



## **Statement from the Director of the Institute on the Final Report of the Commission No. 9**

The management of the Institute of Experimental Medicine of the CAS, as well as the Scientific Board of the Institute, are very grateful for the Evaluation Report, which not only showed the Institutes strengths, but also some weaknesses and threats. The proposed recommendations are very helpful for setting the future strategies for research performed at the Institute.

However, the Report also contains some misunderstandings, which, in our opinion are based on the limited time the Commission had to be fully acquaint itself with the activities of the Institute and the role of individual researchers. They concern both the general data about the Institute, as well as some facts concerning individual departments of the Institute.

1. At the end of 2014 the Institute workforce was 232 employees, and not 322, as indicated on page 3 of the Evaluation Report.

2. *IEM should introduce measures to enhance interaction between its units as well as with other CAS institutes. Furthermore, IEM should enhance the interaction with clinical experts in order to introduce the clinical perspective into its preclinical work. Page 6*

This recommendation is largely based on a misunderstanding. There exists strong collaboration documented by common projects, publications and patents of IEM with other institutes of the Czech Academy of Sciences, such as the Institute of Microbiology, the Institute of Molecular Genetics, the Institute of Animal Physiology and Genetics, the Institute of Biotechnology, the Institute of Macromolecular Chemistry, the Institute of Organic Chemistry and Biochemistry, the Institute of Physiology, the Institute of Physics, the Institute of Analytical Chemistry, the Institute of Chemical Process Fundamentals, the Institute of Inorganic Chemistry and the J. Heyrovsky Institute of Physical Chemistry.

Extensive collaboration also exists between IEM and hospitals, such as the General Teaching Hospital in Prague, Thomayer Hospital in Prague, the Institute of Clinical and Experimental Medicine in Prague, Motol Hospital in Prague, the University Hospital at Královské Vinohrady in Prague, the University Hospital in Pilsen, Masaryk Hospital in Ústí nad Labem, the Faculty Hospital in Hradec Králové, the Hospital in České Budějovice, the Hospital in Karviná-Ráj, and the University Hospital in Martin, Slovak Republic as well as with several faculties of Charles University such as the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Medical Faculties and the Faculty of Sciences in Prague and the Medical Faculty in Hradec Králové.



*3. Research Team No. 1 - Cellular and Molecular Neurophysiology: Department of Cellular Neurophysiology.*

*The commission identified largely descriptive studies with limited hypothesis-driven input.*

We disagree with the statement “largely descriptive studies”. The studies performed in the Department belong to “System Physiology” dealing with the Physiology/Pathophysiology of glial cells and identifying new membrane proteins, such as HCN channels and TRPV4 channels in reactive glia and their functions in CNS. Furthermore, elucidation of the mechanisms of astrocytic swelling is of high importance in the work of the Department, because these cells are major contributors to cytotoxic edema formation following ischemic or traumatic injury. In addition, elucidating the role of astrocytes or NG2 glia in gliogenesis and neurogenesis and the possible involvement of morphogenes, such as Shh or Wnts, in NG2 glia differentiation following ischemia might contribute to the development of new therapeutic approaches following ischemic injury and CNS repair.

*The groups are involved in very few intramural or extramural collaborations. Furthermore, input from clinical experts was not apparent.*

This comment is not correct. Based on joint papers, the Department collaborates with other departments, such as: the Department of Neuroscience of the IEM, the Laboratory of Gene Expression of the Institute of Biotechnology of the CAS, the Department of Neuroscience in the Second Medical Faculty of Charles University in Prague and the Medical Faculty of Charles University in Hradec Králové.

*The groups in the team should go beyond descriptive studies and should increase the quality of their work, thereby facilitating publications in higher profile journals.*

This does not correspond with the facts that are available: the average impact factor of the Department of Cellular Neurophysiology is 4.7. Compared to other departments it is not clear why the committee recommends publishing in higher profile journals.

*The groups should intensify external collaborations. Joint projects could broaden the spectrum of models and experimental techniques and could thereby increase the quality of the research.*

This comment is not correct, the Department of Cellular Neurophysiology collaborates internationally; almost every year it publishes a joint paper with Prof. Stefano Ferroni of the University of Bologna, Italy.

*4. Research Team No. 1 - Cellular and Molecular Neurophysiology: Department of Molecular Neurophysiology.*

*The commission identified largely descriptive studies with limited hypothesis-driven input.*

We disagree. The studies performed in this team are “System Physiology”, dealing with the Physiology of hypothalamic vasopressin and oxytocin hormones. This is the only group seriously studying such important issues on vasopressin and oxytocin in the CNS and PNS in the Czech Republic over the past eight years. Indeed, the main outcomes of these results were published as a review with co-authors from the Institute of Experimental Medicine of the CAS (Prof. Syková, Dr. Chvátal) as well as with other international collaborators (see Viero C., et al., 2010, CNS Drug Reviews).

*The presented research topics appeared to the commission to be fragmented and not connected with that of other groups. Also, an over-arching research theme was not clearly presented to the commission.*

We disagree with the commission. This team focuses on cellular signalling and calcium signalling in many excitable cells, including the stem cells developed in this institute! Many of these studies are published with other colleagues of the Institute (please see the list of publications).

*The groups are involved in very few intramural or extramural collaborations. Furthermore, input from clinical experts was not apparent.*



This finding does not correspond with reality. Almost all the publications of the Department were published in collaboration with international laboratories (Prof. Jose R. LEMOS-UMASS Medical School-Boston; Prof. Yoichi UETA, UOEH school of Medicine-Japan; Prof. Izumi SHIBUYA, Tottori Univ. Japan; Prof. Alexei VERKHRATSKY, UK and many others). In fact, all these collaborators regularly visit our institute and the chairman of the Department, Prof. Dayanithi travels three or four times a year to conduct additional experiments with them! Within the Institute, the Department is collaborating with the Department of Neuroscience (Prof. Syková, Dr. Jendelová and other Ph.D. students and colleagues), the Department of Cellular Neurophysiology (Dr. Anděrová, Dr. Chvátal), and with other departments.

*The groups in the team should go beyond descriptive studies and should increase the quality of their work, thereby facilitating publications in higher profile journals.*

We do not understand what the commission means by ‘the high quality’ of the work? Low quality work cannot be published. All papers were peer reviewed, including the Review article, the average IF of the Department of Cellular Neuroscience is 3.7.

*The groups should intensify external collaborations. Joint projects could broaden the spectrum of models and experimental techniques and could thereby increase the quality of the research.*

This point was already commented on above. Many international collaborators are cited in the papers we publish.

*The groups should seek advice from clinical experts for improvement of the pre-clinical research with regard to models and readouts.*

The results coming out from this Department are fundamentally important to test all stem cells produced in the Institute, especially their ion channel properties and physiological profiles, before using them in other therapeutic studies.

*5. Research team No. 3 - Molecular Biology of Cancer and Teratology: Department of Teratology. The lack of students in the Department group is criticized at several places.*

In fact, the number of students in the Department was as follows: bachelor studies – 5 theses supervised and 5 theses defended from 2010-2014; master studies – 10 theses supervised, 1 thesis consulted and 8 theses defended from 2010-2014; doctoral studies – 6 theses supervised, 2 theses consulted and 4 theses defended from 2010-2014. During the evaluated period the majority of these students participated in research as members of the working team. Moreover, after successfully defending their Ph.D. thesis in 2011, two graduates went on to a postdoc stay at highly prestigious labs in London, UK (the Department of Craniofacial Development and Stem Cell Biology) and San Francisco, USA (the Department of Orofacial Sciences and Program in Craniofacial Biology, the University of California, San Francisco).

*The commission considers the Teratology group to be nationally visible.*

The research team of the Department is a “national leader” in the field of orofacial development research - it is the principal investigator and coordinator of the Centre of Excellence grant project “Orofacial Development and Regeneration”, assigned on the basis of highly positive evaluations by international and national experts. The team is also “internationally visible” - the team collaborated on research with six prestigious laboratories in London, Newcastle, Strasbourg, Lyon, Oslo and San Francisco, with whom it shared 17 common papers during the evaluated period.

*6. Research team No. 4 - Transplantation Immunology, Tissue Engineering and Pharmacology: Department of Pharmacology.*

*The results of the Pharmacology group were evaluated as adequate (mean IF below 2, declining trend).*

As compared to some other fields, “pharmacological”, as well as “medicinal chemistry” journals are not characterized by a high IF, unfortunately. However, the trend in the quality and quantity of



the Department's publications is not declining. It is stable! Within the period from 2010-2015, 6 / 4 / 2 / 8 / 4 / 4 papers were published yearly. Five of these resulted from international collaborations.

*The commission considers the Departments of Transplantation Immunology and of Tissue engineering as internationally visible and nationally leading. The Pharmacology group is nationally visible.*

The Department of Pharmacology is a member of the Centre of Development of Original Drugs (Technological Agency of the Czech Republic) where our original, internationally recognized methodology is used. We consider the Department to be the national leader concerning the screening for immune-biological activities of newly synthesized compounds. This is a prerequisite for eventual drug development.

*Commission considers the sustainability of the Department of Transplantation Immunology and of Pharmacology potentially threatened because of their age structure and the lack of plan for the succession of the PI. Also, the Department of Pharmacology group did not present a convincing long-term research strategy.*

*Strategy and plans for the future were convincing for the Departments of Transplantation Immunology and of Tissue Engineering, unclear for the Department of Pharmacology.*

This is not correct. The long-term research strategy of the Department is well defined. What was clearly expressed in the introduction (page 16; "Pharmacology") should be kept in mind, which is the investigation of the intrinsic biological activities of newly synthesized compounds (among them pyrimidine analogues) from the point of view of prospective therapeutic properties.

#### *7. Research team No. 6 - Genetic Ecotoxicology.*

*There was no apparent interaction with other groups within the IEM or in other CAS institutes.*

This is not correct. Within the Institute, Dr. Rossner collaborates with the Department of Transplantation Immunology (Prof. Holáň) and the Department of Tissue Engineering (Prof. Amler), Dr. Novotná collaborates with the Department of Neuroscience (Dr. Jendelová). Dr. Rossner prepared a lecture for the Department of Neuroscience to explain the advantages of molecular genetics methods for neuroscience research. Ing. Topinka collaborates with the following institutes of the Czech Academy of Sciences: the Institute of Analytical Chemistry, the Institute of Chemical Processes Fundamentals, the Institute of Inorganic Chemistry, the J. Heyrovsky Institute of Physical Chemistry and the Institute of Animal Physiology and Genetics. Dr. Šrám started to collaborate with the Institute of Sociology of the CAS and with the Institute of Physiology of the CAS.

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