes**, A.T. Hattersley, S. Ellard, F. Ashcroft: A Kir6.2 mutation causing severe functional effects in vitro produces neonatal diabetes without the expected neurological complications. *Diabetologia*, 51(5): 802-810, 2008. **IF = 5.25**

- **Stress-induced obesity is mediated via released neuropeptide Y directly in fat tissue** (R. Kvetnansky – International Scientific Projects Category)

Within the collaboration with Georgetown University in Washington, USA, we discovered the mechanism of stress-induced obesity in mice. Release of neuropeptide Y (NPY) from sympathetic neurons, especially in the abdominal white adipose tissue, is the substantial part of the described mechanism. NPY via its NPY-2 receptors stimulates the proliferation and differentiation of new fat cells (adipocytes) resulting in abdominal obesity. The development of stress-induced obesity is possible to eliminate by pharmacological inhibition of NPY-2 receptors.

- Kuo LE, Kitlinska JB, Tilan JU, Li L, Baker SB, Johnson MD, Lee EW, Burnett MS, Fricke ST, **Kvetnansky R**, Herzog H, Zukowska Z. Neuropeptide Y acts directly in the periphery on fat tissue and mediates stress-induced obesity and metabolic syndrome. *Nature Medicine* 13(7): 803-811, 2007. **IF=28.588**

2008

- **Short term 13-cis-retinoic acid treatment at therapeutic doses increases adipogenesis and insulin sensitivity of adipose tissue** (S. Zorad – Basic Research Category)

13-cis-retinoic acid (13cRA) is known to activate nuclear receptors RXR, RAR and PPAR-gamma, which play a significant role in adipogenesis. We studied the action of 13cRA in rat adipose tissue after short term treatment at low therapeutic doses. We found that 13cRA increases expression of glucose transporter GLUT 4, PPAR-gamma, RXR-alpha and formation of small insulin sensitive adipocytes (Krskova-Tybitanclova et al. 2008). In addition, 13cRA decreases the expression of tumor-necrosis factor alpha (TNF-alpha). The 13cRA most likely acts on adipose tissue via activation of PPAR-gamma/RXR-alpha dimer. We suppose that 13cRA might have an additional usage to start up positive changes in structure and function of adipose tissue when treating obesity and insulin resistance.

- **Krskova-Tybitanclova K., Macejova D., Brtko J., Baculikova M.**, Krizanova O., **Zorad S.:** Short term 13-cis-retinoic acid treatment at therapeutic doses elevates expression of leptin, GLUT4, PPARgamma and aP2 in rat adipose tissue. *Journal of Physiology and Pharmacology* 59 (4): 731-744, 2008. **IF= 4.466**

- **Growth hormone deficiency significantly modulates expression of adipokines in subcutaneous adipose tissue resulting in the development of hypertrophic large „pathogenic“ adipocytes and metabolic disbalance in these individuals** (J. Ukropec – Applied Research Category)

Untreated growth hormone deficiency /GHD/ in adulthood is associated with the development of central obesity and other characteristics of metabolic syndrome. Molecular mechanisms imposed on us by the endocrine factors produced by the excessive fat mass in the presence of the growth hormone deficiency remain largely unexplored (Ukropec et al. 2008). Results of our cross-sectional study, in which 16 adults with GHD were compared with 16 age-, gender-, and BMI-matched healthy controls clearly showed, that the growth hormone deficiency is associated with (i) a prominent abdominal obesity, (ii) increased accumulation of visceral adipose tissue, (iii) presence of enlarged „pathogenic” adipocytes, (iv) increased levels of circulating inflammatory markers such as C-RP, (v) impaired glucose tolerance /IGT/ and (vi) a defect in the whole body in vivo insulin action. Adipokine expression in subcutaneous adipose tissue, determined with the aid of protein arrays, was significantly modulated by the presence of moderate obesity (BMI ~31 kg/m²).

- **Ukropec, J., Penesova, A., Skopkova, M., Pura, M., Vleck, M., Radikova, Z., Imrich, R., Ukropcova, B., Tajtáková, M., Koska, J., Zorad, S., Belan, V., Vanuga, P., Payer, J., Eckel, J., Klimes, I., Gasperikova, D.** Adipokine protein expression pattern in growth hormone deficiency predisposes to the increased fat cell size and the whole body metabolic derangements. *J Clin Endocrinol Metab.* 93(6):2255-62, 2008 **IF = 5.493**
- **Skopkova M, Penesova A, Sell H, Radikova Z, Vleck M, Imrich R, Koska J, Ukropec J, Eckel J, Klimes I, Gasperikova D.** Protein array reveals differentially expressed proteins in subcutaneous adipose tissue in obesity. *Obesity (Silver Spring).* 2007;15(10):2396-406. **IF= 3.491**

- **6th Framework Programme EC (CASCADE): Chemicals as Contaminants in the Food Chain (J. Brtko – International Scientific Projects Category)**

Vinclozolin is a fungicide of the dicarboximide group, bisphenol A is used in the production of epoxy resins and polycarbonate plastics, and genistein belongs to the isoflavone class of flavonoids, and it is also classified as a phytoestrogen. We have investigated the expression of nuclear thyroid hormone receptors nuclear all-trans retinoic acid receptors (RAR-alpha, RAR-beta, RAR-gamma), three types of nuclear 9-cis retinoic acid receptors and the nuclear receptor for dihydroxyvitamin D3 (VDR) in MCF-7 cells. Vinclozolin, bisphenol A and also genistein enhance the expression TR-alpha but not TR-beta. Vinclozolin enhanced expression of RAR-alpha, RAR-beta and RAR-gamma, and RXR-beta. Bisphenol A enhanced expression of RARs. The data suggest that selected endocrine disruptors affect the regulatory pathways, predominantly target genes involved in the action of vitamin A and D.

- Paris M., Escriva H., Schubert M., Brunet F., **Brtko J.**, Ciesielski F., Roecklin D., Vivat-Hannah V., Jamin E.L., Cravedi J-P., Scanlan T.S., Renaud J-P., Holland N.D., Laudet V.: Amphioxus post-embryonic development reveals the homology of chordate metamorphosis. *Curr. Biol.*, 18: 825-830, 2008. **IF = 10.539**

2009

- **Recognition of the role of hormone aldosterone in the development of anxiety behavior and offering new approaches in the treatment of anxiety disorders (D. Jezova – Basic Research Category)**

Current treatment of mental disorders is far from being optimal and the search of new therapeutic approaches is strongly needed. With the use of a new animal model we have proven that long-term increase in plasma aldosterone is inducing anxiety, i.e. it is exerting anxiogenic effects. Thus, modulation of aldosterone represents a new target for future development of anxiolytic and antidepressive drugs. Indeed, we have confirmed the role of aldosterone in anxiety behavior evaluating prolong treatment with its selective antagonist eplerenone, which is used in the clinical practice in the treatment of cardiovascular diseases. We have brought evidence that treatment with eplerenone is inducing anxiolytic effects as well as changes in the release of hormones (glucocorticoids, oxytocin, vasopressin) participate in the pathophysiology of stress-related mental disorders.

- **Hlavacova N, Bakos J, Jezova D.:** Eplerenone, a selective mineralocorticoid receptor blocker, exerts anxiolytic effects accompanied by changes in stress hormone release. *J Psychopharmacol* 24, 779-786, 2010 **IF=4.06**
- **Bakos J, Hlavacova N, Rajman M, Ondicova K, Koros C, Kitraki E, Steinbusch HW, Jezova D.:** Enriched environment influences hormonal status and hippocampal brain derived neurotrophic factor in a sex dependent manner. *Neuroscience*. 164:788-797, 2009. **IF=3.55**
- **Hlavacova N, Jezova D.:** Chronic treatment with the mineralocorticoid hormone aldosterone results in increased anxiety-like behavior. *Horm Behav* 54(1):90-7, 2008 **IF=3.44**

- **Clarifying the molecular genetic mechanisms of diabetogenicity in new mutations associated with extreme insulin resistance and monogenic diabetes (D. Gasperikova – Applied Research Category)**

We describe a novel translocation [t(7,19)(p15.2; p13.2)] co-segregating with insulin resistance and pre- and postnatal growth deficiency. Chromosome translocations present a unique opportunity to identify modifying loci; therefore, our objective was to determine the mutational mechanism resulting in this hybridization (FISH) breakpoint mapping was performed. Sequencing and gene expression studies of disrupted and adjacent genes were performed on patient-derived tissues. We present a likely digenic cause of insulin resistance and growth deficiency resulting from the combined heterozygous disruption of INSR and CHN2, implicating CHN2 for the first time as a key element of proximal insulin signaling *in vivo*. Inactivating mutations in glucokinase (GCK) cause mild fasting hyperglycemia. Identification of a GCK mutation has implications for treatment and prognosis; therefore, it is important to identify these individuals. We hypothesized that the GCK beta-cell promoter region, which currently is not routinely screened, could contain pathogenic mutations; therefore, we sequenced this region in 60 such probands. The beta-cell GCK promoter was sequenced in patient DNA. The effect of the identified novel mutation on GCK promoter activity was assessed using a luciferase reporter gene expression system. A novel -71G>C mutation was identified in a nonconserved region of the human promoter sequence in six apparently unrelated probands. Haplotype analysis in the U.K. family and four of the Slovakian families demonstrated that the mutation had arisen independently. To ensure correct diagnosis of potential GCK-MODY cases, analysis of the beta-cell GCK promoter should be included.

- S.G.I. Suliman, **J. Stanik**, L.J. McCulloch, N. Wilson, E.L. Edghill, N. Misovicova, **D. Gasperikova**, V. Sandrikova, K.S. Elliott, L. Barak, S. Ellard, E.V. Volpi, **I. Klimes**, and A.L. Gloyn: Severe Insulin Resistance and Intrauterine Growth Deficiency Associated With Haploinsufficiency for INSR and CHN2: New Insights Into Synergistic Pathways Involved in Growth and Metabolism. *Diabetes* 58:2954–2961, 2009 **IF = 8.398**
- **Gasperikova D**, Tribble ND, **Stanik J**, **Huckova M**, Misovicová N, van de Bunt M, **Valentinova L**, Barrow BA, Barák L, Dobránsky R, Bereczková E, Michálek J, Wicks K, Colclough K, Knight JC, Ellard S, **Klimes I**, Gloyn AL: Identification of a novel beta-cell glucokinase (GCK) promoter mutation (-71G>C) that modulates GCK gene expression through loss of allele-specific Sp1 binding causing mild fasting hyperglycemia in humans: *Diabetes* 2009;58(8):1929-35. **IF = 8.398**

- **Catecholaminergic Systems in Stress: Structural and Molecular Genetic Approaches (R. Kvetnansky – International Scientific Projects Category)**

This is a comprehensive and up-to-date review on the role of catecholamines in stress situations in health and disease. Stressful stimuli evoke complex endocrine, autonomic and behavioral responses that are extremely variable and specific depending on the type and nature of the stressors. We first provide a short overview of physiology, biochemistry and molecular genetics of sympatho-adrenomedullary, sympatho-neural and brain catecholaminergic systems. Important processes of catecholamine biosynthesis, storage, release, secretion, uptake, re-uptake, degradation, and transporters in acutely or chronically stressed organisms are described. We emphasize the molecular genetics of enzymes involved in biosynthesis and degradation of catecholamines and transporters. Characterizations of enzyme gene promoters, transcriptional and post-transcriptional mechanisms, transcription factors, gene

expression and protein translation, as well as different phases of stress-activated transcription in stressed organisms is discussed.

- **Kvetnansky R., Sabban E.L., Palkovits M.:** Catecholaminergic systems in stress: structural and molecular genetic approaches. *Physiol. Rev.* 89 (2): 535-606, 2009. **IF=35.000**

2010

- **Molecular determinants of juvenile hormone action as revealed by 3D QSAR analysis in *Drosophila*** (R. Farkas – Basic Research Category)

Postembryonic development, including metamorphosis, of many animals is under control of hormones. In *Drosophila* and other insects these developmental transitions are regulated by the coordinate action of two principal hormones, the steroid ecdysone and the sesquiterpenoid juvenile hormone (JH). While the mode of ecdysone action is relatively well understood, the molecular mode of JH action remains elusive. To gain more insights into the molecular mechanism of JH action, we have tested the biological activity of 86 structurally diverse JH agonists in *Drosophila melanogaster*. The results were evaluated using 3D QSAR analyses involving CoMFA and CoMSIA procedures. We have generated both computer-aided and species-specific pharmacophore fingerprints of JH and its agonists, which revealed that the most active compounds must possess an electronegative atom (oxygen or nitrogen) at both ends of the molecule. When either of these electronegative atoms are replaced by carbon or the distance between them is shorter than 11.5 Å or longer than 13.5 Å, their biological activity is dramatically decreased.

- **Liszekova D., Polakovičová M., Beno M., Farkas R.:** Molecular determinants of juvenile hormone action as revealed by 3D QSAR analysis in *Drosophila*. *PLoS One* 23; 4(6):e6001, 2009. **IF= 4.53**

- **The impacts of organochlorines and other persistent pollutants on thyroid and metabolic health** (P. Langer, J. Ukropec – Applied Research Category)

High prevalence of thyroid and metabolic disorders has been repeatedly observed in the population living in the area of eastern Slovakia highly polluted by a mixture of PCBs, DDE and HCB since about 50 years ago. Among thyroid disorders, increase of thyroid volume as measured by ultrasound volumetry may be suggested as one of notable findings which appeared possibly related to increased OCs levels and to autoimmunity signs. In addition, markedly increased prevalence of prediabetes and diabetes significantly related to major OCs (PCBs, DDE and HCB) levels and accompanied by increasing level of cholesterol and triglycerides has been observed. The observations also suggested a role of prenatal exposure to OCs in the development of several adverse health signs (e.g. prevalence of thyroid antibodies, impaired fasting glucose level, increased thyroid volume, decreased thymus volume, decreased neurobehavioral performance, increased hearing and dental disorders) in young generation born to highly exposed mothers in polluted area.

- **Langer P.:** The impacts of organochlorines and other persistent pollutants on thyroid and metabolic health. *Front Neuroendocrinol.* 2010 31(4):497-518. **IF= 12.05**
- **Ukropec J, Radikova Z, Huckova M, Koska J, Kocan A, Sebkova E, Drobna B, Trnovec T, Susienkova K, Labudova V, Gasperikova D, Langer P, Klimes I.** High prevalence of prediabetes and diabetes in a population exposed to high levels of an organochlorine cocktail. *Diabetologia.* 2010 53(5):899-906. **IF= 6.55**

- **Effect of anorexigenic peptides, cholecystokinin and cocaine and amphetamine regulated transcript peptide, on the activity of neurons in hypothalamic structures of C57Bl/6 mice involved in the food intake regulation** (A. Kiss – International Scientific Projects Category)

The hypothalamus plays an important role in food consumption, receiving information about energy balance via hormonal, metabolic, and neural inputs. A role in the regulation of food consumption play certain hypothalamic structures, including the arcuate (ARC) and ventromedial (VMN) nuclei and the lateral hypothalamic area (LHA). The goal of this

study was to find out in the male C57Bl/6 mice whether treatment with cholecystokinin (CCK) and cocaine and amphetamine regulated transcript (CART) peptide may produce certain mutual functional linkage i.e. synergistic or asynergistic relationships, on the activity of ARC and VMN neurons and hypocretin (Hcrt) synthesizing neurons in LHA using a single Fos or dual Fos-HCRT immunohistochemistry. The results clearly indicate that CCK may modify the effect of CART peptide and thus substantially influence the activity of neurons in hypothalamic structures involved in regulation of food intake

- Maletinska L., Maixnerova J., Matyskova R., Haugvicova R., **Pirnik Z., Kiss A., Zelezna B.:** Synergistic effect of CART (cocaine- and amphetamine-regulated transcript peptide and cholecystokinin on food intake regulation in lean mice. *BMC Neurosci* 9(1), 101-111, 2008. **IF=2.85**
- **Pirnik Z.,** Maixnerova J., Matyskova R., Koutova D., Zelezna B., Maletinska L., **Kiss A.:** Effect of anorexigenic peptides, cholecystokinin (CCK) and cocaine and amphetamine regulated transcript (CART) peptide, on the activity of neurons in hypothalamic structures of C57Bl/6 mice involved in food intake regulation. *Peptides* 31(1), 139-144, 2010. **IF= 2.705**

2011

- **Subchronic treatment of rats with oxytocin results in improved adipocyte differentiation and increased gene expression of factors involved in adipogenesis (S. Zorad – Basic Research Category)**

A direct action of oxytocin, a metabolic and cardiovascular hormone, on adipose tissue has been discovered. It has been shown that treatment with oxytocin results in a reduction of adipocyte size and increase in protein content in adipose tissue. In contrast to the action of clinically used drugs increasing insulin sensitivity, oxytocin treatment does not influence adiposity. Positive adipogenic and angiogenic effects of oxytocin are supported also by changes in expression of relevant genes. This work brings the first evidence that activation of eukaryotic elongation factor 2 plays an important role in oxytocin action in an extrauterine tissue.

- **Eckertova, M, Ondrejčakova, M, Krskova, K, Zorad, S, Jezova, D.:** Subchronic treatment of rats with oxytocin results in improved adipocyte differentiation and increased gene expression of factors involved in adipogenesis. *British Journal of Pharmacology* 2011, 162(2): 452-463 **IF=4.925**

- **A large multi-centre European study validates high-sensitivity C-reactive protein (hsCRP) as a clinical biomarker for the diagnosis of diabetes subtypes. (D. Gasperikova – Applied Research Category)**

Biomarkers could help to prioritise patients for genetic investigation. Therefore, in a large multi-centre study we aimed to assess the clinical validity of hsCRP as a diagnostic biomarker and examine the genotype-phenotype relationship. High-sensitivity CRP levels were analysed in individuals with HNF1A-MODY (n=457), glucokinase (GCK)-MODY (n=404), hepatocyte nuclear factor 4 alpha (HNF4A)-MODY (n=54) and type 2 diabetes (n=582) from seven European centres. The discriminative power of hsCRP with respect to diabetes was assessed by ROC C-statistics. In all centres method, meta-analysis confirmed significantly lower hsCRP levels in those with HNF1A-MODY than in those with other aetiologies (z score -21.8, $p < 5 \times 10^{-105}$). HNF1A-MODY cases with missense mutations had lower hsCRP levels than those with truncating mutations (0.03 vs 0.08 mg/l, $p < 5 \times 10^{-5}$). High-sensitivity CRP values between assays were strongly correlated ($r(2) \geq 0.91$, $p \leq 1 \times 10^{-5}$). In the largest study to date, we have established that hsCRP is a clinically valid biomarker for HNF1A-MODY in European populations. Given the modest costs and wide availability, hsCRP could translate rapidly into clinical practice, considerably improving diagnosis rates in monogenic diabetes.

- Thanabalasingham G., Shah N., Vaxillaire M., Hansen T., Tuomi T., **Gasperikova D.,** Syopa M., Tjora E., James T.J., Kokko P., Loiseleur F., Andersson E., Gaget S., Isomaa B., Nowak N., Raeder H., **Stanik J.,** Njolstad P.R., Isomaa B., Malecki M.T., **Klimes I.,** Groop L., Pedersen O., Froguel P., McCarthy M.T. Gloyn A.L., Owen K.R.: A large multi-centre European study validates high-sensitivity C-reactive protein (hsCRP) as a clinical biomarker for the diagnosis of diabetes subtypes. *Diabetologia* 54(11): 2801-10, 2011. **IF = 6.973**

- **Ghrelin agonist impact on Fos protein expression in brain areas related to food intake regulation in male C57BL/6 mice** (A. Kiss – International Scientific Projects Category)

Many peripheral substances, including ghrelin, induce neuronal activation in the brain. In the present study, we compared the effect of subcutaneously administered ghrelin and its three stable agonists on the Fos expression in food intake responsive brain areas male C57BL/6 mice. These results demonstrate for the first time that ghrelin agonists, regardless of their different chemical nature, have a significant and similar activating impact on specific groups of neurons that can be a part of the circuits involved in the food intake regulation.

- **Pirnik Z., Bundzikova J., Holubová M., Pýchová M., Fehrentz J.A., Martinez J., Zelezna B., Maletinska I., Kiss A.** Ghrelin agonists impact on Fos protein expression in brain areas related to food intake regulation in male C57BL/6 mice. *Neurochem Int* 59(6), 889-895, 2011. **IF=3.601**

Further are listed research results, which are rounding up the scientific “productivity” of the Institute having both, the international and the national dimension. Due to spare limitations, only the full references of the relevant *in extenso* papers are mentioned. The titles are grouped into 4 groups reflecting our effect to reduce the number of themes being investigated at the Institute.

Here are the “other” papers on genetics:

- Wirsing A, Johnstone KA, Harries LW, Ellard S, Ryffel GU, Stanik J, Gasperikova D, Klimes I, Murphy R.: Novel monogenic diabetes mutations in the P2 promoter of the HNF4A gene are associated with impaired function in vitro. *Diabet Med.* 2010; 27(6):631-5. **(IF=3.033)**
- Veeramah KR, Tönjes A, Kovacs P, Gross A, Wegmann D, Geary P, Gasperikova D, Klimes I, Scholz M, Novembre J, Stumvoll M.: Genetic variation in the Sorbs of eastern Germany in the context of broader European genetic diversity. *Eur Journal of Human Genetics* 2011; 19 (9):995-1001. **(IF=4.380)**

Research on the **central and peripheral catecholaminergic system and its regulation in stress – using histology, pharmacology, neuroendocrinology and behavioral approaches** has been the second major area of research at our Institute.

Here are the “other” papers from neuroendocrinology:

- Vargovic P, Ukropec J, Laukova M, Cleary S, Manz B, Pacak K, Kvetnansky R.: Adipocytes as a new source of catecholamine production. *FEBS Lett.* 2011 21; 585(14):2279-84. **(IF= 3.601)**
- Kutlu S, Aydin M, Alcin E, Ozcan M, Bakos J, Jezova D, Yilmaz B.: Leptin modulates noradrenaline release in the paraventricular nucleus and plasma oxytocin levels in female rats: a microdialysis study. *Brain Res.* 2010 4; 1317: 87-91. **(IF= 2.623)**
- Bundzikova J, Pirnik Z, Zelena D, Mikkelsen JD, Kiss A.: The α 2-adrenoceptors do not modify the activity of tyrosine hydroxylase, corticoliberine, and neuropeptide Y producing hypothalamic magnocellular neurons ion the Long Evans and Brattleboro rats. *J Physiol Pharmacol.* 2010; 61(4):391-8. **(IF= 2.130)**
- Hlavacova N, Bakos J, Jezova D.: Eplerenone, a selective mineralocorticoid receptor blocker, exerts anxiolytic effects accompanied by changes in stress hormone release. *J Psychopharmacol.* 2010;24(5):779-86. **(IF= 3.801)**
- Vlcek M, Rovensky J, Eisenhofer G, Radikova Z, Penesova A, Kerlik J, Imrich R. : Autonomic Nervous System Function in Rheumatoid Arthritis. *Cell Mol Neurobiol.* 2012 **(IF= 2.423)**

A major unifying factor which has brought several groups at the Institute together for collaboration are studies on the **biology of the adipose tissue and its significance in**

rat and human for obesity, insulin secretion/resistance, diabetes, high blood pressure.

Here are the papers...

- Krskova-Tybitanclova K, Macejova D, Brtko J, Baculikova M, Krizanova O, Zorad S.: Short term 13-cis-retinoic acid treatment at therapeutic doses elevates expression of leptin, GLUT4, PPARgamma and aP2 in rat adipose tissue. *J Physiol Pharmacol.* 2008 ;59(4):731-43. (IF= 2.130)
- Meissburger B, Ukropec J, Roeder E, Beaton N, Geiger M, Teupser D, Civan B, Langhans W, Nawroth PP, Gasperikova D, Rudofsky G, Wolfrum C.: Adipogenesis and insulin sensitivity in obesity are regulated by retinoid-related orphan receptor gamma. *EMBO Mol Med.* 2011;3(11):637-51. (IF= 8.833)
- Orecna M, Hafko R, Toporcerova V, Strbak V, Bacova Z.: Cell swelling-induced insulin secretion from INS-1E cells is inhibited by extracellular Ca²⁺ and is tetanus toxin resistant. *Cell Physiol Biochem.* 2010;26(2):197-208. (IF= 3.585)
- Sparks LM, Moro C, Ukropcova B, Bajpeyi S, Civitarese AE, Hulver MW, Thoresen GH, Rustan AC, Smith SR.: Remodeling lipid metabolism and improving insulin responsiveness in human primary myotubes. *PLoS One.* 2011;6(7):e21068 (IF= 4.411)
- Chomentowski P, Coen PM, Radikova Z, Goodpaster BH, Toledo FG.: Skeletal muscle mitochondria in insulin resistance: differences in intermyofibrillar versus subsarcolemmal subpopulations and relationship to metabolic flexibility. *J Clin Endocrinol Metab.* 2011; 96(2):494-503. (IF= 6.495)
- Toledo FG, Menshikova EV, Azuma K, Radikova Z, Kelley CA, Ritov VB, Kelley DE.: Mitochondrial capacity in skeletal muscle is not stimulated by weight loss despite increases in insulin action and decreases in intramyocellular lipid content. *Diabetes.* 2008;57(4):987-94. (IF= 8.889)
- Penesova A, Venti CA, Bunt JC, Bonfiglio SM, Votruba SB, Krakoff J.: Short-term isocaloric manipulation of carbohydrate intake: effect on subsequent ad libitum energy intake. *Eur J Nutr.* 2011;50(6):455-63. (IF= 3.343)
- Penesova A, Cizmarova E, Belan V, Blazicek P, Imrich R, Vlcek M, Vigas M, Selko D, Koska J, Radikova Z. Insulin resistance in young, lean male subjects with essential hypertension. *J Hum Hypertens.* 2011;25(6):391-400. (IF= 2.176)

The last couple of papers indicates that some labs are studying the oncogenic and anti-oncogenic action of selected endocrine disruptors and other new molecules:

Here are the references...

- Fickova M, Pravidova E, Rondhal L, Uher M, Brtko J.: In vitro antiproliferative and cytotoxic activities of novel kojic acid derivatives: 5-benzyloxy-2-selenocyanatomethyl- and 5-methoxy-2-selenocyanatomethyl-4-pyranone. *J Appl Toxicol.* 2008;28(4):554-9. (IF= 2.322)
- Brtko J, Rock E., Nezbedová P., Křižanová O., Dvorčáková M., Minet-Quinard R., Farges M.C., Ribalta J., Winklhofer-Roob B.M., Vasson M.P., Macejova D.: Age-related change in the retinoid X receptor beta gene expression in peripheral blood mononuclear cells of healthy volunteers: effect of 13-cis retinoic acid supplementation. *Mech Ageing Dev*, 2007; 128(11-12):594-600. (IF= 4.857)
- Mlynarcikova A, Nagyová E, Fickova M, Scsukova S.: Effects of selected endocrine disruptors on meiotic maturation, cumulus expansion, synthesis of hyaluronan and progesterone by porcine oocyte-cumulus complexes. *Toxicol In Vitro.* 2009;23(3):371-7. (IF= 2.546)
- De Couck M, Mravec B, Gidron Y.: You may need the vagus nerve to understand pathophysiology and to treat diseases. *Clin Sci (Lond).* 2012;122(7):323-8. (IF= 4.613)
- Goldstein DS, Imrich R, Peckham E, Holmes C, Lopez G, Crews C, Hardy J, Singleton A, Hallett M.: Neurocirculatory and nigrostriatal abnormalities in

Parkinson disease from LRRK2 mutation. *Neurology*. 200;69(16):1580-4. (IF= 8.017)

- Ergang P, Leden P, Vagnerová K, Klusonová P, Miksík I, Jurcovicova J, Kment M, Pácha J.: Local metabolism of glucocorticoids and its role in rat adjuvant arthritis. *Mol Cell Endocrinol*. 2010;323(2):155-60. (IF= 4.119)

3. Concept of R&D activity of the Organisation for the next four years (recommended 3 pages, max. 5 pages)

i. Present state of knowledge and status of ongoing research related to the subject of the Concept, from both international and national perspective

The global trends in experimental and clinical endocrinology have remained and concentrated at studies elucidating the pathogenesis of important non-infectious civilizations diseases. Therefore, most of the research groups of the Institute have been continuing in investigation of the traditional topics. However with exploitation of new methods in molecular biology a shift in the traditional research orientation of the Institute towards basic and applied genetics took place.

Catecholamine research remains one of our strong “columns” yielding in near observations, which are well published. In particular, catecholamines are related to the etiopathogenesis of Alzheimer’s disease and various other mental disease states. Interesting by several research groups of the Institute have been collaborating on the biology of adipose tissue in health and diseases. This is an example of spontaneous shrinking of the research topics of the Institute. Another concentration of the research power took place in a couple of Laboratories working on endocrinology related topics.

Taking together the avenue the Institute will go forward for the next four years is a combination of tradition with the new horizons.

Dysfunction of nuclear receptor signalling leads to cell proliferation defects, reproductive and metabolic diseases such as cancer, infertility, obesity and diabetes. Based upon their former publications in this area, the main plan is to investigate antitumour properties of selected biologically active ligands of nuclear retinoid X receptors from a group of accessible organic compounds in breast, kidney and ovarian carcinoma cell lines.

There is a serious lack of information concerning the toxicity of nanoparticles to humans. The research in the field of reproductive toxicity confirms that gonadal processes (oogenesis, ovulation, hormone production) are sensitive to the action of exogenous compounds from environment. Therefore the biosafety of therapeutically and commercially used nanoparticles focusing on reproductive and immune system, oxidative status and prevention of potential risks will be investigated.

Traditionally, the cancer research has been focused on the cellular control pathways and on the role of immune system in the recognition and elimination of cancer cells. However, tumor growth and development of metastases do not represent autonomic phenomena. Therefore, investigations will cover the interactions between the brain and tumor cells in several models of cancer with different features.

The above written topics and rational are in the text below developed into more detailed sources of information (as obtained from the individual investigators) to which direction the Institute shall go in the next period as practically all groups have some grants to finish up or to write up new applications, which should allow them to continue in the good tracks. The order of the text boxes below corresponds to the order of main themes.

ii. Organisation’s role or significance in the overall research effort within the field of the Concept on both the national and international scales

The Organisation (read this Institute) is a very well established institution at home as well as abroad. The top researchers with high publication and citation quotes are known in a much broader medical and biomedical auditorium. Based upon the above mentioned facts, we may state that our Institute has a good professional, personal, financial and technical infrastructure to carry on also in the next 4 years as the national leader in endocrine research, postgraduate education, and biomedical diagnostics. Moreover, the Institute has been in course of the annual evaluations in 2007, 2008 and 2009, which were executed by a committee of the Presidium of the Slovak Academy of Sciences, ranking once on the first place and in the rest once second and once third among the Institutes of SAS from the Life Sciences section.

Special support was given to first and up to now the only one DNA diagnostic laboratory devoting its capacity to monogenic forms of diabetes, hyperinsulinism and further selected metabolic diseases for clinicians' partners in whole Slovakia.

The Institute was also awarded for its building a high level of infrastructure (read purchase of high quality scientific instruments) by the President of the Slovak Academy of Sciences. Moreover excellent research data on the molecular mechanisms on permanent neonatal diabetes and mapping of the incidence in Slovakia were awarded by the prize of Slovak Academy of Sciences for excellent research data obtained in 2009. Dr. Ladislav Macho who served more than 24 years as the Institute's director received this year the highest recognition from the President of the Slovak Republic, Mr. Ivan Gasparovic, the Stur order of the first class.

Also in the **international dimensions**, this Institute belongs to those which are well known among the relevant professional communities in Europe and in the Overseas, our employees are receiving invitations to speak at major international events, they do publish in well recognized journals with high IF.

At the turn of the centuries, also biomedical diagnostics and consulting for personalized medicine cases in Slovakia have started at this Institute. The latter activity was initiated by the current director of this Institute, who 10 years ago established the DNA diagnostic laboratory DIABGENE. It has been a joint center with the National Institute for Diabetes and Endocrinology in Lubochna.

The analysis of the current scientific activities brought up a set of natural research directions which deserve full support. Consequently the concept key research areas have arisen out of the 4 major items as identified by our analysis of the scientific data produced over the last five years:

- I) **BASIC AND APPLIED GENETICS**: studies in Drosophilla and Men
- II) **NEUROENDOCRINOLOGY of STRESS**: lessons learned from histology, pharmacology, immunology and mental impairment
- III) **BIOLOGY of THE ADIPOSE TISSUE** and its significance for obesity, insulin resistance, diabetes and blood pressure
- IV) **ONCOGENIC** and anti-oncogenic action of endocrine disruptors and other new molecules

iii. Objectives of the Concept

Please find below the detail explication what shall be done at each specific topic

I. In the area of basic and applied genetic the research shall focus at the:

1. Role of molecular determinants of apocrine secretion (AS) and genetic mechanisms of metamorphosis in Drosophila and molecular-genetic and cellular mechanisms of the juvenile hormone, in particular at (Farkas):

- a) morphological and functional definition of AS from the salivary glands of Drosophila and identification and proteomic characterization of apocrine secretory proteins salivary glands
- b) identification of protein-interacting partners of Dark and Dronc

- c) wide-genomic and RNA interference screens for novel genes controlling AS
- d) identification of molecular partners of EcR/Usp/Met complex in the JH signalling pathway and uncovering genetic phenotype of mutations affecting JH action

2. Monogenic endocrinopathies and inherited disorders of metabolism, in particular at (Klimes, Gasperikova):

- a) continuation of the ongoing studies in DNA diagnostics of monogenic diabetes
- b) extension of the DNA diagnostics portfolio on second most common form of congenital hyperinsulinism the HI/HA syndrome
- c) studies of the monogenic form of congenital hypothyroidism, (genes affecting the development of the thyroid (TTF1, TTF2, PAX8) and its regulation (TSH receptor)
- d) studies of monogenic growth disorders, where genes regulating development of the pituitary gland (PROP, HESX1, LHX3, LHX4), and genes for Noonan and Silver-Russel syndrome
- e) setting-up the DNA analysis of the inborn error of metabolism focusing on Glycogen storage diseases, characterized by abnormal glycogen metabolism in the liver, muscle, heart and other tissues

II. In the area of neuroendocrinology and stress the research shall focus at the:

1. Mechanisms of etiopathogenesis of Alzheimer`s disease, in particular at (Kvetnansky):

- a) effects of a single and repeated stress exposure in normal healthy rats or mice, in corticoliberin deficient mice and in rats at different stages of development of Alzheimer`s diseases pathology on expression and translation of tau proteins in various areas and nuclei of the brain
- b) investigations of interaction of specific arrays of proteins in neuro-endocrine-immunological system by transcriptomic and protein analysis

2. Neuropharmacological actions of drugs on certain brain neuroendocrine regulatory centers, in particular at (Kiss):

- a) studies on the expression of the transcription factor and immediate early gene product c-Fos in the hypothalamic paraventricular and supraoptic nuclei after administration of adrenergic, serotonergic, and nicotinic agents and typical and atypical antipsychotic drugs
- b) studies on the immediate early gene expression after selective affecting of the 5-HT_{2A} receptors
- c) investigations of the activity of the brainstem structures (besides the hypothalamic structures) including the locus coeruleus and the nucleus of the solitary tract

3. New effects of oxytocin and aldosterone in stress, in particular at (Jezova):

- a) investigation of oxytocin antagonists for cardiovascular and metabolic consequences of repeated stress exposure
- b) testing the hypothesis that changes in aldosterone secretion represent an early marker for the development of depression
- c) multidisciplinary studies starting with mood disorders and behavioural aspects running through the brain neurochemistry to metabolic and cardiovascular characteristics
- d) developing of animal models of developed treatment-resistant depression
- e) verification of animal data and data obtained in healthy volunteers in patients with depression

4. Developmental effects of neuropeptides, in particular at (Bakos, Strbak):

- a) to study specific effects of oxytocin/vasopressin on neuronal growth, cytoskeleton organisation and genes related to axon guidance
- b) to describe and manipulate paracrine neuronal communication mediated by neuropeptides in vitro
- c) to test developmental effects of selected neuropeptides on brain organization

III. In the area of biology of the adipose tissue and its significance for obesity, insulin resistance, and diabetes the research shall focus at the:

1. Metabolic compensatory mechanisms in early stage of obesity and insulin resistance development, in particular at (Zorad):

- a) verification of hypothesis that in early stage of metabolic syndrome development specific systems such as adiponectin, protein 14-3-3, phosphorylation of AS160 and oxytocin receptors are activated in adipose tissue
- b) comparison of key elements of insulin - glucose transport transduction pathway (Akt kinase, protein AS160, protein 14-3-3 and GLUT4) in early (12-week-old rats) and late (33-week-old rats) stage of obesity and insulin resistance development
- c) role of oxytocin and adipose tissue oxytocin receptors in pathogenesis of obesity and insulin resistance

2. Investigation of neuroendocrine mechanisms in cardiovascular and metabolic disorders, including obesity, hypertension, prediabetes, in particular at (Imrich):

- a) clinical investigations on adipose tissue effects on systemic and local metabolic, neuroendocrine disarrangements leading to development of metabolic syndrome
- b) studies on local inflammation and local renin-angiotensin system in adipose tissue

3. Investigating the skeletal muscle and adipose tissue endocrine cross-communication as a prerequisite for maintaining metabolic health, in particular at (Ukropec):

- a) investigating of the molecular mechanisms, how bioactive products originating in muscle (myokines) and in adipose tissue (adipokines) contribute to the maintenance of whole body metabolic health
- b) effect of endurance and strength exercise programmes on molecular changes in muscle and adipose tissue, which could inhibit the progression of prediabetes in sedentary population
- c) epigenetic component of obesity and exercise driven changes in muscle and adipose tissue, promoting metabolic health or disease progression, *in vivo* and *in vitro*

IV. In the area of oncogenic and anti-oncogenic action of endocrine disruptors and other new molecules the research shall focus at the:

1. Antitumour effect of biologically active ligands of nuclear retinoid/retinoid X receptor, thyroid/retinoid X receptor and vitamin D3/retinoid X receptor heterodimers in tissue carcinoma cell lines, in particular at (Brtko):

- a) investigation of antitumor properties of selected biologically active ligands of nuclear retinoid receptors from in breast, kidney and ovarian carcinoma cell lines
- b) analyses of nuclear retinoid X receptor subtypes expression, retinoic acid receptor subtypes expression and the expression of selected corepressors and coactivator that take a part in the formation of RAR-RXR heterodimer
- c) biological effect of trilakyl- and triaryl- tin derivatives, with the aim to determine their ability to amplify the response of tumour cells when treated with the all-trans retinoic acid
- d) investigations of the cross-talks regulatory pathways between "estrogenic" isoflavone activity and nuclear retinoid/RXR and dihydroxyvitamin D3/RXR nuclear receptor pathways

2. Biosafety of therapeutically and commercially used nanoparticles: focus on reproductive and immune system, oxidative status and prevention of potential risk, in particular at (Scsukova):

- a) impact of nanoparticles with different physicochemical properties on reproductive health *in vitro* and *in vivo* models
- b) determination of biological/biochemical parameters that could be used for screening purposes of nanoparticles biosafety

- c) identification of natural substances that could be used for prevention of possible negative effects of nanoparticles on target organs

3. Neurobiology of cancer: the study of the nervous system role in etiopathogenesis of tumor growth and development of metastasis, in particular at (Mravec):

- a) extent spectrum of animal tumor models (XC, melanoma), where activity of selected brain areas in certain tumor model will be investigated by markers of neuronal activity and transduction signaling mechanisms
- b) characterization of functionality of tumour innervations, where neuronal structures participating on innervation of tumor tissues will be detected by tracers (e.g. TrueBlue)
- c) investigation of the effect of selected interventions on tumor proliferation, where interventions will be performed in those nervous structures that will be activated by peripheral tumor growth (the focus will be paid on structures of CNS (e.g. deafferentation of brain areas) and peripheral structures (e.g. electrical stimulation of the vagus nerve, vagotomy, sympathectomy)

iv. Proposed strategies and methods to be applied, and time schedule

The research strategy as outlined above can be pursued proposed that the financial requirements of the individual projects shall be met in full over the years to come. The current situation with an overview of the type and duration of the research grant support is displayed in the table below:

Objective number	Types of Research Grants*								Time schedule From-To
	Number of projects in each category								
	VEGA	APVV	MZ	EC	MVTS	SF	Other		
I/1 RF	X							2012-2014	
I/2 DG,IK	X,X,	X		X	X	X,X,X		2012-2014	
II/1 RK	X	X						2012-2014	
II/2 AK	X	X					X	2012-2014	
II/3 DJ	X,	X			X		X	2012-2014	
II/4 JBa	X	X,X						2012-2014	
III/1 SZ	X		X		X		X	2012-2015	
III/2 RI	X							2012-2014	
III/3 JU	X,X			X	X,X,X		X,X,X	2012-2014	
IV/1 JBr	X	X						2012-2014	
IV/2 SS	X							2012-2014	
IV/3 BM		X					X	2012-2014	

*Types of Research Grants: VEGA = Scientific Grant Agency /small grants/, APVV = Agency for Support of Science and Development /the major research grant agency in Slovakia/, MZ= project support from Ministry of Health, EC = European Commission /7th FP/, MVTS = Support for International Cooperation in Science and Technology, SF = Structural funds EC

Besides external fund raising, which is essential for successful accomplishment of any research project per se, it will be necessary to continue in the broad international collaboration. In this respect, our Institute has a long and proven track which is resembled at best in the Institute's List of Publications and their citations, majority of which comes from impacted foreign journals.

The scientific goals of the Institute as outlined for the four years to come are based on significant improvement in the area of infrastructure for the last 5 years.

III. Partial indicators of the main activities:

1. Research output

i. Principal forms of research outputs of the Organisation

The main output of our Research Institute is an “*in extenso*” paper, which has been published in a professional research journal with an impact factor (indicating the “quality” of the journal). Moreover, the journal is at best also listed in WOS, SCOPUS (earlier in CC). Further research outputs encompass “*in extenso*” paper differing in the “quality” of the journals where the manuscript was published. In addition, publications in looks of proceedings, textbooks et cetera are also valuable forms of research outputs.

The Institute is an owner and supervisor of patents, which however have never been considered as the “principal research output”.

ii. List of the selected publications documenting the most important results of basic research. Total number of publications in the whole assessed period should not exceed the average number of the research employees. The principal science outputs (max. 5) underline

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- [14] **MACEJOVA D, ONDKOVA S, JAKUBIKOVA L, MLYNARCIKOVA A, SCSUKOVA S, LISKA J, BRTKO J**. MNU-induced mammary gland carcinogenesis: Chemopreventive and therapeutic effects of vitamin D and Seocalcitol on selected regulatory vitamin D receptor pathways. In *Toxicology Letters official journal of EUROTOX*, 2011, vol. 207, pp. 60-72. (IF2010 = 3.581)
- [15] TKÁČOVÁ R, POBEHA P, **UKROPCOVA B, UKROPEC J**. Macronutrient preferences in patients with chronic obstructive pulmonary disease and hypoxemia. In *Nutrition*, 2011, vol. 27, n. 10, p. 1093-1094. (IF2010 = 3.438)

iii. List of monographs/books published abroad

Monographs

2007: none

2008: none

2009: none

2010: 1

- Rovensky J, Leeb BF, Bird H, Stvrtinova V, **Imrich R**: **Polymyalgia Rheumatica and Giant Cell Arteritis**. Wien; New York. S. 92, 2010.

2011: none

iv. List of monographs/books published in Slovakia

2007: 1

- **Mravec B.**, Bernadič M., Hulín I., **Kiss A., Kvetnansky R.**, Kukanová B., Pečeňák J.: **NEUROTRANSMITTERS**. SAP, Bratislava 2007; 284 s. (in Slovak language)

2008: 3

- **Mravec B.**: **NEUROBIOLOGY OF PERIPHERAL TISSUE DISEASES**. SAP, Bratislava 2008; 220 s. (in Slovak language)
- Rovenský J., Ferenčík M., **Imrich R.**: **PATHOGENESIS, CLINICAL SYNDROMOLOGY AND THERAPY OF RA STARTING IN HIGHER AGE**. In: J. Rovenský et al. (ed.):

Inflammatory rheumatic diseases in higher age. SAP, BRATISLAVA p. 7-53, 2008 (ISBN 978-80-8095-035-4)

- Mokáň M, Martinka E, Galajda P. et al.: **DIABETES MELLITUS AND SELECTED METABOLIC DISEASES** Martin: Publishing House P+M, 2008; 1003 pages.

Chapters:

- **Stanik J, Gasperikova D, Klimes I**: Other specific types of diabetes mellitus: Monogenic forms of diabetes mellitus, pages 349-405
- Barak L, **Stanik J**: Metabolic syndrome in children, pages 699-723
- **Ukropcova B, Ukropec J, Klimes I**: Endocrine pancreas, pages 53-124

2009: none

2010: 1

- **Mravec B.**, Ondičová K.: **THE VAGAL NERVE**. SAP, Bratislava 2010; 361s. (in Slovak language)

2011: 1

- **Mravec B.**: **STRESS AND ADAPTATION**. SAP, Bratislava 2011; 332 s. (BCI) (in Slovak language)

v. List of other scientific outputs specifically important for the Organisation

The main research output for our Organisation are the in extenso research articles, which are being published in professional journals with a most highest impact factor (IF) as possible. The IF as such is an indicator of the quality of the research journal.

The second research output use to be the patents. Due to lack of finances required to pay the relevant license fees and due to the absence of production lines, which were used in the past to produce for example RIA sets for determination of hormones in biological fluids and/or tissues or due too a big competition on the market, the focusing to and supporting of the patent agenda has been slowly put on hold.

In addition, a number of the findings emerging in course of the genetic research in human with specific hereditary diseases, are being transferred into clinical medicine, particularly into diabetology and metabolic diseases. The latter may allow us to write up pharmacogenomic recommendation for the care taking physician (personalized medicine) (as it is done for the known mutations with established ethiopathogenetic consequences for the phenotype of interest) or we use these new mutations as a target for our structure function studies. The latter generates new basic research with good papers and later on, the knowledge produced turns these mutations back into the diagnostics of the disease.

vi. List of patents registered abroad, incl. revenues

None in the evaluated period.

vii. List of patents registered in Slovakia, incl. revenues

2007: **Brtko J**, Rondahl L, **Fickova M**, Hudecová D, Uher M.: **Selenium compounds of kojic acid derivatives: Preparation technique and the pharmaceutical preparation comprising of them.**

Patent application No.: PV 1008-02 Patent No.: 285642

Date of application: 11th July.2002

Awarded on: 16th March 2007

Owner: Institute of Experimental Endocrinology, SAS, Bratislava

2008 - 2009 - 2010 - 2011: none

viii. Table of research outputs

- instead of listing the publications in CC, none CC *et cetera* we have show in the table the number of publications monitored in WOS, or other databases and without indexing
- into the group of papers indexed in "other databases" all journals covered in SCOPUS, INDEX MEDICUS/MEDLINE, PUBMED, CHEMICAL ABSTRACTS, EXCERPTA MEDICA were assigned

Research outputs	2007			2008			2009			2010			2011			total			
	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	averaged number per year	av. No. / FTE	av. No. / salary budget
chapters in monographs, books published abroad	2	0,047	3,62	4	0,090	6,63	1	0,024	1,61	0	0,000	0,00	1	0,031	1,64	8	1,6	0,041	2,65
chapters in monographs, books published in Slovakia	6	0,141	10,85	1	0,022	1,66	26	0,631	41,87	0	0,000	0,00	0	0,000	0,00	33	6,6	0,169	10,93
WOS publications	38	0,894	68,72	50	1,121	82,92	33	0,801	53,14	30	0,860	47,32	29	0,895	47,70	180	36,0	0,920	59,62
scientific publications indexed by other databases (specify)	5	0,118	9,04	9	0,202	14,93	9	0,218	14,49	15	0,430	23,66	10	0,309	16,45	48	9,6	0,245	15,90
scientific publications in other journals	6	0,141	10,85	6	0,135	9,95	2	0,049	3,22	4	0,115	6,31	4	0,123	6,58	22	4,4	0,112	7,29
publications in proc. of international scientific conferences	8	0,188	14,47	3	0,067	4,98	1	0,024	1,61	1	0,029	1,58	4	0,123	6,58	17	3,4	0,087	5,63
publications in proc. of nat. scientific conferences	0	0,000	0,00	0	0,000	0,00	1	0,024	1,61	1	0,029	1,58	3	0,093	4,93	5	1,0	0,026	1,66
active participations at international conferences	174	4,094	314,65	116	2,601	192,37	32	0,777	51,53	54	1,547	85,17	104	3,210	171,05	480	96,0	2,454	158,99
active participations at national conferences	17	0,400	30,74	16	0,359	26,53	16	0,388	25,76	25	0,716	39,43	32	0,988	52,63	106	21,2	0,542	35,11
patents registered in Slovakia	1	0,024	1,81	0	0,000	0,00	0	0,000	0,00	0	0,000	0,00	0	0,000	0,00	1	0,2	0,005	0,33
patents registered in abroad	0	0,000	0,00	0	0,000	0,00	0	0,000	0,00	0	0,000	0,00	0	0,000	0,00	0	0,0	0,000	0,00

ix. List of patents and patent applications

Brtko J, Rondahl L, Fickova M, Hudecová D, Uher M.: Selenium compounds of kojic acid derivatives: Preparation technique and the pharmaceutical preparation comprising of them.

Patent application No.: PV 1008-02

Date of application: 11th July.2002

Awarded on: 16th March 2007

Patent No.: 285642

Owner: Institute of Experimental Endocrinology, SAS, Bratislava

x. Supplementary information and/or comments on the scientific output of the Organisation

When looking of table viii, it becomes obvious that the number of “*in extenso*” publications per year did not change too much, oscillating between 30 to 40, with the exception of having 50 papers in 2008 due to the special volume of the journal “STRESS”, where a selected number of review manuscripts were published.

Furthermore, the requested **5 papers with “principal science output”** are represented here in majority by review articles, summarising the own data.

Please take notice of the achievements of **Dr. R. Kvetnansky** who has written an excellent, highly impacted (IF = 35.000) review on catecholamine’s and stress. Moreover, he became a senior co-author of a NATURE MEDICINE (IF = 28.588) paper on the mechanism of neuropeptide Y mediated induction of stress obesity.

Assoc. prof. **B. Mravec** has written up a LANCET ONCOLOGY (IF = 14.470) review article on the role of nervous system in cancer etiopathogenesis.

Our former employ, **Dr. Bartanusz** (currently working as a neurosurgeon in Texas, USA) has written a review with Prof. D. Jezova article on the blood spinal cord barrier, which was published in Annals of Neurology (IF = 10.746).

Last, but not least, **Dr. Langer** has written up his best results on his more than 20 years lasting studies on the role of environmental pollution with PCB for the health of inhabitants of these selected areas in the Eastern Slovakia. This comprehensive review of his own data was published in Frontiers in Neuroendocrinology in 2011 (IF= 12, 067) **Dr. Ukropec** with **Dr. Gasperikova** and co-workers from ETH Zurich identified ROR γ as the factor controlling adipogenesis, adipocyte size and modulates insulin sensitivity in obesity. ROR γ might therefore serve as a novel pharmaceutical target to treat obesity-associated insulin resistance. This finding was published in EMBO Mol Med. 2011 Nov; 3(11):637-51.(IF= 8.833).

Interestingly, it would be possible to put together a representative series of very good papers with high IF which have ranked now on the second place as the IF differences are in some cases not that large (except of the two papers by Dr. R. Kvetnansky).

Notice: List of all research outputs of monitored assessment period of structure of the Organisation’s annual report is included in the Organization’s web site

2. Responses to the scientific output

Table **Citations** shows specified responses to the scientific outputs; these entries are then divided by the FTE employees with a university degree (from Tab. Research staff) for all Organisation at the respective year; finally these entries are divided by the total salary budget (from Tab. Salary budget).

If we take a close look at the table with the increasing numbers of the total amount of SCI quotes, beside the clear increase in number of citations (in particular in the last year with an increase almost by 200) one may notice that “production” of the *in extenso* publications becomes more expensive along with time running by (see the Table). This is a signal for all those who have not been successful yet in receiving a major research grant on rethinking their career strategy toward joint a larger well

established research group instead of producing articles with low impact and consequently with a low citation rate.

During the last rigorous control of the number of citations over the 5 year period to be evaluated we have noticed that there are certain differences in the citation numbers in the Annual Reports of the Institute from the relevant individual years when compared to the data written in the citation table. Main reasons for these minor inconsistencies have arisen due to new findings of autocitation and co/authors selfcitations.

Citations	2006			2007			2008			2009			2010			total			
	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	No. / FTE	No. / salary budget	number	averaged number per year	av. No. / FTE	av. No. / salary budget
Web of Science	563	13,2	1018,1	640	14,3	1061,4	732	17,8	1178,7	611	17,5	963,7	812	25,1	1335,5	3358	671,6	17,2	5561,4
SCOPUS (if not listed above)	110	2,6	198,9	141	3,2	233,8	199	4,8	320,5	142	4,1	224,0	194	6,0	319,1	786	157,2	4,0	1301,8
specify Database if relevant (if not listed above)	9	0,2	16,3	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	9	1,8	0,0	14,9
in monographs, conf. proceedings and other publications abroad (if not listed above)	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	0,0
in monographs, conf. proceedings and other publications in Slovakia (if not listed above)	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	0	0,0	0,0	1	0,0	1,6	1	0,2	0,0	1,7

i. List of 10 top-cited publications and number of their citations in the assessment period (2006 – 2010)

- [1] [Sedlak J](#), Lindsay RH. Estimation of total, protein-bound, and nonprotein sulfhydryl groups in tissue with Ellman's reagent. Anal Biochem. 1968 Oct 24;25(1):192-205. **716 citations**
- [2] Smith MA, Makino S, [Kvetnansky R](#), Post RM. Stress and glucocorticoids affect the expression of brain-derived neurotrophic factor and neurotrophin-3 mRNAs in the hippocampus. J Neurosci. 1995 Mar;15(3 Pt 1):1768-1777. **284 citations**

- [3] Pearson ER, Flechtner I, Njølstad PR, Malecki MT, Flanagan SE, Larkin B, Ashcroft FM, **Klimes I**, Codner E, Iotova V, Slingerland AS, Shield J, Robert JJ, Holst JJ, Clark PM, Ellard S, Søvik O, Polak M, Hattersley AT; **Neonatal Diabetes International Collaborative Group**. Switching from insulin to oral sulfonylureas in patients with diabetes due to Kir6.2 mutations. *N Engl J Med*. 2006 Aug 3;355(5):467-477. **165 citations**
- [4] Kuo LE, Kitlinska JB, Tilan JU, Li L, Baker SB, Johnson MD, Lee EW, Burnett MS, Fricke ST, **Kvetnansky R**, Herzog H, Zukowska Z. Neuropeptide Y acts directly in the periphery on fat tissue and mediates stress-induced obesity and metabolic syndrome. *Nat Med*. 2007 Jul;13(7):803-811. **102 citations**
- [5] Sabban EL, **Kvetnansky R**. Stress-triggered activation of gene expression in catecholaminergic systems: dynamics of transcriptional events. *Trends Neurosci*. 2001 Feb;24(2):91-98. **71 citations**
- [6] Toledo FG, Menshikova EV, Ritov VB, Azuma K, **Radikova Z**, DeLany J, Kelley DE. Effects of physical activity and weight loss on skeletal muscle mitochondria and relationship with glucose control in type 2 diabetes. *Diabetes*. 2007 Aug;56(8):2142-2147. Epub 2007 May 29. **61 citations**
- [7] **Moncek F, Duncko R**, Johansson BB, **Jezova D**. Effect of environmental enrichment on stress related systems in rats. *J Neuroendocrinol*. 2004 May;16(5):423-431. **60 citations**
- [8] Smith MA, Makino S, **Kvetnansky R**, Post RM. Effects of stress on neurotrophic factor expression in the rat brain. *Ann N Y Acad Sci*. 1995 Dec 29;771:234-239. **54 citations**
- [9] Smith MA, Makino S, Kim SY, **Kvetnansky R**. Stress increases brain-derived neurotrophic factor messenger ribonucleic acid in the hypothalamus and pituitary. *Endocrinology*. 1995 Sep;136(9):3743-3750 **47 citations**
- [10] Edghill EL, Flanagan SE, Patch AM, Boustred C, Parrish A, Shields B, Shepherd MH, Hussain K, Kapoor RR, Malecki M, MacDonald MJ, Støy J, Steiner DF, Philipson LH, Bell GI; Amemiya S, Azad K, Barak L, Barrett T, Costigan C, Darko D, Diamantopoulos S, Doyle D, Densriwivat M, Dullaart RP, Dzivite I, Edge JA, Ekstrom K, Forsander G, **Gasperikova D**, Hakeem V, Hamilton-Shield JP, Hofstra ML, Ivarsson SA, **Klimes I**, Kocova M, Kordonouri O, Lafferty AR, Likitmaskul S, Liu L, Mayo A, Milenkovic T, Mlynarski W, Mohsin F, Noczynska A, Odrezin J, Porter J, Roeleveld A, Sanchez J, Schebek M, Schumacher A, Segal D, **Stanik J**, Tomita Y, Wentworth S. Hattersley AT, Ellard S. Insulin mutation screening in 1,044 patients with diabetes: mutations in the INS gene are a common cause of neonatal diabetes but a rare cause of diabetes diagnosed in childhood or adulthood. *Diabetes*. 2008 Apr;57(4):1034-42. Epub 2007 Dec 27. **47 citations**
- [11] **Kvetnansky R**, Pacák K, Fukuhara K, Viskupic E, Hiremagalur B, Nankova B, Goldstein DS, Sabban EL, Kopin IJ. Sympathoadrenal system in stress. Interaction with the hypothalamic-pituitary-adrenocortical system. *Ann N Y Acad Sci*. 1995 Dec 29;771:131-58. **46 citations**

ii. **List of top-cited authors from the Organisation (at most 10 % of the research employees) and their number of citations in the assessment period (2006 – 2010)**

sn	authors	together	2010	2009	2008	2007	2006
1	Kvetnansky	2055	415	453	421	388	378
2	Jezova	1117	236	218	227	222	214
3	Klimes	826	206	190	174	163	93
4	Sedlak	716	161	152	143	136	124
5	Kiss	529	96	118	106	107	102
6	Ukropcova	341	101	96	78	56	10
7	Vigas	320	73	54	57	68	68

iii. **Supplementary information and/or comments on responses to the scientific output of the Organisation**

Our Institute has been known for decades to have a very good publication activity which was resembled thereafter in the high counts of SCI and of other citation quotes. It is to be stressed that the number of scientific co-workers has not much changed over the years but number of publication in the CC listed journals was showing a slow increase. Over the last 5 years the **number of *in extenso* papers ranged from about 30-35 to 40** with one exception when several review articles have been published in the journal of Stress in the US.

The situation with citations showed a much **steeper slope and last year we noticed an increase in the number of citations by almost 200** for the Institute *per se*.

When **looking back at the names of the most cited researchers** and/or their individual papers, it becomes soon clear that **the first three names are the same** and their order have been the same for at least the last couple of years. Indeed, we are talking about the **colleague with the highest amount of *in extenso* papers and the largest number of literature quotes both in Slovakia** and (probably) round the globe in the area of catecholamines in stress. His name is **Dr. Richard Kvetnansky** who is also in his mid seventies a very valid and respected researcher in neuroendocrinology of stress who contributes in a significant way to the scientific outcome of the Institute.

The **second name**, known also for her longstanding intensive research activities, is **Prof. Daniela Jezova**, an internationally recognized expert **in animal models of mental diseases** and their psychoneuroendocrine mechanisms.

The **third name** belongs to the recent Director of the Institute, to **Prof. Iwar Klimes**. He specialises to molecular genetics of diabetes and other hereditary monogenic diseases. This is an area which is well cited but “to get in”, into a good journal with high impact factor (as he has been having over the decade, including a co-authorship among the core authors of a paper on absolutely novel knowledge on diagnostics and treatment of permanent neonatal diabetes which got published in the New England Journal of Medicine with an IF more than 51) is a very tough job, as genetic studies of various diseases are very competitive and people are members of consortia which keep their results really secret until they get published.

Naturally also other people have published properly, everybody depending on the size of his budget. Nevertheless, it is to be said that the most “successful” topics have been stress with 7 TOP cited papers (coming from the stress lab of Dr. Kvetnansky), 2 papers on neuroendocrinology from Prof. Jezova and 3 “diabetes” papers from the lab of Prof. Klimes including the NEJM with the second highest impact factor in biomedicine in the world.

3. Research status of the Organisation in the international and national context

▪ International/European position of the Organisation

i. List of the most important research activities documenting international importance of the research performed by the Organisation, incl. major projects (details of projects should be supplied under Indicator 4). Collective membership in the international research organisations, in particular within the European Research Area

Selection and evaluation of research data obtained is carried out each December by the Scientific Board of the Institute. All data are written up by individual authors into a one page abstract. The evaluation committee in an anonymous poll makes the decision on the **assignment of the best three lots to the basic or applied research and finally on international collaboration**. We have therefore chosen this style to present you the most important research.

The best way how to express the research status of the organisation is also a short description of the research grants received and the publications produced. To learn more, feel free to read the lines below.

Please note that each set of individual projects for a given year, differing in their administrative nature is presented first in a summary table below these lines.

	2007	2008	2009	2010	2011
Active international projects of the "International scientific/technical collaboration"	16	17	11	20	15
Projects of the 6th Framework Programme of the EC	2	2	1	1	0
Projects of the 7th Framework Programme of the EC	1	1	1	1	1
Multilateral projects (COST, INTAS, EUREKA, ESPIRIT, PHARE, NATO, UNESCO, CERN, IAEA, ESF and others)	1	2	2	5	5
Projects based on inter-governmental scientific/technical collaboration	3	0	0	0	0
Active bilateral international projects	3	1	1	2	3
Other Projects	6	11	6	11	6

2007

The Institute participated in the research of a number of substantial multilateral projects of the international scientific/technical collaboration.

The researchers of the institute successfully carried on in research of the project of the 6th Framework Programme of the EC (acronym: CASCADE), "**Chemical contaminants in the food chain**" **FOOD CT- 2004-506319** (J.Brtko) supported by the European Commission.

The researchers of the Institute continued their investigation in the project of 6th FP type SSA "**The Danubian Biobank Initiative**" **FP6- 018822** (I.Klimes) and on a new

grant application in the Large Scale Integrating Project of the 7th FP EC “Lipid droplets as dynamic organelle of fat deposition and release”.

In 2007 the researchers (I.Klimes and D.Gasperikova) of the Institute successfully carried on research of the multilateral project in the frame of COST BM 0602 “**Adipose tissue: A key target of prevention of metabolic syndrome**“. The investigators Institute (I.Klimes and D.Gasperikova) were nominated as Slovak national representatives for this COST activity.

Two research projects of bilateral international collaboration were successfully finished in 2007. The project of Slovak-France inter-governmental scientific collaboration “**Transmembrane interactions in cellular signalling**”, **SK-Fr-02006** of the Program “Stefanik” (M.Fickova) and the project of Slovak-Austrian collaboration “**Austrian-Slovak research unit**” focused on evaluating stress in relation to brain and cardiovascular system” (SK-05/06-BA-007) (D.Jezova).

The researchers of the Institute (B.Mravec) carried on in researching on the project of the bilateral Slovak-Netherlands collaboration on the “**Effect of vagal nerve stimulation on tumor development and progression**”.

Successful bilateral collaboration took place between the laboratories of the Institute and several prestigious research institutions and universities in USA and Europe, e.g. on problems of adipokine secretion in adipose tissue (German Diabetes Center), on genetics and genomics of monogenic forms of diabetes (University of Oxford, Peninsula Medical Center, Exeter), on the problem of catecholamine response to stress (New York Medical College, NICHD branch of NIH, Harvard Medical School, Georgetown University, in USA), on the problems of neuroendocrine regulations (Institute of Exp. Medicine, HAS, Department of Translational Neuroscience, Denmark). Some of the results from these international collaborations have been published in 2007 in 15 publications and presented in 20 oral lectures and posters.

2008

The Institute of Experimental Endocrinology, Slovak Academy of Sciences participated in research of a number of interesting multilateral and bilateral projects of the international scientific/technical collaboration.

Dr.J.Brško of the Institute successfully carried on in research of the project of the EC 6th Framework Programme project (acronym: CASCADE), “**Chemical contaminants in the food chain**“FOOD CT- 2004-506319 supported by the European Commission.

The researchers of the Institute, I.Klimes and D.Gasperikova continued their investigation in a 6thFP (SSA type) “**The Danubian Biobank Initiative**” FP6- 018822. Their activities in the 6th FP led to an invitation to become members of an international team which successfully applied for a 7th grant on.

In 2008 the researchers of the Institute D.Gasperikova, I.Klimes, B.Ukropcova, J.Ukropec started investigations in the Large Scale Integrating Project of the 7th FP EC on the “**Lipid droplets as dynamic organelle of fat deposition and release**” (FP7-202272).

Investigators from the Laboratory of diabetes and metabolic (D.Gasperikova, I.Klimes) disorders successfully continued in its research of a multilateral project in frame of COST BM 0602 “**Adipose tissue: key goal of prevention of metabolic syndrome**“. In frame of the multilateral international collaboration COST FA 0602 a new project “**Bioactive food components, mitochondrial function and health**” was approved for J.Ukropec and B. Ukropcova.

The researchers of the Institute continued their research work in the project of bilateral Slovak-Netherlands collaboration on the problem “**Effect of vagal nerve stimulation on tumor development and progression**“(project CYBERONICS 2007-2009 B.Mravec).

Successful bilateral collaboration took place between the laboratories of the Institute and several prestigious research institutions and universities in USA and Europe, e.g. on molecular and genetic issues in diabetes (University of Oxford, Peninsula Medical

Center, Exeter); on the problem of catecholamine response to stress (New York Medical College, NICHD branch of NIH, Harvard Medical School, Georgetown University, in USA), on the problems of adipokine secretion in adipose tissue (German Diabetes Center), on the problems of neuroendocrine regulations (Institute of Exp. Medicine, HAS, Department of Translational Neuroscience, Denmark).

The researchers of the Institute carried on in research in additional 9 bilateral projects of international collaboration with the institutes in USA, Germany, Hungary, Austria and Czech Republic.

Some parts of the data obtained from these international collaborations have been published during 2008 in 32 publications and presented in 16 oral lectures and posters.

2009

The Institute of Experimental Endocrinology, Slovak Academy of Sciences participated in the research of a number of multilateral and bilateral projects of the international scientific/technical collaboration.

In 2009, Dr.Brtko, the project PI of the Institute continued his investigations in one project of the 6th Framework Programme supported by the European Commission: (acronym: CASCADE), **“Chemical contaminants in the food chain “FOOD CT- 2004-506319.**

D.Gasperikova, I.Klimes, J.Ukropec and B.Ukropcova, investigators of the Institute has been continuing in research works on a Large Scale Integrating Project of the 7th FP EC on the topic **“Lipid droplets as dynamic-organelle of fat deposition and release”** (FP7-202272) supported by EC. The same laboratory, i.e. the laboratory of diabetes and metabolic disorders continued also in their investigations in two multilateral projects in frame of the COST BM 0602 action on **“Adipose tissue: key goal of prevention of metabolic syndrome“**. Also, a second research grant awarded in frame of the same COST system to the Diabetes Laboratory has been used for a multilateral international collaboration COST FA 0602 on **“Bioactive food components, mitochondrial function and health”** (B.Ukropcova and J.Ukropec).

The researchers of the Institute successfully finished a research work on the project of bilateral Slovak-Netherland collaboration on the problem **“Effect of vagal nerve stimulation on tumor development and progression“**(project CYBERONICS 2007-2009 B.Mravec).

In addition, the Institute continued to participate in collaboration with several prestigious research institutions and universities in USA and Europe, e.g. on the role of molecular and genetic changes in pathogenesis of diabetes (University of Oxford, Penninsula Medical Center, Exeter); on catecholamine response to stress (New York Medical College, NICHD NICHD branch of NIH, Harvard Medical School, Georgetown University, in USA), on the role of sympathetic nervous system in the pathogenesis of autoimmune diseases (NINDS) on the problems of neuroendocrine regulations (Institute of Exp. Medicine, HAS, Department of Translational Neuroscience, Denmark).

Parts of the results from these international collaborations have been published during 2009 in 7 publications and presented in 7 oral lectures and posters.

2010

The Institute of Experimental Endocrinology, Slovak Academy of Sciences participated in the research of a number of substantial multilateral projects of the international scientific/technical collaboration.

In 2010, the researcher of the Institute J.Brtko finished the research works in one project of the 6th Framework Programme supported by the European Commission: (acronym: CASCADE), **“Chemical contaminants in the food chain “ FOOD CT- 2004-506319.**

The researchers of the Diabetes Laboratory D.Gasperikova, J.Ukropec, B.Ukropcova and I.Klimes successfully carried on the research works the Large Scale Integrating

Project of the 7th FP EC on the problem “**Lipid droplets as dynamic-organelle of fat deposition and release**” (FP7-202272) supported by EC.

Laboratory of diabetes and metabolic disorders continued also in their investigations in two multilateral projects in the frame of COST BM 0602 (I.Klimes, D.Gasperikova, J.Ukropec) “**Adipose tissue: key goal of prevention of metabolic syndrome**“, and in the frame of multilateral international collaboration COST FA 0602 “**Bioactive food components, mitochondrial function and health**” (J.Ukropec, B.Ukropcova).

In 2010 the researchers of the Institute started investigations in the three new international collaborative programs A) “**New analytical and diagnostic approaches towards identification of apocrine and holocrine mechanism**” EEA-NFM SK -0086 R.Farkas; B) “**Metabolic health and muscle secretory profile in aerobic and resistance trained obese pre-diabetic individuals**“ B.Ukropcova and C) “**Adipose tissue and skeletal muscle plasticity in metabolic health and in insulin resistance**“ J.Ukropec, both supported by the European Foundation for Study of Diabetes.

The researchers of the Institute R.Imrich, M.Vlček, A.Penesová started to work on new bilateral project “**Clinical and Laboratory Evaluation of the autonomic nervous system in primary Sjogren´s syndrome**“ - NIH 08-D-0018. Also the same laboratory got involved action program of the Austria-Slovakia cooperation in science and education – study research mobility.

In addition, the Institute participated in several bilateral projects of international collaboration with prestigious research institutions and universities in USA and Europe, e.g. on the monogenic diabetes mutations (University of Oxford, Peninsula Medical Center, Exeter, Charité Universitätsmedizin, Berlin); on catecholamine response to stress (New York Medical College, NICHD NICHD branch of NIH, Harvard Medical School, Georgetown University, University of Minnesota, in USA), and on the problems of neuroendocrine regulations (Institute of Exp. Medicine, HAS, Department of Translational Neuroscience, Denmark, IOCHB AS, Prague).

Some parts of the results from these international collaborations have been published during 2010 in 12 publications and presented in 25 oral lectures and posters.

2011

The Institute participated in research of multilateral and bilateral projects of the international scientific/technical collaboration.

The researchers of the Diabetes Laboratory continued to carry on the research works in the Large Scale Integrating Project of the 7th FP EC on “**Lipid droplets as dynamic - organelle of fat deposition and release**” (FP7-202272) supported by EC.

Diabetes Laboratory successfully finished their investigations in two multilateral projects in the frame of COST BM 0602 “**Adipose tissue: key goal of prevention of metabolic syndrome**”, and in the frame of multilateral international collaboration COST FA 0602 “**Bioactive food components, mitochondrial function and health**”.

In 2011 the responsible J.Ukropec, B.Ukropcova continued their investigations in project on “**Metabolic health and muscle secretory profile in aerobic and resistance trained obese pre-diabetic individuals**“ and in the project “**Adipose tissue and skeletal muscle plasticity in metabolic health and in insulin resistance**“, both supported by European Foundation for Study of Diabetes.

In 2011, the researchers of the Institute carried on the investigations in international collaborative program “**New analytical and diagnostic approaches towards identification of apocrine and holocrine mechanism**” EEA-NFM SK -0086 R.Farkaš.

Colleagues of the Institute started the research works in a new bilateral projects: “**Interaction of nutrients and oxytocin in modulating neuroendocrine, metabolic and cardiovascular functions**”, SAS-NSC JRP 2010/07 (D.Jezova, S.Zorad), in collaboration with the research Institute in Taipei. Furthermore, the same than launched their new rat project on “**Developing a rat model of depression based on tryptophan deficiency**” with Brookes University Oxford,UK (D.Jezova).

The Diabetes Laboratory was successful with its application to Pfizer Global Lt.Co. for a research grant aimed at investigations focused to monitor **“The effect of long-term growth hormone supplementation on the whole body metabolic characteristics and adipose tissue phenotype in growth hormone deficient adults”** WS 689054, (Pfizer Global Investigator Initiated Research Grant).

In addition, the Institute and its laboratories participated in several bilateral projects of international collaboration with prestigious research institutions and universities in USA and Europe, e.g. on the genetics of monogenic diabetes (University of Oxford, Peninsula Medical Center ,Exeter,); on catecholamine response to stress and catecholamine biosynthetic enzymes gene expression (New York Medical College, NICHHD, Harvard Medical School, Georgetown University, University of Minnesota, in USA), and on the problems of neuroendocrine regulations (Institute of Exp. Medicine, HAS, Department of Translational Neuroscience, Denmark, IOCHB AS CZR, Prague).

Several parts of the data obtained from these international collaborations have been published during 2011 in 8 publications and presented in 28 oral lectures and posters.

ii. List of international conferences (co-) organised by the Organisation

International congresses and symposia are specific scientific actions which – if properly organized and utilized - may speed up and/or increase the quality of research being done at our Institute. Therefore, **our organization has a very long history of various particularly international scientific events**. The most recent meetings are listed below: Please note that **as “international”** conferences organized by our Institute only those meetings have been labeled as international **where at least 30% of participants have come from a broad**. Although **we do not** consider conferences organized in Slovakia and having more than 30% of foreign participants coming mainly if not exclusively from the Czech republic as “true international”, we have respected in this “Questionnaire” the general rules valid for preparation of the annual reports on the scientific activities of the Academy Research institutes.

[1]

9th Symposium on catecholamines and other neurotransmitters in stress.

International conference organized by IEE SAS (**RNDr. Richard Kvetnansky, DrSc.**), Congress Centre of SAS, Smolenice Castle, Slovak Republic, June 16-21, **2007**.

[2]

Joint Conference of the Slovak Physiological Society, the Physiological Society and Federation of the European Physiological Societies (FEPS).

International conference co-organized by IEE SAS (**Prof. PharmDr. Daniela Jezova, DrSc.**), Bratislava, Slovak Republic, September 11-14, **2007**. (400 participants)

[3]

Transdiferentiation and Pathomechanisms of Organ Dysfunction in the Metabolic Syndrome complex.

Workshop of the 6th FP “Danubian Biobanking“ organized by IEE SAS (**Prof. MUDr. Iwar Klimes, DrSc.**), Bratislava, Slovakia, April 24, **2008**. (23 participants)

[4]

Biologically Active Peptides Conference.

International conference co-organized by IEE SAS (**Ing. Stefan Zorad, CSc.**), Prague, Czech Republic, April 22-24, **2009**.

[5]

19th “Diabetes days”.

National conference with international participation co-organized by IEE SAS, (**Prof. MUDr. Iwar Klimes, DrSc.**), Bratislava, Slovak Republic, June 25-27, **2009**. (470 participants)

[6]

International Congress on Molecular Mechanisms of Neurological and Psychiatric Disorders.

International conference co-organized by IEE SAS, Martin, Slovak Republic, November 26-29, **2009**. (100 participants)

[7]

6th International Congress of Pathophysiology (ISP), Workshop 7: Cell volume regulation Symposium 7: Pathophysiological pathways in metabolic diseases and diabetes.

International conference/workshop co-organized by **MUDr. Vladimír Strbák DrSc.**, Montreal, Canada, September, 22-25, **2010**.

[8]

1st Molecular and Translation Medicine Conference 2011.

International conference co-organized by IEE SAS (**MUDr. Richard Imrich, PhD.**), hotel Crowne Plaza, Bratislava, Slovak Republic, February 25, **2011**.

[9]

Biologically active peptides conference.

International conference co-organised by IEE SAS (**Ing. Stefan Zorad, CSc.**), Prague, Czech Republic, April 27-29, **2011**. (70 participants).

[10]

10th Symposium on catecholamines and other neurotransmitters in stress.

International conference organized by IEE SAS (**RNDr. Richard Kvetnansky, DrSc.**), Congress Centre of SAS, Smolenice Castle, Slovak Republic, June 25-30, **2011**. (150 participants).

[11]

3rd European Workshop of the EASD Study Group on Genetics of Diabetes.

International conference organized by IEE SAS (**Prof. Iwar Klimes, DrCs.**), Congress Centre of SAS, Smolenice Castle, Slovak Republic, September 30 - October 3, **2011**. (150 participants).

iii. List of journals edited/published by the Organisation:**ENDOCRINE REGULATIONS**

Indexed in the following databases:

1. WOS (IF of journals in each year of the monitoring period): **NO**
2. SCOPUS: **YES**
3. other databases: **PubMed, Excerpta Medica Database (EMBASE), Google Scholar (Indexed Copernicus), The Digital Object Identification (DOI)**
4. not included in the databases: **N/A**

iv. List of edited proceedings from international scientific conferences and other proceedings**2008**

Proceedings of the NINTH SYMPOSIUM ON CATECHOLAMINES AND OTHER NEUROTRANSMITTERS IN STRESS, held on June 16-21, 2007 at Smolenice Castle in Slovakia

Title of Proceedings: "Stress, Neurotransmitters, and Hormones – Neuroendocrine and Genetic Mechanisms"

Editors: Kvetnansky, R. (Slovakia), Aguilera, G. (USA), Goldstein, D.S. (USA), Jezova, D. (Slovakia), Križanová Oľga (Slovakia), Sabban, E.L. (USA), Pacak, K. (USA)
Journal: *Annals of the New York Academy of Sciences*, Volume 1148, pp. 1 – 570, 2008. Web site : www.stress.sav.sk

▪ **National position of the Organisation**

- i. **List of selected most important national projects (the EU Structural Funds, Slovak Research and Development Agency (APVV), State Research Programmes, Scientific Grant Agency of the Slovak Academy of Sciences and the Ministry of Education (VEGA), Centres of Excellence, National Reference Laboratories and others)**

▪ **CENTRE OF EXCELLENCE**

[1] **Centre of Excellence for research of the role of neuroendocrine mechanisms in pathogenesis of major non infectious diseases.** (CENDO) (2007-2009) Institute – V.Strbak /Responsible Investigator/

[2] **Centre of Excellence for cardiovascular research.** (CEKVY) (2007-2010) Institute – R.Kvetnansky /Partner/

[3] **Centre of Excellence for research on the brain.** (BRAIN CENTRUM) (2011-2014) Institute – R.Kvetnansky /Partner/

[4] **Centre of Excellence for examination of regulatory role of nitric oxide in civilization diseases.** (NOREG) (2011-2014) Institute – S.Zorad /Partner/

[5] **Centre of Excellence for the study of metabolic aspects of the development, diagnostics and treatment of oncological diseases.** (CEMAN) (2011-2014) Institute – J.Brtko /Partner/

▪ **PROJECTS SUPPORTED BY THE EUROPEAN SOCIAL FUND**

[1] **Health of inhabitants of Bratislava region – contribution to better coping with stress based on results of top research.** (2005-2008) Institute – D.Jezova /Leader/

[2] **Positron emission tomography for small experimental animals – introduction of method to research and evaluation of new drugs in Centre of Excellence of EU** (2005-2008) Institute – V.Strbak /Leader/

▪ **JOINED PROJECTS OF THE INSTITUTE AND DIFFERENT RESORTS**

[1] **Introduction of DNA diagnostics and screening of monogenic forms of diabetes in Slovakia.** (2006-2008) Institute – I.Klimes /Partner/

[2] **Stimulation of the vagus nerve as a new method for prevention of ischemia-reperfusion injury of transplanted organs.** (2007-2009) Institute – A.Kiss /Leader/

[3] **The effect of chronic inflammation on metabolism in rheumatic diseases.** (2006-2008) Institute – **M.Vigas** /Partner/

[4] **Biostimulation – A new tool in drug development.** (2008-2010) Institute – **V.Strbak** /Partner/

[5] **Molecular-genetic alternations in adipose tissue after change in therapy from ACE inhibitors to AT1 receptor blockers in patients with essential hypertension (ADIRAS).** (2008-2010) Institute – **S.Zorad** /Leader/

[6] **Genes increasing the risk of the rheumatoid arthritis development in Austrian and Slovak populations.** (2009-2012) Institute – **R.Imrich** /Partner/

▪ PROJECTS OF THE EU STRUCTURAL FUNDS

[1] **Centre of Excellence for the translational research in molecular medicine TRANSMED 1,** (2009-2010) Institute – **I.Klimes** /Partner/

[2] **Centre of Excellence for translational research in molecular medicine TRANSMED 2,** (2010-2012) Institute – **I.Klimes** /Partner/

[3] **Transfer of genetic knowledge of endocrine research into clinical praxis TRANSENDOGEN,** (2010-2013) Institute – **I.Klimes** /Leader/

[4] **Implementation of molecular medicine into diagnostics, therapy and prevention of serious lifestyle diseases ALPHAGENETICA** (2011-2014) Institute – **I.Klimes** /Partner/

[5] **Build a competency centre for research and development in molecular medicine KCMOLMED** (2011-2014) Institute – **I.Klimes** /Partner/

ii. **List of national scientific conferences (co)-organised by the Organisation**

2007 – None

2008 – None

2009

- **Molecular Mechanisms of Neurological and Psychiatric Aberrations** held in Martin, Slovakia, 26.-29. November 2009
Organization Committee: D.Jezova - member, R.Kvetnansky - member, V.Strbak - member

2010 – None

2011

- **The 1st Molecular and Translational Medicine Conference** held in Bratislava, Slovakia, 25th February 2011
Organization Committee: R.Imrich - President
- **The 9th Slovak Obesity Days with the International Participation** held in Vyhne, Slovakia, 18.-19. November 2011
Organization Committee: I.Klimes - member
- **Conference at the occasion of the 60th anniversary of establishment of the Institute** held in Bratislava, Slovakia, 11th November 2011
Organization Committee: I.Klimes - President, J.Brtko - member, L.Macho - member, D.Gasperikova - member, A.Kiss - member

iii. **List of edited proceedings of national scientific conferences/events**

Six decades of research in endocrinology (L.Macho, I.Klimes – editors, Institute of Experimental Endocrinology, Slovak Academy of Sciences, November 2011)

▪ **International/European position of the individual researchers**

i. **List of invited/keynote presentations at international conferences, documented by an invitation letter or programme**

The Institute is a well known research organization also at the international scene what *per se* is an excellent starting base for both, the young and the older colleagues to become invited speakers at important international congresses and workshop. This **reputation of scientific excellence has been built step by step over the decades** by active participation of our colleagues in international events and, more importantly, by publishing particularly the last twenty years in good journals with high IF.

In addition, organisation of international symposia on specific topics to which the best researches in the respective fields have accepted invitations to serve on the faculty, has led reciprocally to invitations of our researches. When speaking about the best contacts and geographical areas covered, **the invitations to speak have been coming both from Europe as well as from the US,** particularly from the various NIH places.

2007

- [1] BRTKO J: Nuclear receptors and their cognate biologically active ligands in regulation of physiological functions in organisms. XXIVth Xenobiochemical Symposium, Liptovský Ján, Slovakia, 22.-24.5.2007
- [2] BRTKO J: Retinoids, rexinoids and their cognate nuclear receptors: Character and their role in therapy of selected malignant diseases. 57th Pharmacological Days, Olomouc, Czech Republic, 12.-14.9.2007
- [3] JEZOVA D: Hormones, exercise and addiction. Addiction and Eating Disorders – Neurobiology and Comorbidities Workshop, Brno, Czech Republic, 26.–28.4. 2007
- [4] JEZOVA D, HLAVACOVA N, MACHO P, OMASTOVA T, VIGAS M, KUKUMBERG P: Endocrine factors in stress and psychiatric disorders: focus on mineralocorticoids. Ninth symposium on catecholamines and other neurotransmitters in stress, Smolenice Castle, Slovakia, 16.–21.6. 2007
- [5] JEZOVA D, DUNCKO R, MAKATSORI A, HLAVACOVA N: Stress, anxiety and the hypothalamic-pituitary-adrenocortical axis. Symposium “Hormonal mechanisms of adaptation.” St. Petersburg, Russian Federation, 3.-5.10.2007
- [6] JEZOVA D: HPA axis and mood disorders. Joint meeting of the Slovak Physiological Society, The Physiological Society and FEPS, Bratislava, Slovakia, 11.–14.9.2007
- [7] JEZOVA D: Factors influencing the stress reaction. The 34th Ethologic Conference, Nitra, Slovakia, 7.–10.11.2007
- [8] KISS A, MRAVEC B, PALKOVITS M, KVETNANSKY R: Stress-induced changes in tyrosine hydroxylase gene expression in rat hypothalamic paraventricular, periventricular, and dorsomedial nuclei. The 9th Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice, Slovakia 16.-21.6.2007
- [9] KVETNANSKY R: Genetic mechanisms of sympathoadrenal system activity during stress. H. Selye Centennial Symposium on Stress: Basic Mechanisms and Clinical Implications. Montreal, Canada, 11.-14.7.2007
- [10] KVETNANSKY R: Effect of repeated stress and novel stressors on gene regulation in catecholaminergic system. 6th World Congress on Stress. Vienna, Austria, 11.-13.10.2007

- [11] KVETNANSKY R: Stress and adaptation: Changes in the sympathoadrenal system activity. Hans Selye Centennial Symposium at 2nd World Conference of Stress. Budapest, Hungary, 23.-26. 8.2007
- [12] KVETNANSKY R, KRIŽANOVÁ O, SABBAN EL, THOMAS SA, KUBOVČAKOVA L. Regulation of catecholamine biosynthetic enzymes gene expression in DBH- and CRH-knockout mice exposed to stress. 9th Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice, Slovakia, 16.-21.6.2007
- [13] STRBAK V, BACOVA Z, ORECNA M, HAFKO R: Cell swelling-induced peptide hormone secretion, pathophysiological implications. Joint Meeting of The Slovak Physiological Society and The Physiological Society and The Federation of European Physiological Societies, Bratislava, Slovakia, 11. –14. 9. 2007

2008

- [1] BRTKO J: Subfamily of nuclear receptors - transcription factors inducible by thyroid hormone, retinoids and dihydroxyvitamin D₃. Prague Medical Report, 109: (Supplement, p. addendum) S138-S139, 2008, The 58th Pharmacological Days, Prague, Czech Republic, 3.-5.9.2008
- [2] JEZOVA D: Psychedelics in the neurobiology research. The 50th. Czech-Slovak Psychopharmacological Conference, Lázně Jeseník, Czech Republic, 9.-13.1.2008
- [3] JEZOVA D: Neuroendocrine factors as potential therapeutic targets. XXVI. CINP Congress, Munich, Germany, 13.-17.7. 2008
- [4] JEZOVA D: Enriched environment as a model of increased brain plasticity / focus on gender differences. 6th International Symposium on Experimental and Clinical Neurobiology, Kosice, Slovakia 8.- 11.9.2008
- [5] JEZOVA D: Three aspects of overcoming stress situations: hormones, gender and mental state. Trilateral Symposium of Physiology, 18.-19.9.2008, Graz, Austria
- [6] JEZOVA D: Salivary markers of stress in depression and anxiety. Regional CINP Congress, Bratislava, Slovakia, 27.-30.11.2008
- [7] JEZOVA D, ZELENA D, MLYNARIK M: Chronic stress as a consequence of experimental manipulations: untreated diabetes and morphine addiction. 13. Interdisciplinary Toxicology Conference TOXCON 2008, Trenčianske Teplice, Slovakia, 27.- 30.5.2008
- [8] KVETNANSKY R, PETRAK J, BOHACOVA V, TILLINGER A, KISS A, PALKOVITS M, MRAVEC B: Gene expression of catecholamine enzymes in hypothalamic paraventricular nucleus and heart of rats exposed to stress. Heart and Mind Psychogenic Heart Disease Conference, Prato, Tuscany, Italy, 3.- 5.9.2008
- [9] KVETNANSKY R: Molecular genetics of sympathoadrenal system in stress: significance in lifestyle-related diseases. Lifestyle-related Diseases: Cellular Signaling and Pathophysiology (key note lecture), Bratislava, Slovakia, 12.-6.6.2008
- [10] STANIK J: Guidelines for diagnostics and treatment of MODY. 23rd International Danube Symposium on Diabetes Mellitus, Plovdiv, Bulgaria, 19.-21.6.2008
- [11] STRBAK V: Cell volume regulation – Physiological and Pathophysiological implications. 10th Congress of the Romanian Society of Physiological Sciences, Cluj-Napoca, Romania, 5.-7.6.2008

- [12] STRBAK V, BACOVA Z, ORECNA M, HAFKO R: Cell swelling-induced peptide hormone secretion, Pathophysiological implications. 5th International Symposium on Cell/Tissue injury and Cytoprotection/organprotection. Yalta, Ukraine, 17.-19.9.2008
- [13] STRBAK V, BACOVA Z, ORECNA M, HAFKO R: Physiological and Pathophysiological aspects of cell swelling-induced peptide secretion. The 7th international Congress on Laboratory Medicine and The 3rd Immunopathology Symposium, Bucharest, Romania, 20.– 22.10.2008
- [14] STRBAK V: Cell volume regulation – possible pathophysiological implications. Serbian Physiological Society Award/Guest Lecture, Symposium on Current trends in Physiology, dedicated to prof. Richard Burian. Belgrade, Serbia, 17.-18.12.2008
- [15] UKROPEC J, KOZÁK LP: UCP-1 independent thermogenesis during cold stress, COST Action Mitofood Workshop, Prague, Czech Republic, 24.9.2008
- [16] UKROPCOVA B, SMITHS SR: Palmitate induces mitochondrial biogenesis in human primary myotubes. From Nutriom to Mitochondria, COST Action Mitofood Workshop, Prague, Czech Republic, 24.9.2008
- [17] ZORAD S: Renin-angiotensin system and adipose tissue (Key note lecture) Lifestyle-related diseases: cellular signaling and pathophysiology“. the Satellite symposium to the 22nd Scientific Meeting of International Society of Hypertension and 18th Scientific Meeting of European Society of Hypertension, Bratislava, Slovakia, 12.-13.6.2008

2009

- [1] BRTKO J.: Nuclear Thyroid Hormone Receptors: The Past and the Present State of Art. 1st Annual Meeting of the Polish Thyroid Association, Szczecin, Poland, 26.-28.3.2009.
- [2] GASPERIKOVA, D.: „The Rázus Award Lecture“ on Monogenic diabetes in Slovakia XLV. Diabetes Days, Luhačovice, Czech Republic, 24. 4.2009
- [3] IMRICH R.: An endocrinologist's view on relative adrenocortical insufficiency in rheumatoid arthritis. NeuroEndocrine Immunology in Rheumatic Diseases – Translation from Basics to Clinics. 8-10.5. 2009 Genova, Italy
- [4] KVETNANSKY R.: Molecular Genetics of Sympathoadrenal System in Stress. „Joint Conference of the Czech and Slovak Neuroscience Societies“, Prague, Czech Republic, 2. 11.2009.
- [5] STRBAK.V., BACOVA Z., GALCIKOVA J., MATEJIKOVA J., ORECNA M., HAFKO R., RAVINGEROVA T.: Cell swelling-induced peptide secretion; possible pathophysiological implications. 40th NIPS International Symposium 2009 "The Physiology of Anion Transport" and "Cell Volume Regulation" Okazaki, 3.-6.8.2009, Japan
- [6] ORECNA, Z. BACOVA, R. HAFKO, V. TOPORCEROVA, V. STRBAK: Different role of calcium in cell swelling/induced insulin secretion from pancreatic islets and tumor cell line ins/1E. International Conference Molecular mechanisms of intracellular calcium signalling, 11.-14.10.2009 Kiev, Ukraine
- [7] KVETNANSKY, R.: Paraventricular Nucleus and Alzheimer Disease: Gene Expression and Proteins of Catecholamine Enzymes in Rats During Stress. Brain Club: Alzheimer Disease, 14.-18.6.2009, Smolenice, Slovakia

- [8] KVETNANSKY, R.: Effect of Paraventricular Nucleus Deafferentation on Stress-induced Gene Expression of Enzymes in Catecholaminergic Systems. Invited Lecture at International Congress Molecular Mechanisms of Neurological and Psychiatric Disorders, Martin, Slovakia, 26.-29.11. 2009.
- [9] GASPERIKOVA D.: Monogenic diabetes in Slovakia, ETH, Zurich, 27.5.2009
- [10] UKROPEC J.: Inflammation and anti-inflammation in human adipose tissue the STAMPs on an envelope directed toward insulin resistance, ETH Zurich, 27.5.2009
- [11] ZORAD S., GAJDOŠECHOVÁ L., ECKERTOVA M.: Mechanism of the AT1 receptor blockade by sartan in the fat tissue. IKEM, Prague, Czech Republic, 2.11. 2009

2010

- [1] BRTKO J., MACEJOVA D., ONDKOVA S., GALBAY S., SEJNOVA D., PODOBA J., KAUSITZ J.: Nuclear retinoid and rexinoid receptors in cancer. 53. Symposium der Deutschen Gesellschaft für Endokrinologie und Jahrestagung der Slowakischen Gesellschaft für Endokrinologie, Leipzig, Germany, 3.-6.3.2010.
- [2] R.IMRICH: Hypothalamic-pituitary-adrenal function in rheumatoid arthritis. 8th Central European Congress of Rheumatology, Sopron, Hungary, 23.-25.9. 2010.
- [3] M. VLCEK, J. ROVENSKÝ, Z. RADIKOVA, A. PENESOVA, J. LUKÁČ, J. KERLIK, R. IMRICH: Low-dose glucocorticoids and chronic inflammation does not affect early metabolic disarrangement in females with RA. Cardiovascular Rheumatology Meeting 2010, Lillehammer, Norway, 2.-3.9.2010.
- [4] JEZOVA D., ONDREJCAKOVA M.: Cardioprotective action of oxytocin: possible role in stress. 15-th world congress on heart disease, Vancouver, Canada, 24.-27.7.2010.
- [5] JEZOVA D.: Neuroendocrine factors participating in positive and negative effects of stress exposure, 21. Congress of the Physiological Society, Kaluga, Russian Federation, 19.-25.9.2010.
- [6] JEZOVA D., HLAVACOVA N., BAKOS J., ONDREJCAKOVA M.: Aldosterone in relation to mood disorders. Society of Biological Psychiatry 65th Annual Meeting, New Orleans, USA, May 20.-22.5.2010.
- [7] JEZOVA D.: Hormones and mood: OLD AND NEW FACTS ON STEROIDS. International Symposium – One Hundred Years of Ivan Djaja's Belgrade School of Physiology, Belgrade, Serbia, September 10-12, 2010.
- [8] JEZOVA D.: Psychopharmaceutics affecting glutamate transmission in relation to stress and brain plasticity. 52th Czech Slovak Psychopharmacological Conference, Lázně Jeseník, Czech Republic, 6.-10.1.2010.
- [9] KLIMES I., J. STANIK, D. GASPERIKOVA: Monogenic diabetes in Slovakia: Results of a nation-wide survey 53. Symposium der Deutschen Gesellschaft für Endokrinologie und Jahrestagung der Slowakischen Gesellschaft für Endokrinologie. Leipzig, Germany. 3.-6.3. 2010. www.dge2010.de
- [10] KLIMES, I.: Monogenic defects of insulin secretion in Slovakia, „LifeTechOmics”, Vysegrad, Hungary 25.-27.11.2010
- [11] KVETNANSKY R., BOHACOVA V., PETRAK J., LAUKOVA M., ONDICOVA K., VARGOVIC P., MRAVEC B.: Sympathoadrenal system activity and gene expression in rats with paraventricular nucleus deafferentation after stress

- exposure. Heart and Mind Psychogenic Cardiovascular Diseases Conference, September 1.-4.9.2010, Prato Tuscany, Italy.
- [12] KVETNANSKY R., BOHACOVA V., VARGOVIC P., LAUKOVA M., KRIŽANOVÁ O. Exposure of adapted rats to a novel stressor exaggerates gene expression of catecholamine enzymes in the adrenal medulla (AM) but not in sympathetic ganglia. 7th FENS Forum of European Neuroscience. Amsterdam, The Netherlands, 3.-7.7.2010.
- [13] Z BACOVA, R HAFKO, M ORECNA, V TOPORCEROVA, P KOHUT, I HAPALA, V STRBAK: Role of cholesterol and snare proteins in cell swelling-induced insulin secretion, 6th International Congress of Pathophysiology (ISP). Montreal, Canada, 22.-25.9.2010.
- [14] J. UKROPEC, B. UKROPCOVA, R. IMRICH, M. VICIAN, M. PURA, I. TKÁČ, P. VAŇUGA, J. OLEJNIK, J. PAYER, R. TKÁČOVÁ, I. KLIMES, D. GASPERIKOVA. Adipose tissue phenotype in different models of human obesity and cachexia. 53. Symposium der Deutschen Gesellschaft für Endokrinologie und Jahrestagung der Slowakischen Gesellschaft für Endokrinologie. Leipzig, Germany. 3.-6.3.2010. www.dge2010.de
- [15] J. UKROPEC, B. UKROPCOVA, I. KLIMES, D. GASPERIKOVA. Fat tissue phenotype in various models of human obesity. Obezitology and Bariatry, České Budejovice, Czech Republic. 14.-16.10.2010
- [16] BRTKO J., MACEJOVA D., PODOBA J., GALBAVÝ Š.: Nuclear receptors of retinoids in the regulation of physiological processes and therapy of oncological diseases. 33rd Endocrine Days, Košice, Slovakia, 14.-16.10.2010.
- [17] FICKOVA M., MASTEROVÁ I., GRANCAI D., J MUSELIK J., LACIKOVÁ L.: Biological properties of water extracts from Staphylea L. leaves are connected with polyphenols and flavonoids content. International Conference on Natural Products, Ľubovianske Kúpele, Slovakia, 8.-10. 9. 2010,
- [18] KLIMES, I: Monogenic defects of secretion and/or insulin action in Slovakia. The prestigious „Charvat Lecture“ of the Czech and Slovak Endocrine Society) XXXIII. Endocrine Days of the SES a ČES, Košice, 14.-16.10.2010.
- [19] VARGOVIC P., UKROPEC J., MANZ B., KVETNANSKY R.: Rat adipose cells contain genetic machinery for biosynthesis of catecholamines. Lifestyle and Risk Factors of Cardiovascular Diseases, Bratislava, Slovakia, 14.-16.6.2010.
- [20] ZORAD S.: How to make adipocytes smaller and adipose tissue healthier? Life Style and Risk factor of Cardiovascular Diseases, ASH Satellite Symposium, Bratislava, Slovakia, 14.-16.6. 2010
- [21] BRTKO J.: Chemoprevention and therapy oncological diseases in relation to biologically active ligands of nuclear receptors. Palacky University, Faculty of Natural Sciences, Olomouc, Czech Republic, 12.5.2010.
- [22] BRTKO J.: Kojic-Acid-5-Hydroxy-2-(hydroxymethyl)-4H-pyran-4-one and their biologically active compounds with potential exploitation in human and veterinary medicine. Palacky University, Faculty of Natural Sciences, Olomouc, Czech Republic, 13.5.2010.

2011

- [1] JEZOVA D., HLAVACOVA N., VIGAŠ M., KUKUMBERG P., ONDREJČAKOVA M., BABIC S. Anxiety and stress „Meet the Expert“Lecture. 53rd Czech Slovak Psychopharmacological Conference, Lázně Jeseník, Czech Republic, 5.-9.1.2011.
- [2] JEZOVA D. Neuroendocrine factors participating in positive and negative effects of stress. Science and Society, Physiology and Medicine of the 21st Century. Saint Petersburg, Russian Federation, 19.-23.9.2011.
- [3] JEZOVA D.: Stress hormones in relation to depression and anxiety. Tenth symposium on catecholamines and other neurotransmitters in stress. Smolenice, Slovakia, 25.-30.6.2011.
- [4] KLIMES I. Genetics of MODY diabetes-an overview of the current knowledge. A country wide Medical Congress Zlin, 24.-25.11.2011.
- [5] KLIMES I., STANIK J., HUCKOVA M., VALENTINOVA L., MASINDOVA I., BARAK L., PASKOVA M., MONOGENIC DIABETES STUDY GROUP, GASPERIKOVA D. Monogenic defects of insulin secretion: the Slovakian experience Third Meeting of the EASD Study Group for the Genetics of Diabetes Smolenice, Slovakia, 30.9.-3.10.2011.
- [6] KVETNANSKY R., UKROPEC J., LAUKOVA M., MANZ B., PACAK K., VARGOVIC P.: Adipocytes as a new source of catecholamine production in stressed rats. 10th Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Slovakia, 25.-30.6.2011.
- [7] LAUKOVA M., VARGOVIC P., VLCEK M., KRIŽANOVÁ O., KVETNANSKY R. Acute stress differently modulates catecholaminergic system in T- and B-cells from rat spleen. Animal Physiology 2011, 9th International Scientific Conference, Castle Mojmirovce, Slovakia, 1.-2.6.2011.
- [8] MRAVEC B. Neuro-immune-endocrine interactions and the tumor growth. Joint conference of the Czech and Slovak neuroscience societies. Smolenice, Slovakia, 19.5.2011.
- [9] BACOVA Z., HAFKO R., ORECNA M., KOHÚT P., HAPALA I., STRBAK V. Stimulation of insulin secretion in tumor cell lines and pancreatic islets, Final Program, Abstract Book, p.27, Preclinical testing of active substances and cancer research, Kragujevac, Serbia, 13.-19.3.2011.
- [10] STRBAK V. Specific features of osmotically-induced secretion. Serbian Students' Congress of Biomedical Sciences with International Participation, Montenegro, Budva, Serbia, 27.4.-2.5.2011.
- [11] BACOVA Z., HAFKO R., ORECNA M., KOHÚT P., HAPALA I., STRBAK V. Different effect of cholesterol content on glucose – and swelling-induced insulin secretion. Hydration and Cell Volume Regulation, Tubingen, Germany, 4.-7.9.2011.
- [12] UKROPEC J., KOČAN A., KOŠKA J., TRNOVEC T., RADIKOVA Z., LANGER P., KLIMES I. Could environmental pollutants influence metabolic health? The epidemiological perspective. XXII Congreso Nacional de la Sociedad Española de Diabetes, Malaga, Spain, 14.,16.4.2011.
- [13] BRTKO J., MACEJOVA D., EYBL V.: Selenium, selenoenzymes and selenoproteins, and their role at the cell level. XXVI. Xenobiochemical Symposium, Trenčianske Teplice, Slovakia, 7.-9.9.2011

- [14] GASPERIKOVA D., UKROPCOVÁ B., STANÍKOVÁ D., STANÍK J., UKROPEC J., KLIMES I. Genetics of obesity and metabolism of the adipose tissue. 19th symposium "New trends in prevention of atherosclerosis. February 10th 2011, Bratislava
- [15] KLIMES I. Monogenic causes of lack and surplus of endogenous insulin in Slovakia (the festive laudation lecture to commemorate the personality of the late professor Rudolf Korec. 21st Diabetes days and the 39th Raimans Days June 15-17, 2011 Prešov
- [16] UKROPEC J., UKROPCOVA B., KLIMES I., GASPERIKOVA D., Obesity and physical (in) activity changes the adipose tissue and muscle phenotype: what is taking the decision on the metabolic health? 21st Diabetes days and 39th Reiman's days in Prešov June 15-17, 2011
- [17] BRTKO J. Selenium, selenoenzymes and selenoproteins and their role at the cell level and organism. Palacky University, Faculty of Natural Sciences, Olomouc, Czech Republic, 5.4.2011
- [18] BRTKO J Nuclear receptors and their biologically active ligands in relation to therapy of selected oncological diseases. Palacky University, Faculty of Natural Sciences, Olomouc, Czech Republic, 6.4.2011

ii. List of employees who served as members of the organising and/or programme committees for international conferences

2007

RNDr. Miroslava Baculikova

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

RNDr. Jan Bakos, PhD.

- Chairmen of the international organizing and program committee of the „European Young Physiologists Symposium“, held during the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.9.2007, Bratislava, Slovakia
- Member of the „Local Organizing Committee“ of the Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

Mgr. Roman Hafko

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

RNDr. Natasa Hlavacova

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

Prof. PharmDr. Daniela Jezova, DrSc.

- Member of the international organizing and program committees of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava (Joint conference of the Slovak Physiological Society, The Physiological Society (UK and Ireland) and FEPS (Federation of European Physiological Societies), 11.-14.9.2007, Bratislava, Slovakia

- executive secretary, „Ninth Symposium on Catecholamines and Other Neurotransmitters in Stress“, 16.–21.6.2007, Smolenice, Slovakia
- Member of the international organizing and program committees of the 49.th Czech and Slovak psychopharmacological conference, Lázně Jeseník, Czech Republic, 10.–14.1.2007
- Member of the scientific program committee, „16th IAA Humans in Space Symposium“, Beijing, China, 20.-24.5.2007

RNDr. Alexander Kiss, DrSc.

- Member of the organizing committee of the symposium „Ninth Symposium on Catecholamines and Other Neurotransmitters in Stress“, Smolenice Castle, Slovakia 16.-21.6.2007.

RNDr. Richard Kvetnansky, DrSc.

- Chairmen of the international symposium „Ninth Symposium on Catecholamines and Other Neurotransmitters in Stress“, Smolenice, Slovakia, 16.-21.6.2007.
- Member of the International Advisory Committee, „Hans Selye Centennial Symposium on Stress: Basic Mechanisms and Clinical Implications“, Montreal, Canada, 11.-14.7.2007.
- Chairmen of the organization committee and chairmen of the symposium in the frame of the „6th World Congress on Stress: Stress Induced Changes in Gene Expression and Translation of Catecholamine Biosynthetic Enzymes“. Vienna, Austria, 11.-13.10.2007.

RNDr. Maria Ondrejčaková

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava

Mgr. Martina Orecná

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

MUDr. Adela Penesová, PhD.

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

Mgr. Zdenko Pirník, PhD.

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

RNDr. Eliska Pravdová

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

MUDr. Zofia Radiková, PhD.

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

Mgr. Marek Rajman, PhD.

- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

MUDr. Vladimír Strbák, DrSc.

- Member of the organizing and program committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

Ing. Andrej Tillinger, PhD.

- Member of the local organizing committee of the “Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

MUDr. Miroslav Vlček

- Member of the local organizing committee of the pre „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

Ing. Stefan Zorad, CSc.

- Member of the organizing committee of the „Biologically Active Peptides X“, Praha, Czech Republic, 11.–13.4. 2007.
- Member of the local organizing committee of the „Joint Meeting of the Slovak Physiological Society, The Physiological Society and Federation of European Physiological Societies“, 11.-14.9.2007, Bratislava, Slovakia

2008**prof. PharmDr. Daniela Jezová, DrSc.**

- member of the scientific committee of the Trilateral Symposium of Physiology, Graz, Austria, 18-19.9. 2008
- member of the scientific committee of the 6th International Symposium on Experimental and Clinical Neurobiology, Kosice, Slovakia, 8-11.9. 2008

prof. MUDr. Iwara Klimes, DrSc.

- Member of the program committee of the XXXI. Endocrine days with international participation, Štrbské Pleso, Slovakia, 2.-4.10.2008
- Member of the program committee of the XVIII. Diabetes days with international participation, Košice, Slovakia, 28.-30.5.2008

RNDr. Richard Kvetnanský, Dr.Sc.

- Member of the international program committee of the „Life in Space for a Life on Earth“, Angers, France, 22.-27. 6. 2008
- Member of the program committee Lifestyle-related Diseases: Cellular Signaling and Pathophysiology, Bratislava, Slovakia, 6.-12.6. 2008.

MUDr. Vladimír Strbák, DrSc.

- Member of the international program committee of the „10th Congress of the Romanian Society of Physiological Sciences“ Cluj-Napoca, Romania, 5.-7.6. 2008
- Honorary President: Symposium current trends in Physiological Sciences, Belgrade, 17.-18.12.2008, Serbian Physiological Society

2009**Mgr. Daniela Gasperiková, CSc.**

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

prof. PharmDr. Daniela Jezová, DrSc.

- Member of the program committee of the International Congress on Molecular Mechanisms of Neurological and Psychiatric Disorders, Martin, Slovakia 26. – 29. 11. 2009

RNDr. Miroslava Huckova

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

prof. MUDr. Iwar Klimes, DrSc.

- Chairmen of the program committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009
- Chairmen of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009
- Member of the international program committee of the 45th Annual Meeting of the European Association for the Study of Diabetes 29 September - 2 October 2009, Wien

RNDr. Alexander Kiss, DrSc.

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

RNDr. Richard Kvetnansky, DrSc.

- Member of the international program committee of the „Joint Conference of the Czech and Slovak Neuroscience Societies“, Prague, Czech Republic, 1.-4. 11.. 2009.
- Member of the program committee of the Brain Club: Alzheimer Disease Congress, Smolenice, Slovakia, June 14.-18. 2009.
- Member of the program committee of the International Congress Molecular Mechanisms of Neurological and Psychiatric Disorders, Martin, Slovakia, 26.-29. 11. 2009.

MUDr. Vladimír Strbák, DrSc.

- The organizer of the section “CELL VOLUME REGULATION AND CELL FUNCTION” 40th NIPS International Symposium 2009 "The Physiology of Anion Transport" and "Cell Volume Regulation" Okazaki, Japan, 3.-6.8.2009
- Member of the International Program Committee 2nd Congress of Physiological Sciences of Serbia with International participation: Current Trends in Physiological Sciences, Kragujevac, Serbia, September 17-20, 2009

MUDr. Zofia Radikova, PhD.

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

MUDr. Juraj Stanik

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

MUDr. Barbara Ukropcova

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

Mgr. Jozef Ukropec, PhD.

- Member of the organizing committee of the XIX. Diabetes days with international participation, Bratislava, Slovakia, 25.-27.6.2009

2010**prof. PharmDr. Daniela Jezova, DrSc.**

- Member of the program committee of the 15th World Congress on Heart Disease, Vancouver, Canada, 24. – 27. July 2010
- Member of the program committee of the international symposium “One Hundred Years of Ivan Djaja’s Belgrade School of Physiology, Belehrad, Serbia, 10. – 12. September 2010

prof. MUDr. Iwar Klimes, DrSc.

- Member of the program committee of the XXXIII. Endocrine days with international participation, Košice, Slovakia, 14.-16.10.2010, Košice

- Member of the program committee of the XX. Diabetes days with international participation, Martin, Slovakia, 16.-18.6.2010, Martin

RNDr. Richard Kvetnansky, DrSc.

- Member of the program committee of the European Congress for Neurosciences, Amsterdam, Netherlands, 3-7.7.2010
- Member of the program and organization committee 7th World Congress on Stress Leiden, Netherland, 25-27.8.2010

MUDr. Vladimir Strbak, DrSc.

- Member of the international organizing committee of the 6th International Congress of Pathophysiology (ISP), Montreal, Canada 22.-25.9.2010, in the frame of congress organizer of the Workshop 7: Cell volume regulation.

2011

Mgr. Daniela Gasperikova, CSc.

- Member of the Organizing Committee of the Third Meeting of the EASD Study Group for the Genetics of Diabetes (EASD-SGGD), Smolenice, Slovakia, 30st-3rd, 2011

RNDr. Miroslava Huckova

- Member of the Organizing Committee of the Third Meeting of the EASD Study Group for the Genetics of Diabetes (EASD-SGGD), Smolenice, Slovakia, 30st-3rd, 2011

prof. PharmDr. Daniela Jezova, DrSc.

- Co-organizer of the „Tenth symposium on catecholamines and other neurotransmitters in stress“. Smolenice, Slovakia, 25. – 30. 6. 2011.

prof. MUDr. Iwar Klimes, DrSc.

- Member of the International Program Committee and Chairmen of the Organizing Committee of the Third Meeting of the EASD Study Group for the Genetics of Diabetes (EASD-SGGD), Smolenice, Slovakia 30st-3rd, 2011
- Member of the Program Committee XXI. Diabetes days, XXXIX. Reiman`s days with international participation, 15.-17.6.2011, Prešov, Slovakia

RNDr. R. Kvetnansky, DrSc.

- Chairmen of the organizing committee of the „Tenth symposium on catecholamines and other neurotransmitters in stress“. Smolenice, Slovakia, 25. – 30. 6. 2011

MUDr. Juraj Stanik, PhD.

- Member of the Organizing Committee of the Third Meeting of the EASD Study Group for the Genetics of Diabetes (EASD-SGGD), Smolenice, Slovakia, 30st-3rd, 2011

MUDr. Vladimir Strbak, DrSc.

- Member of the International Program Committee of the Preclinical testing of active substances and cancer research, Kragujevac, Serbia 13.-19.3.2011

Mgr. Lucia Valentinova

- Member of the Organizing Committee of the Third Meeting of the EASD Study Group for the Genetics of Diabetes (EASD-SGGD), Smolenice, Slovakia, 30st-3rd, 2011

Ing. Stefan Zorad, Csc.

- Member of the Organizing Committee of the Biologically active peptides XII, April 27 - 29, 2011, Prague, Czech Republic.

iii. List of employees who served as members of important international scientific bodies (e.g. boards, committees, editorial boards of scientific journals)

Ing. Julius Brtko, DrSc.

- Member of the European Food Safety Authority (EFSA) Working Group: 2010, 2011

MUDr. Richard Imrich, PhD.

- Member of the European League Against Rheumatism: 2007, 2008, 2009, 2010, 2011

Prof. PharmDr. Daniela Jezova, DrSc.

- Member of the Academia Europaea (elective membership): 2007, 2008, 2009, 2010, 2011
- Member of the Collegium Internationale Neuro-Psychopharmacologicum – CINP (elective membership): 2007, 2008, 2009, 2010, 2011
- Member of the CINP Regional Central/Eastern Europe Committee: 2007, 2008, 2009, 2010, 2011
- Vicepresident of the Czech and Slovak Neurochemical Society: 2007, 2008, 2009, 2010, 2011
- Scientific Secretary of the Czech Neuropsychopharmacological Society Committee: 2007, 2008, 2009, 2010, 2011

Ing. Jana Jurcovicova, CSc.

- Member of the Executive Committee of the International Society for Neuroimmunomodulation: 2007, 2008, 2009, 2010, 2011

Prof. MUDr. Iwar Klimes, DrSc.

- Member of the “Föderation der Internationalen Donau-Symposien über Diabetes mellitus” (FID), member of the International Organizing Committee (elective membership): 2007, 2008, 2009, 2010, 2011

RNDr. Richard Kvetnansky, DrSc.

- Member of the Central European Academy of Science and Art (elective membership): 2007, 2008, 2009, 2010, 2011
- Member of the World Stress Society Committee (elective membership): 2007, 2008, 2009, 2010, 2011
- Member of the International Society for Investigation of Stress (ISIS) Committee (elective membership): 2007, 2008, 2009, 2010, 2011
- Vicepresident of the Slovak National Committee COSPAR: 2007, 2008
- Member of the High Level Space Policy Group of European Commission for Space Programme: 2007, 2008, 2009
- Member of the Scientific Board of Neuroscience Centre of Czech Republic: 2009

MUDr. Pavel Langer, DrSc.

- Member of the International Committee (UNICEF) for Thyroid Diseases in Children: 2007, 2008, 2009, 2010

MUDr. Ladislav Macho, DrSc.

- Member of the Academiae Scientiarum et Artium Europea (elective membership): 2007
- Member of the Life Science Committee at IAA/IAF (elective membership): 2007, 2008, 2009, 2010, 2011
- Member of the Commission for Gravitation Physiology of IUPS (elective membership): 2007, 2008, 2009, 2010, 2011
- Founder Member of the International Society for Gravitational Physiology: 2007, 2008, 2009, 2010, 2011
- Founder Member of the International Society for Developmental Neuroscience: 2007, 2008, 2009, 2010, 2011
- Member of the COSPAR-F- Life Sciences: 2007, 2008, 2009, 2010, 2011
- Honorary Member of the Czech Endocrine Society of J.Ev.Purkyně: 2007, 2008, 2009, 2010, 2011

MUDr. Vladimír Štrbak, DrSc.

- The Council Member of the Federation of European Physiological Societies: 2007
- The Council Member of the International Society for Pathophysiology: 2007, 2008, 2009, 2010, 2011
- Member of the International Committee of the International Society for Pathophysiology: 2010

iii-a International journal boards:

Ing. Julius Brtko, DrSc.

- Member of the International Editorial Board – **Biomarkers and Environment** (Czech Republic): 2007, 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Biomedical Papers** (Czech Republic): 2007, 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Thyroid Research** (Poland): 2007, 2008, 2009 (deputy editor), 2010 (deputy editor), 2011 (deputy editor)

Prof. PharmDr. Daniela Jezova, DrSc.

- Member of the International Editorial Board – **Neuroendocrinology** (UK, USA): 2007, 2008, 2009, 2010, 2011
- Member of the Scientific Board – **Pediatric Endocrinology** (Poland): 2007, 2008, 2009, 2010
- Member of the International Editorial Board – **Neuroendocrinology Letters** (Sweden) 2007, 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **International Journal of Endocrinology** (USA): 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Open Neuropsychopharmacology Journal** (USA): 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Psychoneuroendocrinology**: 2010, 2011

RNDr. Richard Kvetnansky, DrSc.

- Member of the International Editorial Board – **Stress** (USA, the Netherlands): 2007, 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Neuroscience News** (USA): 2007, 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Neuroendocrinology Letters** (Sweden): 2007, 2008, 2009, 2010, 2011
- Member of the International Editorial Board – **Journal of Gravitation Physiology** (USA): 2010, 2011

MUDr. Pavel Langer, DrSc.

- Member of the International Editorial Board – **Polish Journal of Endocrinology** (Poland): 2007, 2008, 2009, 2010
- Member of the Editorial Board – **Thyroid Research** (Poland): 2007, 2008, 2009, 2010

MUDr. Ladislav Macho, DrSc.

- Member of the International Editorial Board – **International Journal Gravitation Physiology** (USA): 2007, 2008, 2009, 2010, 2011

MUDr. Vladimír Strbak, DrSc.

- Chief Editor for Europe – **Cellular and Molecular Neurobiology** (USA, NIH): 2007, 2008, 2009, 2010, 2011
- Member of the Editorial Board – **Physiological Research** (Prague): 2007, 2008, 2009, 2010, 2011
- Member of the International Advisory Board – **Iugoslavica Physiologica et Pharmacologica Acta**: 2007, 2008, 2009, 2010, 2011

The Table below provides in structured way comprehensive information on the membership of individual researchers in professional societies.

In order to save space and simultaneously to give full info on the society, look for the number of of ticks in the appropriate boxes.

CNPS: Czech Neuropsychopharmacological Society

EPS: European Peptide Society

ES: Endocrine Society

EASD: European Association for Study of Diabetes

CSNS: Czech and Slovak Neurochemical Society

PS: Physiological Society

FENS: Federation of European Neuroscience Societies

ETA: European Thyroid Association

GSA: Genetics Society of America

ADA: American Diabetes Association

IDF: International Diabetes Federation

AAN: American Academy of Neurology

ISPN: International Society of Psychoneuroendocrinology

SPF: Soci t  de Physiologie, France

ISGP: International Society for Gravitational Physiology

FEPS: Federation of European Physiological Societies

ENS: European Neurochemical Society

CPS: Czech Physiological Society

EFES: European Federation of Endocrine Societies

ISE: International Society of Endocrinology

ASN: American Society for Neuroscience

IBRO: International Brain Research Organization

IDD: Iodine Deficite Control Iodine Deficiency Disorder

IAA: International Academy of Astronautics

ESCE: European Society for Comparative Endocrinology

ISP: International Society for Pathophysiology

EACR: European Association for Cancer Research

CEDA: Central European Diabetes Association

	Babic	Ba�ov�	Bal�z	Bako�	Brtko	Farka�	Ga�perikov�	Hlav�cov�	Imrich	Je�ov�	Jur�ovi�ov�	Kiss	Klime�	Kurdlov�	Kvetn�nsky	Langer	Macho	Mravec	Pirnik	R�dkov�	�kopkov�	�rb�k	Ukropcov�	Ukropec	Valentinov�	Viga�	Zorad
CNPS	✓			✓			✓				✓			✓			✓	✓								✓	
EPS		✓		✓	✓					✓	✓						✓					✓				✓	
ES		✓						✓		✓																	
EASD			✓				✓						✓	✓						✓	✓		✓	✓	✓		
CSNS				✓	✓																						
PS				✓				✓		✓										✓							
FENS				✓																							
ETA					✓																						
GSA						✓																					
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AAN									✓																		
ISPN									✓																		
SNEF										✓																	
SPF										✓																	
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FEPS										✓												✓					
ENS										✓					✓												
CPS											✓																
EFES													✓														
ISE													✓														
IAA															✓		✓									✓	
ASN															✓		✓										
IBRO															✓		✓										
IDD																✓											
ESCE																	✓										
ISPN																	✓										
EACR																		✓									
CEDA																				✓							

iv. List of international scientific awards and distinctions

2007

Mgr. Daniela Gasperikova, CSc.

- Awarded by the European Society for Endocrinology for the Best Poster presentation at the 9th European Congress of Endocrinology, 28 April-2 May 2007, Budapest, Hungary

RNDr. Richard Kvetnansky, DrSc.

- Prolonged function of a „Visiting Professor“ in the Center of Alcohol Studies, Rutgers University, Piscataway, N.J. USA from 1.7.2007

RNDr. Nataša Hlavacova

- Award received for the Best Oral presentation of the young scientists at the symposium „Hormonal mechanisms of adaptation.“ St. Petersburg, Russian federation 3.-5.10.2007.

Mgr. Jozef Ukropec, PhD.

- Awarded by the Czech Obesity Society for the Best Publication of the year 2006 „Šonkova cena“.
- The paper by Ukropec et al. *Endocrinology* 2006, 147:2468-80 has been inserted to database the „Faculty of 1000 Biology“ of this journal.

MUDr. Barbara Ukropcova

- Travel grant awarded by the EASO (European Association for Study of the Obesity) for active participation at the 15th ECO - European Congress on Obesity, Budapest, Hungary, 22.-25.4.2007.
- Awarded by the „Junior Chamber International“ by awards *„Student Personality SR for the years 2006/2007“* in category Medical Sciences and Pharmacy.

MUDr. Juraj Stanik

- The paper by Stanik et al. *J Clin Endocrinol Metab.* 2007 Apr;92(4):1276-82 has been announced among the Best Papers *J Clin Endocrinol Metab* in the Information Letters „Endocrine News“ (32:10, 2007) of the American Endocrine Society.

2008

RNDr. Richard Kvetnansky, DrSc.

- Prolonged function of the „Visiting Professor“ in the Center of Alcohol Studies, Rutgers University, Piscataway, N.J. USA from 1. 6. 2008

RNDr. Natasa Hlavacova

- Travel grant awarded by the Czech Neuropsychopharmacology Society for participation at the scientific meetings in Munchen (13.-16.7.2008) and Dresden, Germany (17.-20.7.2008).

MUDr. Vladimir Strbak, DrSc.

- Awarded by the Serbian Physiology Society (Gold Medal) for long life contribution, Belgrade, 17.-18.12.2008, Serbia

2009

Mgr. Zuzana Bacova, PhD.

- Travel grant awarded by the National Institute for Physiological Sciences (NIPS) and National Institutes of Natural Sciences (NINS) for participation at the symposium „Physiology of Anion Transport and Cell Volume Regulation“ 3.-6. 8. 2009 v Okazaki, Japan

RNDr. Natasa Hlavacova, PhD.

- Awarded by Czech Neuropsychopharmacological Society for the Best Original publication published in 2008

prof. PharmDr. Daniela Jezova, DrSc.

- Awarded by Czech Neuropsychopharmacological Society for the Best Original Publication published in 2008
- Travel grant awarded by Czech Psychopharmacological Society for active participation at 64th Annual Meeting of Society of Biological Psychiatry, Vancouver, Canada, May 14-16, 2009

Mgr. Timea Kurdiova

- Travel and Stayment grant Awarded by the COST BM 0602 for training course related to the proteomic, Düsseldorf, Germany

RNDr. Richard Kvetnansky, DrSc.

- „Visiting Professor“ in the Center of Alcohol Studies, Rutgers Universities, Piscataway, N.J. USA prolong function from 1. 6. 2009

RNDr. Maria Ondrejčakova

- Travel grant awarded by Czech Neuropsychopharmacological Society for active participation at 64th Annual Meeting of Society of Biological Psychiatry, Vancouver, Canada, May 14-16, 2009

2010**Prof. PharmDr. Daniela Jezova, DrSc.**

- Travel grant awarded by Czech Neuropsychopharmacological Society for active participation at the 65th Annual Meeting of Society of Biological Psychiatry, New Orleans (USA), 20. - 22. 05. 2010.

Mgr. Timea Kurdiova

- Travel and Stayment grant awarded by: FEBS (Federation of the Societies of Biochemistry and Molecular Biology) for participation at the course „Techniques in Free Radical Biology“ organized by FEBS, Debrecene, Hungary.

Mgr. Dana Macejova, PhD.

- Travel grant awarded by the International Society of Endocrinology for active participation at the International Congress of Endocrinology, Kyoto, Japan

Mgr. Mária Ondrejčakova

- Travel grant awarded by Czech Neuropsychopharmacological Society for active participation at the 65th Annual Meeting of Society of Biological Psychiatry, New Orleans (USA), 20. - 22. 05. 2010.

Mgr. Lucia Valentinova

- Travel and Stayment grant awarded by the *European* Foundation for Study of Diabetes for 3-month study stay at the Diabetes Research Laboratories, Oxford Center for Diabetes Endocrinology & Metabolism, Churchill Hospital, Headington, Oxford, United Kingdom

2011**Mgr. Lucia Bialesova**

- Travel Grant awarded by the FEBS (Federation of the Societies of Biochemistry and Molecular Biology) for active participation at the scientific meeting Practical Course on Gene Expression Regulation and Data Integration, Hungary

MUDr. Richard Imrich, PhD.

- Awarded by *Global Arthritis Research Network (GARN)* for the best poster presentation Encouragement Award, BRIC2011 Tokyo, Japan

Prof. MUDr. Iwar Klimes, DrSc.

- Awarded by “Regional Hospital Tomáše Bati in Zlin, Czech Republic for lifelong contribution to the development of the Regional Hospital “Tomáše Bati” and in the diabetologia field for implementation of the Saint-Vincent Declaration
- Awarded by “Societas medicorum bohemosum J. E. Purkyňe, Societas endocrinologica bohema” (Czech Endocrine Society), “Sodalium honoris causa creatorum” for “Singularia eius merita in artem medicam nec non in humanitatem provehendam magni aestimans”

Mgr. Timea Kurdiova

- Travel and Stayment grant awarded by the *EASD* (European Association to Study Diabetes) for active participation at the 47th Annual Meeting of EASD, Lisbon, Portugal

Mgr. Lucia Valentinova

- Travel and Stayment grant awarded by the *EASD* (European Association to Study Diabetes) for active participation at the 47th Annual Meeting of EASD, Lisbon, Portugal

v. List of employees with the highest H – index indicating field of science by WOS

(source Web of Knowledge, fields of science by WOS: biochemistry, molecular biology, physiology, endocrinology and metabolism, pharmacology, anatomy and morphology, cell biology, general internal medicine; items published between 1950-2011, self citations excluded)

Research Leaders

RNDr. Richard Kvetnansky, DrSc.	42
prof. PharmDr. Daniela Jezova, DrSc.	32
RNDr. Alexander Kiss, DrSc.	28
MUDr. Milan Vigas, DrSc.	21
prof. MUDr. Iwar Klimes, DrSc.	20
MUDr. Ladislav Macho, DrSc.	18
MUDr. Pavel Langer, DrSc.	17
Ing. Elena Sebökova, DrSc.	17
MUDr. Vladimír Strbak, DrSc.	17
Ing. Julius Brtko, DrSc.	14

Selfstanding Researchers

prof. MUDr. Fedor Simko, CSc.	17
Ing. Jana Jurcovicova, CSc.	15
RNDr. Maria Fickova, CSc.	13
Mgr. Daniela Gasperikova, CSc.	13
Ing. Stefan Zorad, CSc.	13
doc. MUDr. Katarina Raslova, CSc.	12
MUDr. Richard Imrich, PhD.	10
MUDr. Zofia Radikova, PhD.	10
Mgr. Jozef Ukropec, PhD.	10

▪ National position of the individual researchers

- List of invited/keynote presentations at national conferences documented by an invitation letter or programme**

- [1] Imrich R: Mobility of Slovak researchers between an academic sector and an industry form the point of view of academic sector. Knowledge Society in Practise: HI-TECH SLOVENSKO, Bratislava, Slovakia, April 3, 2009.
- [2] Kvetňanský R: Paraventricular Nucleus and Alzheimer Disease: Gene Expression and Proteins of Catecholamine Enzymes in Rats during Stress. Brain Club: Alzheimer Disease, Smolenice Castle, Slovakia, June 14-18, 2009.
- [3] Kvetňanský R: Effect of Paraventricular Nucleus Deafferentation on Stress-induced Gene Expression of Enzymes in Catecholaminergic Systems. Congress on Molecular Mechanisms of Neurological and Psychiatric Disorders, Martin, Slovakia, November 26-29, 2009.
- [4] Brtko J, Macejová D, Podoba J, Galbavý Š: Retinoid nuclear receptors in regulation of physiological processes and in therapy of oncogenous diseases. 33rd Endocrinology Days, Košice, Slovakia, October 14-16, 2010.
- [5] Ficková M, Masterová I, Grancai D, Muselik J, Lacková L: Biological properties of water extracts form *Staphylea L.* leaves are connected with polyphenols and flavonoids content. Conference on 25 years of medicinal plants and 15th working day of the Section of natural drugs, Ľubovnianske kúpele, Slovakia, September 8-10, 2010.
- [6] Gašperíková D, Staník J, Klimeš I: Monogenic forms of diabetes in Slovakia. 18th Congress of Slovak and Czech Pathophysiologicals, Košice, Slovakia, September 9-10, 2010.
- [7] Imrich R: Epigenetic factors in the course of rheumatoid arthritis. 6th Spring Rheumatology Seminar, Piešťany, Slovakia, March 5-6, 2010.
- [8] Ježová D: Diabetes Mellitus: Do we have effective drugs? Medicamenta nova, Bratislava, Slovakia, January 28, 2010.
- [9] Vargovič P, Ukropec J, Manz B, Kvetňanský R: Rat adipose cells contain genetic machinery for biosynthesis of catecholamines. Lifestyle and Risk Factors of Cardiovascular Disease, ASH Satellite Symposium, Bratislava, Slovakia, June 14-16, 2010.
- [10] Vlček M: Metabolic syndrome in the course of rheumatoid arthritis. 6th Spring Rheumatology Seminar, Piešťany, Slovakia, March 5-6, 2010.
- [11] Zórad Š: How to make adipocytes smaller and adipose tissue healthier? Lifestyle and Risk Factors of Cardiovascular Disease, ASH Satellite Symposium, Bratislava, Slovakia, June 14-16, 2010.
- [12] Brtko J, Macejová D, Eybl V: Selenium, selenoenzymes and selenoproteins, and their role at the cell level. 26th Xenobiochemical symposia, Trenčianske Teplice, Slovakia, September 7-9, 2011.
- [13] Klimeš I: The great number of patients with diabetes MODY type does not have mutation in any of the known genes and it is indicated as MODY-X. 8th Scientific conference, Topoľčianky Castle, Slovakia, March 18, 2011.
- [14] Mravec B, Ondičová K: Depression, inflammation and the role of nervus vagus. 3rd Conference on biological psychiatry, Piešťany, Slovakia, June 17, 2011.
- [15] Ukropec J, Ukropcová B, Klimeš I, Gašperíková D: Obesity and physical (in)activity changes phenotype of adipose tissue and muscle: what determines a metabolic

health? 21st Diabetological Days and 39th Reiman's Days, Rázus's Lecture, Prešov, Slovakia, June 15-17, 2011.

ii. List of employees who served as members of organising and programme committees of national conferences

Prof. MUDr. Iwar Klimeš, DrSc.

- Member of the Programme Committee of 8th Obesity Days, Nimnica, Slovakia, October 21-22, 2010

- Member of the Programme and Organizing Committee of 9th Slovak Obesity Days, Vyhne – hotel Sitno, Slovakia, November 18-19, 2011

iii. List of employees serving in important national scientific bodies (e.g. boards, committees, editorial boards of scientific journals)

A/ Participation in Editorial Boards of national journals

1/ Chief Editors of national journals

RNDr. R. Kvetňanský, DrSc., ENDOCRINE REGULATIONS (2007, 2008, 2009, 2010)

RNDr. Alexander Kiss, DrSc., ENDOCRINE REGULATIONS (2011)

2/ Members of the Editorial Board of ENDOCRINE REGULATIONS

Mgr. Z. Bačová, PhD. (2011)

Ing. J. Brtko, DrSc. (2007, 2008, 2009, 2010, 2011)

RNDr. D. Gašperíková, PhD. (2011)

RNDr. N. Hlaváčová, PhD. (2011)

MUDr. Richard Imrich, PhD. (2007, 2008, 2009, 2010)

Prof. PharmDr. D. Ježová, DrSc. (2007, 2008, 2009, 2010, 2011)

Prof. MUDr. I. Klimeš, DrSc. (2007, 2008, 2009, 2010)

RNDr. R. Kvetňanský, DrSc. (2011)

MUDr. P. Langer, DrSc. (2007, 2008, 2009, 2010, 2011)

MUDr. L. Macho, DrSc. (2007, 2008, 2009, 2010, 2011)

Mgr. D. Macejová, PhD. (2011)

Mgr. A. Mlynarčíková, PhD. (2011)

MUDr. Boris Mravec, PhD. (2010, 2011)

MUDr. A. Penesová, PhD. (2011)

MUDr. Ž. Rádíková, PhD. (2007, 2008, 2009, 2010, 2011)

Mgr. S. Scsuková, PhD. (2011)

MUDr. V. Štrbák, DrSc. (2007, 2008, 2009, 2010, 2011)

MUDr. M. Vlček, PhD. (2011)

MUDr. B. Ukropcová, PhD. (2011)

3/ Members of the Editorial Board of GENERAL PHYSIOLOGY AND BIOPHYSICS

Ing. J. Brtko, DrSc. (2007, 2008, 2009, 2010, 2011)

MUDr. Richard Imrich, PhD. (2010, 2011)

MUDr. V. Štrbák, DrSc. (2007, 2008, 2009, 2010, 2011)

Ing. Štefan Zórad, CSc. (2010, 2011)

4/ Members of Editorial Board of BIOLOGIA/section ZOOLOGIA

RNDr. A. Kiss, DrSc. (2007, 2008, 2009, 2010, 2011)

5/ Members of the Editorial Board of BRATISLAVSKE LEKARSKE LISTY

Prof. MUDr. I. Klimeš, DrSc. (2007, 2008, 2009, 2010, 2011)

6/ Members of the Editorial Board of DIABETES AND OBESITY

Prof. MUDr. I. Klimeš, DrSc., (2007, 2008, 2009, 2010, 2011)

7/ Members of the Editorial Board of SAS NEWS

Ing. J. Brtko, DrSc., (2007, 2008, 2010, 2011?)

B/ Participation in National Scientific Societies**Mgr. Zuzana Bačová, PhD.**

- Slovak Physiological Society (member: 2011)

Ing. Lucia Bialešová

- Slovak Biochemical Society (member: 2011)
- Slovak Physiological Society (member: 2011)
- Slovak Endocrine Society (member: 2011)
- Slovak Medical Society (member: 2011)

Ing. Július Brtko, CSc.

- Slovak Biochemical Society (member: 2007, 2008, 2009, 2010, 2011)
- Slovak Physiological Society (member: 2007, 2008, 2009, 2010, 2011)
- Slovak Endocrine Society (member: 2007, 2008, 2009, 2010, 2011)
- Slovak Medical Society (member: 2007, 2008, 2009, 2010, 2011)
- SETOX (member: 2010, 2011)

RNDr. Robert Farkaš, CSc.

- Slovak Biochemical Society (member: 2010, 2011)

Mgr. Daniela Gašperíková, CSc.

- Slovak Diabetes Society (member: 2010, 2011)
- Slovak Diabetes Society-Obesity Section (member: 2010, 2011)
- Slovak Endocrine Society (member: 2010, 2011)

MUDr. Richard Imrich, PhD.

- Slovak Medical Society (member: 2009, 2010, 2011)
- Slovak Rheumatology Society (member: 2009, 2010, 2011)

prof. PharmDr. Daniela Ježová, DrSc.

- Slovak Physiological Society (president: 2007, 2008, 2009, 2010, until February 2011)
- Learned Society of SAS (member: 2007, 2008, 2009, 2010, 2011)

RNDr. Alexander Kiss, DrSc.

- Slovak Neuroscience Society of SAS (member: 2009, 2010, 2011)
- Learned Society of SAS (member: 2008, 2009, 2010, 2011)

Prof. MUDr. Iwar Klimeš, DrSc.

- Slovak Endocrine Society (honorary member: 2007, 2008, 2009, 2010, board member: 2011)
- Slovak Diabetes Society (board member: 2007, 2008, 2009, 2010, 2011)
- Slovak Diabetes Society-Grant Agency (member: 2007, 2008, 2009, 2010)
- Slovak Diabetes Society-Obesity Section (board member: 2007, 2008, 2009, 2010, 2011)
- Slovak Diabetes Society-Lipid Section (board member: 2007, 2008, 2009, 2010, 2011)
- Learned Society of SAS (member: 2007, 2008, 2009, 2010, 2011)

RNDr. Richard Kvetňanský, DrSc.

- Slovak Neuroscience Society of SAS (board member: 2007, vice-president: 2008, 2009, 2010, 2011)
- Slovak National Committee COSPAR (vice-president: 2007, 2008, 2009, 2010)
- Learned Society of SAS (member: 2007, emeritus member: 2008, 2009, 2010, 2011)

MUDr. Pavel Langer, DrSc.

- Slovak Endocrine Society (honorary member: 2007, 2008, 2009, 2010, 2011)

- Slovak Committee for UNICEF (participator in iodine prophylaxis: 2007, 2008, 2009, 2010)
- Learned Society of SAS (emeritus member: 2007, 2008, 2009, 2010, 2011)

Mgr. Dana Macejová, PhD.

- Slovak Biochemical Society (member: 2010, 2011)
- Slovak Physiological Society (member: 2010, 2011)
- Slovak Endocrine Society (member: 2010, 2011)
- Slovak Medical Society (member: 2011)

MUDr. Ladislav Macho, DrSc.

- Slovak Physiological Society (honorary board member: 2007, 2008, 2009, 2010, 2011)
- Slovak Endocrine Society (honorary member: 2007, 2008, 2009, 2010, 2011)
- Slovak National Committee COSPAR (member: 2007, 2008, 2009, 2010, 2011)
- Learned Society of SAS (emeritus member: 2007, 2008, 2009, 2010, 2011)

MUDr. Daniela Staníková

- Slovak Diabetes Society (member: 2011)
- Slovak Paediatrics Society (member: 2011)

MUDr. Vladimír Štrbák, DrSc.

- Slovak Physiological Society (honorary board member: 2010, 2011)
- Slovak Endocrine Society (member: 2011)
- Slovak Paediatrics Society (member: 2011)

MUDr. Barbara Ukropcová, PhD.

- Slovak Endocrine Society (member: 2010, 2011)
- Slovak Diabetes Society (member: 2010, 2011)
- Slovak Diabetes Society-Obesity Section (member: 2010, 2011)

Mgr. Jozef Ukropec, PhD.

- Slovak Endocrine Society (member: 2010, 2011)
- Slovak Diabetes Society (member: 2010, 2011)
- Slovak Diabetes Society-Obesity Section (member: 2010, 2011)

C/ Memberships in Slovak Academy of Sciences Committees

Ing. Július Brtko, DrSc.

- Scientific Committee of SAS for Chemical Sciences (member: 2010, 2011)
- Intellectual Demeanor Committee of SAS (member: 2009, 2010, 2011)
- Research Qualification Appraising Committee of SAS (member: 2010, 2011)
- VEGA Grant Committee for Molecular and Cellular Biology, Section 8 (member: 2007, 2008, 2009)

Mgr. Daniela Gašperíková, CSc.

- VEGA Grant Committee for Biological Sciences, Section 4 (member: 2008, 2009, 2010, 2011)

MUDr. Richard Imrich, PhD.

- Scientific Committee of SAS for Medical Sciences (member: 2010, 2011)
- Ethical Committee of SAS (member: 2009, 2010, 2011)

Prof. PharmDr. Daniela Ježová, DrSc.

- Vice-president of SAS for Education and Postgraduate study (2009, 2010, 2011)
- Council of SAS for Education and Postgraduate study (president: 2009, 2010, 2011)
- Committee of SAS for cooperation with Universities (president: 2009, 2010)
- Scientific Committee of SAS for Medical Sciences (scientific secretary: 2007, president: 2008, 2009)
- Research Qualification Appraising Committee of SAS (member: 2007, 2008, 2009)
- VEGA Grant Committee for Medical and Pharmaceutical Sciences, Section 9 (member: 2008, 2009)

RNDr. Alexander Kiss, DrSc.

- VEGA Grant Committee for Medical and Pharmaceutical Sciences, Section 9 (member: 2007, 2008, 2009, 2010, 2011)
- SAS Assembly (board member: 2007, 2008, member: 2009, 2010, 2011)
- Council of SAS for Foreign Contacts (member: 2007, 2008, 2009)
- Chairmen Board – II. Scientific Department of SAS (member: 2007, 2008)

Prof. MUDr. Iwar Klimeš, DrSc.

- Scientific Committee of SAS for Medical Sciences (member: 2010, 2011)
- Council of SAS for Economy (member: 2007, 2008, 2009)
- Ethical Committee of SAS (member: 2007, 2008, 2009)
- Scientific board of the Institute of Molecular Physiology and Genetics SAS (member: 2007, 2008)

RNDr. Richard Kvetňanský, DrSc.

- Scientific Committee of SAS for Molecular Biology and Genetics (member: 2007, 2008, 2009, 2010, 2011)

MUDr. Ladislav Macho, DrSc.

- Accreditation Committee of SAS II. Scientific Department of (member: 2007, 2008)

MUDr. Vladimír Štrbák, DrSc.

- Scientific Committee of SAS for Medical Sciences (vice-president: 2007, 2008, 2009, president: 2010, 2011)
- Ethical Committee of SAS (member: 2007, 2008, 2009, 2010, 2011)
- Editorial Board of SAS (member: 2007, 2008, 2009)
- Scientific board of the Institute of Health Research SAS (member: 2007, 2008)

D/ Membership and Activities in SR Government Committees

MUDr. Richard Imrich, PhD.

- Accreditation Committee of SR Health Ministry, Operating Group No 18-2-Non-Medicine Health Sciences (member: 2009, 2010, 2011)
- Slovak Research and Development Agency (SRDA) – The Council of Medicine Sciences (member: 2010, 2011)

Prof. PharmDr. Daniela Ježová, DrSc.

- Slovak Committee for Scientific Degrees (member: 2011)
- Slovak Literary Fund-Scientific and Computer Section (board member: 2008)
- Slovak Literary Fund (chairman of jury for Medical and Biological Section: 2007, 2008)

RNDr. Alexander Kiss, DrSc.

- Evaluation of 6 projects for the Agency of the Ministry of Education, Structural funds of European Commission (2008)

Prof. MUDr. Iwar Klimeš, DrSc.

- Slovak Research and Development Agency (SRDA) – The Council of Medicine Sciences (president: 2007, 2008)

RNDr. Richard Kvetňanský, DrSc.

- High Level Space Policy Group, European Commission in Brussels (national delegate: 2008, 2009)
- European Commission for 7th FR, Priority: Space Activities (national delegate: 2007, 2008, 2009)
- Report of Cosmos Activities in the SR (participated in the elaboration for SR mission in OSN– COPUOS Committee, 2008)

MUDr. Pavel Langer, CSc.

- Iodine Committee of SR Health Ministry (member: 2007, 2008, 2009, 2010)

Mgr. Soňa Scsuková, CSc.

- National Scholarship Programme of the SR to support the mobility of foreign applicants (member of a selection committee: 2011)

MUDr. Vladimír Štrbák, DrSc.

- Slovak Research and Development Agency (SRDA) The Council of Human Resources in Research and Development and Popularization (LPP) (member: 2010, 2011)

- Committee for Evaluation of the activity of Neuroscience Centre, Prague, Ministry of Education of Czech Republic (member: 2008)

Mgr. Jozef Ukropec, PhD.

- National Scholarship Programme of the SR to support the mobility of foreign applicants (member of a selection committee: 2007, 2008, 2009, 2010)
- National Scholarship Programme of the SR to support the mobility of applicants from SR (member of a selection committee: 2011)

iv. List of national awards and distinctions

[1] **Mgr. Stanislav Babic**

- Prize for the 3rd Best Poster presentation of young scientists on 87th Physiology Days in Bratislava awarded by Slovak Physiology Society (2011)

[2] **Mgr. Z. Bačová, PhD.**

- Award of the "Štefan Schwartz Foundation" for financial support of postdoctoral position on SAS (2007)

[3] **RNDr. J. Bakoš, PhD.**

- Award of the "Štefan Schwartz Foundation" for financial support of postdoctoral position on SAS (2007)
- Prize of Slovak Physiology Society for the 3rd best poster presentation on 84th Physiology Days, Martin, Slovakia (2008)

[4] **Ing. Július Brtko, DrSc.**

- "Jesenius Plaque Prize" awarded by the SAS for "Achievements in Medical Sciences" (October 10, 2008)

[5] **RNDr. Jana Bundzíková, PhD.**

- Award of the "Štefan Schwartz Foundation" for financial support of postdoctoral position on SAS (2009)

[6] **RNDr. Robert Farkaš, CSc.**

- Slovak Endocrinology Society Prize for the Best Publication of the year (in journal PLoS One 2010)

[7] **Mgr. Daniela Gašperíková, CSc.**

- PFIZER and Slovak Diabetes Society Board Prize for the Best Publication in 2007 (2008)
- Prize of SAS for scientific-research activity (2009)
- Novo-Nordisk and Slovak Diabetes Society Prize for the Best Publication in 2009 (Diabetes, IF=8,398) (2010)

[8] **RNDr. Nataša Hlaváčová, PhD.**

- Prize for the best oral presentation of young scientists on symposia "Hormonal mechanisms of adaptation" in St. Petersburg, Russian Federation (October, 3-5, 2007)
- "Student personality of the SR" awarded by "Junior Chamber International" in the category „Natural Sciences“ (2009)
- Prize of the President of SR for young researchers from SAS (2010)

[9] **Mgr. Lucia Chovanová**

- Prize for the best oral presentation on 3rd International Student Medical Congress, Košice, Slovakia (2011)

[10] **Prof. PharmDr. Daniela Ježová, DrSc.**

- Gold Medal of Slovak Medical Association (2009)
- Gold Medal of Faculty of Medicine Comenius University Bratislava (2009)

- Honorary membership of Slovak Pharmacy Society (2009)
- Gold Memorial Medal of Faculty of Pharmacy Comenius University Bratislava (2009)
- Memorial Medal of Jesenius Faculty of Medicine Martin (2009)
- "Vladimír Žuffa Medal" awarded by Slovak Pharmacy Society (2008)
- Medal of SAS for Research Support (2010)
- Memorial Medal of Slovak Medical Association in occasion of 90th Anniversary of Slovak Doctors Association (2010)
- Czech Neuropsychopharmacology Society Prize for the best original publication on psychopharmacology and psychopharmacotherapy in 2010 (2011)

[11] **MUDr. Jana Kerlik**

- "Preveda Prize" awarded on 2nd Interactive Conference of Young Scientists, Section: Cell metabolism, physiology, molecular biology and genetics, Bratislava (2010)

[12] **RNDr. Alexander Kiss, DrSc.**

- "Jesenius Plaque Prize" awarded by the SAS for "Achievements in Medical Sciences" (October 10, 2008)
- "Premium for Scientific Citation" awarded by the Slovak Literary Fund, Section for Scientific and Specialized Literature (September 25, 2008)

[13] **Prof. MUDr. Iwar Klimeš, DrSc.**

- Medal of SAS for Research Support (March 3, 2007)
- SERVIER and Slovak Diabetes Society joint prize for the best publication 2006, published in the 2nd best biomedical journal New England Journal of Medicine (IF >51) (May 23, 2007)
- "Jozef Ľudovít Holuby Prize for Life Sciences" awarded by Matica Slovenská Founding (March 14, 2008)
- "Scientist of the Year 2007 in the SR" awarded by Journaliste-Studio Bratislava, Club of Scientific and Technological Journalists, SAS, and Association of Slovak Scientific and Technological Societies (2008)
- Prize of SAS for scientific-research activity (2009)
- Prize of the President of SAS for establishment of infrastructure for science (2010)
- Memorial Medal of Slovak Medical Association in occasion of 90th Anniversary of Slovak Doctors Association (2010)
- Gold Medal of SAS (2011)
- "Korec Prize" awarded by Slovak Medical Association and prof.Korec Foundation (2011)
- Silver Emblem of Slovak Medicine Society (2011)
- Gold Galen Medal of Faculty of Pharmacy Comenius University Bratislava (2011)
- Gold Medal of Faculty of Medicine Comenius University Bratislava (2011)
- Gold Medal of Slovak Medical Association (2011)

[14] **RNDr. R. Kvetňanský, DrSc.**

- Gold Medal of the SAS for lifetime contribution to development of Slovak science inside and outside of Slovakia awarded in occasion of his life anniversary (April 20, 2007)
- Gold Medal of the Faculty of Pharmacy Comenius University in Bratislava for outstanding presentation of the faculty and Slovak science in the world, awarded in occasion of his anniversary (April 20, 2007)
- "Distinguished personality of SAS in 2008" (May 27, 2008)
- "Medal for lifetime scientific work" awarded by Slovak Pharmacy Society (May 23, 2008)

[15] **MUDr. Pavel Langer, DrSc.**

- "Distinguished personality of SAS" in occasion of 80th anniversary (2009)

[16] **Mgr. Marcela Lauková, PhD.**

- 1st position in the 1st Interactive Conference of Young Scientists, Section: Cell metabolism, physiology, molecular biology and genetics, Bratislava (2009)
- Assignment of individual grant awarded by Intenda Foundation for Individuals Support (2010)
- Award of SAS in Competition of Young Scientist under the age of 35 for publication activity and successful VEGA and APVV grants solving (2011)
- Irwin J. Kopin Prize on 10th Symposium on catecholamines and other neurotransmitters in stress – the 2nd position (2011)

[17] **MUDr. Ladislav Macho, DrSc.**

- Medal of SAS for Research Support (2010)
- T.R. Niederland's Honorary Medal awarded by Slovak Medical Association (2010)
- Memorial Medal of Slovak Medical Association in occasion of 90th Anniversary of Slovak Doctors Association (2010)
- the highest recognition from the President of the Slovak Republic, the Stur order of the first class (2011)

[18] **Mgr. Dana Macejová, PhD.**

- Prize of SAS for the young researcher under the age of 35 (June 18, 2008)

[19] **Mgr. Alžbeta Mlynarčíková, PhD.**

- Award of "Štefan Schwartz Foundation" for financial support of postdoctoral position on SAS (2008)

[20] **MUDr. Boris Mravec, PhD.**

- "Prize of Vice-President and Education of SR" for science and technique in the category „Personality of science and technique under the age of 35" (2007)
- 2nd position in the Competition of young researchers under the age of 35 (2010)
- Slovak Physiology Society Prize for the best publication in 2010 – 1st position (2011)

[21] **MUDr. Adela Penesová, PhD.**

- Publication of extended abstracts from distinguished international congresses on Cardiology abroad in years 2006-2007 in the Text book of Cardiology Society (2007)

[22] **Ing. Slavomíra Ondková**

- Prize for the 3rd Best Poster presentation on 85th Physiology Days, Prague, Czech Republic (2009)

[23] **RNDr. Eliška Pravdová**

- Award for excellent scientific work for young researchers in the field of Biochemistry and Molecular Biology, 4th "Drobnica Memorial", Kočovce, Slovakia, (2008)

[24] **MUDr. Žofia Rádiková, PhD.**

- "Guoth Prize" from Slovak Medical Association for publication activity granted to young scientists under age 35 (November 28, 2007)
- Eli Lilly and Slovak Diabetes Society Board Prize for the Best Publication on Diabetes in 2007 (2008)
- 3rd position within II. Science Department of SAS in the Young Researchers Competition under the age of 35 (2009)
- Prize for the 3rd Best Poster presentation on 19th Diabetes Days, Bratislava awarded by Slovak Diabetes Society (2009)

[25] **MUDr. Juraj Staník**

- "Guoth Prize" from Slovak Medical Association for publication activity granted to young scientists under age 35 (November 28, 2007)

- Slovak Diabetes Society Prize for the Best Publication in 2007 (2008)
- Prize of SAS for scientific-research activity (2009)
- Eli Lilly and Slovak Diabetes Society Prize for the Best Publication in 2008 in journal Diabetes Care (IF=7,851) (2009)
- Sanofi and Slovak Diabetes Society Prize for the Best Publication in 2009 (2010)

[26] **MUDr. Vladimír Štrbák, DrSc.**

- became an honorary member of Slovak Physiology Society as long-standing president of SPS (1994 – 2006) (2007)
- Honorary member of Slovak Paediatrics Society (2009)

[27] **MUDr. Barbara Ukropcová, PhD.**

- "Student personality of the SR in school year 2006/2007" awarded by "Junior Chamber International" in the category „Medicine Sciences and Pharmacy“ for the series of publications in collaboration with scientists from Baton Rouge, Louisiana, USA (2007)
- Prize of the President of SR, absolute laureate (2007)
- Travel grant of EASO - European Organisation for Study of Obesity – in the basic science to take part on 15th ECO - European Congress on Obesity (oral presentation), Budapešť, Hungary (April 22-25, 2007)
- SERVIER Prize for the Best Publication in 2007 awarded by SERVIER and Slovak Diabetes Society (2008)
- Prize "Bratislava the Blueberry" of for the work in medical research dedicated to the memory of Július Satinský (2008)
- Slovak Obesity Society Travel Grant to take part in 11th International Congress on Obesity, Stockholm (July 10-18, 2010)

[28] **Mgr. Jozef Ukropec, PhD.**

- "Šonka Prize" of Czech Obesity Society for the Best Publication 2006 (Ukropec et al.: J Biol Chem. 2006; 281:31894-908) (2007)
- Publication - Ukropec et al.: Endocrinology 2006, 147: 2468-80 - was included in the database „Faculty of 1000 Biology“, the Best 1000 published publications in this journal (2007)
- 1st prize in the competition "The Best Publication of the year" of Slovak Endocrinology Society (2007)
- Travel grant of Slovak Diabetes Society to take part on 67th Scientific Sessions of the American Diabetes Association, McCormick Place Convention Centre, Chicago, USA (June 22-26, 2007)
- Slovak Endocrinology Society Prize for the Best Publication in 2008 in journal JCEM (IF=6,325) (2009)
- Slovak Diabetes Society for the Best Publication in 2010 (2011)
- PFIZER and Slovak Diabetes Society for the Best Publication in 2010 (2011)

[29] **Mgr. Lucia Valentínová**

- Slovak Diabetes Society Travel Grant for 6-weeks stay on Diabetes Research Laboratories, Oxford Center for Diabetes, Endocrinology and Metabolism, Oxford, Great Britain (2010)
- Assignment of individual grant awarded by Intenda Foundation for Individuals Support in Section: Natural Sciences (2011)

[30] **MUDr. Miroslav Vlček, PhD.**

- Prize for the Best Publication on Rheumatology in 2008 awarded by Slovak Rheumatology Society (2008)

v. **Supplementary information and/or comments documenting international and national status of the Organisation**

There is not much to be added to this chapter except of the fact that it is becoming obvious that our young colleagues, who have finished the PhD training, are entering a new more competitive phase in their research life provided they stay in science. The dictate of this epoch reads “publish or perish” also in our countries and chances to survive the rough water phase are larger if some one joins a better research group with a good opinion leader working with decent grant money and even better when the group is well published out.

The aforementioned is feasible definitely at our institute which should however keep a dynamic eye at reducing the topics (maybe just to 3 or 2) as only such a concentrated approach allows to carry out an in depth research of the specific questions asked. We do have at our Institute both the national as well as the international reputation for that, however, it's more complicated with colleagues who are close the time of getting retired. But we shall try.

4. **Project structure, research grants and other funding resources**

▪ **International projects and funding**

- i. **List of major projects within the European Research Area – 6th and 7th Framework Programme of the EU, European Science Foundation, NATO, COST, INTAS, CERN, etc. (here and in items below please specify: type of project, title, grant number, duration, total funding and funding for the Organisation, responsible person in the Organisation and his/her status in the project, e.g. coordinator, work package leader, investigator)**

2007

[1]

Type of the Project: 6th Framework Programme of the EC, NoE

Title: Chemical contaminants in the food chain

Grant Number: FOOD-CT-2004-506319

Duration: February 2004 – January 2010

Total funding: Information is not available

Funding for the organization: 25.000,-€

Responsible person in the organization and principal investigator in Slovakia: **Julius Brtko**

[2]

Type of the Project: 6th Framework Programme of the EC

Title: The Danubian Biobank Initiative

Grant Number: FP6 – 018822

Duration: June 2006 – May 2008

Total funding: Information is not available

Funding for the organization: 20.000,-€

Responsible person in the organization and principal investigator in Slovakia: **Iwar Klimeš**

2008

[1]

Type of the Project: 6th Framework Programme of the EC, NoE

Title: Chemical contaminants in the food chain

Grant Number: FOOD-CT-2004-506319
 Duration: February 2004 – January 2010
 Total funding: Information is not available
 Funding for the organization: 45.000,-€
 Responsible person in the organization and principal investigator in Slovakia: **Julius Brtko**

[2]

Type of the Project: 6th Framework Programme of the EC

Title: The Danubian Biobank Initiative
 Grant Number: FP6 – 018822
 Duration: June 2006 – May 2008
 Total funding: Information is not available
 Funding for the organization: 20.000,-€
 Responsible person in the organization and principal investigator in Slovakia: **Iwar Klimeš**

[3]

Type of the Project: 7th Framework Programme of the EC

Title: Lipid droplets as dynamic organelles of fat deposition and release: translational research towards human disease
 Grant Number: FP7-202272
 Duration: May 2008 – April 2011
 Total funding: Information is not available
 Funding for the organization: 88.515,-€
 Responsible person in the organization and principal investigator in Slovakia: **Daniela Gašperikova**

2009

[1]

Type of the Project: 6th Framework Programme of the EC, NoE

Title: Chemical contaminants in the food chain
 Grant Number: FOOD-CT-2004-506319
 Duration: February 2004 – January 2010
 Total funding: Information is not available
 Funding for the organization: 0,-€
 Responsible person in the organization and principal investigator in Slovakia: **Julius Brtko**

[2]

Type of the Project: 7th Framework Programme of the EC

Title: Lipid droplets as dynamic organelles of fat deposition and release: translational research towards human disease
 Grant Number: FP7-202272
 Duration: May 2008 – April 2011
 Total funding: Information is not available
 Funding for the organization: 34.834,-€
 Responsible person in the organization and principal investigator in Slovakia: **Daniela Gašperikova**

2010

[1]

Type of the Project: 6th Framework Programme of the EC, NoE

Title: Chemical contaminants in the food chain
 Grant Number: FOOD-CT-2004-506319
 Duration: February 2004 – January 2010

Total funding: Information is not available

Funding for the organization: 0,-€

Responsible person in the organization and principal investigator in Slovakia: **Julius Brtko**

[2]

Type of the Project: 7th Framework Programme of the EC

Title: Lipid droplets as dynamic organelles of fat deposition and release: translational research towards human disease

Grant Number: FP7-202272

Duration: May 2008 – April 2011

Total funding: Information is not available

Funding for the organization: 146.671,-€

Responsible person in the organization and principal investigator in Slovakia: **Daniela Gašperikova**

2011

[1]

Type of the Project: 7th Framework Programme of the EC

Title: Lipid droplets as dynamic organelles of fat deposition and release: translational research towards human disease

Grant Number: FP7-202272

Duration: May 2008 – April 2011

Total funding: Information is not available

Funding for the organization: 54.028,-€

Responsible person in the organization and principal investigator in Slovakia: **Daniela Gašperikova**

ii. **List of other international projects incl. total funding and funding for the Organisation**

2007

[1]

Type of the Project: Bilateral France-Slovak project– STEFANIK

Title: Transmembrane interactions in cellular signalling

Grant Number: SK-Fr-020006

Duration: 2006-2007

Total funding: Information is not available

Funding for the organization: 2.656,-€

Responsible person in the organization and principal investigator in Slovakia: **Mária Ficková**

[2]

Type of the Project: Bilateral Austrian-Slovak project

Title: Austrian-Slovak research unit focused on evaluating stress in relation to brain and cardiovascular system

Grant Number: SK-05/06-BA-007

Duration: 2006-2007

Total funding: Information is not available

Funding for the organization: 4.375,-€

Responsible person in the organization and principal investigator in Slovakia: **Daniela Ježová**

[3]

Type of the Project: NATO Science Programme Collaborative Linkage Grant

Title: The effects of stress on heart receptors and function
 Grant Number: NATO 980745
 Duration: 2005-2007
 Total funding: Information is not available
 Funding for the organization: 4149,-€
 Responsible person in the organization and principal investigator in Slovakia: **Richard Kvetňanský**

[4]

Type of the Project: National Institute of Health grant, Bethesda, USA

Title: Altered ethanol effects on osteocalcin null mutant mice
 Grant Number: R21 AA 12705-01
 Duration: 2005-2007
 Total funding: Information is not available
 Funding for the organization: 8.298,-€
 Responsible person in the organization and principal investigator in Slovakia: **Richard Kvetňanský**

[5]

Type of the Project: Bilateral The Netherlands-Slovak project

Title: Effect of the vagal nerve stimulation on tumor development and progression
 Grant Number: CYBERONICS
 Duration: 2006-2009
 Total funding: Information is not available
 Funding for the organization: 4.000,-€
 Responsible person in the organization and principal investigator in Slovakia: **Boris Mravec**

2008

[1]

Type of the Project: Bilateral The Netherlands-Slovak project

Title: Effect of the vagal nerve stimulation on tumor development and progression
 Grant Number: CYBERONICS
 Duration: 2006-2009
 Total funding: Information is not available
 Funding for the organization: 2.500,-€
 Responsible person in the organization and principal investigator in Slovakia: **Boris Mravec**

2009

[1]

Type of the Project: Bilateral The Netherlands-Slovak project

Title: Effect of the vagal nerve stimulation on tumor development and progression
 Grant Number: CYBERONICS
 Duration: 2006-2009
 Total funding: Information is not available
 Funding for the organization: 1.900,-€
 Responsible person in the organization and principal investigator in Slovakia: **Boris Mravec**

[2]

Type of the Project: Bilateral Austrian-Slovak project

Title: Educational outcome of collaborative studies within an Austrian-Slovak research unit focused on evaluating mental and cardiovascular stress
 Grant Number: 62s2
 Duration: 2008-2009

Total funding: Information is not available

Funding for the organization: 6.864,-€

Responsible person in the organization and principal investigator in Slovakia: **Daniela Ježová**

2010

[1]

Type of the Project: Multilateral project

Title: Metabolic health and muscle secretory profile in aerobic and resistance trained obese pre-diabetic individuals

Grant Number: N/A

Duration: 2010-2013

Total funding: Information is not available

Funding for the organization: 2.766,-€

Responsible person in the organization and principal investigator in Slovakia: **Barbara Ukropcová**

[2]

Type of the Project: Multilateral project

Title: Adipose tissue and skeletal muscle plasticity in metabolic health and in insulin resistance

Grant Number: N/A

Duration: 2010-2013

Total funding: Information is not available

Funding for the organization: 458,-€

Responsible person in the organization and principal investigator in Slovakia: **Jozef Ukropec**

2011

[1]

Type of the Project: Multilateral project

Title: New analytical and diagnostic approaches towards identification of apocrine and holocrine mechanisms

Grant Number: EEA-NFM SK-0086

Duration: 2009-2011

Total funding: Information is not available

Funding for the organization: 371.946,-€

Responsible person in the organization and principal investigator in Slovakia: **Robert Farkaš**

[2]

Type of the Project: Bilateral U.K.-Slovak project

Title: Developing a rat model of depression based on tryptophan deficiency

Duration: 2011-2012

Total funding: Information is not available

Funding for the organization: 10.330,-€

Responsible person in the organization and principal investigator in Slovakia: **Daniela Ježová**

[3]

Type of the Project: Multilateral project

Title: Metabolic health and muscle secretory profile in aerobic and resistance trained obese pre-diabetic individuals

Grant Number: N/A

Duration: 2010-2013

Total funding: Information is not available

Funding for the organization: 11.244,-€

Responsible person in the organization and principal investigator in Slovakia: **Barbara Ukropcová**

[4]

Type of the Project: Multilateral project

Title: Adipose tissue and skeletal muscle plasticity in metabolic health and in insulin resistance

Grant Number: N/A

Duration: 2010-2013

Total funding: Information is not available

Funding for the organization: 28.582,-€

Responsible person in the organization and principal investigator in Slovakia: **Jozef Ukropec**

[5]

Type of the Project: Pfizer Global Investigator Initiated Research Grant

Title: Pfizer Global Investigator Initiated Research Grant „The Effect of a Long-Term Growth Hormone Supplementation on the Whole-Body Metabolic Characteristics and Adipose Tissue Phenotype in Growth Hormone Deficient Adults: the 5-yr follow-up

Grant Number: WS689054

Duration: 2011-2013

Total funding: Information is not available

Funding for the organization: 4.699,-€

Responsible person in the organization and principal investigator in Slovakia: **Jozef Ukropec**

iii. List of other important projects and collaborations without direct funding

2007

- Responsible person in the organization and principal investigator: J. Brtko

[1]

Type of the Project: Bilateral project with the Department of Molecular Biology, Division of Allergy and Immunology, University of Salzburg, Austria

Title: Analysis of altered gene expression profiles in retinoic acid or CpG treated Sprague-Dawley rats with MNU-induced mammary adenocarcinoma by cDNA macro array.

[2]

Type of the Project: Bilateral project with the Institute of Medical Chemistry and Biochemistry, Medical faculty, Palacky University, Olomouc, Czech Republic

Title: Expression, protein stability and transcriptional activity of retinoic acid receptors are affected by microtubules interfering agents and all-trans retinoic acid in primary rat hepatocytes.

[3]

Type of the Project: Bilateral project with the Institute of Pharmacology and Biochemistry, Medical faculty in Pilsen, Charles University, Pilsen, Czech Republic

Title: Effects of selenium and tellurium on the activity of selenoenzymes glutathione peroxidase and type I iodothyronine deiodinase, trace element thyroid level, and thyroid hormone status in rats.

- Responsible person in the organization and principal investigator: D. Gašperíková, J. Ukropec

Type of the Project: Bilateral project with the Institute of Clinical Biochemistry and Pathobiochemistry, German Diabetes Center, Dusseldorf, Germany

Title: Growth hormone deficiency modulates protein expression of adipokines regulating adipose tissue growth, differentiation as well as inflammatory and metabolic properties.

- **Responsible person in the organization and principal investigator: D. Ježová**

[1]

Type of the Project: Bilateral project with the Hungarian Academy of Sciences in Budapest, Hungary

Title: Signs of attenuated depression-like behavior in vasopressin deficient Brattleboro rats.

[2]

Type of the Project: Bilateral project with the Institute of Pharmacology of the Medical Faculty, Masaryk University, Brno, Czech Republic

Title: Tiagabine treatment is associated with neurochemical, immune and behavioural alterations in the olfactory bulbectomized rat model of depression.

- **Responsible person in the organization and principal investigator: A. Kiss**

[1]

Type of the Project: Bilateral project with the Hungarian Academy of Sciences in Budapest, Hungary

Title: Activity variations in the hypothalamic oxytocinergic neurons under stimulation of alpha-2 adrenoceptors in osmotically stressed Brattleboro rats.

[2]

Type of the Project: Bilateral project with the Department of Translational Neuroscience, NeuroSearch A/S, Ballerup, Denmark

Title: Acute treatment with antipsychotics induces Fos expression in hypothalamic magnocellular oxytocinergic and vasopressinergic neurons.

- **Responsible person in the organization and principal investigator: I. Klimes**

[1]

Type of the Project: Bilateral project with the Institute of Biomedical and Clinical Sciences, Peninsula Medical School, Exeter, UK

Title: A Kir6.2 mutation causing severe functional effects in vitro produces neonatal diabetes without the expected neurological complications.

[2]

Type of the Project: Bilateral project with the Department of Translational Neuroscience, NeuroSearch A/S, Ballerup, Denmark

Title: Acute treatment with antipsychotics induces Fos expression in hypothalamic magnocellular oxytocinergic and vasopressinergic neurons.

[3]

Type of the Project: COST BM0602

Title: Fat tissue: A key target for prevention of metabolic syndrome

[4]

Type of the Project: Bilateral project with the Oxford Centre for Diabetes, Endocrinology and Metabolism, University of Oxford, UK

Title: Molecular/genetic consequences of insulin resistance

- **Responsible person in the organization and principal investigator: R. Kvetňanský**

[1]

Type of the Project: Bilateral project with the New York Medical College, Valhalla, USA

Title: Stressor-specific regulation of catecholamine biosynthetic enzymes gene expression

[2]

Type of the Project: Bilateral project with the Pediatric and Reproductive Endocrinology Branch, National Institute of Child and Human Development (NICHD), NIH, Bethesda, USA

Title: Investigation of activity alterations in catecholaminergic and other neurotransmitter systems by PET technique in small laboratory animals focused on the adrenal medulla tumors and stress

[3]

Type of the Project: Bilateral project with the Laboratory of Molecular and Developmental Neurobiology, Department of Psychiatry, Harvard Med School, Belmont, Massachusetts, USA

Title: Study of the effect of expression and translation of transcriptional factors regulating gene expression of adrenaline synthesizing enzyme phenylethanolamine N-methyltransferase (PNMT) in the adrenal medulla during stress

[4]

Type of the Project: Bilateral project with the Department of Physiology, Georgetown University, Washington, USA

Title: Investigation of the mechanism of stress-induced obesity in mice

- **Responsible person in the organization and principal investigator: B. Mravec**

Type of the Project: Bilateral project with the Laboratory of Natural Cell Immunity, Department of Immunology, Institute of Microbiology, Academy of Sciences of the Czech Republic

Title: Nervous system and tumour initiation and progression

- **Responsible person in the organization and principal investigator: Z. Pirnik**

Type of the Project: Bilateral project with the Institute of Molecular Genetics, Prague, Czech Republic

Title: Comparison of the obesity phenotypes related to monosodium glutamate effect on arcuate nucleus and/or the high fat diet feeding in C57Bl/6 and NMRI mice

- **Responsible person in the organization and principal investigator: V. Štrbák**

Type of the Project: Bilateral project with the Institute of Physiology and Pathophysiology, Paracelsus Medical University, Salzburg, Austria

Title: Cell swelling

- **Responsible person in the organization and principal investigator: J. Ukropec**

Type of the Project: COST FA 0602

Title: Bioactive food components, mitochondrial function and health

- **Responsible person in the organization and principal investigator: B. Ukropcová, J. Ukropec**

Type of the Project: Bilateral project with the Pennington Biomedical Research Center, Baton Rouge, Louisiana, USA

Title: Obesity and Diabetes

2008

- **Responsible person in the organization and principal investigator: J. Brtko**

[1]

Type of the Project: Bilateral project with the Department of Molecular Biology, Division of Allergy and Immunology, University of Salzburg, Austria

Title: DNA arrays: Analysis of altered gene expression profiles in retinoic acid treated Sprague-Dawley rats with MNU-induced mammary adenocarcinoma.

[2]

Type of the Project: Bilateral project with the Institute of Medical Chemistry and Biochemistry, Medical faculty, Palacky University, Olomouc, Czech Republic

Title: Effect of selected endocrine disruptors in human hepatocytes

[3]

Type of the Project: Bilateral project with the Institute of Pharmacology and Biochemistry, Medical faculty in Pilsen, Charles University, Pilsen, Czech Republic

Title: Selenoenzymes, selenoproteins

- **Responsible person in the organization and principal investigator: D. Gašperíková, J. Ukropec**

Type of the Project: Bilateral project with the Institute of Clinical Biochemistry and Pathobiochemistry, German Diabetes Center, Dusseldorf, Germany

Title: Adipose tissue and skeletal muscle plasticity modulates metabolic health

- **Responsible person in the organization and principal investigator: D. Ježová**

[1]

Type of the Project: Bilateral project with the Institute of Experimental Medicine, Hungarian Academy of Sciences in Budapest, Hungary

Title: Perinatal and postnatal stress in relation to mental state

[2]

Type of the Project: Bilateral project with the Institute of Pharmacology of the Medical Faculty, Masaryk University, Brno, Czech Republic

Title: Tiagabine treatment is associated with neurochemical, immune and behavioural alterations in the olfactory bulbectomized rat model of depression

- **Responsible person in the organization and principal investigator: A. Kiss**

[1]

Type of the Project: Bilateral project with the Institute of Experimental Medicine, Hungarian Academy of Sciences in Budapest, Hungary

Title: Response of substances co-expressed in hypothalamic magnocellular neurons to osmotic challenges in normal and Brattleboro rats

[2]

Type of the Project: Bilateral project with the Department of Translational Neuroscience, NeuroSearch A/S, Ballerup, Denmark

Title: GABA regulates the rat hypothalamic-pituitary-adrenocortical axis via different GABA-A receptor α -subtypes

- **Responsible person in the organization and principal investigator: I. Klimes**

[1]

Type of the Project: Bilateral project with the Institute of Biomedical and Clinical Sciences, Peninsula Medical School, Exeter, UK

Title: Insulin Mutation Screening in 1044 Patients with Diabetes: Mutations in the INS gene are a Common Cause of Neonatal Diabetes but a Rarer Cause of Diabetes Diagnosed in Childhood or Adulthood

[2]

Type of the Project: Bilateral project with the Oxford Centre for Diabetes, endocrinology and Metabolism, University of Oxford, UK

Title: Identification of a novel beta cell glucokinase (GCK) promoter mutation (-71 G > C) which reduces promoter activity

[3]

Type of the Project: Bilateral project with the Department of Physiology, Anatomy and Genetics, University of Oxford, Oxford, UK

Title: Coincidence of a novel KCNJ11 missense variant R365H with a paternally inherited 6q24 duplication in a patient with transient neonatal diabetes

[4]

Type of the Project: COST BM 0602

Title: Fat tissue: A key target for prevention of metabolic syndrome

- **Responsible person in the organization and principal investigator: R. Kvetňanský**

[1]

Type of the Project: Bilateral project with the New York Medical College, Valhalla, USA

Title: Identifying the stress transcriptome in the adrenal medulla following acute and repeated immobilization

[2]

Type of the Project: Bilateral project with the Pediatric and Reproductive Endocrinology Branch, National Institute of Child and Human Development (NICHD), NIH, Bethesda, USA

Title: Non-invasive anatomical imaging in the characterization of a murine model of metastatic pheochromocytoma: an evaluation of contrast enhanced microCT and non-enhanced MRI

[3]

Type of the Project: Bilateral project with the Laboratory of Molecular and Developmental Neurobiology, Department of Psychiatry, Harvard Med School, Belmont, Massachusetts, USA

Title: Study of the effect of expression and translation of transcriptional factors regulating gene expression of adrenaline synthesizing enzyme phenylethanolamine N-methyltransferase (PNMT) in the adrenal medulla during stress

[4]

Type of the Project: Bilateral project with the Department of Physiology, Georgetown University, Washington, USA

Title: Adrenergic response to stress: transcriptional and post-transcriptional changes

- **Responsible person in the organization and principal investigator: Z. Pirnik**

Type of the Project: Bilateral project with the Institute of Molecular Genetics, Prague, Czech Republic

Title: Fos expression in hypocretinergic neurons in C57B1/6 male and female mice after long-term consumption of high fat diet

- **Responsible person in the organization and principal investigator: S. Scsuková**

Type of the Project: Bilateral project with the Institute of Animal Physiology and genetics, Liběchov, Czech Republic Molecular Genetics, Prague, Czech Republic

Title: Altered organization of the oocyte-cumulus extracellular matrix in the presence of proteasomal inhibitor MG132

- **Responsible person in the organization and principal investigator: V. Štrbák**

Type of the Project: Bilateral project with the Institute of Physiology and Pathophysiology, Paracelsus Medical University, Salzburg, Austria

Title: Resveratrol inhibits electrical activity and insulin release from insulinoma cells by block of voltage-gated Ca⁺ channels and swelling-dependent Cl⁻ currents.

- Responsible person in the organization and principal investigator: J. Ukropec

Type of the Project: COST FA 0602

Title: Bioactive food components, mitochondrial function and health

- Responsible person in the organization and principal investigator: B. Ukropcová, J. Ukropec

Type of the Project: Bilateral project with the Pennington Biomedical Research Center, Baton Rouge, Louisiana, USA

Title: Pathogenesis of obesity and Diabetes

2009

- Responsible person in the organization and principal investigator: J. Brtko

[1]

Type of the Project: Bilateral project with the Department of Molecular Biology, Division of Allergy and Immunology, University of Salzburg, Austria

Title: Analysis of altered gene expression profiles in retinoic acid treated mice

[2]

Type of the Project: Bilateral project with the Institute of Medical Chemistry and Biochemistry, Medical faculty, Palacky University, Olomouc, Czech Republic

Title: Cross-talk between selected nuclear receptors – ligand inducible transcription factors

- Responsible person in the organization and principal investigator: R. Imrich

Type of the Project: Bilateral USA – Slovak grant (NIH 08-D-0018)

Title: Clinical and Laboratory Evaluation of the Autonomic Nervous System in Primary Sjögren's Syndrome

- Responsible person in the organization and principal investigator: D. Ježová

Type of the Project: Bilateral Austrian – Slovak project

Title: Educational outcome of collaborative studies within an Austrian-Slovak research unit focused on evaluating mental and cardiovascular stress

- Responsible person in the organization and principal investigator: I. Klimes

Type of the Project: COST BM 0602

Title: Fat tissue: A key target for prevention of metabolic syndrome

- Responsible person in the organization and principal investigator: R. Kvetňanský

[1]

Type of the Project: Bilateral project with the New York Medical College, Valhalla, USA

Title: Stressor-specific regulation of catecholamine biosynthetic enzymes gene expression

[2]

Type of the Project: Bilateral project with the Rutgers State University of New Jersey, Piscataway, USA

Title: Altered ethanol effects on osteocalcin null mutant mice

[3]

Type of the Project: Bilateral project with the Pediatric and Reproductive Endocrinology Branch, NICHD, NIH Bethesda

Title: Investigation of activity alterations in catecholaminergic and other neurotransmitter systems by PE

[4]

Type of the Project: Bilateral project with the Department of Physiology, Georgetown University, Washington, USA

Title: Adrenergic response to stress: transcriptional and post-transcriptional changes

- **Responsible person in the organization and principal investigator: J. Ukropec**

Type of the Project: COST FA 0602

Title: Bioactive food components, mitochondrial function and health

2010

- **Responsible person in the organization and principal investigator: R. Imrich**

Type of the Project: Bilateral USA – Slovak grant (NIH 08-D-0018)

Title: Clinical and Laboratory Evaluation of the Autonomic Nervous System in Primary Sjögren's Syndrome

- **Responsible person in the organization and principal investigator: D. Ježová**

Type of the Project: Bilateral Austrian – Slovak project

Title: Educational outcome of collaborative studies within an Austrian-Slovak research unit focused on evaluating mental and cardiovascular stress

- **Responsible person in the organization and principal investigator: I. Klimes**

Type of the Project: COST BM 0602

Title: Fat tissue: A key target for prevention of metabolic syndrome

- **Responsible person in the organization and principal investigator: J. Ukropec**

Type of the Project: COST FA 0602

Title: Bioactive food components, mitochondrial function and health

2011

- **Responsible person in the organization and principal investigator: D. Ježová**

[1]

Type of the Project: Bilateral Austrian – Slovak project

Title: Educational outcome of collaborative studies within an Austrian-Slovak research unit focused on evaluating mental and cardiovascular stress

[2]

Type of the Project: Bilateral Taiwan – Slovak project

Title: Interaction of nutrients and oxytocin in modulating neuroendocrine, metabolic and cardiovascular functions

- **Responsible person in the organization and principal investigator: I. Klimes**

Type of the Project: COST BM 0602

Title: Fat tissue: A key target for prevention of metabolic syndrome

- Responsible person in the organization and principal investigator: J. Ukropec

Type of the Project: COST FA 0602

Title: Bioactive food components, mitochondrial function and health

- **National projects and funding⁵**
 - List of State Research Programmes, and their funding
 - List of project supported by APVV

Start	Project title	Project number	Duration in months	Funding for the Organisation (EUR)	Role of the Organisation
2007	Hormonal regulation of gene expression of lipid metabolism in the adipose tissue of obese and insulin resistant subjects	APVT 51-040602	12	0	LEADER
	Education of young specialists in the field of the neurobiological basis of mental disorders	LPP-0194-06	12	64 795	LEADER
	Molecular mechanisms of new drugs influencing oxidative stress – important ethiopathogenetic factor of numerous diseases	APVV-51-017905	12	4 548	PARTNER
	Effect of immunostimulants and their combination therapy with methotrexate on adjuvant arthritis in rats	APVV-21-055205	12	6 307	PARTNER
	DNA analysis of monogenic forms of diabetes in Slovakia	APVV-51-014205	12	79 997	LEADER
	Systemic inflammation and expression of cytokines in the adipose tissue in association with pulmonary functions in patients with the chronic obstructive pulmonary disease /COPD/	0122-06	12	56 957	PARTNER
	Role of the central nervous system in monitoring and modulation of tumorigenesis: new approach for the study of cancer etiopathogenesis	APVV-0045-06	12	11 953	PARTNER
	Molecular-genetic mechanisms of regulation of sympathoadrenal system adaptation to stress	APVV-0148-06	11	119 863	LEADER
	Cell volume and insulin secretion	APVV-0235-06	12	38 273	LEADER
	Application of electrografting polymerization for immobilization of proteins onto solid surfaces in design of the implantable glucose sensitive biosensor	RP EU-0007-06	12	2 988	PARTNER
funding in the year 2007 (EUR)				385 681	
2008	Systemic inflammation and expression of cytokines in the adipose tissue in	APVV-0122-06	12	47 022	PARTNER

⁵ Excluding projects for the popularisation of science

	association with pulmonary functions in patients with the chronic obstructive pulmonary disease /COPD				
	Education of young specialists in the field of the neurobiological basis of mental disorders	LPP-0194-06	12	56 164	LEADER
	Molecular mechanisms of effects of new drugs affecting oxidative stress - significant etiopathogenetic factor of numerous diseases	APVV 51-017905	12	4 548	PARTNER
	Effect of immunostimulants and their combination therapy with methotrexate on adjuvant arthritis in rats	APVV 21-055205	12	6 307	PARTNER
	Role of the central nervous system in monitoring and modulation of tumorigenesis: new approach for the study of cancer etiopathogenesis	APVV-0045-06	12	11 259	PARTNER
	DNA analysis of monogenic forms of diabetes in Slovakia	APVV-51-014205	12	73 027	LEADER
	Molecular-genetic mechanisms of regulation of sympathoadrenal system adaptation to stress	APVV-0148-06	11	116 312	LEADER
	Cell volume and insulin secretion	APVV-0235-06	12	19 850	LEADER
	Application of electrografting polymerization for immobilization of proteins onto solid surfaces in design of the implantable glucose sensitive biosensor	RP EU-0007-06	12	2 656	PARTNER
	Molecular mechanisms of retinoic acids action in relation to thyroid carcinoma, breast and renal cancer therapy	APVV-0120-07	7	19 087	LEADER
	Biomembranes: Structure and dynamics of biological membranes	VVCE-6526-07	11	6 008	PARTNER
	Lipid droplets as dynamic organelles of fat deposition and release: translational research towards human disease	DO7RP-0004-08	1	29 505	LEADER
	funding in the year 2008 (EUR)			391 745	

2009	Molecular mechanisms of retinoic acids action in relation to thyroid carcinomas, breast and renal cancer therapy	APVV-0120-07	12	41 127	LEADER
	Systemic inflammation and expression of cytokines in the adipose tissue in association with pulmonary functions in patients with the chronic obstructive pulmonary disease /COPD/	APVV-0122-06	12	47 686	PARTNER
	Education of young specialists in the field of the neurobiological basis of mental disorders	LPP-0194-06	11	31 136	LEADER
	Molecular mechanisms of new drugs influencing oxidative stress - important etiopathogenetic factor of numerous diseases	APVV-51-017905	4	730	PARTNER
	Effect of immunostimulants and their combination therapy with methotrexate on adjuvant arthritis in rats	APVV-21-055205	4	2 091	PARTNER
	DNA analysis of monogenic forms of	APVV-	3	0	LEADER

	diabetes in Slovakia	51-014205			
	Molecular-genetic mechanisms of regulation of sympathoadrenal system adaptation to stress	APVV-0148-06	12	93 341	LEADER
	Role of the central nervous system in monitoring and modulation of tumorigenesis: new approach for the study of cancer etiopathogenesis	APVV-0045-06	12	8 780	PARTNER
	Cell volume and insulin secretion	APVV-0235-06	12	20 182	LEADER
	Application of electrografting polymerization for immobilization of proteins onto solid surfaces in design of the implantable glucose sensitive biosensor	RP EU-0007-06	12	2 656	PARTNER
	Biomembranes: Structure and dynamics of biological membranes	VVCE-6526-07	12	12 747	PARTNER
	funding in the year 2009 (EUR)			260 476	

2010	Molecular mechanisms of retinoic acids action in relation to thyroid carcinomas, breast and renal cancer therapy	APVV-0120-07	12	40 928	LEADER
	Lipid droplets as dynamic organelles of fat deposition and release: translational research towards human disease	DO7RP-0004-08	12	34 523	LEADER
	Biomembranes: Structure and dynamics of biological membranes	VVCE-6526-07	12	13 145	PARTNER
	The role of local renin-angiotensin system in the adipose tissue and liver in rat model of obesity and diabetes	SK-PL-0066-09	12	1 190	LEADER
	funding in the year 2010 (EUR)			89 786	

2011	Developmental effects of neuropeptides	APVV-0253-10	8	24 192	LEADER
	Changes in the cell metabolism developed by overexpression of the drug transporter – P-glycoprotein in leukemic cells	APVV-0290-10	6	6 948	PARTNER
	The effect of selected endocrine disruptors on the development of mammary gland, prostatic cancer and ovarian dysfunctions	APVV-0147-10	8	25 736	LEADER
	Interaction of mental, cardiovascular, neuroendocrine and metabolic factors: from animal models to clinical applications	APVV-0028-10	8	27 831	LEADER
	Neurobiology of cancer: the study of the nervous system role in etiopathogenesis of tumor growth and development of metastasis	APVV-0007-10	8	12 175	PARTNER
	Screening of hereditary hearing disorders in Slovakia by DNA analysis	APVV-0148-10	8	45 800	PARTNER
	Is stress a crucial factor in the process of neurodegeneration accompanying Alzheimer's disease?	APVV-0088-10	8	35 000	LEADER
	Biomembranes: Structure and dynamics of biological membranes	VVCE-6526-07	12	7 834	PARTNER

Advanced polymer technologies in biomedicine: Polymer microcapsules for immunoprotection of transplanted pancreatic islets in diabetes treatment	APVV-0486-10	8	8 425	PARTNER
The role of local renin-angiotensin system in the adipose tissue and liver in rat model of obesity and diabetes	SK-PL-0066-09	12	1 500	LEADER
funding in the year 2011 (EUR)			195 441	

- iii. **Number of projects supported by the Scientific Grant Agency of the Slovak Academy of Sciences and the Ministry of Education (VEGA) for each year, and their funding**

VEGA	2007	2008	2009	2010	2011
number	16	16	19	14	18
funding in the year (EUR)	72198,00	76280,00	74484,00	75301,00	95986,00

▪ **Summary of funding from external resources**

External resources	2007	2008	2009	2010	2011	total	average
external resources (milions of EUR)	0,543	0,684	0,455	0,373	1,274	3,329	0,666
external resources transferred to cooperating research organisations (milions of EUR)	0,052	0,179	0,070	0,150	0,518	0,969	0,194
ratio between external resources and total salary budget	0,982	1,134	0,733	0,588	2,095	-	1,107
overall expenditures (milions of EUR)	0,595	0,863	0,525	0,523	1,792	4,298	0,860

iv. **List of projects the EU Structural Funds**

- **Summary of external resources of the EU Structural Funds (ERDF/ESF)**

Year	Project title	Project number	Duration in months	Funding for the Organisation (EUR)	Role of the Organisation
2007	Health of inhabitants of Bratislava region	ESF 13120200056	(2005-2008)	0,000	LEADER Jezova
	Positron emission tomography for small experimental animals	ESF 13120200067	(2005-2008)	0,000	LEADER Strbak
2008	Health of inhabitants of Bratislava region	ESF 13120200056	/	0,000	LEADER Jezova
	Positron emission tomography for small experimental animals	ESF 13120200067	/	0,000	LEADER Strbak
2009	Centre of excellence for translational research in molecular medicine TRANSMED1	ERDF 26240120008	24 (01/2009-10/2010)	159098,000	PARTNER Klimes
2010	Centre of excellence for translational research in molecular medicine TRANSMED1	ERDF 26240120008	/	/	PARTNER Klimes
	Centre of excellence for translational research in molecular medicine TRANSMED2	ERDF 26240120030	24 (06/2010-05/2012)	316986,000	PARTNER Klimes
	Transfer of genetic knowledge of endocrine research into clinical praxis TRANSENDOGEN	ERDF 26240220051	34 (11/2010-08/2013)	929689,000	LEADER Klimes
2011	Centre of excellence for translational research in molecular medicine TRANSMED2	ERDF 26240120030	/	/	PARTNER Klimes
	Transfer of genetic knowledge of endocrine research into clinical praxis TRANSENDOGEN	ERDF 26240220051	/	/	LEADER Klimes
	Implementation of molecular medicine into diagnostics, therapy and prevention of serious lifestyle diseases ALPHAGENETICA	ERDF 26240220068	36 (02/2011-01/2014)	983075,000	PARTNER Klimes
	Build a competency centre for research and development in molecular medicine KCMOLMED	ERDF 26240220071	38 (10/2011-11/2014)	122893,000	PARTNER Klimes

v. **Supplementary info and/or comments on research projects and funding resources**

Over the five years a significant number of various research grant supports has been awarded to our Institute which is only another proof of evidence that this Institute is valued both at the domestic platform as well as at the international level. The most wanted research grants are those from the EC via the various **Biomedical Framework Programs from Brussels**. Although this time during the evaluation period we had only three grants (Dr. Brtko one ending in 2010, Prof. Klimes had one from the 6th FP as well and Dr. Gasperikova was the leader of a 7th FP project. Right now we (Ukropec and Gasperikova)

have applied within the FP in Brussels together with the Cambridge University for an FP7 grant.

The second major sources of finances are the **grants from the APVV**, Slovakia. These grants may provide up to 8-9 millions of Slovak Crowns and are pretty competitive and prestigious. Our Institute has had over the 5 year period more than a dozen of APVV grants and we shall try to continue in this trend.

The rest of the money comes from various other institutions round the globe **but our work cannot be dependent of whether we receive something from abroad or not**. The same is true however fro the APVV grants where you do not know every year whether at all, and if yes then how much money we shall have for good research.

Finally, since about 2 years ago we had started to get scientific instruments and other research material via the so called “Structural funds”. It’s very nice money, which however “costs” too much as **one has to hire a project manager and/or a financial manager** in order to be able to use the money in a safe way.

Taken together we have all of the aforementioned sources of money and some of the research labs of this Institute, therefore, are having a relatively decent scientific life, working though very hard as you must not fall out of the wheel.

5. Organisation of PhD studies, other pedagogical activities

- i. **List of accredited programmes of doctoral studies (as stipulated in the previously effective legislation as well as in the recently amended Act on the Universities). Period of validity of accredited scientific disciplines, characterization of perspectives of PhD study on the Organisation**

Previously effective legislation

51-02-9	Normal and pathological physiology
15-17-9	Animal physiology
14-10-9	Biochemistry
51-04-9	Pharmacology

Recent legislation

[1]

7.1.3 Normal and pathological physiology – Medical faculty Comenius University, Bratislava, since 2005 – without the time limit

[2]

4.2.10 Animal physiology – Faculty of Natural Sciences, Comenius University Bratislava, since 2005 – without the time limit

[3]

4.1.22 Biochemistry – Faculty of Chemical and Food Technology, Slovak Technical University, Bratislava, since 2005 – without the time limit

[4]

4.1.22 Biochemistry – Jessenius Medical Faculty, Comenius University, Martin, since 2006 – without the time limit

[5]

7.3.2 Pharmacology – Pharmaceutical Faculty, Comenius University, Bratislava – from 2005 until 2009

Characterization of perspectives of PhD study:

The Institute is approved to lead PhD studies in 3 study disciplines and several scientists are the members or even the leaders of the committees for PhD or DSc.

degree. The positive relation between the Institute and universities is documented by a high number of researchers selected as members of several PhD committees created at individual universities according to the new legislation. Senior scientists of the Institute perform also high quality pregraduate teaching, mainly in animal physiology, normal and pathological physiology, pharmacology, and genetics. Several scientists of the Institute are supervisor of bachelor and diploma thesis. Moreover, scientists of the Institute participate on lectures and seminars in faculties. These activities create basis for attraction of graduated students into the PhD study at the Institute. There is also tendency to prepare basis for accreditation of new scientific disciplines, including Molecular biology as well as Genetics.

ii. Summary table on doctoral studies (number of internal/external PhD students; number of students who completed their study by a successful thesis defence; number of PhD students who quitted the programme)

PhD study	31.12.2007			31.12.2008			31.12.2009			31.12.2010			31.12.2011		
number of potential PhD supervisors															
PhD students	number	defended thesis	students quitted	number	defended thesis	students quitted	number	defended thesis	students quitted	number	defended thesis	students quitted	number	defended thesis	students quitted
internal	12	3	2	13	2	2	14	6	1	13	4	1	14	2	0
external	4	0	0	4	0	0	4	2	0	4	1	0	5	0	0
supervised at external institution by the research employees of the assessed organisation	4	-	-	6	-	-	5	-	-	2	3	-	3	-	-

iii. Postdoctoral positions supported by

a) external funding (specify the source)

2007-2011

None in the evaluated period.

b) internal funding - the Slovak Academy of Sciences Supporting Fund of Stefan Schwarz

- 2007** - Mgr. Zuzana Bačová, PhD.
2008 - RNDr. Ján Bakoš, PhD.
2009 - Mgr. Alžbeta Mlynarčíková, PhD.
2010 - RNDr. Jana Bundzíková, PhD.
 - Mgr. Roman Hafko, PhD.
2011 - RNDr. Mária Ondrejčáková, PhD.

iv. Summary table on pedagogical activities

Teaching	2007	2008	2009	2010	2011
lectures (hours/year) ³	62	62	89	101	264
practicum courses (hours/year) ³	962	3249	2019	352	537
supervised bachelor thesis (in total)	3	5	3	5	6
supervised diploma thesis (in total)	5	12	17	18	24
supervised rigorous thesis (in total)	-	-	-	-	-
members in PhD committees (in total)	12/22	12/25	12/41	12/54	7/31
members in DrSc. committees (in total)	6/3	6/1	6/6	7/6	7/3
members in university/faculty councils (in total)	2	2	5	5	5
members in habilitation/inauguration committees (in total)	5	3	2	1	4

6

v. List of published university textbooks

2007

[1] Mravec B, Bernadič M, Hulín I, Kiss A, Kvetňanský R, Kukanová B, Pečeňák J. Neurotransmitery. SAP, Bratislava 2007; 284 pp.

2008 - 2009 – 2010: none

2011

[1] Mravec B. Stres a adaptácia. SAP, Bratislava 2011; 332 pp.

vi. Number of published academic course books

2007- 2008 – 2009: none

2010: 2

- **Strbak V.**, Kerlik J., Vlcek M., Varečka A.: PATHOPHYSIOLOGY OF THE GIT ENDOCRINE SYSTEM. Bratislava: Slovak Medical University, 2010. 179 S. ISBN 978-80-89352-42-5.
- **Strbak V.**, Bacova Z., Gábelová A., Hrubisko M., Imrich R., Vlcek M.: PATHOLOGICAL PHYSIOLOGY Bratislava: Slovak Medical University, 2010. 164 s. ISBN 978-80-89352-40-1.

2011: none

⁶ Do not include time spent with bachelor, diploma or PhD students during their supervising

vii. List of joint research laboratories/facilities with the universities

I. Joint collaborative platforms with a contract

The institute has rich collaboration with several scientific organizations and hospital departments. The most important collaborations which have been supported by a contract signed by both parties encompass two joint collaboration platforms:

The DIABGENE laboratory

This joint project of a DNA diagnostic laboratory, established in 2002 by the current Institutes Director (professor Iwar Klimes) and Associate Professor Jozef Michalek (the former director of the National Institute of Endocrinology and Diabetes in Lubochňa), has been serving until now as a National Center for DNA diagnostics of monogenic forms of diabetes or hereditary hyperinsulinism. Collaboration was focused at active screening of patients with different forms (MODY1 to MODY5, insulin, Kir6.2 and SUR1) of monogenic diabetes or hereditary hyperinsulinemic hypoglycemia (Kir6.2 or SUR1). Later on, our portfolio grew up involving genes responsible for monogenic obesity (MC4R, leptin and receptors for leptin) and familiar hypercholesterolemia (ApoB, LDLR, PCSK9). Moreover, attention is paid for transition of individuals with MODY and/or neonatal diabetes from insulin to derivatives of sulfonylurea. Running the DNA diagnostics for whole Slovakia is money and time consuming but it provides us with several unknown mutations which – if not yet published – are investigated by us using the structure-function studies and published in good professional journals. Thus, this is a mutually efficient situation for the health care as well as the research interest of the lab.

BIONT-Micro-PET

In the early period after the turn of centuries, director of this Institute signed a contract with the entrepreneur organization BIONT on creating a joint micro-PET centre at this Institute. The initial collaboration plans were aimed at the determination of activation of selected brain areas in stressed rats using short-living isotopes. Moreover, proliferation of tumor cells in animals with mammary cancer was also investigated. Nevertheless, new machines with relatively much higher resolution have emerged on the market. The latter together with an unacceptable increase in electricity expenses led at the end of day to a joint decision to close the micro-PET centre at this Institute in 2009.

II. Joint collaboration (without a contract)

- [1] 5th Department of Internal Medicine, Faculty Hospital and Faculty of Medicine, Comenius University in Bratislava **/Gasperikova D./** (2007 - until now)
- [2] Institute of Pharmacology, Faculty of Medicine, Comenius University in Bratislava **/Jezova D./** (2007 - 2010)
- [3] Institute of Medical Chemistry, Biochemistry and Clinical Biochemistry, Faculty of Medicine, Comenius University in Bratislava **/Jezova D./** (2007)
- [4] Institute of Pathophysiology, Faculty of Medicine, Comenius University in Bratislava **/Kiss A./** (2007 - 2008)
- [5] Child Diabetology Centre of SR, 1st Children's Faculty Hospital and Clinic and Faculty of Medicine, Comenius University in Bratislava **/Klimes I./** (2007 – until now)
- [6] 1st Department of Otorhinolaryngology, Faculty of Medicine, Comenius University in Bratislava **/Klimes I./** (2007 - until now)
- [7] Department of Urology, Faculty of Medicine, Comenius University in Bratislava **/Kvetnansky R./** (2007 – 2011)
- [8] Department of Cardiology and Cardiosurgery, National Institute of Cardiovascular Diseases in Bratislava **/Kvetnansky R./** (2007 – 2009)
- [9] Department of Surgery, Slovak Medical University in Bratislava **/Gasperikova D./** (2007 - 2010)

- [10] 1st Department of Internal Medicine, Faculty of Medicine, Pavol Jozef Šafárik University, Košice **/Klimes I./** (2007)
- [11] Institute of Preventive and Clinical Medicine, Slovak Medical University in Bratislava **/Klimes I./** (2007)
- [12] Department of Pneumology and Phthysiology Faculty of Medicine, Pavol Jozef Šafárik University, Košice **/Klimes I., Gasperikova D/** (2007 – until now)
- [13] Department of Animal Physiology and Ethology, Faculty of Natural Sciences, Comenius University **/Kiss A./** (2007 – until now)
- [14] Faculty of Mechanical Engineering, Slovak University of Technology **/Penesova A./** (2007 - 2008)
- [15] Department of Urology, Faculty of Medicine, Comenius University in Bratislava **/Brtko J./** (2008)
- [16] Department of Pharmacognosy and Botany, Faculty of Pharmacy, Comenius University **/Fickova M./** (2008 – until now)
- [17] 2nd Department of Neurology, Faculty Hospital and Faculty of Medicine, Comenius University in Bratislava **/Imrich R./** (2008)
- [18] 1st Department of Internal Medicine, Slovak Medical University, Faculty Hospital Bratislava **/Zorad S./** (2008)
- [19] St. Elisabeth Cancer Institute, Bratislava **/Brtko J./** (2008)
- [20] Institute of Histology and Embryology, Faculty of Medicine, Comenius University in Bratislava **/Kiss A./** (2009 – until now)
- [21] Department of Clinical and Experimental Pharmacotherapy; Department of immunology and immunotoxicology; Department of Environmental Medicine; Department of Toxic and Organic Pollutants; Slovak Medical University in Bratislava **/Štrbak V./** (2009 – 2010)
- [22] Department of Psychiatry, Faculty of Medicine, Comenius University in Bratislava **/Kiss A./** (2010)
- [23] Institute of Physiology, Faculty of Medicine, Comenius University in Bratislava **/Bakos J./** (2011 – until now)
- [24] Department of Surgery, Slovak Medical University in Bratislava **/Ukropcova B., Ukropec J./** (2011 – until now)
- [25] Department of Sport Kinanthropology, Faculty of Physical Education and Sports, Comenius University in Bratislava **/Ukropcova B., Ukropec J./** (2011 – until now)

viii. Supplementary information and/or comments on doctoral studies and pedagogical activities

The problem in PhD studies starts with the fact that the colleagues who should guarantee the education process in the individual disciplines shall rotate out due to the 65 years age limit. This means that we shall loose the rights to educate in biochemistry */Dr. Brtko will be 65 next year/*, in physiology of the animals */Prof. Jezova will rotate out in about 2 years, Dr. Kiss the same/*. The right to teach in pharmacology was lost 2 years ago and Prof. Jezova did not show interest to write up an application to the Central Accreditation Committee which is issuing the PhD education licenses.

The only functioning guarantee is Prof. Klimes for normal and pathological physiology that has further 4 years to serve on the committee. The Institute has also an interest to build up a committee of guarantees in genetics and thus, we are stimulating Dr. Gasperikova to submit her DrSc thesis as soon as possible. The same applies to Dr. Farkas. Dr. Zorad has been suggested to submit his DrSc thesis in molecular biology.

Dr. Štrbak is employed with the Slovak Health University as the Head of the Department of the Normal and Pathological Physiology. He has a reduced contract (down to 51%) with this institute and each day in the afternoon he is going over to the other working place.

6. Applied research

(Applications of results)

i. List of the most important results of applied research projects

A true applied research with direct use in the clinical medicine has been over the years carried out in our DNA diagnostic laboratory **DIABGENE**, which was established 10 years ago. In addition also other contributions to applied research went off “the kitchen” of the Diabetes Laboratory. Thus see further the “List of the most important results from the applied science” (first the “take home messages” and then the “real citations” of our papers on these topics):

2007

Identification of the **gene responsible for the Permanent Neonatal Diabetes**, functional analyses of the novel mutations and **international diagnostic and therapeutic guidelines** for MODY diabetes. For details see page 10.

Publications:

- **Stanik J., Gasperikova D.**, Paskova M., Barak L., Javorkova J., Jancova E., Ciljakova M., Hlava P., Michalek J., Flanagan S., Pearson E., Hattersley A., Ellard S., Klimes I.: Prevalence of permanent neonatal diabetes in Slovakia and successful replacement of insulin with sulfonylurea therapy in KCNJ11 and ABCC8 mutation carriers. *J Clin Endocrinol Metab* 2007, Apr; 92(4):1276-82. **IF = 5.8**
- E.L. Edghill, S.E. Flanagan, A.M. Patch, C. Boustred, A. Parrish, B. Shields, M.H. Shepherd, K. Hussain, R. Kapoor, M. Malecki, M.J. MacDonald, J. Støy, D. F. Steiner, L.H. Philipson, G.I. Bell, the Neonatal Diabetes International Collaborative Group (including **I. Klimeš, D. Gašperíková, J. Staník**) A.T. Hattersley, and S. Ellard: Insulin Mutation Screening in 1044 Patients with Diabetes: Mutations in the INS gene are a Common Cause of Neonatal Diabetes but a Rarer Cause of Diabetes Diagnosed in Childhood or Adulthood. *Diabetes* 2007 (in press) **IF = 7.96**
- P. Tammaro, S.E. Flanagan, B. Zadek, S. Srinivasan, H. Woodhead, S. Hameed, **I. Klimes**, A.T. Hattersley, S. Ellard, F. Ashcroft: A Kir6.2 mutation causing severe functional effects in vitro produces neonatal diabetes without the expected neurological complications. *Diabetologia* 2008 (in press) **IF = 5.25**
- Ellard S, Bellanne-Chantelot, the European Molecular Genetics Quality Network (EMQN) MODY group (**D. Gašperíková a I. Klimeš**) and Hattersley AT: Best Practice Guidelines for the molecular genetic diagnosis of maturity onset diabetes of the young (MODY) *Diabetologia* 2007 (submitted for publication) **IF = 5.25**

2008

Growth hormone deficiency significantly modulates expression of adipokines in subcutaneous adipose tissue resulting in the development of hypertrophic large „pathogenic“ adipocytes and metabolic disbalance in these individuals. For details see page 11.

Publications:

- **Ukropec J, Penesová A, Škopková M, Pura M, Vlček M, Rádíková Z, Imrich R, Ukropcová B, Tajtáková M, Koska J, Zórad S, Belan V, Vanuga P, Payer J, Eckel J, Klimes I, Gašperíková D.** Adipokine protein expression pattern in growth hormone deficiency predisposes to the increased fat cell size and the whole body metabolic derangements. *J Clin Endocrinol Metab.* 93(6):2255-62, 2008b **IF = 5.493**
- **Ukropec J., Ukropcova B., Kurdiova T., Gasperikova D., Klimes I.:** Adipose tissue and skeletal muscle plasticity modulates metabolic health. *Arch Physiol Biochem* 14, 1-12, 2008a **IF = 0.940**
- **Škopková M, Penesová A, Sell H, Rádíková Z, Vlček M, Imrich R, Koška J, Ukropec J, Eckel J, Klimeš I, Gašperíková D.** Protein array reveals differentially expressed proteins in subcutaneous adipose tissue in obesity. *Obesity (Silver Spring).* 2007 Oct;15(10):2396-406. **IF = 3.491**

2009

Clarifying the **molecular genetic mechanisms of diabetogenicity in new** mutations associated with extreme insulin resistance and monogenic diabetes. For details see page 13.

Publications:

- S.G.I.Suliman, **J.Stanik**, L.J.McCulloch, N.Wilson, E.L.Edghill, N.Misovicova, **D.Gasperikova**, V. Sandrikova, K.S.Elliott, L.Barak, S.Ellard, E.V.Volpi, **I.Klimes**, and A.L.Gloyn1: Severe Insulin Resistance and Intrauterine Growth Deficiency Associated With Haploinsufficiency for INSR and CHN2: New Insights Into Synergistic Pathways Involved in Growth and Metabolism. *Diabetes* 58:2954–2961, 2009 (IF = 8.398)
- **Gasperiková D**, TribbleND, **Staník J, Hucková M**, Misovicová N, van de Bunt M, **Valentínová L**, Barrow BA, Barák L, Dobránsky R, Bereczková E, Michálek J, Wicks K, Colclough K, Knight JC, Ellard S, **Klimes I**, Gloyn AL: Identification of a novel beta-cell glucokinase (GCK) promoter mutation (-71G>C) that modulates GCK gene expression through loss of allele-specific Sp1 binding causing mild fasting hyperglycemia in humans: *Diabetes* 2009 Aug;58(8):1929-35. (IF = 8.398)

2010

The impacts of **organochlorines and other persistent pollutants on thyroid and metabolic health**. For details see page 14.

Publications:

- **Langer P**. The impacts of organochlorines and other persistent pollutants on thyroid and metabolic health. *Front Neuroendocrinol.* 2010 Oct;31(4):497-518. (IF= 12.05)
- **Ukropec J, Radikova Z, Huckova M**, Koska J, Kocan A, **Sebokova E**, Drobna B, Trnovec T, Susienkova K, Labudova V, **Gasperikova D, Langer P, Klimes I**. High prevalence of prediabetes and diabetes in a population exposed to high levels of an organochlorine cocktail. *Diabetologia.* 2010 May;53(5):899-906. (IF= 6.55)

2011

A large multi-centre European study validates **high-sensitivity C-reactive protein (hsCRP) as a clinical biomarker for the diagnosis of diabetes subtypes**. For details see page 15.

Publications:

- THANABALASINGHAM G., SHAH N., VAXILLAIRE M., HANSEN T., TUOMI T., **GASPERIKOVA D**., SYOPA M., TJORA E., JAMES T.J., KOKKO P., LOISELEUR F., ANDERSSON E., GAGET S., ISOMAA B., NOWAK N., RAEDER H., **STANIK J**., NJOLSTAD P.R., MALECKI M.T., **KLIMES I**., GROOP L., PEDERSEN O., FROGUEL P., MCCARTHY M.T., GLOYN A.L., OWEN K.R.: A large multi-centre European study validates high-sensitivity C-reactive protein (hsCRP) as a clinical biomarker for the diagnosis of diabetes subtypes. *Diabetologia* 2011 Aug 4 (IF 2010 = 6.973)

ii. List of the most important studies commissioned for the decision-making authorities, the government and NGOs, international and foreign organisations

2007: none

2008

(COSPAR -Slovak National Committee, SAS, May 2008) L.Macho

Report for COSPAR on Life Sciences in Space Research in Slovakia (2008-2009)

2009

Report on cosmic activities in Slovak Republic for

- the Permanent Mission of Slovakia at the United Nations - COPUOS Committee (R. Kvetnansky)
- COSPAR (R. Kvetnansky)

2010

(COSPAR -Slovak National Committee, SAS, June 2010) R. Kvetnansky, L.Macho

2011: none

iii. **List of licences sold abroad, incl. revenues**

N/A

iv. **List of licences sold in Slovakia, incl. revenues**

N/A

v. **List of contracts with industrial partners, incl. revenues⁴**

N/A

vi. **List of research projects with industrial partners, incl. revenues⁷**

Title:

The Effect of a Long-term growth Hormone Supplementation on the Whole-body Metabolic Characteristics and Adipose tissue Phenotype in Growth Hormone deficient Adults: The 5 yr follow-up.

This study shall upon its completion and statistical evaluation provide for the first time a set of answers to questions what are the metabolic arguments to substitute adult subjects (who do not produce endogenous growth hormone for various reasons) with growth hormone on a long-term. This question is a very important one as we do have to have medical answers on the issue of possible side effects of such long-term administration of the hormone and secondly, GH treatment is expensive and therefore, the medical arguments to continue with the substitution have to be very fundamental.

Investigator Initiated Research Grant - Pfizer.

Duration of the project: 1/2011-1/2013

Budgetary requirements: 40.000,-€

Principal investigator: Mgr. Jozef Ukropec, PhD.

vii. **Supplementary information and/or comments on applied activities**

There is not much to be added to comment upon results of the applied science except of those which are rather of financial nature. The DNA laboratory is carrying all of the DNA sequencing for the whole territory of Slovakia without any charges. This is being done therefore as by carrying out routine diagnostics country wide; we receive biological material sent to us for analyses which contain from time to time unknown mutations. These we use then for the "structure-function" studies. Results of the latter can be very nicely published in good journals with high IF.

	2007	2008	2009	2010	2011	total
studies for the decision sphere, government and NGOs, international and foreign organisations	/	/	/	/	1	1

7. Popularisation of Science (outreach activities)

i. **List of the most important popularisation activities**

All together we have had in the evaluated period up to 260 various popularisation activities. They are summarised in the forthcoming Table. In addition, the most important activities are described here separately in a way as we had received them from the press department of the Academy.

⁷ If not included in documentation of projects in chapter 4 (Projects structure, research grants and other funding resources).

2007**PRESS CONFERENCE**

- August 2, 2007: press conference about stress and obesity was done at SAS Presidium with RNDr. R. Kvetňanský, DrSc.

TV STATIONS

- TV station Centrum, September 21, 2007 a report on awards of the Literature Foundation for Scientific Literature - Prof. PharmDr. D. Ježová, DrSc.
- TV station STV 1, August 2, 2007, TV news STV: Treatment of obesity - RNDr. R. Kvetňanský, DrSc.
- TV station STV1, TV news STV, November 14, 2007, talk about award "Student individuality of SR for the school year 2006/2007 - MUDr. B. Ukropcová
- TV station TA3, programme „Reality in context“ November 16, 2007 – talk in relation to "Student individuality of SR for the school year 2006/2007 awarded by international organization „Junior Chamber International“- MUDr. B. Ukropcová

RADIO STATIONS

- Radio station Regina, April 16, 2007, programme Monday with Radio Regina, talk about disestablishment of Committee for Research and Peaceful Exploitation of Space in Slovakia, RNDr. R. Kvetňanský, DrSc.

NEWSPAPERS

- „SAS News“, volume 43, No. 3, page 7, year 2007, article entitled "Medal of SAS for support of science for Prof. I. Klimeš" - Prof. MUDr. I. Klimeš, DrSc.
- Newspaper SME, Appendix the Health, page 33 December 12, 2007, „Doctors awarded young scientists“– article about Guoth's award for young scientists that participate on investigation of diseases therapy - MUDr. Ž. Rádiková, PhD., MUDr. J. Staník
- SME (online), November 29, 2007, „Endocrinologists from SAS were awarded by two Guoth's awards - MUDr. Ž. Rádiková, PhD., MUDr. J. Staník

INTERNET

- SAV Presidium established new director of IEE SAS - Prof. Iwar Klimeš.(November 30, 2007), www.sav.sk - Prof. MUDr. I. Klimeš, DrSc.
- Medal of SAS for Prof. Iwar Klimeš (March 5, 2007), www.sav.sk - Prof. MUDr. I. Klimeš, DrSc.
- Slovak scientists are fighting against stress-induced obesity.- <http://iNews.sk> - RNDr. R. Kvetňanský, DrSc.

2008**PRESS AGENCIES**

- Press department of President of SR
MUDr. Barbara Ukropcová awarded by President of SR in the category Medical sciences, pharmacy.

TV STATIONS

- GUEST IN STUDIUM: Richard Kvetňanský from IEE SAS (TA3 25.09.2008, 15:16) coordinator of flight of Ivan Bella to the space. TOPIC: China's crew flying to the orbit. Live transmission from start of China spaceship observed with guest.
- AWARDS OF LITERARY FOUNDATION (September 25, 2008; TV Centrum) Talk with Daniela Ježova from IEE SAS about awards for Scientific Literature.

RADIO STATIONS

- IN OUR SCIENTIFIC INSTITUTES WE HAVE INTERNATIONALLY ACCEPTED SCIENTISTS (January 23, 2008; Radio station Slovensko; Radio journal; 12.00)
- GUEST IN PROGRAMME – GUEST IN STUDIO (February 2, 2008; Radio station Slovensko) Barbara Ukropcová from IEE SAS.
- BEST SCIENTISTS OF SAS (May 27, 2008): Radio station Slovensko; 15.10) Talk with RNDr. Kvetňanský about collaboration with first Slovak cosmonaut Ivan Bella.
- STUDENT'S INDIVIDUALITY OF THE YEAR 2007 Barbara and Jozef Ukropec from SAS (Slovak radio, Radio Regina, November 11, 2008)
- Examination of position of Slovak scientist in the world (January 16, 2008; radio station Lumen; Infolumen; 17.30) ARRA investigated position of Slovak scientist in the world.

NEWSPAPERS

- BARBARA UKROPCOVÁ (Jule 4, 2008; Sme; appendix Sme women, pages 8 12) Interview with Barbara Ukropcova (33), PhD student of Prof. Klimeš.

- AWARD OF SAS FOR YOUNG SCIENTIST (September 11, 2008; Plus jeden deň; appendix for women). Awarded scientist under 35 years from IEE SAS, Dana Macejová.

JOURNALS

- WE ARE SEARCHING FOR NEW GENES MUTATIONS (Diabetik 9/2008,. pages 8–11). Mgr. Daniela Gašperíková, CSc. from IEE SAS is enthusiastic scientist investigating genetic background of diabetes.
- AT THE ROAD FOR BETTER DIAGNOSTIC AND CANCER THERAPY (Quark No. 12/2008, appendix page. 3) Mgr. Dana Macejová, PhD., from IEE SAS, Award of SAS for the year 2008.

INTERNET

- TOP SCIENTIST IN SLOVAKIA (February 5, 2008; www.eTrend.sk ;Blog) ARRA published results of the study related to best Slovak scientists: Medical sciences (H>15): Daniela JEŽOVÁ*, Iwar KLIMEŠ.
- Dana Macejová awarded by SAS: Award for young scientist (August 29, 2008; www.tasr.sk ; tasr)

2009

Scientific-popularization activities

- Mgr. Zuzana Bačová, PhD. We see, hear we understand how our senses are working High school of A. Kmeťa, B. Štiavnica, October 10, 2009
- Mgr. Zuzana Bačová, PhD. What are parent responsible for? Or genetics in practice. High school of A. Kmeťa, B. Štiavnica. October 26, 2009
- RNDr. Jana Bundzíkova, PhD. Water-ion metabolisms Open doors day, ES and HS Bratislava April 28, 2009
- RNDr. Miroslava Eckertová, r.Baculíková, PhD. Unhealthy life style: disorders and diseases Conference Poľný Kesov, April 8, 2009
- Mgr. Ľubica Lackovičová Nervous system and cancer Open doors day, ES and HS Bratislava April 28, 2009
- MUDr. Vladimír Štrbák, DrSc. Therapy by laughter TV station JOJ, May 10, 2009
- Ing. Štefan Zórad, CSc. Even undisciplined aerobic training lead to improvement of some metabolic parameters in fat tissue Conference Poľný Kesov, April 4, 2009

TV stations

- Awards of SAS (June 25, 2009; TV station STV 1; News STV; 19.30; 0,5 min.) SAS awarded for exceptional scientific results: MUDr. Iwar Klimeš, DRSc., Mgr. Daniela Gašperíková, CSc. and MUDr. Juraj Staník.

NEWSPAPERS

- Slovak sea is poisoned. Who will heal it? (July 21, 2009; Pravda; page 13) The effect of PCB on health described by scientist from IEE SAS (Dr. Pavel Langer). Medical newspaper
- New therapy by peroral antidiabetics changed life of children with diabetes (April 17, 2009; no. 15, p. 8; jps) Prof. MUDr. Iwar Klimeš showed incidence 1 children per 215,000 newborns.
- There is no need to inject insulin. (January 23, 2009; No. 2, pages 26 27). It is possible to transfer approximately 6000 diabetics from injections to the pills, because they have only blocked release of insulin specialists from IEE SAS under supervision of prof. Klimeš isolate DNA and perform necessary diagnostic.
- Genetic causes of selected forms of monogenetic form of diabetes – awarded collection of papers of scientists from Diabgene Laboratory (Prof. MUDr. Iwar Klimeš, DrSc., director of IEE SAS) – page 2

PRESS AGENCIES

- Scientist from SAS (MUDr. Vladimír Štrbák, DrSc.) awarded by Golden medal of Serbian physiology society (January 02, 2009; tasr).
- SAV awarded best doctors, botanists and linguists (June 25, 2009; ČTK) Iwar Klimeš awarded for detailed mapping of neonatal diabetes in Slovakia.

Internet

- SAS awarded best doctors, botanists and linguists (June 25, 2009; www.i-news.sk ; čtk)
- MUDr. Iwar Klimeš, DrSc., Mgr. Daniela Gašperíková, CSc. and MUDr. Juraj Staník awarded by President of SAS, J. Pastorek by Price for Excellent Scientific Achievements of SAS for the year 2009

2010

Scientific-popularization activities

- RNDr. Richard Kvetňanský, DrSc. Solarium-magazine about science and current news Radio Devín
- Investigation of the effect of cosmic space on human body, talk with I. Bella and R. Kvetňanský, January 25, 26, 27, 2010
- prof. MUDr. Iwar Klimeš, DrSc. Morning magazine in STV1 „Talk about short film from series Spectrum of the science about successful scientific teams from SAS STV 1 Morning magazine with prof. MUDr. Iwar Klimeš, DrSc., April 20, 2010
- prof. MUDr. Iwar Klimeš, DrSc. Mgr. Daniela Gašperíková, CSc., MUDr. Juraj Staník, PhD. Spectrum of the science about successful scientific teams from SAS. STV 2 Monogenetic diabetes prof. MUDr. Iwar Klimeš, DrSc., April 20, 2010
- RNDr. Róbert Farkaš, CSc. TV news TV Markíza Information about NFM project. May 6, 2010
- RNDr. Richard Kvetňanský, DrSc., Live portraits – individualities from Bratislava and Slovakia TV station Bratislava
- Richard Kvetňanský – internationally accepted scientist investigating response of nervous and endocrine systems to the stress October 8, 2010
- Ing. Marcela Lauková Solarium-magazine about science and current news Radio Devín About the effect of stress on immunity December 23, 2010
- Mgr. Zuzana Bačová, PhD. Stress hormones and its effects High school of A. Kmeťa, B. Štiavnica, November 8, 2010
- Mgr. Zuzana Bačová, PhD., Hormones at the age of adolescence High school of A. Kmeťa, B. Štiavnica, November 8, 2010

TV STATIONS

- SERIES SPECTRUM OF SCIENCE (April 20, 2010; TV station STV 1) Guest Prof. MUDr. Iwar KLIMEŠ, DrSc.,
- The first film from the SERIES SPECTRUM OF SCIENCE (April 20, 2010; TV station STV 2; 21.00: Monogenic diabetes (Prof. MUDr. Iwar Klimeš, DrSc., Mgr. Daniela Gašperíková, CSc. and MUDr. Juraj Staník).
- TV NEWS MARKÍZA (May 6, 2010; TV station Markíza; 19.00) RNDr. R. Farkaš, CSc. information about project „New analytic and diagnostic methods for identification of defects of apocrine and holocrine secretion”.

RADIO STATIONS

- FOUNDATION INTENDA AWARDED BETS PHD STUDENTS FOR THE YEAR 2010. (December 23, 2010 at 13:00 Slovensky rozhlas, station Rádio Devín,). Talk „About the effect of the stress on immune system“ by Ing. Marcela Lauková.

NEWSPAPERS

- INTEGRATION OF RESEARCH AND PRACTISE (August 5, 2010; Zdravotnícke noviny; No. 28, page 3) Foundation of Molecular – medicine centre by Presidium of SAS.

2011

Scientific-popularization activities of scientist of IEE SAS

- Bakoš Ján, Oxytocin-hormone of love High school of Andreja Kmeťa, Banská Štiavnica October 8, 2011
- Bačová Zuzana, Genetics or what parent are responsible for High school of Andreja Kmeťa, Banská Štiavnica, October 8, 2011
- Bačová Zuzana Oxytocin-hormone of love High school of Andreja Kmeťa, Banská Štiavnica November 8, 2011
- Imrich Richard, Vlček, Chovanová, Penesová Night of researchers Avion Bratislava September 23, 2011
- Imrich Richard Document film about molecular medicine STV Dvojka February 17, 18, 2011 and March 30, 2011
- Imrich Richard Talk about rheumatoid arthritis TV Bratislava October 10, 2011
- Ježová Daniela Collaboration between universities and SAS – Spectrum of the science film series STV Dvojka February 2, 3 2011
- Klimeš Iwar, Gašperíková, Staník Monogenetic diabetes - Spectrum of the science film series STV Dvojka February 9, 10, 2011
- Klimeš Iwar, Imrich Life stronger than fate – from bench to bedside Slovenský rozhlas February 25, 2011
- Klimeš Iwar, Imrich Life stronger than fate – from bench to bedside Slovenský rozhlas Rádio Slovensko March 15, 2011 and March 17, 2011

- Lackovičová Ľubica, Mravec Interactions between the brain and cancer TV Markíza Reflex November 8, 2011
- Mravec Boris The effect of visceral signals on emotional reactions TV Markíza Reflex October 3, 2011
- Penesová Adela Cardiometabolic syndrome or how to eat and prevent disease Avion Bratislava September 23, 2011

TV STATIONS

- MONOGENIC DIABETES – magazine about Slovak science (February 9, 2011; TV station Dvojka; 21:05) prof. MUDr. Iwar Klimeš, DrSc., Mgr. Daniela Gašperíková, CSc. and MUDr. Juraj Staník.

RADIO STATIONS

- Life stronger than fate (February 25, 2011 Slovenský rozhlas Rádio Slovensko) prof. MUDr. Iwar Klimeš, DrSc.

NEWSPAPERS

- Scientists are closer to development drug for the treatment of skin cancer (August 18, 2011; Zdravotnícke noviny; No. 29, page 4) RNDr. Robert Farkaš, CSc

INTERNET

- What our genes tell us about diabetes – information about 3. Biannual symposium of working group for the study of genetics of diabetes – organizer IEE SAS October, 2011
- Iwar Klimeš will continue as director of IEE SAS (December 1, 2011; www.prestavka.sk; s. ; TASR).
- www.sav.sk , symposium on stress again in Slovakia
10th international Symposium on catecholamines and other neurotransmitters in stress held by RNDr. Richard Kvetňanský, DrSc was organized in Smolenice castle. July 1, 2011
- www.sav.sk, Award of President of SR for young scientist Ing. Marcela Lauková awarded by President of SR. July 7, 2011
- www.sav.sk What genes tell us about diabetes?
3. Biannual symposium of working group for the study of genetics of diabetes – organizer IEE SAS. On symposium participated more than 124 top scientists from 13 countries from Europe and Oversea October 7, 2011
- www.sav.sk , Golden medal of SAS for prof. Iwar Klimeš
- Prof. MUDr. Iwar Klimeš, DrSc. was awarded by Golden medal in relation to celebration of his anniversary. Professional positions: director of IEE SAS (from the year 2007), chairman of Council of APVV for medical sciences (2006-2010), member of Council of Erudite Society of SAS (from the year 2006), chairman of Scientific council of IEE SAS (2005-2007), chairman of Slovak Endocrine Society SLS (2002-2006), chairman of Slovak Commission for Scientific Degrees MŠ SR (2001-2006), leader of DNA diagnostic laboratory DIABGENE (from the year 2002), vice-chairman of Slovak Diabetologic Society of SLS (1994-2002). October 10, 2011
- www.sav.sk , 60 years of excellent results
Anniversary of foundation of IEE SAS - prof. Jaromír Pastorek, DrSc and other members of Presidium of SAS as well as directors of faculties and institutes of SAS participate on celebratory meeting. Top results of institute were presented: November 15, 2011
- www.sav.sk , “Open doors” day
IEESAS organized “open doors” day for students of high schools. November 16, 2011
- www.sav.sk , Foundation Intenda awarded best PhD students
Mgr. Lucia Valentínová (tutor: Mgr. Daniela Gašperíková, CSc.) in the category: Natural sciences December 19, 2011

ii. Summary of outreach activities

Outreach activities	2007	2008	2009	2010	2011	total
articles in press media/internet popularising results of science, in particular those achieved by the Organization	56	37	41	2	31	167
appearances in telecommunication media popularising results of science, in particular those achieved by the Organization	20	15	8	13	16	72
public popularisation lectures	1	5	6	2	5	19

iii. Supplementary information and/or comments on popularisation activities

The popularizations activities are being taken as a very important part of our non-scientific activities which do contribute in an indirect way to an enhancement of our scientific production and acceptance by the public. As you may have learned from this chapter (where we have listed up all entries into the communications media), there have been several our colleagues who were actively, almost at regular basis giving out interviews, declarations, entertaining information on the progress of our research, weather at the national or international level. For year **these popularizations leaders include known names also in science, i.e. Drs. R. Kvetnansky, D. Jezova, I. Klimes** and others. Beside these colleagues there have been a number of **contributions** coming from **the younger generations**. When looking from the scientific point of view, one of the best activities in promotion of science has been the production of the **documentary science film (25 min) entitled “The monogenic diabetes”** which was broadcasted on Slovak TV2 as **the first film documentary from the TV SERIES “SPECTRUM OF SCIENCE”**.

In 2011 celebrated this Institute **60th year of its foundation**. Among other forms of popularizations of this event, the past and future of this Institute both on the scientific and personal fates of our current or previous employees were written up and published on 223 pages of the **“Almanac on 6 Decades of the Endocrine Research”** at the Institute of the Experimental Endocrinology SAS.

8. Background and management. Staffing policy and implementation of recommendations from previous assessments

i. Summary table of personnel

Personnel	2007	2008	2009	2010	2011
all personnel	85	84	88	80	94
research employees from Tab. Research staff	45	46	47	42	41
FTE from Tab. Research staff	42,5	44,6	41,2	34,9	32,4
average age of research employees with university degree	38,19	44,63	43,4	42,9	43,8

ii. Professional qualification structure (as of 31.12. 2011)

FEMALE	AGE									
	Number of	< 30	31 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	> 65
DrSc. / prof. ⁵	0	0	0	0	0	0	0	0	1/1	0
II.a / Assoc. prof. ⁶	0	4/0	4/0	2/0	0	2/0	0	0	1/1	0
other researchers PhD./CSc.	3	2	0	0	0	0	0	0	0	0
doc./Assoc. prof.	0	0	0	0	0	0	0	0	1	0

⁸ ⁹
,

⁸ Responsibility to organize PhD study

iii. Professional qualification structure (as of 31.12. 2011)

MALE	AGE								
	< 30	31 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	> 65
Number of									
DrSc. / prof. ⁵	0	0	0	0	0	0	0/1	3/1	3/0
II.a / Assoc. prof. ⁶	0	1/0	4/1	0	0	0	3/1	2/0	0
other researchers PhD./CSc.	2	4	0	1	0	0	0	0	0
doc./Assoc. prof.	0	0	1	0	0	0	1	0	0

iv. Status and development of research infrastructure incl. experimental, computing and technical base (description of the present infrastructure, premises, and material and technical resources. Infrastructure, instrumentation and major technical equipment necessary for the achievement of the objectives specified in the research Concept)

Since the last accreditation process 5 years ago the status of the research infrastructure has changed tremendously, particularly due to increased funding from the EC via “**Structural funds**” projects. This Institute has been a **partner of two projects** “Transmed 1” and “Transmed 2” which are being by the Institute of Virology. In addition 18 months ago we became a leader of the “Transendogen” project. At the end 2011 we became a partner of the multilateral Structural funds project entitled “**Centre of Competence in Molecular Medicine**” led by Comenius University. Please find below the list of the current infrastructure:

The tissue culture laboratory appropriate for acute and chronic *ex vivo* cultivation of biological material. The laboratory has all necessary basic equipment (laminar box, UV lamps, CO2 incubators, refrigerators, freezers, cell counter and inverse microscope etc.).

Morphological and immunohistochemical laboratory is equipped by infrastructure (cryostat, microtome, different types of microscopes) allowing neuroanatomical and immunohistochemical investigations in cooperation with other adequately equipped institutes from SAS or Comenius University.

Biochemical and molecular-biological devices: ultracentrifuge, different types of re-frigerated centrifuges, ELISA readers for normal light and fluorescence signals, automatic biochemical analyser at the electrochemiluminiscence principle, biochemical analyzer at the immunochemical principle, spectrophotometer, photodocumentary and camera equipments, equipment for PCR /thermocyclers/ and two instruments for real-time PCR (Rotor Gene and ABI 7900 HT)

DNA diagnostic laboratory as the Member of the **European Molecular Genetics Quality Network** is equipped for screening for mutations by dHPLC (Transgenomic, USA), direct sequencing (ABI 310, ABI-Hitachi 3130, ABI 3500), equipped with appropriate softwares, automatic gradient PCR machines, DNA and RNA concentration measurement device for direct measurements in small sample volumes. This laboratory also operates the DNA Bank secured by signalization system against the destruction of the samples.

The radioisotopes department is equipped with a new apparatus for measuring radioisotopes by beta and gamma radiation. In the department is also available a laminar box for handling radioactive and biological hazards.

⁹ Responsibility to be a supervisor of PhD study

The IEE SAS has two facilities for breeding **laboratory animals** - one for the rats, the other for the genetically modified mouse. Both devices are equipped with an automatic air spraying and air conditioning as well as tracking devices to neuroendocrine responses to acute and chronic stress loads, on the assessment of the behavior and mental disorders in animals.

Clinical approach includes 2 independent **clinical-physiological rooms** equipped with twin beds, ECG and blood pressure monitor, automatic defibrillation system and apparatus enabling the assessment of the degree of stress and anxiety conditions, euglycemic hyperinsulinemic clamp system (including glucose analyzer for a very quick and precious assessment of glucose level), indirect calorimetry apparatus and microdialysis apparatus. The body composition analysis, oral glucose tolerance test, Stroop test, modified Shellong orthostatic test, hypertonic saline infusion test abdominal adipose tissue biopsies are performed on routine basis by trained clinicians.

The hardware to be obtained: Next generation sequencing system, Dynamic Spectro and Fluorometer, microfluidics-based platform for the analysis of DNA, RNA, proteins and cells.

v. Describe how the results and suggestions of the previous assessment were taken into account

During **the last accreditation** process we have **received few comments**, in particular:

- The evaluators were **concerned with our very broad spectrum of topics** and/or scientific research questions which have been studied. It **was suggested to us** to take this comment seriously and **to reduce the number of main research themes**. Writing the concept of the Institute's scientific development over the next four years, **we have kept the aforementioned comment in the forebrain** and after thorough analysis of the research being done in individual laboratories **we concentrated to 4 topics only**. This should increase the man power, know-how and more success in project applications. **There is a risk** however in this process. This is due to the fact that the Institutional financial support from the Academy for the whole Institute per year may be smaller than one or two big research grants for one Laboratory. In such a situation, there do not exist direct breaks for steering the situation.
- Referring to the comments comprising the previous institute evaluation period (2003-2006) on the **absence of the original results yielding in patent** application or patents awarded, the Institute in the course of the present evaluation period (2007-2011) has been also focusing on the development of novel chemical compounds that might be exploitable in clinical oncology or dermatology. The **novel and original data on the development, synthesis and the study of the biological properties of two novel selenocyanates of the kojic acid** (novel chemical individuals – never synthesized before) successfully **yielded in the SK-patent**, which, in 2007 was awarded to the authors of the Institute of Experimental Endocrinology by the Slovak Patent Agency.
 - **Brtko J**, Rondahl L, **Fickova M**, Hudecova D, Uher M.: **Selenium compounds of kojic acid derivatives: Preparation technique and the pharmaceutical preparation comprising of them.**
 Patent application No.: PV 1008-02
 Date of application: 11th July.2002
 Awarded on: 16th March 2007
 Patent No.: 285642
 Owner: Institute of Experimental Endocrinology, SAS, Bratislava

- Last comment of the evaluation committee of the last accreditation process to this Institute read that “we should make the Micro-PET facility for small lab animals available also for other institutes of the Academy”.

Unfortunately, the costs for electricity (non-stop vacuum and air conditioning) simply reached serious limits which were not payable by our Institute only. The interest of other academic Institutes was close to none and therefore negotiations with BIONT Ltd. were initiated by our Institute on possibilities how to solve the aforementioned situation. Soon thereafter BIONT Ltd. as the owner of the Micro PET apparatus informed us that their technical facility for housing the Micro-PET has been finished, and thus they are moving the Micro-PET into their new research building. We had accepted that and the Micro-PET center at our Institute were closed.

- Sustainable development in further stimulation of the quality of the research work has been always one of the main goals of our activities at the Institute.

In contrast to the past when such increases were generated by hiring more researchers, the current acceleration of the technical progress of scientific instruments has allowed to “climb up the hill of knowledge” much faster with equal, unchanged number of research employees or even less people. The risks of reducing the sustainable development however do exist and include in particular the natural exit of leading personalities over the times plus the instable if not unpredictable supply of institutional funding.

The “flagship” of the current growth of the sustainable development however remains the “structural funds” of the EC. Even if many colleagues are concerned that only very few people will utilise the machine purchased, I am rather optimistic as good people shall return home only then if their work places shall reflect the quality and glamour of the foreign groups.

vi. Supplementary information and/or comments on management, research infrastructure, and trends in personnel development

As far as the management of the Institute is concerned it is to be said, that the amount of administration work since the last accreditation has increased tremendously and the bureaucratic burden is almost unsupportable. Instead of hiring and teaching young scientists, project managers are being recruited in order to prevent the system of structural funds management of collapsing. Although every director welcomes the structural funds and does see the benefit they have been bringing to the Institutes by allowing to purchase new infrastructure, the lack of financial means for salaries and consumables represent a serious threat to the whole concept of the structural funds. And I am not even speaking about the dreadful administration associated with this grant system.

Other information relevant to the assessment

As mentioned elsewhere in this report we have at this institute a non-written habit that all fresh recipients of the PhD title should go abroad and work as post-docs for couple of years at the best department and institutes in relevant field of interest. We are sending about 2/3 of our PhDs in the overseas and we can't complain that they would not be returning.

However the recent salary table system does not enable to pay them in a way, which would motivate them to stay at home and do research here. Unless any change will take place in the salary system we can not expect from them to stay at home, i.e., the best people will be gone...

The current system that the main educational institution which is allowed officially to teach PhD students, are the Universities, is deleterious for the Institutes of the Academy. In order to keep the slogan of equal opportunity in the access to education, the Academy should be returned the right to teach and to issue the PhD diplomas.