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**European Research Council Grants in Hungary 2007–2010**

Budapest, May 2011

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A great deal of additional information on the European Research Council and its programmes is available on the internet, at ERC’s website: http://erc.europa.eu/.

Printed in Hungary.
FOREWORD

There is fierce competition for talented scientists in Europe and all over the world, as these people represent the future not only in science and development but in public life as well. Europe is seriously challenged not only in innovation but even more in frontier research. Real scientific breakthrough discoveries are needed to bring back the best minds to Europe and European countries.

One of the most successful parts of the 7th Framework Program is the IDEAS Specific Programme run by the European Research Council, where high risk frontier research can be financed and excellence is the only criterion. The funding instruments provided by the European Research Council are not only facilitating the work of the most talented scientists in Europe on a competitive basis, but also provide a Europe-wide, truly science based benchmark for scientific excellence in general and also for world class researchers wishing to pursue their career at Europe.

Hungary has the highest success rate in this programme in this region of Europe; and compared to other parts of FP7, Hungarian research performing organisations and their scientists have attracted one of the highest overall Community support in view of the share of other FP7 funding opportunities.

The Hungarian Academy of Sciences has supported the participation of Hungarian researchers in the funding opportunities of the ERC from the very beginning of FP7.

Along with the goals of the European Commission and the ERC programme, the Hungarian Academy of Sciences has designed its own programme to attract and retain world-class excellent scientists at Hungary. Launched in 2009 by the Hungarian Academy of Sciences, the yearly announced Momentum (‘Lendület’ in Hungarian) Programme is a programme of excellence extending possibilities for talented researchers and putting a stop to their emigration while renewing the research programs and increasing the competitiveness of the institutes of the Academy at the same time. Winners of the program are to receive funds towards establishing their own internationally competitive research groups conducting promising research in various research institutes of the Academy or at research universities.

In line with the above goals, the Hungarian Academy of Sciences is proud to provide an opportunity for raising the visibility of Hungary-based scientific excellence and researchers and institutions showcasing it. The Hungarian Academy of Sciences is looking forward to host the next general meeting of the European Research Council and the "Promoting Excellence in Research in Europe" ERC Day as an EU Presidency event on June 20, 2011. This brochure offers an overview of the results achieved across the calls of the European Research Council between 2007 and 2010, as well as giving an insight into the exceptionally brilliant research ideas they are working on.

Prof. Dr József Pálinkás
President of the Hungarian Academy of Sciences
“What does the ERC grant mean for me?”

“As an experimental physicist, the ERC Starting Grant provides a unique opportunity to build up my own laboratory and start research activity in a new field in Hungary.”
(Szabolcs Csonka, StG 2010)

“It has been a great honour for me that in the first round of the Starting Grant projects I could win the grant being the only one in Europe in the field of low energy nuclear physics and nuclear astrophysics. With the help of this grant substantial infrastructural developments could be implemented and our research group could also be strengthened so that we can clearly show now that world-class research can be carried out with small-scale particle accelerators.”
(György Gyürky, StG 2007)

“The ERC grant provides European conditions for me to perform research in my home country.”
(Mihály Köfö, StG 2007)

“It is a great honour to be one of the Hungarian ERC Starting grant holders. This grant gives me the unique opportunity 1) to focus on the most important and sometimes most difficult problems of my research field; 2) to continue my scientific career in my home country; 3) to provide an ideal environment for scientific development of outstanding and motivated young talents from Hungary and abroad; 4) to build state-of-the-art research equipment and to introduce new, cutting-edge technologies, which are fundamental for targeting the current frontier questions of our research field.”
(István Katona, StG 2009)

“After several postdoctoral jobs and other visits to Germany the ERC grant provides a great opportunity to come back to Hungary and have my own research team. The order of magnitude of the funding opens previously unseen possibilities such as the installation of a competitive computer cluster or bringing other colleagues back to Hungary.”
(Sándor Katz, StG 2007)

“It is a great appreciation to me that I have won support from the first ERC scheme. This grant is especially valuable for my scientific career since it allows us to test our high risk ideas of basic science that, in fortunate situations, we may bring to fruition.”
(András Máthé-FizudezmadÁ, StG 2007)

“The ERC grant has allowed me to initiate a research project that would not have been possible through national-level funding or other international funding available from Hungary. It includes long-term projects as well as expensive and risky projects that may not pay back in the short term but may provide very significant long-term benefits. An important additional aspect of the ERC grant was that I was able to recruit exceptional junior investigators to our group and to provide a high-quality working environment for them even by international standards. I hope that this will contribute to the training of a new generation of Hungarian researchers for whom it will be an obvious matter to the training of a new generation of Hungarian researchers for whom it will be an obvious matter to

(Imre Bárány, AdG 2010)

Testimonials
“The ERC grant is the materialization for me and my team of a unique chance to complete all the essential research efforts we have been pursuing for several decades in France and Hungary. With it we have the good hope to achieve research results that neither attempted to realize on several countries wide scales on a crucial problem area of the modernization of emerging nation states.”

( Victor Győző Karády, AdG 2008)

“The ERC Advanced Grant provides me with the means to do my research group. I also appreciate its un-bureaucratic, it provides a great possibility to develop a successful research, like travels, books and special software. More sciences, agriculture and medical practice.

“Winning the ERC Advanced Grant has given a huge impetus to my research because it has made it possible for me both to acquire the right equipment and also to hire talented young researchers, things that otherwise I would not have been able to do. A great team could be formed and leading this team I can fully realise my dreams of being a researcher, and this is the best thing that could happen to a physicist.”

(Tamás Vicsek, AdG 2008)

The ERC Advanced Investigator Grants (“ERC Advanced Grants”; at least 10 years of significant research achievements) have the goal of supporting and encouraging established world-class scientists, scholars and engineers to be adventurous and take risks in their research. The scientists are encouraged to go beyond established frontiers of knowledge and the boundaries of disciplines.

“The ERC Advanced Grant provides world class support for the successful continuation of our recent work. It is essential in keeping our research group in Europe, particularly in Hungary.”

(Eva Kondorosi, AdG 2010)

The European Research Council (ERC) is the first European funding body set up to support investigator-driven frontier research. Its main aim is to stimulate scientific excellence by supporting and encouraging the very best, truly creative scientists, scholars and engineers to be adventurous and take risks in their research. The scientists are encouraged to go beyond established frontiers of knowledge and the boundaries of disciplines.

“The ERC complements other funding activities in Europe such as those of the national research funding agencies, and is a flagging component of the ‘Ideas Programme’ of the European Union’s Seventh Framework Programme (FP7).”

(Viktória Tóth, AdG 2010)

“In my case, the ERC not only made possible the acquisition of specialized equipment for my research activities but also provided the means to hire young researchers who were critical to the success of my research.”

(Gábor Tamás, AdG 2010)

“The ERC grant is the materialization for me and my team of a unique chance to complete all the essential research efforts we have been pursuing for several decades in France and Hungary. With it we have the good hope to achieve research results that neither attempted to realize on several countries wide scales on a crucial problem area of the modernization of emerging nation states.”

(László Lovász, AdG 2008)

The ERC is a programme of the European Union’s Seventh Framework Programme (FP7) and is a flagship component of the ‘Ideas Programme’.

“Winning the ERC Advanced Grant has given a huge impetus to my research because it has made it possible for me both to acquire the right equipment and also to hire talented young researchers, things that otherwise I would not have been able to do. A great team could be formed and leading this team I can fully realise my dreams of being a researcher, and this is the best thing that could happen to a physicist.”

(Tamás Vicsek, AdG 2008)
costs, including VAT or currency exchange losses; and for pre-financing certain parts of the project expenses, such as the proportion of equipment depreciation and the last 15% of the grant for such a magnitude of grant which is provided by the ERC, resulted in fewer Hungarian organisations with the ability to take full financial and administrative responsibility for a potentially 5-year-long project, although otherwise being fully capable to host such initiatives from the scientific and managerial viewpoint.

Currently there are altogether 21 ERC grants with Hungarian HIs which were selected for funding, from which 12 were granted to Starting Grant applicants and 9 for Advanced Grant applicants. This altogether has mobilised close to €26 million Euro Community funding for Hungarian research performing organisations (~13.7 M EUR for Starting Grants and ~12.1 M EUR for Advanced Grants in Hungary). The size of the individual Starting Grants ranged between 0.5 to ~1.6 M Euro, the same for the Advanced Grants were between 0.4 to ~2.4 M Euro with a project duration usually 60 months (exceptionally 36 months). In view of Hungary’s overall performance in FP7 including all different Specific Programmes and programme parts, successful ERC participant Hungarian research performing organisations and their scientists have attracted one of the highest share of the overall Community support up to now.

The distribution of the selected proposals per domain was the following: for Starting Grants 5 went to Life Sciences (LS) and 7 for Physical Science and Engineering (PE), for Advanced Grants there are 2 ERC projects in LS, 5 in PE and 2 in the domain of Social Science and Humanities (SH).

The 21 selected grants are hosted by 11 different host institutions in Hungary; 8 of them are located in Budapest (with 15 grants), two in Szeged (with 5 grants) and one in Debrecen. Host institutions include universities (Budapest University of Technology and Economics, Eötvös Loránd University, Semmelweis University, Central European University and the University of Szeged), and research institutes of the Hungarian Academy of Sciences (Institute of Experimental Medicine, Biological Research Center of HAS, Institute of Enzymology, KFKI Research Institute for Particle and Nuclear Physics, Alfred Eötvös Mathematical Institute, and the Institute of Nuclear Research).

In addition to the 21 ERC grants hosted by Hungarian host institutions, up to now 10 Hungarian national scientists have applied successfully for the support of the European Research Council; their host institutions are located in 6 different EU Member States (mostly in Germany, but also in Bulgaria, Spain, Sweden, Switzerland and the United Kingdom.)
Szabolcs CSONKA
Budapest University of Technology and Economics, Department of Physics, Budapest, Hungary

Profession: physicist
Year of PhD: 2006.
Research interest: Electron transport in nanostructures
Homepage: http://deptphy.bme.hu/staff/csonka/csonka.html

Title of the ERC Starting Grant: Cooper pairs as a source of entanglement
Duration: 60 months (2011–2015)
Size of the grant: 1 496 000 EUR
ERC host institution: Department of Physics, Budapest University of Technology and Economics

Brief presentation of the project:
Entanglement and non-locality are spectacular fundamentals of quantum mechanics and basic resources of future quantum computation algorithms. Electronic entanglement has attracted increasing attention during the last years. The electron spin as a purely quantum mechanical two level system has been put forward as a promising candidate for storing quantum information in solid state. Electron spin is also suitable to transfer quantum information, since mobile electrons can be coherently transmitted in a solid state device preserving the spin information. Although several theoretical concepts have been worked out to address spin entangled mobile electrons, the absence of an entangler device has not allowed their realization so far. The aim of the present proposal is to overcome this experimental challenge and explore the entanglement of electron pairs generated by Cooper pair splitting. This research project will lead to a fundamental understanding of the production, manipulation and detection of spin entangled mobile electron pairs, thus it will significantly extend the horizons of quantum coherence and opens a new horizon in the field of on-chip quantum information technologies.

Most important experiences abroad:
1999. Erasmus Scholarship, University ‘La Sapienza’ Rome, Italy (1 semester)
2000–2003. Visitor researcher, University of Nijmegen, the Netherlands (4 months)
2004. Visitor researcher, Ecole Polytechnique Fédérale de Lausanne, Switzerland (1 month)
2009–2010. Visitor professor program “Quantum Coherence and Computation”, Swiss Nanoscience Institute, Switzerland (4 months)

Grants and Awards:
2000. BUTE Scholarship
2001. National competition for physics students, 1st prize in Solid state physics section
2005. Award of youth scientist Hungarian Academy of Sciences
2009–2011. Norway OTKA NNF Grant
2009. Bolyai János Research Fellowship Hungarian Academy of Sciences
2011. FP7-ICT FET Open, STREP Network

European Research Council STARTING GRANT HOLDERS 2007-2010

György GYÜRKY
(Institute of Nuclear Research, Hungarian Academy of Sciences, Debrecen, Hungary)

Profession: physicist
Year of PhD: 2001.
Research interest: experimental nuclear astrophysics
Personal webpage: http://namafia.atomki.hu/~gyurkyy/

Title of the ERC Starting Grant: Nuclear reaction studies relevant to the astrophysical p-process nucleosynthesis.
Size of the grant: 750 000 EUR
Duration: 60 months (start: 1 July 2008)
ERC host institution: Institute of Nuclear Research, Hungarian Academy of Sciences
Webpage of the project: http://namafia.atomki.hu/~gyurkyy/ERC/

Brief presentation of the project:
The synthesis of the heavy, proton rich isotopes (p-isotopes) is the so-called astrophysical p-process, which is one of the least known processes of nucleosynthesis. The identification of the astrophysical site where the process takes place is still ambiguous and the models are not able to reproduce well the abundances of the p-isotopes observed in nature. For the model calculations huge reaction networks needs to be taken into account, and the rates of nuclear reactions involved in the networks are necessary inputs for the calculations. In lack of experimental data the reaction rates are usually provided by theory, namely the statistical model. Since they cannot be compared with experimental data, the reliability of those calculations is questionable. Therefore, the experimental determination of reaction rates and thus the check of the model calculations is of crucial importance for making the p-process models more reliable. In the framework of the present project measurements of the cross sections of charge particle induced nuclear reactions are being carried out in the mass and energy range relevant for the p-process. The results are compared with statistical model calculations. For the experiments the accelerators of ATOMKI provide the basic infrastructure.

Most important experiences abroad:
Ruhr Universität Bochum, Germany
INFN Laboratori Nazionali del Gran Sasso, Italy

Grants and Awards:
2002. ATOMKI Young researcher prize
2002 and 2006. Bolyai fellowship, Hungarian Academy of Sciences
2005. Young researcher prize of the Hungarian Academy of Sciences
2007. Young researcher prize of the Academies of Visegrad countries (CZ, HU, PL, SK)

Title of ERC Starting Grant: Nuclear reaction studies relevant to the astrophysical p-process nucleosynthesis.
Size of the grant: 750 000 EUR
Duration: 60 months (start: 1 July 2008)
ERC host institution: Institute of Nuclear Research, Hungarian Academy of Sciences
Webpage of the project: http://namafia.atomki.hu/~gyurkyy/ERC/

European Research Council STARTING GRANT HOLDERS 2007-2010
Most important experience abroad:
2002–2004: postdoctoral associate, Institut für Physikalische Chemie, Univ. Mainz, Germany

Grants and Awards:
1997. Pro Scientia Gold Medal
2004–2007 fellowship of the Hungarian Scientific Research Fund (OTKA)
2007–2010 Bolyai fellowship of the Hungarian Academy of Sciences
2008–2011. OTKA “Support of internationally known young researchers (NF)” grant
2009. Medal of the International Academy of Quantum Medicine (IACM) Young Investigator Award
2007. Central European Talent Award
2010. The Wellcome Trust International Senior Research Fellowship
2000–2002. EMBO Postdoctoral Fellow, Department of Molecular Neurobiology, Max-Planck Institute for Medical Research, Heidelberg, Germany. Head: Prof. Hannah Monyer.

Grants and Awards:
2010. The Wellcome Trust International Senior Research Fellowship
2009. International Association for Cannabinoids as Medicines (IACM) Young Investigator Award
2007. Central European Talent Award

Title of the ERC Starting Grant: Understanding the molecular blueprint and functional complexity of the endocannabinoid metabolome in the brain.
Duration: 60 months (2009–2014)
Size of the grant: 1 638 000 EUR
ERC host institution: Institute of Experimental Medicine, Hungarian Academy of Sciences

Brief presentation of the project:
Synaptic junctions are the major sites of communication in the brain, where chemical messenger molecules transmit information from presynaptic nerve cells to their postsynaptic partners. The efficacy of synaptic transmission is not constant in time and space. Instead, its plasticity is a fundamental phenomenon underlying information storage and adaptation to environmental stimuli. Recently we and others have uncovered that endogenous cannabinoid molecules produced by the nerve cells play a central role in the regulation of synaptic transmission and plasticity as special messengers. Thus, the major objective of our research group is to characterize this new signaling system, the so-called endocannabinoid system in the brain. We aspire to delineate how endocannabinoids, these novel lipid messengers, as well as their synthesizing and inactivating enzyme proteins, which regulate their brain levels, are molecularly integrated into the most important synaptic signaling pathways. Based on this activity we also aim to gain a better understanding of the physiological and pathophysiological functions of distinct endocannabinoid molecules, which ultimately may facilitate their targeted therapeutic exploitation in brain disorders.
Most important experience abroad:
2003–2004. Postdoctoral fellow, University of Wuppertal

Grants and Awards:
Participant in several OTKA grants
2008. Junior Prima award
2005. Talentum award

Title of the ERC Starting Grant:
QCD Thermodynamics on the lattice

Duration:
60 months (2008–2013)

Size of the grant:
1 300 000 EUR

ERC host institution:
Eötvös Loránd University, Department of Theoretical Physics

Sándor KATZ
(Eötvös Loránd University, Department of Theoretical Physics, Budapest, Hungary)

Brief presentation of the project:
"Studying the quark-gluon plasma"

About 10 microseconds after the big bang protons and neutrons were formed from their quark and gluon constituents. Understanding the details of this transition is relevant both for the evolution of the early Universe as well as for present and upcoming heavy-ion experiments. The ERC project aims to study this transition between protons/neutrons and the quark-gluon plasma using computational methods. The numerical solution of the equations relevant for the transition requires huge computer resources. We have built a cluster that exploits the great computational performance of modern graphics cards. This way a system of almost two hundred PC-s becomes competent with today’s best supercomputers.

Using this graphics card based cluster we hope to give for the first time final answers to questions such as the temperature of the transition or the pressure of the high temperature quark-gluon plasma.

Most important experience abroad:
1997–1999. Brandeis University, Department of Biology, Boston, USA

Grants and Awards:
Wellcome Trust Grant
EMBO YIP (European Molecular Biology Organisation, Young Investigator Program)
HHMI (Howard Hughes Medical Institute) Young Researcher
Magyary Foundation Postdoctoral Fellowship Award
Bélázy Postdoctoral Fellowship Award, Hungarian Ministry of Education
Bolyai Fellowship Award of the Hungarian Academy of Sciences
Anyos Jed& Programme Grant

Title of the ERC Starting Grant:
Intramolecular force mapping of enzymes in action: the role of strain in motor signaling mechanisms.

Duration:
60 months (2008–2013)

Size of the grant:
750 000 EUR

ERC host institution:
Eötvös Loránd University, Department of Biochemistry

Brief presentation of the project:
"The role of strain in motor enzyme mechanisms"

A fundamental but unexplored problem in biology is whether and how enzymes use mechanical strain during their functioning. It is now evident that the knowledge of atomic structures and chemical interactions is not sufficient to understand the intricate mechanisms underlying enzyme specificity and efficiency. Several lines of evidence suggest that mechanical effects play crucial roles in enzyme activity. Therefore we aim to create detailed force maps that reveal how the intramolecular distribution of mechanical strains changes during the enzyme cycle and how these rearrangements drive the enzyme processes. The applicability of current nanotechniques for the investigation of this problem is limited because they do not allow simultaneous measurement of mechanical and enzymatic parameters. Thus we seek to open new avenues of research by developing site-specific sensors and passive or photoinducible molecular springs to measure force-dependent chemical/structural changes with high spatiotemporal resolution in a motor enzyme i.e. myosin and regulatory proteins. Since force perturbations occur very rapidly, we are able to combine experimental studies with quasi-realistic in silico simulations to describe the physical background of enzyme function. We expect that our research will yield fundamental insights into the role of intramolecular strains in enzymes and thus greatly aid the design and control of enzyme processes (specificity, activity, regulation). Our studies may also lead to new paradigms in the understanding of motor and signaling systems.

András MÁLNÁSI-CSIZMADIA
(Eötvös Loránd University, Department of Biochemistry, Budapest, Hungary)

Title of the ERC Starting Grant: Instromolecular force mapping of enzymes in action: the role of strain in motor signaling mechanisms.

Duration: 60 months (2008–2013)

Size of the grant: 750 000 EUR

ERC host institution: Eötvös Loránd University, Department of Biochemistry

Profession: biologist
Year of PhD: 1999.
Research interest: Motor enzyme mechanisms, new approaches in drug design
Homepage: http://www.malnalab.hu
Brief presentation of the project: “Signal transduction in inflammatory diseases”

Inflammatory diseases such as autoimmune diseases are highly prevalent, severe and chronic diseases that are of major burden for the affected individuals and health service providers. While the limitation of current therapeutic options call for the development of novel therapies, that would require the better understanding of the mechanisms of the diseases at the molecular level. Our group previously identified several proteins that play a major role in certain leukocyte functions, raising the possibility that those molecules (such as Syk, Src-family kinases and PLCγ2) may also participate in the development of inflammatory diseases. The aim the research project is the identification of the role of the above proteins in inflammatory diseases and the detailed understanding of the molecular mechanisms of those processes.

The results of the first two years of the project have revealed that Syk, PLCγ2 and certain Src-family kinases play an indispensable role in the development of various autoimmune diseases. Our results have also clarified a number of additional questions related to the mechanism of the role of the above proteins in autoimmune diseases. Taken together, we have identified a number of components of autoimmune inflammatory diseases that may prove to be suitable therapeutic targets for the pharmacological treatment of these diseases in the future.

Most important experience abroad:

1999–2003. postdoctoral fellow, University of California, San Francisco, USA
1997. visiting scientist, University of Verona, Italy

Grant and Awards:

2009–2014. Wellcome Trust International Senior Research Fellowship (534 M HUF)
2004–2009. Wellcome Trust International Senior Research Fellowship (16 M HUF)

Title of the ERC Starting Grant: Molecular Dissection of Inflammatory Pathways (MOLINFLAM)
Size of the grant: 1 200 000 EUR
Duration: 60 months (2008–2013)

ERC host institution: Semmelweis University, School of Medicine

Attila MÓCSAI
(Semmelweis University, Budapest, Hungary)

Brief presentation of the project: The ability of cellular systems to adapt to genetic and environmental perturbations is a fundamental but poorly understood process both at the molecular and evolutionary level. There are both physiological and evolutionary reasonings why mutations often have limited impact on cellular growth. First, perturbations (e.g. mutations or drug treatments) that hit one target often have no effect on the overall performance of a complex system, as they can be adjusted by activity of other genes. Second, they can readily be alleviated during evolution. Understanding the extent of intrinsic and evolved robustness in cellular systems demands integrated analyses, that combines functional genomics and computational systems biology with microbial evolutionary experiments.

In collaboration with several leading research teams in the field, we investigate the following issues. First, we ask how accurately genome-scale metabolic network models can predict the impact of genetic deletions and drug treatments. Second, we pursue large-scale lab evolutionary experiments to study evolution of drug resistance in microbes, and study the corresponding genomic changes. Finally, we are developing novel methods to automate scientific discovery in the fields of systems biology and drug discovery.

Most important experience abroad:


Grants and Awards:

2008. Ignaz L. Lieben prize (Austrian Academy of Sciences)
2007. EMBO Installation Grant
2005. Talentum Award (Hungarian Academy of Sciences and Central European Talent Support Foundation.

Title of the ERC Starting Grant: Network evolution: Integrated evolutionary analyses of genetic and drug interaction networks in yeast.
Size of the grant: 1 280 000 EUR
Duration: 60 months (2008–2013)

ERC host institution: Biological Research Center of the Hungarian Academy of Sciences

Csaba PÁL
(Biological Research Center of the Hungarian Academy of Sciences, Szeged, Hungary)
**Gergely RÖST**  
(University of Szeged, Bolyai Institute, Szeged, Hungary)

**Brief presentation of the project:**  
The aim of this project is to develop and analyse infinite dimensional dynamical models for the transmission dynamics and propagation of infectious diseases. We use an integrated approach which spans from the abstract theory of functional differential equations to the practical problems of epidemiology, with serious implications to public health policy, prevention, control and mitigation strategies in cases such as the ongoing battle against the nascent H1N1 pandemic.

Delay differential equations are one of the most powerful mathematical modelling tools and they arise naturally in various applications from life sciences to engineering and physics, whenever temporal delays are important. In abstract terms, functional differential equations describe dynamical systems, when their evolution depends on the solution at prior times.

The central theme of this project is to forge strong links between the abstract theory of delay differential equations and practical aspects of epidemiology. Our research will combine competencies in different fields of mathematics and embrace theoretical issues as well as real life applications.

In particular, the theory of equations with state dependent delays is extremely challenging. Developing new theories in this area and connecting them to relevant applications would go far beyond the current research frontier of mathematical epidemiology.

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**Most important experience abroad:**  
2000, 2002. studies in Italy (Potenza U. Basilicata, Pisa Scuola Normale Superiore)  
2002–2003. DAAD scholarship, Justus Liebig University, Giessen, Germany  
2006, 2007. MITACS postdoctoral research fellow, York University, Toronto, Canada  
2011. Fulbright Visiting Scholar, Arizona State University, Tempe, Arizona, USA

**Grants and Awards:**  
2006. Promosio sub Auspiciis Praesidentis Rei Publicae (PhD with golden ring of Hungary)  
2007. Grünwald Prize  
2008. Young Researcher Award, Hungarian Academy of Sciences  
2009. Bolyai Research Scholarship, Hungarian Academy of Sciences

**Title of the ERC Starting Grant:**  
Delay differential models and transmission dynamics of infectious diseases (EPIDELAY)

**Duration:** 60 months (2011–2016)

**Size of the grant:** 796 000 EUR

**ERC host institution:** University of Szeged, Bolyai Institute

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**Ferenc SIMON**  
(Budapest University of Technology and Economics and the “Condensed matter research group” of the Hungarian Academy of Sciences, Budapest, Hungary)

**Brief presentation of the project:**  
Sustainable development in information technology calls for an ever increasing information processing and storage capability. A promising route to maintain exponential growth capability, i.e. to keep on the Moore’s roadmap, is to turn to the electron spins as information carriers rather than their charge. This field, spintronics, has enormous potential whose exploitation requires solid knowledge in the fundamentals of spin dynamics and spin transport. Herein, novel nanomaterials are suggested for spintronics purposes, such as graphene and single-wall carbon nanotubes (SWCNTs). These, fundamental two- and one-dimensional carbon allotropes are promising candidates for such purposes, carbon being a light element with a low spin-orbit coupling which results in a long spin coherence. There are several fundamental open issues, e.g. the dominant spin orbit coupling mechanism in graphene, whether bulk electron spin resonance can be observed for this material, and the length of the spin diffusion length. Our goal is to pursue electron spin resonance in graphene and carbon nanotubes and to perform optically detected magnetic resonance in carbon nanotubes. We will commission a magneto-optical spectrometer with a substantial added value.

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**Most important experience abroad:**  
2009–2010. Visiting scientist, Universität Wien, Austria  
2003–2005. Individual Marie Curie fellowship, Universität Wien, Austria  
1995–1996. TEMPU scholarship, The University of Manchester, UK

**Grants and Awards:**  
2006. Talentum prize of the Hungarian Academy of Sciences  
2005. Marie-Curie reintegration grant (ERC)  
2003. Individual Marie-Curie postdoctoral fellowship (EIF)

**Title of the ERC Starting Grant:** Spin dynamics and transport at the quantum edge in low dimensional nanomaterials (SYLO).

**Duration:** 60 months (2010–2015)

**Size of the grant:** 1 230 000 EUR

**ERC host institution:** Budapest University of Technology and Economics
Most important experience abroad:
2003–2005. Postdoctoral Fellow at the Laboratory of Cell Biology (LCB), National Cancer Institute, National Institutes of Health
1996. Tempus-Phare Scholar, Kremlin-Bicetre Hospital, University XI., Institute of Enzymology, Hungarian Academy of Sciences

Grants and Awards:
2010. Momentum – Young Researchers’ Programme, Hungarian Academy of Sciences
2009. Bolyai Fellowship (Hungarian Academy of Sciences), Excellent Achievements Category
1996. Hungarian State Eötvös Fellowship

Profession: medical doctor
Year of PhD: 2001
Research Interest: Multidrug Resistant Cancer

Title of the ERC Starting Grant: Targeting Multidrug Resistant Cancer
Duration: 60 months (2011–2016)
Size of the grant: 1 500 000 EUR

Brief presentation of the project:
Despite considerable advances in drug discovery, resistance to anticancer chemotherapy confounds the effective treatment of patients. Cancer cells can acquire broad cross-resistance to mechanistically and structurally unrelated drugs. Pglycoprotein (Pgp) activity exerts a multitude of effects on drug resistance, confers multidrug resistance (MDR) to those agents. The classical method of dealing with multidrug resistant cancer has been to inhibit transporters that keep the level of cytotoxic agents below a cell-killing threshold. Unfortunately, the in vitro and in vivo effectiveness of these inhibitors has not translated to the clinic despite a number of trials. My approach is radically different: I suggest that Pgp should be considered the “Achilles’ Heel” of resistant cells, representing a fatal weakness that should be targeted, rather than obstructed for tackling MDR in cancer. Successful targeting of MDR cells would reduce the tumor burden and would also enable the elimination of ABC transporter-overexpressing cancer stem cells that are responsible for the replenishment of tumors.

European Research Council STARTING GRANT HOLDERS 2007-2010

Gergely SZAKÁCS
(Institute of Enzymology, Hungarian Academy of Sciences, Budapest, Hungary)

Most important experience abroad:
2001–2005. Postdoctoral Fellow at the Laboratory of Cell Biology (LCB), National Cancer Institute, National Institutes of Health
1996. Tempus-Phare Scholar, Kremlin-Bicetre Hospital, University XI., Instituto de Enzymología, Hungarian Academy of Sciences

Grants and Awards:
2010. Momentum – Young Researchers’ Programme, Hungarian Academy of Sciences
2009. Bolyai Fellowship (Hungarian Academy of Sciences), Excellent Achievements Category
1996. Hungarian State Eötvös Fellowship

Profession: medical doctor
Year of PhD: 2001
Research Interest: Multidrug Resistant Cancer

Title of the ERC Starting Grant: Targeting Multidrug Resistant Cancer
Duration: 60 months (2011–2016)
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Despite considerable advances in drug discovery, resistance to anticancer chemotherapy confounds the effective treatment of patients. Cancer cells can acquire broad cross-resistance to mechanistically and structurally unrelated drugs. Pglycoprotein (Pgp) activity exerts a multitude of effects on drug resistance, confers multidrug resistance (MDR) to those agents. The classical method of dealing with multidrug resistant cancer has been to inhibit transporters that keep the level of cytotoxic agents below a cell-killing threshold. Unfortunately, the in vitro and in vivo effectiveness of these inhibitors has not translated to the clinic despite a number of trials. My approach is radically different: I suggest that Pgp should be considered the “Achilles’ Heel” of resistant cells, representing a fatal weakness that should be targeted, rather than obstructed for tackling MDR in cancer. Successful targeting of MDR cells would reduce the tumor burden and would also enable the elimination of ABC transporter-overexpressing cancer stem cells that are responsible for the replenishment of tumors.

European Research Council STARTING GRANT HOLDERS 2007-2010

György VANKÓ
(KFKI Research Institute for Particle and Nuclear Physics of the Hungarian Academy of Sciences, Budapest, Hungary)

Most important experience abroad:
2002–2007. Scientist at the beamline ID16 (inelastic Scattering), European Synchrotron Radiation Facility (ESRF), Grenoble, France.
1996. Visiting scientist in the Johannes-Gutenberg Universität, Mainz, Germany.

Grants and Awards:
2009. Schimid Rezső Prize of the Roland Eötvös Physical Society
2001. Young Scientist Award of the Hungarian Academy of Sciences
1996. Hungarian State Eötvös Fellowship

Profession: medical doctor
Year of PhD: 2002
Research Interest: Switchable transition metal compounds, X-ray spectroscopy

Title of the ERC Starting Grant: Electronic transitions and bistability: states, switches, transitions and dynamics studied with high-resolution X-ray spectroscopy
Duration: 60 months (2010–2015)
Size of the grant: 1 25 360 EUR

Brief presentation of the project:
We study transition metal compounds of uncommon transport properties and excitation characteristics applying emerging high-resolution X-ray spectroscopy. The objective is to determine the microscopic origin of the unconventional behaviour of systems with strong electron correlation through systematic investigations, as well as to reveal instability conditions and excitation characteristics of switchable molecular systems. The main techniques involved are synchrotron radiation (SR)-based spectroscopies, which can explore the fine details of the electronic structure. Besides using existing end stations of SR facilities, we plan to build a portable spectrometer that can be advantageously used both in a laboratory (e.g., with a radioactive source) and at specially dedicated beamlines of SR facilities, in order to benefit from their specializations in extreme conditions and advanced sample environments, in particular unconventional experiments. This spectrometer should also be able to work in a time-resolved mode so that it could address the dynamics of electronic excitations on the attosecond to nanosecond time scale. The suggested work is expected to push high-resolution X-ray spectroscopies toward maturity, which should open up new horizons in electronic structure and dynamics studies of condensed matter research. Furthermore, we will also prepare for using the ultrashort pulses of upcoming new European infrastructures: the European XFEL and the Attosecond Laser Branch of the Extreme Light Infrastructure.

European Research Council STARTING GRANT HOLDERS 2007-2010

Most important experience abroad:
2001–2005. Postdoctoral Fellow at the Laboratory of Cell Biology (LCB), National Cancer Institute, National Institutes of Health
1996. Tempus-Phare Scholar, Kremlin-Bicetre Hospital, University XI., Instituto de Enzymología, Hungarian Academy of Sciences

Grants and Awards:
2010. Momentum – Young Researchers’ Programme, Hungarian Academy of Sciences
2009. Bolyai Fellowship (Hungarian Academy of Sciences), Excellent Achievements Category
1996. Hungarian State Eötvös Fellowship

Profession: medical doctor
Year of PhD: 2001
Research Interest: Multidrug Resistant Cancer

Title of the ERC Starting Grant: Targeting Multidrug Resistant Cancer
Duration: 60 months (2011–2016)
Size of the grant: 1 500 000 EUR

Brief presentation of the project:
Despite considerable advances in drug discovery, resistance to anticancer chemotherapy confounds the effective treatment of patients. Cancer cells can acquire broad cross-resistance to mechanistically and structurally unrelated drugs. Pglycoprotein (Pgp) activity exerts a multitude of effects on drug resistance, confers multidrug resistance (MDR) to those agents. The classical method of dealing with multidrug resistant cancer has been to inhibit transporters that keep the level of cytotoxic agents below a cell-killing threshold. Unfortunately, the in vitro and in vivo effectiveness of these inhibitors has not translated to the clinic despite a number of trials. My approach is radically different: I suggest that Pgp should be considered the “Achilles’ Heel” of resistant cells, representing a fatal weakness that should be targeted, rather than obstructed for tackling MDR in cancer. Successful targeting of MDR cells would reduce the tumor burden and would also enable the elimination of ABC transporter-overexpressing cancer stem cells that are responsible for the replenishment of tumors.

European Research Council STARTING GRANT HOLDERS 2007-2010

György VANKÓ
(KFKI Research Institute for Particle and Nuclear Physics of the Hungarian Academy of Sciences, Budapest, Hungary)
Title of the ERC Advanced Grant: Discrete and Convex Geometry: Challenges, Methods, Applications.

Duration: 60 months (2011–2016)

Size of the grant: 1 300 000 EUR

ERC host institution: Alfréd Rényi Mathematical Institute of the Hungarian Academy of Sciences

Brief presentation of the project:

My main research interests are combinatorics, discrete geometry, convexity, random polytopes, lattice polytopes, algebraic topology, and their applications in computer science, mathematical programming, integer programming, and operations research. These are the main research topics in the ERC grant as well. Some of the main questions: (a) weak and strong epsilon-nets, (b) the k-set problem and point selection theorems, (c) Helly type results and geometric transversals, (d) integer convex hull and its randomized version, (e) Tverberg type results and their topological versions, (f) Arnold’s question on the number of convex lattice polytopes of given dimension and volume, (g) extremal incidence problems, for instance Erdős’s unit distance question.

Some of the positions held:

ETH Zurich, Nachdiplom Lecturer, 2008. spring
Hebrew University Jerusalem, visiting professor, 2007. spring
Microsoft Research, Redmond, visiting researcher, 2004. spring
MSRI, Berkeley, visiting professor, 2003. autumn
University College London, visiting professor since 1998.

Grants and Awards, some important lectures:

Award of the Hungarian Academy of Sciences (1998)
Prize of the Academy (1994)
Rényi Prize (1988)
Plenary speaker at SIAM Discrete Mathematics (2010, Austin)

Imre BÁRÁNY
(Alfréd Rényi Mathematical Institute of the Hungarian Academy of Sciences, Budapest, Hungary)

Profession: mathematician
Corresponding member of the Hungarian Academy of Sciences (2010).
Homepage: http://www.renyi.hu/~barany/


Titles of the ERC Advanced Grant:


Research interest: Cognitive Development

Degree: psychology

Year of PhD: 1994

Research interest: Cognitive Development

Homepage: http://cognitivescience.ceu.hu/profiles/faculty/gergely_csibra

Brief presentation of the project: A recent hypothesis (the theory of ‘natural pedagogy’) proposes that an important function of human ostensive-referential communication is to allow the transmission of generic (semantics) knowledge to others. The primary potential beneficiaries of such a communication system are children, who are always novices with respect to the culture they are born into. This proposal aims to explore whether and how human infants are prepared to learn from adults through communication, what cognitive and neural systems support such learning processes, and how the social learning process changes infants’ perception, interpretation and representation of the world. Beyond traditional methodological approaches, we plan to use eye-tracking, electrophysiological (EEG, ERP) and optical imaging (NIRS) techniques to get insights about the online processes of perception, attention and memory, as well as the understanding of the social and physical world through non-verbal communication. In particular, we seek to track (1) the development of sensitivity to various ostensive-communicative signals, (2) their relation to the understanding of referential deictic gestures, which is essential to be engaged in triadic communication, (3) how these signals modulate what infants pay attention to and preserve in their memory about objects, and (4) how the functional understanding of human-made cultural artifacts (such as tools) is affected by their demonstrated use in ostensive-referential communicative settings.


Victor Győző KÁRÁDY

(Central European University, Budapest, Hungary)

Degrees: in sociology and demography (1965), Sorbonne Elected external member, Hungarian Academy of Sciences (2003)

Research interest: historical sociology

Homepage: http://www.ceu.hu/profiles/faculty/victor_karady

Brief presentation of the project: The problem of elite formation is a central issue of social history in East Central Europe during the period of post-feudal and pre-socialist modernization, especially when the tasks of modernization of the emerging nation state were at least in part taken up not by members of the ethnically titular elites, but by minority clusters. Our project investigates long term processes of elite formation resorting to (prosopographical) survey methods of historical sociology in societies where the ruling ethnic minority represented a minority (e.g.-1919 Hungarian Kingdom) or where one could observe several major elite changes and political upheavals with ethnico-confessional implications (successor regions of Hungary after 1919, Estonia and Latvia). The focus of the project is a set of standardized bibliographies of students and graduates of universities and, in pre-1919 Hungary, secondary schools and vocational institutions of higher education. The information collected derive from archival and other sources. It is organized in computerized data banks destined for statistical elaboration and socio-historical interpretation. The main topical targets of the project are as follows: social, ethnic, regional, residential, ethnic and confessional selection of students and graduates, factors of the nature of secondary education (choice of schools, secondary school years, educational subjects, etc.), study options and trajectory in higher education, sociological conditions of dropping out or scholarly excellence as well as further specialization, the logic of professional choices, success and specialization in the career, determinants of intellectual creativity such as it is expressed in publications or other forms of intellectual performance, success is based on a scheme of multiple comparisons. We first compare national and regional countries to study their system of elites training in different historical junctures. Inside countries or regions (especially in the Carpathian Basin) graduates of various institutions of higher education shall be compared. Finally the mechanism of elite training is compared in various historical periods, especially around historical landmarks or turning points like before and after 1919 or 1940–45 with regard to schooling policies, political and cultural power relations, trends of social mobility, the availability and accessibility of higher education inside and outside the countries and regions concerned and their group-specific patterns of exploitation.
Éva KONDOROSI

(BAYGEN Institute, Szeged, Hungary)

Professor: biologist
1996: "Doctor of Sciences" at the Hungarian Academy of Sciences.
2010: Corresponding member of the Hungarian Academy of Sciences
Research interests: Rhizobium-legume symbiosis, plant development, antimicrobial plant peptides
Homepage: http://www.baygen.hu

International recognition:
2010. Foreign Associate of the National Academy of Sciences of the United States of America
Matchwiss award
2006. EMBIO member
2006. Member of the Board of Directors of the IS-Molecular Plant-Microbe Interactions
2006. Member of the Scientific Expert Advisory Committee of the Australian Research Council Centre of Excellence for Integrative Legume Research
1985. Award of the Hungarian Academy of Sciences

Title of the ERC Advanced Grant: Biological Research
2 320 000 EUR
Size of the grant: 60 months (2011–2016)
Duration:

enhancing nitrogen-fixation and fighting microbial natural plant strategies in agriculture and public health:

Title of the ERC Advanced Grant: Polyploidy and Symbiosis
2006. Member of the Scientific Expert Advisory Committee of the Australian Research Council Centre of Excellence for Integrative Legume Research
1985. Award of the Hungarian Academy of Sciences

Title of the ERC Advanced Grant: Dual exploitation of natural plant strategies in agriculture and public health: enhancing nitrogen-fixation and fighting microbial infections
Duration: 60 months (2011–2016)
Size of the grant: 2 320 000 EUR
ERC host institution: (in progress) Biological Research Center of the Hungarian Academy of Sciences, Szeged

Brief presentation of the project:
Higher agricultural production, enhanced food safety and protection against alarming rise of antibiotic resistant pathogenic bacteria are amongst the main challenges of this century. This proposal centered on Rhizobium-legume symbiosis aims at contributing to these tasks by i) understanding of the development of symbiotic nitrogen fixing cells for improvement of the eco-friendly biological nitrogen fixation, ii) gaining a comprehensive knowledge on polyploidy having a great impact on crop yields and iii) exploiting the strategies of symbiotic plant cells for the development of novel antibiotics. Symbiotic nitrogen fixation in Rhizobium-legume interactions can take place in root nodules where giant plant cells host the nitrogen fixing bacteria. In Medicago nodules both the plant cells and the bacteria are polyploids and incapable for cell division. These polyploid plant cells produce hundreds of symbiotic peptides (symPEPs) that provoke terminal differentiation of bacteria in symbiosis and exhibit broad range antimicrobial activities in vitro. It will be studied how different ploidy levels affect DNA methylation and expression profile and whether polyploidy is required for the expression of symPEP genes. The activity and mode of actions of symPEPs are in the focus of the proposal, i) how symPEPs achieve bacterized differentiation and affect nitrogen fixation and ii) whether symPEP antimicrobial activities provide novel modes of antimicrobial actions and iii) whether “Sym-Biotics” could become widely used novel antimicrobials.
Brief presentation of the project:
The twin prime conjecture is one of the oldest (if not the oldest) and most famous unsolved problem of whole mathematics. We call a pair of primes a twin prime pair if their difference is exactly 2, that is, if they are consecutive odd numbers, which are both prime numbers, i.e. they have no other divisors except 1 and the number itself. The twin prime conjecture asserts that there are infinitely many twin primes, that is, we can find above arbitrary large bounds such pairs again and again. As an approximation of the conjecture, Hardy and Littlewood began to investigate 80 years ago, whether there are prime pairs much closer to each other than the average distance between consecutive primes. In case of a prime \( p \) the average distance is the value \( \log p \), the natural logarithm of \( p \) (which is approximately 2.3 times the number of decimal digits of \( p \)).

(i) how small gaps can we guarantee infinitely many times between consecutive primes compared of problems. A brief selection of the most important open questions is as follows:

(ii) is there any way to show that the difference of consecutive primes is infinitely many times

(iii) how can we improve these results if primes are substituted by numbers with a small

Size of the grant: 1 376 400 EUR

Duration: 60 months (2008–2013)

Title of the ERC Advanced Grant: Gaps between Primes

Homepage: http://www.renyi.hu/~pintz/
Vilmos TOTIK
(University of Szeged)

Title of the ERC Advanced Grant: Potential Theoretic Methods in Approximation and Orthogonal Polynomials
Duration: 60 months (2011–2015)
Size of the grant: 402 000 EUR
ERC host institution: University of Szeged

Brief presentation of the project:
Mathematical analysis is one of the most powerful branches of mathematics. Within it the theory of orthogonal polynomials and approximation theory goes back to the early 19th century and they have an enormous number of connections and applications from classical and quantum physics through stochastic processes and prediction theory to Radon transforms and computer tomography. In the last 2–3 decades potential theoretical methods have been playing an increasingly important role in these theories, and these methods were essential in the solution of several difficult problems and in the extension of the theory. In the ERC project several problems will be investigated (from the universality hypothesis in quantum mechanics to domain reconstruction), in the solution of which potential theory will play a crucial role.

Major works (monographs):
Moduli of Smoothness, (with Z. Ditzian), Springer, 1987;

Editorial work:

Profession: mathematician
Member of the Hungarian Academy of Sciences (1993)
Research interest: mathematical analysis, approximation theory, potential theory, orthogonal polynomials

Tamás VICSEK
(Eötvös Loránd University, Budapest, Hungary)

Title of the ERC Grant: The structure and dynamics of collective motion
Duration: 60 months (2009–2014)
Size of the grant: 1 280 000 EUR
ERC host institution: Eötvös Loránd University

Brief presentation of the project:
The main goal we intend to achieve in our multidisciplinary research is the identification and documentation of new unifying principles describing the essential aspects of collective motion, being one of the most relevant and spectacular manifestations of collective behaviour. To do so we shall carry out novel type of experiments, design models that are both simple and realistic enough to reproduce the observations and develop concepts for a better interpretation of the complexity of systems consisting of many organisms as well as such non-living objects as interacting robots. We plan to study systems ranging from cultures of migrating tissue cells through flocks of birds to collectively moving devices. The interrelation of these systems will be considered in order to deepen the understanding of the main patterns of group motion in both living and non-living systems by learning about the similar phenomena in the two domains of nature. As an example, we plan to understand the essential ingredients of flocking of birds by building collectively moving unmanned aerial vehicles while, in turn, high resolution spatiotemporal GPS data of pigeon flocks will be used to make helpful conclusions for the best designs for swarms of robots. In particular, we shall construct and build a set of vehicles that will be capable, for the first time, to exhibit flocking behaviour in the three-dimensional space

Most important experience abroad:
2004 Aug – Dec. visiting professor, University of Notre Dame, Indiana, USA
1986–1989. visiting scholar, Emory University, Atlanta, USA
1988 visiting scholar, Yale University, New Haven, USA
1983–1985. visiting scholar, Emory University, Atlanta, USA

Grants and Awards:
2002–2005. NKFI Nanobiotechnology
2004–2007. EU FP7 STREP Starlings in flight
1999. Sálcseri Award
2003. Leó Sáldı Professor

Profession: physicist
Year of PhD: 1983.
Member of the Hungarian Academy of Sciences (2001)
Research field: Statistical physics of collective behaviour
Home page: http://hal.elte.hu/~vicsek/
Under the 5th, 6th and 7th Framework Programmes, all Member States and Associated Countries have set up systems of National Contact Points (NCP systems) to inform and assist potential participants and contractors during their planned and ongoing projects. For the new structures and funding schemes of FP7 – including those offered by the ERC –, providing appropriate information and assistance to potential participants is vital for assuring transparency and equal access. These include:

1. Informing, awareness raising
   • Provide information on the ERC’s funding opportunities, including on conditions for participation, and on possibilities and conditions for submission of proposals.
   • Organise promotional activities in liaison with the Commission services (e.g. infodays, consultation seminars, conferences, etc.), and follow-up participation results.

2. Advising, assisting and training
   • Explain the scope and the modalities of the funding opportunities of ERC taking into account the whole spectrum of funding schemes to be used in FP7.
   • Provide assistance for potential applicants for identifying the most appropriate funding opportunities, advising during the proposal preparation phase, evaluation of proposals, granting process and assist concerning questions related to the administrative and management aspects of project implementation, including reporting.
   • Advise on administrative procedures and legal issues (e.g. role and responsibilities of participant legal entities in a proposal/project, costs and non-eligible costs, rights and obligations of participants, respect of ethical rules and for the principles laid down in the Commission Recommendation C(2005)576 on the European Charter for Researchers and the Code of Conduct for their Recruitment).
   • Assist organisations, in particular new actors, with a view to increasing their participation in FP7.
   • Provide information for and advice participants, on the setting up of appropriate management and legal structures in projects.
   • Assist the participant legal entities in understanding the framework programme requirements in view of the national legislative environment and the institutions’ own regulations and accounting principles.
   • Provide assistance to the different institutional players (management, administrative and financial staff as well as the scientists themselves) to understand the relevant rules and administrative requirements taking into account the different roles they play in a given activity.

3. Signposting and feedback
   • Give feedback to the Commission services and to the relevant national authorities on any problems and difficulties in implementing and participating in the Ideas Specific Programme.
   • Inform the Commission services about planned NCP activities and events requiring participation of Commission staff.

Contact:
Dr. Erika Szendrök, ERC/Ideas SP NCP, Hungary
Telephone: +36-1-411-6248
E-mail: erika.szendrak@office.mta.hu or eszendrak@yahoo.com
Skype: erika.szendrak

Source of Assistance and Advice in Hungary for the ERC Funding Programmes
The National Contact Point (NCP) for the ERC and the FP7 IDEAS Specific Programme