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## F O C U S

- The ERC story 5
- Funding avant-garde science 8
- In the hands of distinguished peers 12
- Close-up on ERC calls and grantees 16
- ERC strategic issues 25
- ERC executive agency 28
- The ERC in a nutshell 30
- Contacts & events 31

European  
Research Council  
Bringing great  
*ideas to life*



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**Welcome message**

*The European Research Council (ERC) came officially to life on 2 February 2007 after years of discussion and preparation. This was a historic rendezvous for European research. Now, two years later, we have successfully completed two highly competitive ERC funding rounds, and another one is in progress. On behalf, not only of the ERC Scientific Council which I have the honour of chairing, but of the whole ERC, I am very proud of this achievement.*



© Penelope Masouli, 2009

Fotis Kafatos

*The Scientific Council has striven to establish highly innovative, simple, flexible and transparent grant schemes which address Europe's key deficits in frontier research: a young researchers' programme, the Starting Grant scheme, and a competition for senior researchers, the Advanced Grant scheme. These two funding streams will form a solid basis for the ERC's operations in the coming years, establishing a reputable and inspiring funding environment which is vital for the support of the world's best researchers working in or moving to Europe.*

*Our first ever grant competition attracted an almost overwhelming number of applications, sending a strong message of support for our programmes but simultaneously putting the newborn organisation under some strain. Thanks to the dedication, talent and hard work of all those involved, we have dealt successfully with this pressure as we continue to innovate and fine-tune the ERC's activities and strategies, to improve the effectiveness, efficiency and user-friendliness of our operations. There are many challenges ahead — an important one being the transition of the ERC's highly effective implementation structure from a European Commission directorate to an autonomous executive agency.*

*As evidenced from the very first call, the response of the research community to our funding schemes has been very enthusiastic. To sustain and enhance this enthusiasm, we rely crucially on the ERC evaluation structure: our highly esteemed panel chairs, the panel members and the external reviewers. Thanks to their excellent service, the ERC is being increasingly seen as setting quality standards for identifying top talent across Europe.*

*I am very pleased to share with you, in this research\*eu focus supplement, a glimpse into the pioneering and exciting journey of the European Research Council, with encounters with some of our first grantees, as well as several personalities who have contributed to this long-awaited initiative.*

*I hope you will enjoy the reading.*

Fotis Kafatos  
ERC President





## Preface

*First of all, let me express my great satisfaction with the innovative, bold initiative that the European Research Council, part of the Seventh Framework Programme's (FP7) Ideas programme, represents.*

*I am thrilled that in such a short time after the Commission introduced this concept in its plans for FP7, it has become a reality and a success.*

*Launched with much enthusiasm just over two years ago, the ERC has already developed into a well-functioning research funding body that is internationally visible and is a beacon for the best European frontier research.*

*Through Europe-wide competition based on excellence only, the brightest ideas at the frontiers of knowledge are funded. The ERC Scientific Council, provides independent scientific governance, and has delivered a strategy that works, in close collaboration with the European Commission, providing the administrative and financial means through an implementation structure which is currently being transformed into an autonomous executive agency.*

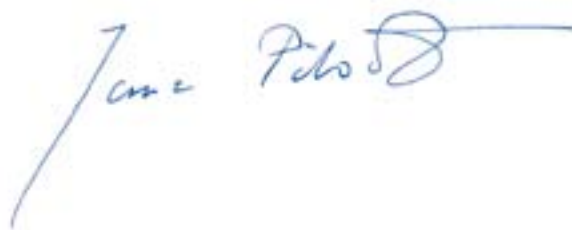
*We now have to ensure that the success is continued. With the current economic climate, supporting research is yet more important and this most definitely applies to the ERC's funding activities.*

*This is why the review of the ERC, which takes place this year, is of such importance. An independent review panel will take stock of achievements and weaknesses, and look at the future of the ERC.*

*I am convinced that the ERC will play a fundamental part in strengthening the European research area (ERA) in the future. There is, however, also an international dimension to it. The ERC may be called the European Research Council, but its benefits will spread beyond Europe's borders, as the grants are open to top researchers of any nationality. This means the ERC can draw on excellence from around the world.*

*Today, I can say with confidence how important the ERC has already become for Europe's research. Equally, I believe it is crucial for the future of Europe as a whole — Europe's prosperity and quality of life for all our citizens.*

Janez Potočnik  
European Commissioner for Science and Research



Janez Potočnik

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## Frequent acronyms

ERC	European Research Council
EPSS	Electronic Proposal Submission Service
ERA	European research area
FP6/7	Sixth/Seventh Framework Programme of the European Community for research, technological development and demonstration activities
PI	Principal Investigator

# TABLE OF CONTENTS

<b>THE ERC STORY</b>	ERC: looking beyond the challenges of today	5
	A cornerstone for the European research area	6
<b>FUNDING AVANT-GARDE SCIENCE</b>	ERC principles to fund scientific excellence	8
	Funding today's ground-breaking research ideas	9
	ERC grant scheme application process	11
<b>IN THE HANDS OF DISTINGUISHED PEERS</b>	The ERC peer reviewing system	12
<b>CLOSE-UP ON ERC CALLS AND GRANTEES</b>	First round of Starting Grants — a powerful message of support	16
	Dr Johan Elf: studying gene regulation in bacterial cells	17
	Professor H�el�ene Rey: unravelling exchange rate mechanisms	18
	Dr Rosalind Rickaby: understanding the phytoplankton response to past and future atmospheric CO <sub>2</sub>	19
	Dr František Štěpánek: creating microscopic chemical robots	20
	Dr Alexander Fidora: breaking new ground in medieval philosophy	21
	Dr Armagan Ko�er: revolutionising the way diseases are cured	22
	Advanced Grants — a nascent force in senior frontier research funding	23
	Professor Svante P�a�bo: looking for the apes in us	24
<b>ERC STRATEGIC ISSUES</b>	Interdisciplinarity and frontier research <i>An interview with Professor Helga Nowotny, Vice-President of the ERC</i>	25
	Scientific careers and mobility <i>research*eu focus spoke to Professor Ernst-Ludwig Winnacker, ERC Secretary General</i>	26
	Open access <i>Professor Mathias Dewatripont, ERC Scientific Council member, speaks about this important ERC objective</i>	27
<b>ERC EXECUTIVE AGENCY</b>	What's on the cards for the ERC? <i>Dr Jack Metthey, the director of the ERC Executive Agency, looks at what lies ahead for the ERC and what has been achieved so far</i>	28
<b>THE ERC IN A NUTSHELL</b>		30
<b>CONTACTS &amp; EVENTS</b>		31

## ERC: looking beyond the challenges of today

*The formal establishment of the European Research Council (ERC) on 2 February 2007 reflects a substantial step in the way Europe manages its research base to progress towards the Lisbon targets. Not only does the creation of the first truly European research funding body prove Europe's heightened awareness of the importance of basic research and risk-taking investments in driving progress, but it also confirms Europe's ambition to put excellence at the very heart of European research.*

Creativity is considered an essential component of progress in any field of research, development and innovation. Many technologies, products and achievements having led to economic and commercial success and/or concrete improvements to the quality of life, stem from basic research.

Yet the distinction between 'basic' and 'applied' research has become blurred, since emerging areas of science and technology often cover substantial elements of both. The advent of 'frontier research', that mirrors this reality, now calls for concentrated efforts on a more receptive attitude to unconventional thinking. Today this is possible with the ERC.

### A NEW APPROACH

Funded through the EU's Seventh Framework Programme (FP7) under its specific programme Ideas, the ERC aims to complement national funding schemes to support basic research.

The focus for the ERC Scientific Council, which defines the scientific funding strategy and methodologies of the ERC, is to reward innovative proposals. This is achieved by emphasising quality rather than specific research areas and by supporting the very

best scientific efforts in Europe within and across all fields of science, scholarship and engineering. Open and direct competition for attractive, long-term grants is considered crucial in order to encourage and facilitate research that transcends established disciplinary boundaries or national borders.

ERC grants promote wholly investigator-driven or 'bottom-up' frontier research projects. They benefit both starting independent and established research leaders in projects carried out by individual teams in Europe.

The ERC is playing a pivotal role in the emergence of creative research. It is showing a clear understanding of the need to nurture creativity at the earliest possible stage, by harnessing the diversity of European research talent and channelling funds to aid the most promising or distinguished researchers and their scientific ideas.

Without the constraints or pressures of targeted research funding schemes, Europe is creating, through the ERC, an environment

conducive to serendipitous discoveries. The new mindset developed in the framework of the first European research funding body will contribute to raising the status and visibility of European frontier research and its current and future elite researchers.

### SUPPORTING BASIC RESEARCH IN EUROPE

The mission of the ERC is to lead the way in establishing a new quality-led approach to investigator-driven frontier research. In order to support new opportunities and directions in any field of research, the sole selection criterion in the ERC competitions is scientific excellence. No other considerations are taken into account.

Europe needs to build on its strengths and the ERC is a contribution to that. Europe needs to work on reinforcing the quality of basic research to respond to the needs of a knowledge-based society. It must also improve its performance in the newer, fast-emerging domains of frontier research to meet global challenges.

By backing Europe's brightest minds, the ERC expects that its peer-reviewed grants will help to bring about novel research findings that can change the course of human understanding, foster scientific leadership qualities, form the basis of new research and development (R & D)-intensive industries and markets, as well as contribute to broader social progress for the future.



## A cornerstone for the European research area

*The contribution of research and technological development to economic growth and competitiveness is indisputable. It is also an essential ingredient for the sustainable development of Europe. Scientists and politicians therefore needed to provide Europe with a new funding mechanism at EU level to support investigator-driven basic research of the highest quality. Now, with the ERC, greater visibility is offered.*

The advent of the ERC is a truly collective achievement resulting from the involvement of many scientific and political actors and stakeholders in Europe. In just over five years, a new structure was set up by the European Commission, answering to a demand for an autonomous European funding body for basic research. The mission of the ERC is to support long-term curiosity-driven frontier research, judged on scientific excellence.

### AN INCENTIVE FROM THE SCIENTIFIC COMMUNITY

The idea for establishing the ERC first came out of widespread discussions between European scientists, scholars and research umbrella organisations at a time when no clear European mechanism to support basic research on a broad front existed. Yet to address this problem, Europe had to recognise the requirement for change and establish the necessary institutional structures for achieving it.

In November 2002, the debate gained momentum at political level. European research ministers called on EU Member States and the European Commission to discuss the purpose and scope of a Europe-wide research council. An expert group was subsequently convened under

the Danish EU Council Presidency — in the second semester of 2002 — to investigate the viability of such a structure. In 2003, a report from the ERC Expert Group (ERCEG), chaired by Professor Federico Mayor, described how the ERC could take shape.

### A DECISIVE POLITICAL TURNING POINT

Successive meetings accelerated the discussion process during the first semester of 2004:

- in January, the European Commission analysed the situation of basic research in Europe and made a number of proposals for action in the EU communication *Europe and basic research*;
- in February, participants from the political, scientific and industrial scene discussed 'Europe's search for excellence in basic research' and published a set of recommendations strongly supporting a new basic research funding mechanism for Europe;
- in March, conclusions from the Competitiveness Council on the need to stimulate excellence in basic research by encouraging more competition in science-driven research were then endorsed and highlighted by the Spring European Council addressing competitiveness in Europe;

- in June, the European Commission presented a communication on the future of research in Europe, *Science and technology, the key to Europe's future — Guidelines for future European Union policy to support research*, which included six major objectives;
- in November that same year, the Competitiveness Council examined the different elements of the communication.

Within just two years, the ERCEG's recommendations won significant support, both in political circles and the scientific community. Collegial support culminated in April 2005 with the European Commission proposing to establish and operate an autonomous ERC through the FP7 Ideas programme (2007–13). Its aim, as one of the six major objectives: to stimulate the creativity of basic research through competition between teams at European level to strengthen European research efforts.

### LAYING THE GROUNDWORK FOR THE ERC

Following consultation with representative bodies of the scientific community in Europe, an independent ERC Identification Committee, chaired by Lord Patten of Barnes, selected 22 renowned researchers as the founding members of the ERC Scientific Council. Janez Potočnik, the European Commissioner for Science and Research, announced their appointment in July 2005. Delegating this selection, made exclusively on the basis of scientific and scholarly criteria, is an example of the European Commission's trust, cooperation and collective commitment to the ERC's autonomy.

The ERC Scientific Council met for the first time in October 2005. Some two months later, on 12 December 2005, the Scientific Council announced the election of its Chair, Professor Fotis Kafatos, and its two Vice-Chairs, Professor Helga Nowotny and Dr Daniel Estève. Next, the Scientific Council published its outline strategy for launching the ERC, on how it intended to stimulate investigator-driven frontier research across all fields of science, scholarship and engineering.

In parallel, the European Commission presented a revised proposal in September 2006 for the ERC under the FP7 Ideas programme and one month later, the EU Competitiveness Council reached a broad consensus on the structure of the ERC within FP7.



ERC launch conference in Berlin in February 2007

From left to right: German Chancellor Angela Merkel, ERC President Fotis Kafatos, German Science Minister Annette Schavan, Commissioner Janez Potočnik and ERC Secretary General Ernst-Ludwig Winnacker



**BUILDING A UNIQUE RESEARCH ENTITY**

On 18 December 2006, following its adoption by the European Parliament (EP), the ERC obtained the seal of approval from the Council of the EU. With its seven-year EUR 7.5 billion budget, the ERC can now offer attractive long-term grants, awarded on the basis of scientific excellence via open and direct funding competitions between researchers throughout Europe.

On 27 and 28 February 2007, the ERC was officially launched at an inaugural conference in Berlin hosted by the German EU Council Presidency and organised jointly by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) and the European Commission. Researchers and stakeholders from over 30 countries attended the ERC launch to celebrate its establishment and discuss its strategic objectives.

**AN INDEPENDENT, AUTONOMOUS AND SCIENCE-DRIVEN STRUCTURE**

The relatively newborn ERC is an innovative research funding body. Although accountable to the European Commission, which set it up, the ERC was established as an autonomous structure under independent scientific leadership. In order to put excellence at the heart of research, the ERC consists of two main structures: a Scientific Council and a dedicated implementation structure, which is established as the ERC Executive Agency.

The President of the ERC is also the Chair of the Scientific Council. He is the formal representative of the ERC and its Scientific

Council with the European Commission and other bodies. He is assisted by two Vice-Presidents who are the Vice-Chairs of the Scientific Council.

The 22 highly respected researchers who are members of the Scientific Council guarantee the ERC's independent scientific governance. This external scientific management:

- establishes the overall scientific funding strategy (work programmes, calls for proposals, etc.);
- defines operational methodologies and controls the quality of scientific operations (peer review evaluation process);
- ensures communication with the scientific community.

The dedicated implementation structure, currently in the process of being established as the ERC Executive Agency, implements and manages ERC operations. A major recruitment is currently taking place. The dedicated implementation structure's tasks are to:

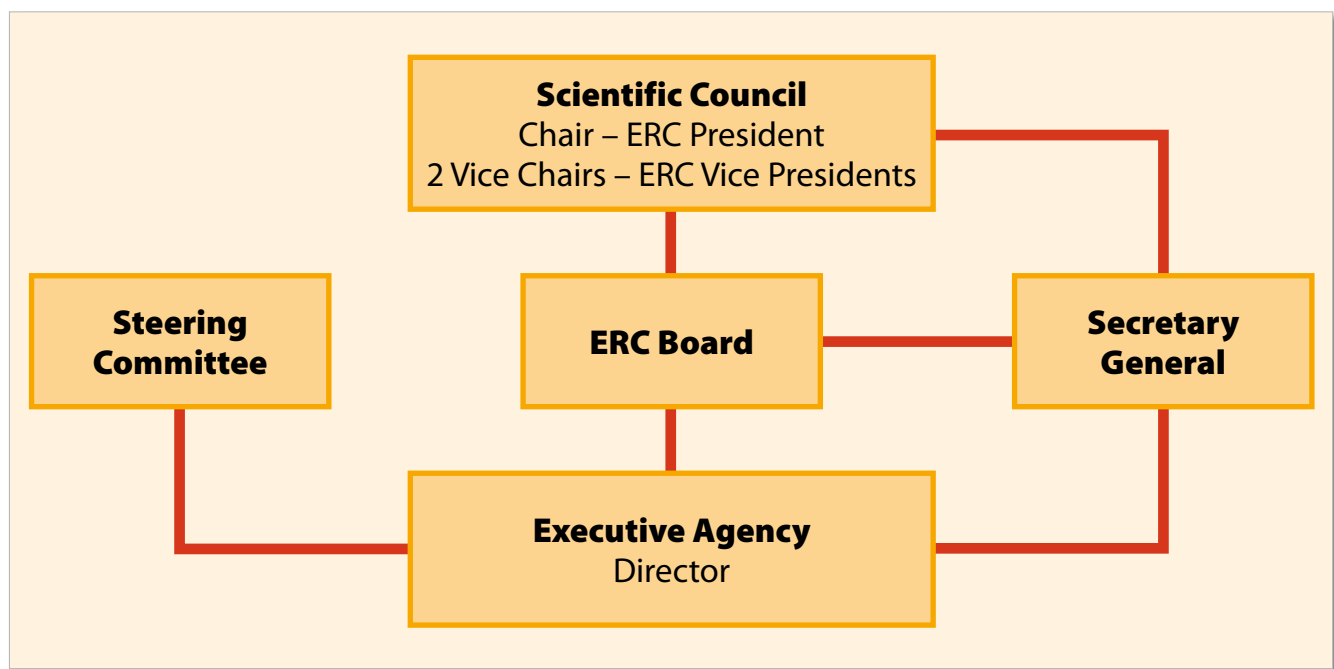
- execute the annual work programme as established by the Scientific Council;
- implement calls for proposals and organise peer review evaluation in accordance with methodologies established by the Scientific Council;
- establish and manage grant agreements;
- provide information and support to applicants and grant holders;
- communicate ERC achievements and disseminate results.

The Scientific Council has appointed an ERC Secretary General as a liaison between the Scientific Council and the dedicated

implementation structure in order to ensure the integrated implementation of the ERC. The Secretary General also monitors the implementation of the Scientific Council's strategy and is a member of the ERC Board. The other Board members are the Chair of the Scientific Council, its Vice-Chairs and the Director of the dedicated implementation structure. The Board monitors ERC implementation and proposes future actions. The EU provides both the financial means and legal base through FP7 while the European Commission ensures the ERC's integrity and autonomy.

The very first ERC call for proposals focused on ERC Starting Grants and closed on 25 April 2007 with 9 167 applications submitted. The massive response clearly underlines the huge expectations on the ERC by Europe's new generation of research leaders. It is a strong signal for the need for grants of this kind in Europe. Since the overwhelming number of applications of the first Starting Grant call, the number of applications has gone down thanks to corrective measures taken by the Scientific Council and also due to the fact that more clarity on the scientific excellence was sought. The second call for Starting Grants closed at the end of 2008 with some 2 500 submissions. Similarly, the first Advanced Grant call attracted 2 167 applications in early 2008. It is important to note that the quality of the applications remained very high.

For details on the ERC recruitment phase, please visit: <http://erc.europa.eu/index.cfm?fuseaction=page.display&topicID=48>



ERC organigram

## ERC principles to fund scientific excellence

*The ERC is in a unique position in the European research landscape for supporting the best in science and scholarship. Headed by distinguished scientists and taking best practices wherever they can be found, the ERC has been set up to organise and run entirely new grant schemes.*

Greater independence, more attractive grants, greater acceptance of the need to take risks and a more receptive attitude to unconventional thinking were part of the equation to achieve the ERC grant schemes of today. Open to both early-career researchers and established scientists and scholars, regardless of nationality, age or current location, the ERC grant schemes concentrate on stimulating investigator-initiated frontier research across all fields of research, on the basis of excellence.

### PRINCIPAL INVESTIGATORS

The ERC grants aim to support individual researchers, called Principal Investigators (PIs), heading a research team to conduct a frontier research project on the condition that they are hired by a host institution legally established in an EU Member State or associated country<sup>(1)</sup>. Depending on the field, a PI may also work alone.

The PI does not necessarily need to be working at the host institution at the time when the proposal is submitted. However, a mutual agreement and the host institution's commitment on how the relationship will be established are necessary, should the proposal be successful.

ERC Starting Grants are designed for young promising researchers at the stage of devel-

oping independent careers and/or making the transition to being independent research leaders in their own right (see p. 16). ERC Advanced Grants on the other hand, are targeted at well-established top scientists and scholars, wishing to pursue frontier research of their choice (see p. 25).

### SCIENTIFIC INDEPENDENCE

The PIs, who have scientific responsibility for the project, must have the authority to:

- apply for funding independently of senior colleagues;
- direct the project, manage the research funding and make appropriate resource allocation decisions;
- publish as senior authors and invite as co-authors only those who have contributed substantially to the reported work;
- supervise team members, including research students or others;
- have access to the appropriate space and facilities for conducting the research.

### FRONTIER RESEARCH ACROSS RESEARCH FIELDS

ERC grants aim to support frontier research. In other words, they support the pursuit of questions at or beyond the frontiers of knowledge, regardless of established disciplinary boundaries. Proposals of an interdisciplinary nature which cross the boundaries

between different fields of research, pioneering proposals addressing new and emerging fields of research or proposals introducing unconventional, innovative approaches are particularly encouraged. It is expected that the impact on the creation of new knowledge will be significant. Applications can be made in any field of research.

### ATTRACTIVE LONG-TERM FUNDING

The relevant terms and conditions for funding are described in the ERC grant agreement. It essentially consists of an 'ERC core grant agreement' between the ERC and the host institution, and a 'Supplementary agreement' between the PI and the host institution. It is expected that the PI will establish and conclude the funded research project in association with the original host institution. If necessary, PIs having received a frontier research grant are allowed to transfer their projects — called project portability — from one host to another during the course of the project.

By nurturing a flexible research system which fosters curiosity and actively promotes frontier research, the ERC:

- enhances aspirations and achievements;
- exploits the diversity of European research talent; and
- confers status and visibility on European frontier research and the very best researchers, both of the present and next generation.

### ELECTRONIC PROPOSAL SUBMISSIONS

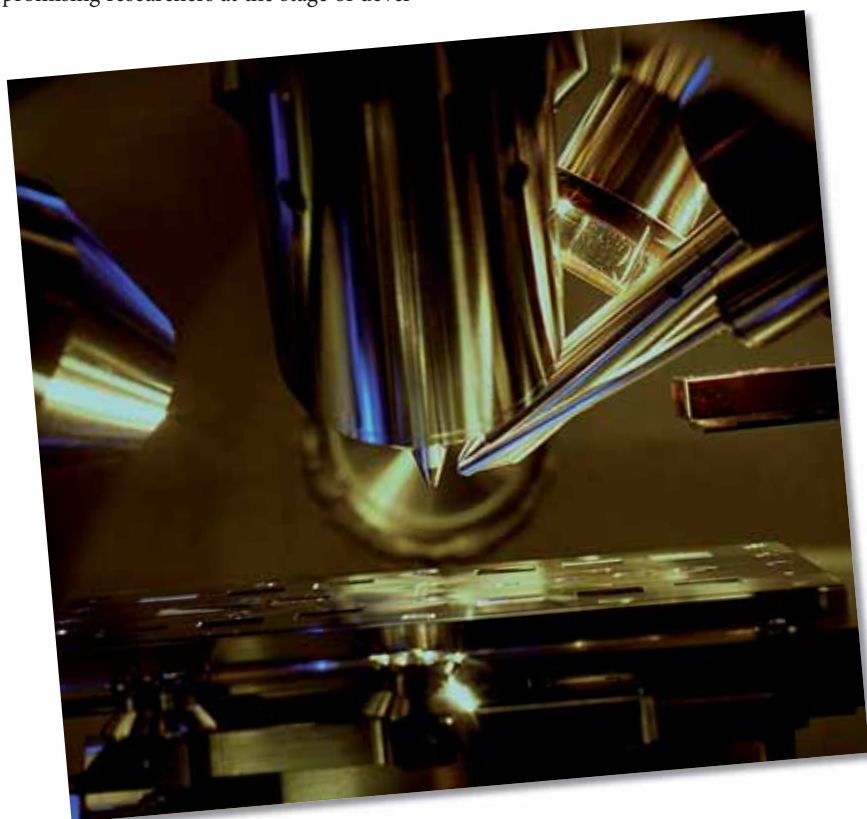
ERC grant applications can be submitted by a PI only in response to an open call for proposals. Proposals must be submitted via the web-based Electronic Proposal Submission Service (EPSS, <https://www.epss-fp7.org/epss/welcome.jsp>). It is important to note that PIs should not be associated with more than one ERC grant application during the same year, and can only have one ERC grant active at any one time.

### ERC PEER REVIEWERS

The evaluation of ERC grant applications lies in the hands of independent peer review panels composed of renowned scientists and scholars selected by the ERC Scientific Council. ERC peer review panels look carefully for excellent scientific projects with a high-risk/high-gain research profile. In their quest to broaden scientific and technological knowledge, they will guarantee transparency, fairness and impartiality in the treatment of proposals.

<sup>(1)</sup> The countries associated with FP7 are: Albania, Bosnia and Herzegovina, Croatia, Iceland, Israel, Liechtenstein, FYR of Macedonia, Norway, Republic of Montenegro, Serbia, Switzerland and Turkey.

For further details, please consult the ERC call page, the 'ERC Guide for Applicants', the 'ERC Guide for peer reviewers' and the 'ERC guide for grant holders' part I and II on: <http://erc.europa.eu>





## Funding today's ground-breaking research ideas

*There are two ERC grant schemes available: the ERC Starting Grant and the ERC Advanced Grant. Both operate on a 'bottom-up' basis and support frontier research in any research field that goes beyond the frontiers of current knowledge, and regardless of established disciplinary boundaries.*

Indeed, the ERC encourages interdisciplinary research projects with a high-risk/high-gain potential. The significant level of financing and flexibility makes ERC grants highly attractive to researchers as they provide the appropriate means and financial stability to carry out frontier research for up to five years.

These two grant schemes are expected to be the core of the ERC's operations for the duration of FP7.

### FOR EARLY-CAREER FIRST-CLASS RESEARCHERS ONLY

The ERC Starting Grant scheme has been set up to support the independent careers of top researchers, whatever their nationality, as long as they are located in or moving to the EU Member States or associated countries. This type of grant is available to researchers who are starting or consolidating their own independent research team or, depending on the field, their own independent research programme.

Depending on the specific project and field, a grant may reach EUR 2 million, for up to five years, to cover up to 100 % of the direct project costs and a contribution of 20 % of these direct costs towards indirect costs. The first ERC Starting Grant competition, issued in the spring of 2007 from a budget of EUR 335 million, has now funded 299 projects.

The selection criteria applied to the Starting Grant competition are based on the PI's potential to perform world-class research as well as the quality of the proposed frontier research project.

The PI must have been awarded a PhD since more than three and less than eight years at the submission deadline — this is the rule from the 2008 Starting Grant call for proposal onwards <sup>(2)</sup>. Furthermore, the PI must show proof of having the potential to establish an independent research career or to establish or consolidate a research team.

It should be noted that ERC grant applications must be submitted by a single PI in conjunction with and on behalf of a host institution.

### FOR EXCEPTIONAL ESTABLISHED RESEARCH LEADERS ONLY

The second ERC grants scheme — the Advanced Grant — has been set up to support excellent, innovative research projects initiated by leading established researchers across the EU Member States and associated countries. This funding stream complements the ERC Starting Grants by targeting those researchers who are already well established as independent research leaders in their own right.

Depending on the specific project and field, the amount offered by an Advanced Grant may go up to EUR 2.5 million for a period of five years and exceptionally as much as EUR 3.5 million for projects involving specific features. These cover up to 100 % of the direct project costs and a contribution of 20 % of these direct costs towards indirect costs. The award procedure for Advanced Grants is the same as for the Starting Grants: submissions are judged by the peer review evaluation panel who determine the grant's value according to the project's needs and merit. However, the selection criteria specifically require the PI not only to demonstrate the quality of the proposed frontier research project, but also to have had an outstanding track record of scientific achievements during the last 10 years and an accomplished leadership profile.

In light of these criteria, the PI must be an established independent researcher. Since there is no age limit to submit a proposal, applications at any career level are welcome.

The first ERC Advanced Grants, concluded in October 2008, had a budget of ca. EUR 553 million, with around 280 projects being funded.

### WHO ARE ELIGIBLE PIs?

ERC grants support projects carried out by individual research teams, which are headed by a single PI of any nationality and may include additional team members. These teams may be national or transnational in character. For ERC grants, the concept of individual teams is fundamentally different from that of a traditional 'network' or 'research consortium'. Proposals of the latter type are not accepted in the ERC framework.

PIs must submit ground-breaking frontier research projects to be carried out with an individual research team, working under their responsibility. Depending on the field, a PI may also work alone. In all cases, only cutting-edge profiles are expected to succeed in ERC competitions.

PIs competing for an ERC Starting Grant must display their maturity to conduct independent research. For example, it would normally be expected that applicants would have produced at least one important publication alone without the participation of their PhD supervisor. They should also be able to demonstrate a track record of early achievements, including publications as the

<sup>(2)</sup> This time window of three to eight years after completion of the PhD may be subject to change for future calls.



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continued on page 10

continued from page 9 'Funding today's ground-breaking research ideas'

main author in major international peer-reviewed multidisciplinary scientific journals, or journals in their respective field and career stage. In addition, PIs should list invited presentations at well-established international conferences, granted patents, awards, prizes, etc. The evaluation panels will assess the applicants taking into account the specific stage of their research career at the time of application.

As far as the prestigious ERC Advanced Grants are concerned, applicants are expected to be active researchers with an exceptional background in leadership as shown by their ability to push the barriers beyond the state of the art. Their major scientific or scholarly contributions should already have had an important impact on both their own research field and/or neighbouring research fields, as well as in terms of international recognition and diffusion.

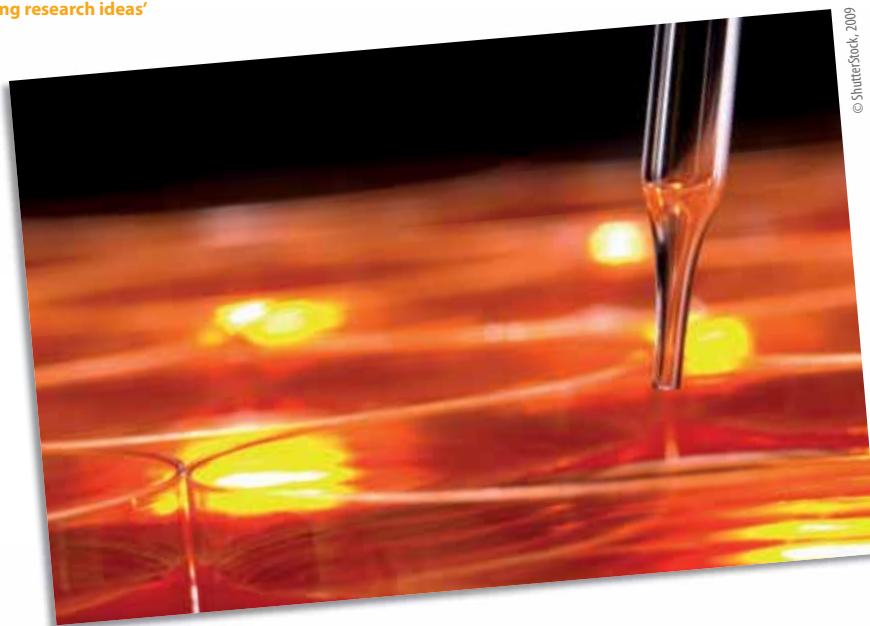
Since exceptional leaders are identified in terms of originality and relevance of their research contributions, PIs will also be expected to demonstrate a record of achievements in the last 10 years appropriate to the field chosen and at least match one or more of the following benchmarks:

10 publications in major international peer-reviewed multidisciplinary scientific journals, and/or in the leading international peer-reviewed journals of their respective field; or three major research monographs, of which at least one has been translated into another language, which is particularly relevant in the field of social sciences and humanities.

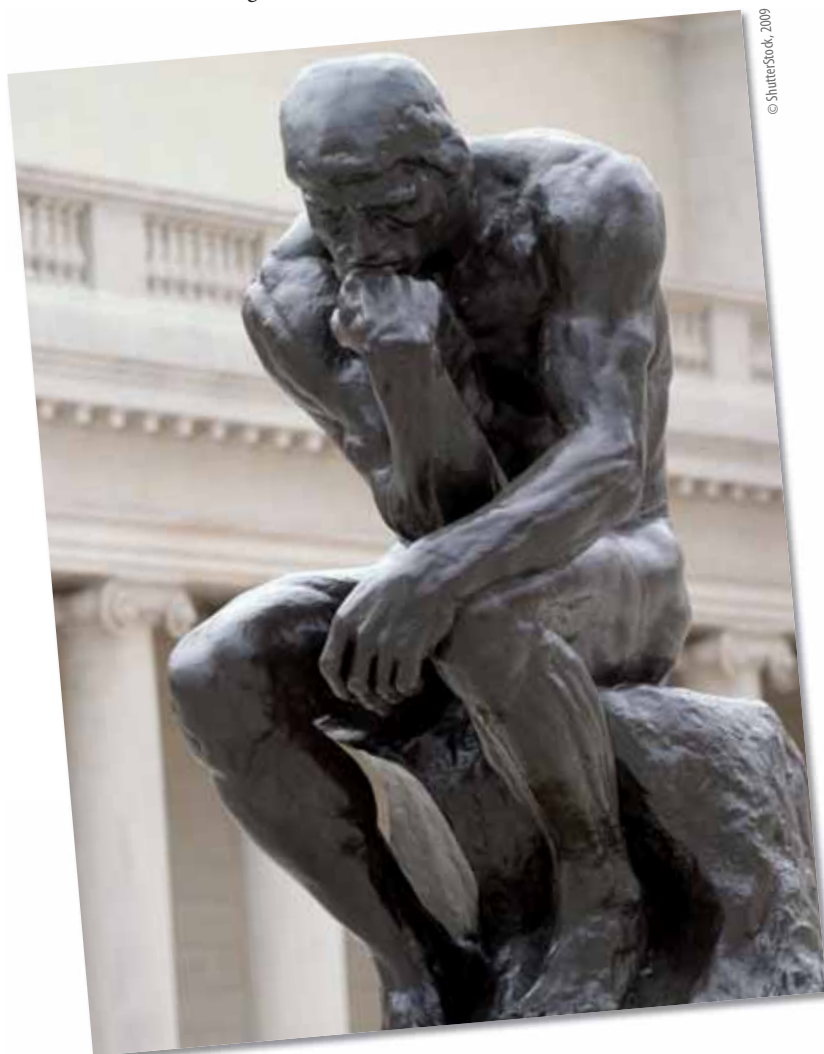
Should these criteria not be met, alternative benchmarks may be considered (individually or in combination) as indicative of an exceptional record and recognition over the past 10 years, which would normally be: 5 granted patents; 10 invited presentations in well-established internationally organised conferences and advanced schools; 3 research expeditions led by the applicant; 3 well-established international conferences or congresses in whose organisation the applicant was involved in as a member of the steering and/or organising committee; and international recognition through scientific prizes/awards or membership in well-regarded academies.

It is expected that the ERC-selected PI will establish and conclude the funded research project in association with the original host institution. However, PIs having received an ERC grant are allowed to transfer their projects from one host to another during the course of the project. Project reporting is always twofold and involves both the PI and the host institution. The PI is required to send scientific reports informing the ERC on the project's progress and achievements. The host institution, on the other hand, is requested to send periodic financial management reports justifying any expenditure.

For further details, please consult the 'ERC Guide for Applicants' and the 'ERC Work Programme' on: <http://erc.europa.eu>



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## ERC grant scheme application process

*Applications for an ERC grant must be submitted via the Electronic Proposal Submission Service (EPSS) by a single PI in conjunction with and on behalf of their host institution, called the applicant legal entity.*

Any type of legal entity, including universities, research centres and undertakings can host the PI and his/her team. Scientists located elsewhere and working in another legal entity than the host institution can be proposed by the PI as team members if their participation is scientifically justified. An ERC grant is awarded to the legal entity that hires and hosts the PI, with the added commitment that this institution offers appropriate conditions for the PI to independently direct the research and manage its funding for the duration of the project.

### WHEN CAN PIs APPLY?

ERC grant applications can only be submitted in response to a call for proposals; these calls can be found on the ERC website at <http://erc.europa.eu>. Deadlines for submitting ERC grant applications are specified in each call for proposals. Call budgets are expected to be gradually increased each year.

### HOW CAN PIs SUBMIT AN ERC GRANT APPLICATION?

Registration via the web-based EPSS is compulsory for any type of grant application. PIs need to obtain a login name and password to have access to the EPSS for preparing, uploading and submitting a proposal. This should be done as early as possible before the call deadline for the proposal submission.

### PREPARING AN ERC GRANT APPLICATION

The application procedure for ERC grants consists of a single submission stage with a two-step evaluation. For an ERC grant application to be complete, it needs to include the administrative forms, the research proposal and the supplementary documents. However, its specific content will vary according to the type of grant being applied for. Please refer to the latest version of the *ERC Guide for Applicants*.

### SUBMITTING AN ERC GRANT PROPOSAL

Applicants with an EPSS login name and password who have completed the administrative forms in the EPSS and uploaded the research proposal PDF file will have to confirm the submission explicitly in order for it to be formally concluded. If successfully submitted, the applicant will receive a message indicating that the proposal has been received.

Up until the call deadline, the applicant may modify and submit any number of revised versions of the proposal which will, however,

overwrite the previous one. If the submission is technically successful, the applicant will receive an automatic computer-generated acknowledgement from the EPSS; however, this does not mean that proposals will be funded. Proposals may be withdrawn up to the call deadline by submitting a revised version of the administrative forms which indicates the withdrawal. After this deadline, a proposal may only be withdrawn by sending a signed letter to the ERC.

### REAPPLICATIONS AND MULTIPLE APPLICATIONS

To ensure that only high-quality applications are submitted to the ERC, strict rules apply to reapplications and for multiple applications within the same or different type of ERC grant scheme. Generally, only one ERC grant managed by a PI can be active at any time. These rules are being modified subsequently in light of experience. Applicants should make sure to consult the latest version of the *ERC Guide for Applicants*.

### PROPOSAL RANKINGS AND BUDGET LIMITS

Grant applications are assessed by the ERC's peer review evaluation panels. Peer reviewers are in charge of assessing and marking the proposals. Those who pass the quality

threshold are ranked. Depending on the call budget available, a budgetary cut-off applies to the ranking list and only the highest-ranked proposals are offered an ERC grant until the call's budget has been used.

The ERC intends to publish annual calls for proposals for both funding streams, as indicated in the provisional schedules. All updates on the exact call opening and closing dates for the ERC Starting Grant and the ERC Advanced Grant are available on the ERC website.

For further details, please consult the latest 'ERC Guide for Applicants', the 'ERC Work Programme' and the 'EPSS preparation and submission guide' available at: <http://erc.europa.eu>

Provisional schedule of ERC Starting Grant calls for proposals			
ERC Action	Call open	Call Deadline	Evaluation
StG2	Summer 08	Autumn 08	Winter 08–Spring 09
StG3	Summer 09	Autumn 09	Winter 09–Spring 10
StG4	Summer 10	Autumn 10	Winter 10–Spring 11

Provisional schedule of ERC Advanced Grant calls for proposals			
ERC Action	Call open	Call Deadline	Evaluation
AdG2	Autumn 08	Spring 09	Spring 09–Autumn 09
AdG3	Autumn 09	Spring 10	Spring 10–Autumn 10
AdG4	Autumn 10	Spring 11	Spring 11–Autumn 11



## The ERC peer reviewing system

*The selection of scientific and scholarly proposals for funding by the ERC strictly is based on international peer review. The ERC uses a typical panel-based system, in which panels of high-level scientists and/or scholars selected from around the world make recommendations for funding. Panel recommendations are made either autonomously or on the basis of the findings of remote experts external to the panel, called referees.*

The ERC has a mandate to implement a bottom-up, investigator-driven approach to funding. Consequently, the principal objective of the peer review system is to select the best science, independent of its discipline and of the particularities of the review panel structure. The panel structure is, in essence, no more than an operational instrument. Proposals are evaluated in two steps by selected peer reviewers on the basis of scientific excellence as the sole criterion.

### DOMAINS AND PANELS

A new panel distribution, based on experience gathered since 2007, has been set up to prevent redundancies between panels and to further group topics that best fit together. The ERC panel structure consists of 25 panels for both the ERC Starting Grant and ERC Advanced Grant. The panels of each grant are grouped into three disciplinary domains that cover the entire spectrum of science, engineering and scholarship in the remit of the ERC:

- Social Sciences and Humanities (SH);

- Life Sciences (LS); and
- Physical Science and Engineering (PE).

A fourth domain called Interdisciplinary domain has been established so that interdisciplinary proposals needing more expertise than available in the applicant's chosen panel, are evaluated at a separate meeting by the plenary of panel chairs or their deputies, subsequent to the meetings of the three other domain panels.

In the framework of the ERC Advanced Grant, A and B panels have been set up. They respectively meet in even and odd years to reduce the workload. The A panel having worked in 2008 for the first time gathered nearly 325 members. The members of the B panel is working for the first time in 2009. Some of them are or have been acting as referees for the A panel.

### COMPOSITION OF THE PANELS

The ERC Scientific Council is the entity ultimately responsible for the final panel dis-

tribution of expertise. The 22 members of the Scientific Council selected the three disciplinary domain coordinators who help set up the panels. Currently, they are:

- Professor Helga Nowotny in charge of the SH;
- Professor Carl-Henrik Heldin in charge of the LS; and
- Dr Daniel Estève in charge of the PE.

The panel chairs are designated by the Scientific Council on the basis of their excellent scientific reputation. Names of active renowned scientists highly regarded in their field are submitted to the domain coordinators who select panel members in collaboration with the panel chairs.

Each ERC panel consists of a chairperson plus approximately 10 to 12 members. Appointed panel members select and suggest six to seven names of remote referees who may be requested to assess proposals during step 2. The assignment of referees to proposals is carried out under the responsibility of the panel chairs in collaboration with the ERC staff, represented by scientific officers. There is no limit to the participation of any member of the international scientific community to act as referee, subject to the approval or accreditation of the person in question by the Scientific Council.

It is important to note that the relationship between the ERC and the reviewers is always defined by a written and signed agreement, called appointment letter. Signature of this agreement by the reviewer indicates acceptance of the conditions regarding confidentiality, conflict of interest and use of personal data by the ERC. The ERC cannot make available proposals to a reviewer who has not been officially appointed.

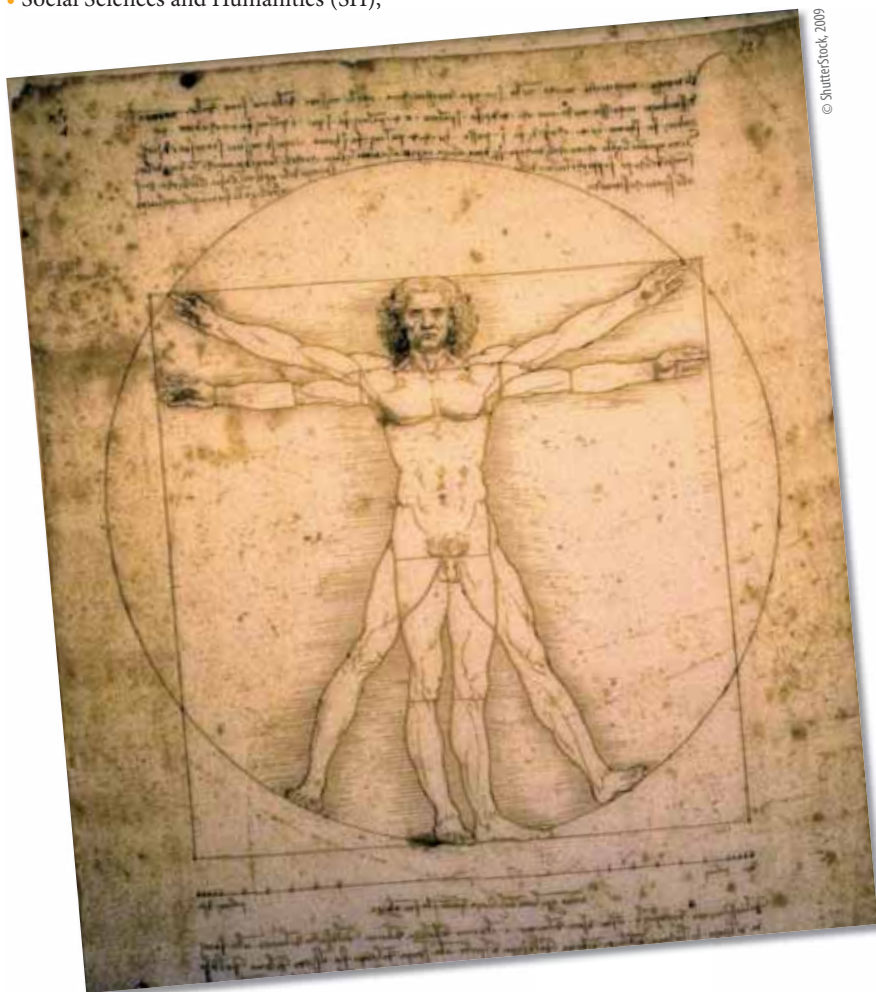
Furthermore, although the ERC is established as an autonomous structure under independent scientific leadership, it is accountable to the European Commission. The ERC must be transparent on how it carries out its activities which is why the ERC Scientific Council has decided to publish:

- the names of all the panel chairs, specified by panel, before each call deadline;
- the names of all the panel members, specified by panel, after step 1 of an evaluation process.

Furthermore, the names of all the peer reviewers (panel members and remote referees) are published at the end of each year by the European Commission.

### CONFLICTS OF INTEREST AND TRANSPARENCY

The ERC scientific officers are responsible for the entire peer review process. They declare and document — on the basis of the information available for each panel — all







mittee. If it becomes clear before, during or after the peer review evaluation phase, that one or more of the eligibility criteria has not been met, the proposal is declared ineligible and is withdrawn from any further consideration.

### REVIEW AND SELECTION PROCESS

Individual reviews form the basis of the discussions in the panel meetings. They are carried out for each proposal prior to panel meetings by reviewers at their place of work. Each application is assigned to a panel member as 'lead reviewer'. This person introduces the discussion on the application and is responsible for the evaluation report returned as feedback to the applicant. In step 1, each proposal is reviewed by at least three panel members — with a target of at least four in practice — and in step 2, by ideally three panel members plus two to three referees.

Individual reviewing consists of awarding marks to the review criteria 'Principal Investigator' and 'Research project', including yes/no recommendations for the review criteria 'Research environment', and providing a succinct but substantial explanatory comment for each mark. Both marks

and comments are critically important as they form the basis of the feedback to the applicants.

Individual review marks determine the relative position on the ranking list, which is the starting point for the panel discussions. During step 1, reviewers evaluate and mark the proposals numerically under the following criteria:

- Heading 1: Principal Investigator, i.e. the potential of the applicant considering the quality of his/her research output/track record and, for ERC Advanced grants, the applicant's intellectual capacity and creativity.
- Heading 2: research project, i.e. the groundbreaking nature of the research and its potential impact considering the methodology proposed and the high-risk/high-gain balance.

Marks are given in integers or halves. They range on a scale of 1 to 4 for each of the two criteria as follows:

- 1: non-competitive/non-fundable;
- 2: very good;
- 3: excellent;
- 4: outstanding.

Panels reserve the highest mark to the top 10 % of proposals, marks 4.0 or 3.5 only to the top 20 % and marks 4.0, 3.5 and 3.0 only to the top 30 % of proposals. In all cases, reviewers must stick strictly to the review criteria.

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The average mark and first conclusions are the starting point for step 1 panel discussions. A success threshold  $\geq 2$  is applied on these review criteria and used to establish the 'retained list' of the proposals which will be ranked in order of priority for funding. Any proposal marked below the success threshold on any of the two review criteria is rejected.

At the end of step 1, each panel makes three types of recommendations:

- the list of proposals that should go forward to step 2, that is with final scores above the success threshold;
- the list of proposals rejected with a mark passing the success threshold for each criterion but which fall below the budgetary threshold;
- the list of proposals to be rejected because their final scores fall below the success threshold.

During step 2, proposals are also assessed and commented on a pass/fail basis under the criteria of Heading 3, 'Research environment', i.e. the contribution of the research environment to the project and the participation of other legal entities. Starting Grant PIs whose proposals are retained for step 2 evaluations may be invited for an interview to present their project to the evaluation panel meeting in Brussels.

At the end of step 2, there are four outputs from the panel meetings.

- A set of top ranked proposals above the success threshold and that fit within the panel budget. These go for direct granting and are called 'main list' proposals.
- A set of 'pending-reserve' proposals which are the next highest in the ranking order, which are referred to the Final Panel Chair for further discussion. This is normally about 50 % of the budget of the 'main list' proposals.
- A set of proposals that have passed all thresholds with lower scores, but have no chance of being funded for budgetary reasons.
- A set of proposals that fail one or more evaluation criteria in Step 2.

The last two sets of proposals are rejected. The second set of proposals is discussed in the Final Panel Chair meeting for possible financing from the Interdisciplinary Domain budget (if appropriate) and for ranking in a common reserve list by domain.

At the end of steps 1 and 2, the proposals are ranked in order of priority by the panels on the basis of the average marks they have received — from at least three panel members — and on the overall appreciation of their strengths and weaknesses.

### RANKING METHODOLOGY

Starting from the preliminary ranking, panels go through a process of successive elimination steps, where the depth of discussion increases as the number of proposals in contention is reduced. For each eliminated proposal, panels either decide to adopt the average mark originating from the individual reviews or to assign a different mark. They also give an appropriate panel comment.





## First round of Starting Grants — a powerful message of support

*In December 2007, the first Starting Grants were awarded to talented early-career scientists and scholars whose research was considered to be the most promising by the ERC's peer review panels.*

ERC Starting Grants provide support for up-and-coming independent researchers to make the transition to independent research leaders in their own right. The ERC's independent Scientific Council established this grant scheme as the first initiative of the ERC, in view of the limited available funding opportunities for this crucial stage in the careers of young researchers.

The first grants were the result of long and passionate discussions within the different review panels, with expert researchers from throughout the world guaranteeing a high-level selection process. The panels' work was not made easier by the fact that the demands for grants were very numerous and many extremely interesting. In fact, an astounding 9 167 proposals were submitted by 25 April 2007, the closing date for submissions under the first Starting Grant call.

At the time, ERC President Professor Fotis Kafatos greeted the successful start of the first call with enthusiasm: 'We are very pleased with this powerful message of support for the ERC and its strategy. The high response rate is a clear signal of the expectations and interest in the ERC by Europe's young scientists and a measure of the need for grants of this kind in Europe.'

The average age of the final grantees in the first Starting Grant competition is 35. They represent 32 nationalities and their host institutions are based in 21 EU Member States or associated countries; a testimony to Europe's, and even the world's, diverse research footprint. Thirteen PIs came from overseas, of which eleven are returning Europeans.

The budget for the first call, EUR 335 million, resulted in 299 grants. Though this

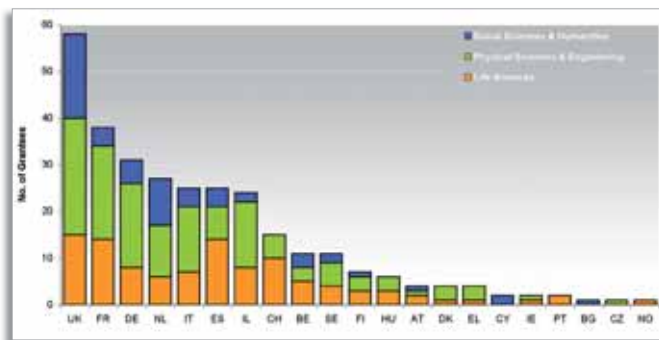
budget is by no means small, it is nevertheless limited. Some European countries (so far seven) have therefore set up national initiatives to financially support proposals from researchers, working or moving to work in these countries, from among the 131 proposals that passed the ERC quality threshold but could not be funded by the ERC due to its budget limitations.

The second ERC Starting Grant call is currently under way and has attracted 2 503 proposals.

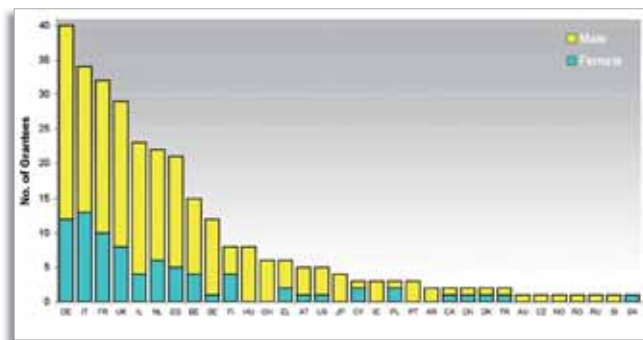
*research\*eu focus* has met some of the first Starting Grant laureates a few months after receiving their grants to see how the funding has impacted their research and how they see their field of research evolving in the coming years. You can read these interviews in the next few pages.

### ERC STARTING GRANT (2007 CALL)

Successful proposals by country of host institution and domain



Successful candidates by nationality and gender



## ERC Starting Grants info box

### MAIN FEATURES

- Research proposal: excellent, ground-breaking frontier research idea
- Principal Investigator: three to eight years after completion of a PhD (may be subject to changes in the future), with proven potential to establish an independent research career
- Host institution: legally recognised public or private research organisation based in an EU Member State, associated country, or international European interest organisation

### DETAILS

- Grant size: up to EUR 2 000 000 per grant for up to five years
- Evaluation criterion: scientific excellence
- Calls for proposals: published annually in the summer with deadlines in the autumn

### INTERESTING FACTS ON THE FIRST STARTING GRANT CALL

- Grantee average age: 35
- Number of nationalities of grantees: 32
- Host institutions are based in 21 countries
- 26 % of grantees are women





## Professor H el ene Rey: unravelling exchange rate mechanisms

H el ene Rey is a young French researcher working in the United Kingdom with an already impressive track record, whose work on international macroeconomics and finance has earned worldwide attention. She has declined professorships at some of the most prestigious American universities to come to London Business School and take advantage of the opportunities offered to her by Europe and the ERC.

**research\*eu focus:** What are the fields covered by your project?

**H el ene Rey:** The 'IFA dynamics' project covers both the fields of international macroeconomics and finance. More precisely, it is a contribution to exchange rate economics, as exchange rates are still one of the most difficult economic variables to understand. It is also a contribution to the broad research agenda that aims at understanding the economic interdependence of countries on the real and financial sides.

**research\*eu focus:** What is the project about?

**H el ene Rey:** My research aims to construct datasets on the market value of external assets and liabilities of countries and to use them to test models on the process of international adjustment across countries.

Interestingly, long time series on external assets and liabilities of countries are nowhere to be found, as they require detailed balance of payment data broken down by asset classes and complex valuation procedures. Yet having precise estimates of the external 'balance sheet' of nations is key to understanding macroeconomic developments in the international economy. These data will allow me to analyse the links between international capital flows and move-

ments in asset prices such as equity indices, interest rates and exchange rates and to test various models of the open economy.

I will complement this constructed dataset by some other data, more microeconomic in nature, on the international investment behaviour of institutional investors. This secondary dataset, consisting of several million data points, will allow me to check the consistency of my modelling. Jointly these two sets of data will enable me to study empirically how trade deficits and valuation effects drive the dynamics of net foreign asset positions, i.e. the net indebtedness of countries vis- a-vis the rest of the world. They will also allow me to draw implications for macroeconomic stability and future exchange rate and asset price fluctuations.

**research\*eu focus:** What makes the project original, cutting-edge and pioneering?

**H el ene Rey:** The international financial linkages of countries have been understudied partly due to lack of data on cross-border investment positions. It is clear that financial links have become central to understanding macroeconomic developments. There are currently no good models of the macroeconomy at our disposal that would incorporate the financial side of economies. For example, the newly minted Nobel Prize winners in Economics Paul Krugman talked about the key role of an 'international financial multiplier' in the current crisis. We just do not have a good model of this multiplier so far. The project will be building new datasets and theories to address these shortcomings.

**research\*eu focus:** When are first results expected?

**H el ene Rey:** We are expecting first results in the summer of 2009. I expect to have some new stylised facts about international investment positions by then and to start testing some theories.

**research\*eu focus:** What makes the project an interdisciplinary endeavour?

**H el ene Rey:** The project is interdisciplinary in that, in order to be completed successfully, it must involve different fields of financial expertise, including macroeconomics, finance and econometrics. The analysis of the data requires sophisticated statistical methods to extract information out of millions of data points. The modelling part of the project requires the use of mathematics, approximation methods and numerical algorithms.



H el ene Rey

**research\*eu focus:** What will now be possible for the project with this grant? What opportunities does the ERC funding offer to you?

**H el ene Rey:** My research relies on the availability of a broad array of datasets which requires a lot of time and effort to be gathered. The ERC funding is therefore absolutely key to the data-construction effort and to exploit synergies between my work and the work of other US- and European-based researchers. The amount and the quality of information at my disposal will be a determining factor in the outcome of my research.

**research\*eu focus:** Why is your project scientifically important and what scientific impact may it have?

**H el ene Rey:** If successful, the project could change the types of models that we use to understand macroeconomic developments, international financial flows and exchange rates. Those models are important to determine optimal monetary and fiscal policies. In addition to that, it will provide high-quality datasets on international financial positions to the research and policy communities that could potentially be used in other research projects. For example it will help to improve the quality and the consistency of the balance of payments data collected by national statistical agencies, Central Banks and the IMF [International Monetary Fund]. These data are then routinely used by policy-makers and central bankers to inform their policy decisions.

**research\*eu focus:** What other impact may the project have?

**H el ene Rey:** The project could help financial experts from the research, policy and business communities reconsider the way they think about optimal monetary and fiscal policy. It should in particular help them understand how the international financial system should function in order to ensure more macroeconomic stability. In that sense it is aimed at helping to create a 'New Bretton Woods' or at least to inform discussions about the functioning of the international financial system.

### Project title

Countries external balance sheets, dynamics of international adjustment and capital flows

### Project acronym

IFA dynamics

### Host institution

London Business School,  
United Kingdom

### ERC funding — Starting Grant

EUR 1 340 000

### Project duration

60 months (starting 01/07/2008)



## Dr František Štěpánek: creating microscopic chemical robots

František Štěpánek, a researcher from the Czech Republic specialising in particle technology, previously worked at Imperial College London and has now moved back to his home country to conduct his research through an ERC Starting Grant at the Institute of Chemical Technology, Prague.

*research\*eu focus:* What are the fields covered by your project?

**František Štěpánek:** The research falls predominantly into the field of chemical engineering. However, the Chobotix project is interdisciplinary and also involves elements of physical chemistry, synthetic biology, cybernetics and materials science.

*research\*eu focus:* What is the project about?

**František Štěpánek:** The aim of the project is to design and manufacture microscopic chemical robots. These can be defined as porous, internally structured particles a few microns in diameter, covered by a porous membrane able to regulate molecular transport into and out of the robot's interior that contains compartments carrying different kinds of molecules. These compartments will facilitate a predefined set of chemical reactions — e.g. 'neutralise' absorbed molecules or produce and release an active ingredient once the robot reaches its target destination. The robot's surface will be designed so as to recognise specific substrates that may be biological. Many aspects of the structure and function of chemical robots are inspired by those of single-cellular organisms.

### Project title

Chemical processing by swarm robotics

### Project acronym

Chobotix

### Host institution

Institute of Chemical Technology,  
Prague, Czech Republic

### ERC funding — Starting Grant

EUR 1 644 000

### Project duration

60 months (starting 01/06/2008)

### Project website

<http://www.vscht.cz/chobotix>

*research\*eu focus:* What makes the project original, cutting-edge and pioneering?

**František Štěpánek:** The miniaturisation of robots based on mechanical principles is practical only up to a point. Micron- and submicron-sized entities operate in an environment ('colloidal domain') where interfacial forces dominate and objects are subjected to random Brownian motion. We believe that robots successfully operating at these length-scales should be based on chemical rather than mechanical principles. Such robots do not exist at the moment and their development will be unique and very challenging. If successfully implemented, they will open up many potential applications, including:

- targeted delivery of active ingredients (e.g. medicines);
- distributed sensing;
- distributed chemical processing (e.g. neutralisation of toxic spills in difficult-to-access environments);
- harvesting of valuable materials (e.g. precious metals) from dilute or non-conventional resources.

*research\*eu focus:* When are first results expected?

**František Štěpánek:** The project is scheduled to last five years. We hope to have the first prototypes of chemical robots with basic functionality ready within approximately three years and then focus on their refinement for a few selected applications.

*research\*eu focus:* What makes the project an interdisciplinary endeavour?

**František Štěpánek:** The complexity of the project makes it necessary to involve multiple disciplines, and in fact the research team is multidisciplinary. Apart from chemical engineering, input from physical chemistry is required during the manufacturing of the chemical robots' bodies (the synthesis of colloidal particles and their self-assembly). Materials science expertise is needed for the selection and modification of the materials from which the chemical robots will be composed. Concepts from both biology and cybernetics will be used when designing the robots' communication/signalling pathways, etc.

*research\*eu focus:* What will now be possible for the project with this grant? What opportunities does the ERC funding offer to you?



František Štěpánek

**František Štěpánek:** The ERC grant makes it possible to dedicate significant resources towards a relatively risky project for five years, which would be difficult using piece-by-piece funding from multiple smaller grants. Along with other benefits such as the possibility to purchase state-of-the-art instruments, obtaining the ERC grant has helped attracting talented students and post-docs as well as establishing new scientific collaborations.

*research\*eu focus:* Why is your project scientifically important and what scientific impact may it have?

**František Štěpánek:** Although chemical robots are non-living artificial objects, the research touches several fundamental questions related to the development of life. Is it possible to make artificial structures of similar complexity as living cells but based on a different chemistry (i.e. not using proteins as building blocks)? Under what conditions can initially identical individual entities undergo differentiation and a transition to multi-cellular structures?

*research\*eu focus:* What other impact may the project have?

**František Štěpánek:** In the same way that industrial robots enabled the automation of manufacturing processes involving mechanical operations, chemical robots can bring significant changes to processes where the transformation or structuring of matter at the molecular and microscopic length-scale is involved. For example, entirely new classes of household and personal care products, pharmaceuticals, medical diagnostic devices, etc., may emerge.

**For further information about the Chobotix project, please read page 22 of issue No 4 of the research\*eu focus supplement entitled 'Measuring performance: The Czech Republic in the ERA'**





## Dr Armagan Koçer: revolutionising the way diseases are cured

Armagan Koçer, of Turkish nationality and born in Tunisia, graduated with distinction from the Biology department of the Middle East Technical University, Ankara, Turkey, where she also received her PhD. Her research then took her to the Netherlands and the University of Groningen (Biochemistry department). She also worked at the Biomade Technology Foundation, the Netherlands, as a research scientist on the topic of drug delivery then as a senior scientist from 2002 to 2007. In 2007 she received two career development grants: the VIDI 'Innovational research incentives scheme' grant from the Netherlands Organisation for Scientific Research (NWO), and an ERC Starting Grant.

**research\*eu focus:** What triggered the cutting-edge Mechanosensation project and how did you decide to take the PI role? How did you become an actor of frontier research?

**Armagan Koçer:** I have been working at the Biomade Technology Foundation, a research institute focusing on bridging the gap between fundamental research and industrial applications. In my work, I raised many fundamental questions. However, when you have to meet deadlines whilst working towards an application, you cannot explore all of them in detail. I therefore decided to generate my own funding in order to have independence and freedom and move to a place where I could work on those questions, while working on application-oriented research in parallel.

My ERC grant proposal follows a new, interdisciplinary approach aimed at answering a long-standing important question: what is the molecular mechanism of mechano-sensation? I saw that, if I could apply my observations and previous results, which are the

products of an interdisciplinary work, we could move beyond today's limits.

I find working in the lab very exciting, not only because I enjoy putting knowledge into action, but also because of the opportunity I have to observe a lot and generate many questions — sometimes more than answers.

**research\*eu focus:** How was your experience of the ERC submission and selection process?

**Armagan Koçer:** I had expected to receive the ERC evaluation panel's comments after the first stage of the selection process. However, these comments are only sent to the candidates who have not passed this stage. Therefore, when I was called for an interview, I did not know which parts of my application would be criticised. This made the interview a real-time defence. I think the selection procedure was conducted fairly.

**research\*eu focus:** What do you aim to achieve with your research?

**Armagan Koçer:** My aim in this project is to find an answer to an important scientific question by applying my experience and knowledge. My long-term objective, my dream, is to do research until the end, learn and produce continuously and apply this knowledge to generate useful products.

The challenge is to keep generating resources and finding excellent students.

**research\*eu focus:** What makes your project original, cutting-edge and pioneering?

**Armagan Koçer:** In my research area, there was a need for new tools to be able to go further. I suggested applying my results and following an interdisciplinary approach. If all goes well, we will be able to get information that was not possible to obtain before.

Combining techniques and new tools makes this project unique. There are a couple of important milestones to be met and the success of one will allow moving on to the next. This makes the project high-risk. However, each milestone by itself will be a very important contribution to excellence, which makes the project also high-gain.

**research\*eu focus:** Why is this project scientifically important and what scientific impact may the project have?

**Armagan Koçer:** The project addresses a long-lasting fundamental question. The



Armagan Koçer

answer will teach us not only how the model system works, but will also give us insights into the functioning of similar but more complex systems. The results will be used to understand a wide range of human diseases and allow designing new drugs to fight them. It will also be useful as a new tool for micro-/nano-sensory and delivery systems.

**research\*eu focus:** What other impact may the project have?

**Armagan Koçer:** The findings in this project will not only answer how mechano-sensitive (MS) channels sense and respond to mechanical stress, but will also be of invaluable help in understanding and solving MS channel-related disorders, such as cardiac arrhythmias, polycystic kidney disease, hypertension, glioma, glaucoma, atherosclerosis, and tumorigenesis.

**research\*eu focus:** When are first results expected?

**Armagan Koçer:** We are expecting first results to be available during 2009.

**research\*eu focus:** What are your overall career expectations? What opportunities does the ERC funding offer to you?

**Armagan Koçer:** I expect to pursue a career at a university or research institute, where I, together with my group, can freely follow through with my fundamental and applied research projects. The ERC gives enough financial support to generate my team and do my own research over the first five years. As I am one of the first laureates, the ERC grant also gives a nice positive incentive to be successful.

**research\*eu focus:** Do you have any parallel projects running and, if so, which ones?

**Armagan Koçer:** At present I am responsible for part of 'Targeted delivery of nanomedicine' (Meditrans), an FP6-funded project, 'Bio-inspired self-assembled nano-enabled surfaces' (Bisnes), an FP7-funded project, and 'How do channel proteins sense force?', a VIDI 'Innovational research incentives scheme' project from the NWO, which complements my ERC project.

### Project title

What is the molecular mechanism of mechano-sensation?  
Mechano-sensitive channel of large conductance, Mscl, as a model

### Project acronym

Mechanosensation

### Host institution

Rijksuniversiteit Groningen,  
Netherlands

### ERC funding — Starting Grant

EUR 1 449 236

### Project duration

60 months (starting 01/09/2008)

## Advanced Grants — a nascent force in senior frontier research funding

*Following the successful conclusion of the ERC Starting Grants competition in December 2007, the first Advanced Grants competition followed suit in the spring of 2008.*

The Advanced Grant funding scheme complements the Starting Grants by targeting researchers who have already established themselves as independent research leaders in their own right. ERC Advanced Grants allow exceptional established research leaders in any field of science, engineering and scholarship to pursue the frontier research of their choice.

In order to avoid receiving an excess of applications — as experienced for the first Starting Grant call (over 9 000) — the ERC Scientific Council decided to introduce measures, such as indicative benchmarks on research achievements, to limit the number of submissions. According to ERC President Fotis Kafatos, the measures worked well with the overall quality of submitted proposals being very high.

In total, 2 167 proposals were submitted to the ERC under the three funding domains 'Physical sciences and engineering', 'Life sciences' and 'Social sciences and humanities'. All of these proposals were evaluated by the ERC between July and November 2008.

As foreseen in the ERC grant evaluation procedure, the assessment of submissions took place in dedicated peer review panels by expert researchers especially designated to fulfil this challenging task objectively. As for the Starting Grants, the sole evaluation criterion is scientific excellence.

At the end of the second and final stage of the selection procedure, some 275 proposals had been retained by the ERC to receive funding. The results for all three research

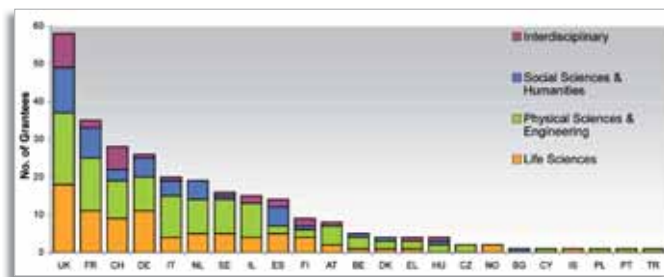
funding domains and the Interdisciplinary domain were published on 7 November 2008. The average age of the grantees is 51 years, which reflects the solid experience of the target group of this grant scheme.

The grantees of the first Advanced Grant call represent 26 nationalities and are/will be working in host institutions in 23 different countries. As regards researcher mobility, six grantees are moving to an EU Member State or associated country from overseas, to take up their grant. Of these, three are US nationals and three are returning Europeans.

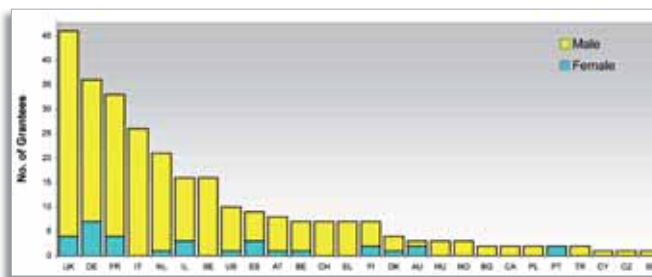
*research\*eu focus* has interviewed Professor Svante Pääbo, a Swedish biologist and one of the world's leading expert in evolutionary genetics, who was recently awarded an ERC Advanced Grant. We asked Professor Pääbo to shed some light on both his experience with the ERC so far and on his revolutionary field of research. You can read this interview on the next page.

### ERC ADVANCED GRANT (2008 CALL)

Successful proposals by country of host institution and domain



Successful candidates by nationality and gender



## ERC Advanced Grants info box

### MAIN FEATURES

- Research proposal: pioneering frontier research in any field of science, engineering and scholarship
- Principal Investigator: can be of any nationality, must be scientifically independent and have a recent research track record and profile which identifies them as leaders in their respective field(s) of research
- Host institution: legally recognised public or private research organisation situated in an EU Member State or associated country

### DETAILS

- Grant size: up to EUR 3 500 000 per grant for up to five years
- Evaluation criterion: scientific excellence
- Calls for proposals: published annually in the autumn with deadlines in the spring

### INTERESTING FACTS ON THE FIRST ADVANCED GRANT CALL

- Grantee average age: 51
- Number of nationalities of grantees: 26
- Host institutions are based in 23 countries
- 12 % of grantees are women



## Professor Svante Pääbo: looking for the apes in us

Since early childhood Professor Svante Pääbo, born in 1955 in Stockholm, Sweden, was captivated by ancient Egypt and mummies. After a much longed for trip to Egypt and the pyramids at the age of 13, his life course seemed set. He studied Egyptology at the University of Uppsala, Sweden, but then changed direction and went to medical school and completed his PhD in molecular immunology, also in Uppsala.

As a biologist specialised in evolutionary genetics, Professor Pääbo first attempted to retrieve DNA sample from an ancient Egyptian mummy. His quest to unravel ancient DNA took him on to the University of Zürich, Switzerland, the Imperial Cancer Research Fund in London, United Kingdom, as well as the University of California, Berkeley, United States. In 1990 he took up a full professorship at the University of Munich, Germany, and since 1997 he is a Director at the Max Planck Institute for evolutionary Anthropology in Leipzig, Germany.

In 1997, he was in the international limelight when he succeeded in determining the first DNA sequences from the remains of a Neanderthal. Recently, he has announced the first draft version of the entire genome of a Neanderthal.

He has been honoured with the 'Gottfried Wilhelm Leibniz Prize' by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG), the highest honour of German research. In 2007, *Time* magazine named him one of the 100 most influential people in the world.

### Project title

Genomic and phenotypic evolution of bonobos, chimpanzees and humans

### Project acronym

Twopan

### Host institution

Max Planck Gesellschaft zur Förderung der Wissenschaften e.V., Germany

### ERC funding — Advanced Grant

EUR 2 199 996

### Project duration

60 months

Professor Pääbo won an ERC Advanced Grant in 2008 with his interdisciplinary project 'Genomic and phenotypic evolution of bonobos, chimpanzees and humans'.

*research\*eu focus:* What triggered this project?

**Svante Pääbo:** Although a genome sequence of the chimpanzee was determined five years ago, we still know startlingly little about how differences between the genomes produce the differences in behaviour and culture that are so obvious to us when we compare ourselves to apes. And we know even less about the bonobo, a close relative of the chimpanzee that differs from it in many interesting ways.

By studying these three species, we hope to shed light on how genetic differences result in biological differences among humans and apes.

*research\*eu focus:* What makes your project unique?

**Svante Pääbo:** We take a systemic and interdisciplinary approach where we analyse differences in genomes, gene activity, proteins, serological parameters and even cognition.

*research\*eu focus:* What do you aim to achieve with your research?

**Svante Pääbo:** We hope to better understand what the common ancestor of humans and the two apes was like, so that we can understand what changed in our biology during human evolution.

In fact, the bonobo is to the chimpanzees pretty much what the Neanderthals are to us humans — a very close relative that falls partly within our variation. So we hope to be able to use many of the analysis tools we develop to understand humans and Neanderthals also to the analysis of chimpanzees and bonobos.

*research\*eu focus:* When are first results expected?

**Svante Pääbo:** We hope to present a genome sequence of the bonobo in late 2009 or early 2010. That is the basis for our further exploration of the evolution of the bonobo as well as chimpanzees and humans.

*research\*eu focus:* How was your experience of the ERC submission and selection process?

**Svante Pääbo:** It was refreshingly focused on science rather than bureaucratic issues. For European science to become more competitive, funding mechanisms need to focus on scientific excellence rather than regional or other political priorities. The ERC is a dearly needed step in that direction.



Svante Pääbo giving a plenary lecture at the American Association for the Advancement of Science (AAAS) 2009, Chicago, United States

## Interdisciplinarity and frontier research

*An interview with Professor Helga Nowotny,  
Vice-President of the ERC*



Helga Nowotny

**research\*eu focus:** Why does the ERC support interdisciplinarity research rather than transdisciplinarity or multidisciplinary research? What new scope do interdisciplinarity and frontier research offer science? The ERC promotes excellence in science via interdisciplinarity and frontier research. What pay-offs do the ERC and Europe expect from this strategy?

**Helga Nowotny:** The phenomenon of converging disciplines is real, but generally accepted definitions of inter-, trans- and multidisciplinary do not exist. This is why the ERC Scientific Council prefers to speak of 'domain 4' to which it has allocated 13 % of its overall budget. The first objective is to avoid that some of the best proposals, if they do not fit a given panel structure, risk to fall between all stools.

Counteracting the inherent scientific egoism of panels, the ERC exhorts them to 'mainstream' those proposals whose content is linked to other panels. Each panel should adopt the best proposals, including those that overstep disciplinary boundaries. But the ERC also wants to provide incentives and send out a clear signal for those excellent proposals that fall into the competence of more than one panel and have not been mainstreamed. Panels are encouraged not to drop them, but to put them into domain 4, where the advice of other relevant panels will be obtained. It is important to realise that proposals that fall into this category are partly the result of the structure of the panels.

Interdisciplinarity may therefore be an artefact of matching panels with the scientific content of proposals, while showing how artificial disciplinary boundaries have become. Today, some of the most innovative frontier research transcends established disciplinary boundaries. The ERC tries to capture this trend through its double strategy: encouraging panels to mainstream excellent proposals and setting up an innovative evaluation procedure for domain 4. This also leaves explicit room for proposals that cross domains, e.g. linking neurobiology with economics or physics with biology.

**research\*eu focus:** Today, systems-level expertise is sought as a key to offering cutting-edge research results. What means does the ERC give itself to assess newborn frontier research and assert itself as a high-level scientific entity worldwide?

**Helga Nowotny:** The ERC puts its trust fully into the scientific judgement of the highly

reputed panels that have been set up. It will become clear in the future that the panels, whose members are not only internationally renowned scientists and scholars, but individuals capable of taking a broader view than their own area of competence, are able to recognise frontier science and excellence when they encounter it. Already now, the ERC is attracting international attention and has established itself within a very short time as an important and innovative worldwide funding agency. It is the most international entity being open to applicants from all over the world and in the membership of its panels, where in some cases, 50 % come from outside Europe.

**research\*eu focus:** Strong disciplinary programmes are the cornerstone to innovative interdisciplinarity projects. The ERC is promoting interdisciplinarity among academia in Europe, yet can interdisciplinarity be taught?

**Helga Nowotny:** The disciplinary structure of our universities goes back to the second half of the 19th century. Obviously, many new scientific and technological developments have had to be accommodated since. New disciplines have arisen and existing ones continue to expand and diversify. Universities in the United Kingdom and the United States show greater flexibility in designing newly reconfigured interdisciplinary curricula compared to the continental European universities which, until recently, were state-controlled. In so doing, they reflect the integration of scientific concepts and the mixture of instrumental and methodological skills that prevail in research today. However, in teaching, a balance must be struck between the transmission of disciplinary knowledge, i.e. the ability to pose good research questions and to master basic methodological skills, and the openness to absorb knowledge and new methods coming from outside one's discipline.

**research\*eu focus:** How can interdisciplinary research be evaluated in a fair and transparent way ensuring that the most innovative and sound ideas are identified and supported by the ERC?

**Helga Nowotny:** No funding agency has yet found the best solution for the tricky problem of how to evaluate inter-, trans- or multidisciplinary projects. Taking into account what has been shown not to work empirically, the ERC has devised what I believe to be a truly innovative procedure which is currently being tested in an experimental spirit.

Firstly, as all panels are already interdisciplinary themselves, they are encouraged to mainstream the best proposals including those that cross panel boundaries. Secondly, proposals that emerge from this evaluation as being very good, but for which the qualified judgement of another panel is needed, are kept pending until the final meeting of all panels chairs. There, they are also discussed by the other relevant panels. In the case where their excellence is confirmed, they may be funded from the budget which is associated with domain 4.

Experience of the first meeting of all panel chairs has shown that competitive ranking among the best domain 4 proposals is possible and that the procedure works. Proposals below a certain funding threshold are transferred back into the three domain reserve lists, where they are ranked within each domain by the domain panel chairs (Physical Science and Engineering [PE], Social Sciences and Humanities [SH] and Life Sciences [LS]).

**research\*eu focus:** Peer review systems tend to favour mainstream, established concepts and conventional ideas, but interdisciplinary research is often based on new, unconventional ideas and approaches involving high scientific uncertainties (risks) but with promising high potential impact on science at large. How can/does the ERC cope with this dilemma?

**Helga Nowotny:** The entire domain 4 evaluation strategy described so far has been devised to counteract the tendency of panels to favour established concepts and conventional ideas at the expense of more risky and unconventional projects. The ERC has done so by providing a budgetary incentive — the 13 % allocated to domain 4 — and by quite an ingenious evaluation procedure. Of course, the panels have to be carefully instructed and persuaded to follow the spirit of domain 4. Judging from the first panel chairs meeting for the Advanced Grant which I attended on 23 and 24 September 2008, this has been achieved beyond expectation. The Scientific Council will now continue to closely monitor how the procedure works for the Starting Grant.

## Scientific careers and mobility

*research\*eu focus spoke to Professor Ernst-Ludwig Winnacker, ERC Secretary General*

**research\*eu focus:** What complementary role does the ERC play in promoting scientific careers and mobility, compared to the Marie Curie actions developed in the FP7 People programme?

**Ernst-Ludwig Winnacker:** The Marie Curie actions (the People programme) and the ERC are quite different from each other. The People programme is about human resources, encouraging people to become researchers, developing skills, boosting career paths and facilitating mobility. The ERC, on the other hand, supports talented young researchers to establish themselves as independent leaders. It also sponsors already established independent frontier research scientists in any field of science, including the humanities and social sciences. Both programmes complement each other in an ideal fashion.

**research\*eu focus:** 'Retain, repatriate, recruit' young scientists is one of the guiding principles of the ERC. Along with dedicating an entire budget to early stage researchers, how will ERC grants further favour their career prospects?

**Ernst-Ludwig Winnacker:** One of two funding instruments of the ERC are the so-called Starting Grants that support the best junior scientists who have between three and eight years of experience after their PhD. We are aware that scientists at this stage of their career also need career perspectives and independence. The ERC itself cannot provide it to them, but it

does encourage host institutions to open 'tenure-track' or comparable career incentives to the ERC grantees. Eventually ERC grantees will select host institutions that offer a transparent and fair process to their future careers.

**research\*eu focus:** The ERC awards its grants to highly skilled scientists on the single criterion of scientific excellence. In the view of the ERC, does 'brain gain' go with letting scientists organise their scientific career in terms of mobility?

**Ernst-Ludwig Winnacker:** Mobility is not an eligibility criterion in selecting our grantees. This said, mobility was in fact quite common among the ERC grantees selected. Even if the majority applied from current positions and host institutions at which they had already established themselves, it turns out that most grantees had been mobile at earlier stages of their careers (during their undergraduate, graduate or postgraduate studies), often funded through Marie Curie fellowships.

**research\*eu focus:** Does the ERC have a means of limiting the decline in mobility experienced by women scientists at doctoral and post-doctoral levels?

**Ernst-Ludwig Winnacker:** We realise that there are limitations to mobility for women scientists at earlier stages of their careers. However, in the ERC selection process this is not held against them. Again, the quality of host institutions and their success in attracting junior scientists

will depend considerably on the conditions which they offer to women scientists. If there are limitations to women scientists at earlier stages of their careers, this will not affect their selection by our panels.

**research\*eu focus:** To what extent does the ERC take unconventional research careers into consideration, e.g. career paths involving career breaks, part-time research work due to family/children, change of research fields, and/or high/low mobility?

**Ernst-Ludwig Winnacker:** The ERC does take career breaks into consideration, for example, maternity or paternity leave for one year per child born after the PhD, but not for part-time research work. The ERC is currently analysing the results of its first two calls in order to determine whether any additional action(s) should be taken to encourage applications from scientists with unconventional careers, men or women.

**research\*eu focus:** The frontier research carried out by the ERC Starting and Advanced grantees is expected to have a positive impact on overall research investment in Europe. How can this be translated into new scientific career openings?

**Ernst-Ludwig Winnacker:** It is probably too early to discuss this issue conclusively and with the necessary depth. However, it is already clear that some EU Member States and host institutions observe the outcomes of our selection procedures quite carefully in order to provide and, if necessary, improve their framework for ERC grantees. We have seen, for example, that France, Hungary, Italy, Norway, Spain, Sweden and Switzerland do support those grantees who have passed our quality thresholds but could not be funded by the ERC, with their own funds.



Ernst-Ludwig Winnacker



## Open access

*Professor Mathias Dewatripont, ERC Scientific Council member, speaks about this important ERC objective*

**research\*eu focus:** What impact is the Scientific Council expecting from an 'Open access' policy? Does this not endanger the well-established peer-review based publications and the quality of scientific publications as such?

**Mathias Dewatripont:** First of all, the Scientific Council is clearly very much attached to a well-functioning peer-review system. That is why we are pushing for more open access. We think that the way we are doing this will not endanger the quality of the peer-review system. We are aware that the peer-review system is of good quality, but we also realise that it carries excessive cost.

Our feeling is that there is currently not enough access and dissemination because of the excessive price of scientific journals. It is therefore important that we at the Scientific Council encourage better dissemination methods. At the end of the day, all we are looking for is more access, more dissemination, but without hurting the quality of the peer review.

**research\*eu focus:** Are ERC grantees obliged to make their publications available on open access systems? If so, by when after peer-review approval?

**Mathias Dewatripont:** Indeed, given that their research is funded by tax-payers' money, we are asking ERC grantees to do all they can to make their publications available on open access systems. This can be achieved through free preprints that are put into open repositories to make them widely available, which is something that is definitely not difficult to do.

We also ask our grantees to do all they can to make sure that, six months after publication of their research, it is freely available. We expect most publishers to be fine with that; in fact publishers are now starting to work with these types of deadlines. This is due to the fact that we are of course not the only research funding organisation that has been pushing for early publication. In case they expect problems, the grantees are invited to turn to the ERC administration to see what can be done. The idea is to go for a best effort clause.

The ERC funds both Starting and Advanced Grants, so both young and more senior scientists can apply. We are in a transitional period, where the young generation of scientists expects to find things on the internet freely, and we can therefore expect that they will be particularly attentive to access and dissemination.

There are, however, many senior researchers who are very much pro open access, the view being that if research is being funded by public money, which is most often the case, it is quite normal that all efforts be made to maximise access, without jeopardising the publication process. The last thing we want is to bankrupt scientific journals, but some of them are making handsome profits, so I think they are definitely not in danger.

**research\*eu focus:** What is the ERC 'Open access' policy concerning unprocessed source and experimental data resulting from ERC-funded research?

**Mathias Dewatripont:** The ERC promotes the idea that all efforts be undertaken to make source and experimental data freely available for researchers. This

will enable them to work with the existing material, check the results and come up with new ideas. In most cases, there are no difficulties with publishers. We expect that open access for unprocessed data is indeed going to happen in virtually all cases.

**research\*eu focus:** If changing the habits of scientists is part of the equation to reach effective interoperability of scientific data, is the ERC considering writing and disseminating a protocol for implementing open access data to raise scientists' awareness?

**Mathias Dewatripont:** I think that writing and disseminating a protocol can be an expensive operation. On the other hand, I think there would be a lot of benefit for a number of research funders to join forces in order to standardise open access. The ERC is still a young and small institution and we definitely cannot take the lead in undertaking these kinds of tasks. We would welcome discussions with other actors to join forces and achieve standardisation.

Now, in some fields there is already a fair amount of standardisation. In biomedicine and life sciences, for instance, there are efforts undertaken by the NIH [National Institutes of Health] in the United States: big portals, like PubMed Central, collect all the publications in that field. The arXiv internet e-print archive gives access to thousands of publications in physics and maths. So, there are a number of efforts being undertaken. Of course ideally, there should be one place somewhere on the internet where all the scientific publications are collected. Further standardisation efforts would be very welcome.

**research\*eu focus:** Open access systems are struggling for acceptance in the scientific community at large. Would it be a good idea, to have the ERC-funded researchers publish their own research results on open access systems, thereby encouraging other scientists to emulate them?

**Mathias Dewatripont:** We at the ERC feel that the best approach is to encourage researchers to put their work on existing portals, where entire scientific communities congregate. The idea is to let researchers join the portals where the action is in their field. It is also very important for us to collect information on what kind of research is done with our funding. But our view is that the best way to encourage open access is to tell scientists to post their work on the portals that are most regularly used by their community.



Mathias Dewatripont

## What's on the cards for the ERC?

*Dr Jack Metthey, the director of the ERC Executive Agency, looks at what lies ahead for the ERC and what has been achieved so far*

**research\*eu focus:** The ERC is part of FP7. What does the ERC stand for in your view?

**Jack Metthey:** In a nutshell: an obvious need, a clean concept and a political class act. The ERC is all about stimulating creativity and scientific excellence in basic research, that is 'pushing the envelope' of knowledge. It is an integral but distinct part of the Framework Programme [for research], designed to promote investigator-driven, 'bottom-up' research. The highly competitive ERC schemes, which offer funding to young and senior leading researchers working in any field of research, encourage interdisciplinarity and high-risk/high-gain projects. The ERC stands for pure science-based competition at a European level. There is a built-in international dimension to it, as the ERC schemes are open to top talent of any nationality, as long as the research takes place in Europe. This is also a way of encouraging 'brain-gain' for Europe.

**research\*eu focus:** The ERC has now been 'up and running' for two years. Yet it seems already to be considered as a stable feature in the European research landscape. How has this been accomplished?

**Jack Metthey:** It took some years of discussion and efforts from the research community and in the [European] Commission to create this new entity; it got a big boost when we set up the ERC Scientific

Council in 2005. So a lot of preparatory work had been done to ensure that we hit the ground running. The ERC was finally launched in February 2007, at the beginning of FP7. We actually ran the very first call for proposals immediately after. The challenge since then has been to carry through a quickly expanding programme of calls while building a new organisation. Expectations were huge, but we did not shy away.

A key ingredient for success has been the huge commitment and drive from all parties to make this enterprise happen, and the fact that we had good, proficient people on board. The ERC Scientific Council has worked closely with the implementation team and we have had the continuous support from the European Commission. It goes without saying that the substantial budget (EUR 7.5 billion from 2007–13) is also a prerequisite in order to bring the ERC schemes — which, with significant funding, are very attractive to researchers — to life.

**research\*eu focus:** In what sense is the ERC already a success? What were the hurdles along the journey and how did you overcome them?



Jack Metthey

**Jack Metthey:** Apart from the actual setting up of the organisation, our first task was to launch and run two grants schemes. This meant we had to work by the 'learning by doing' principle. Despite some teething problems, the ERC delivered, and on time.

The demand in our first Starting Grant competition was impressive. An overwhelming 9 000+ applications came in. The numbers speak for themselves: the ERC grants are highly needed to fill an existing gap in the European research funding scene. The lack of funding in basic research in Europe, especially for the early-career researchers, is blatant. While evidently a positive signal, managing this unexpected demand was a sporty game. We handled it by adapting our procedures and through the support of large numbers of external peer reviewers. We have now successfully concluded our first two calls, a third one is ongoing and a fourth one will run in 2009.

The ERC has operated as a learning organisation and its Scientific Council has, throughout the process, continually refined the grant schemes — one of the products of this is a reduction in the number of applications, without sacrificing the quality — while we have put a lot of effort into improving and simplifying the processes. We will continue to critically examine our activities in order to optimise them.

The more tangible evidence resulting from the past two years of work is the hundreds of enthusiastic ERC-funded researchers now able to pursue their pioneering ideas with a degree of serenity and for a period lasting as long as five years. It is also gratifying to see that the ERC grants have already attracted talent to Europe from overseas, both emigrant Europeans and non-Europeans.

Finally, it's very pleasing to see that the quality of the ERC's peer review is widely recognised in the research community and



ERC meeting on 3 July 2007 in Lisbon, Portugal  
From left to right: ERC President Fotis Kafatos, European Commission President José Manuel Barroso, ERC Vice-President Helga Nowotny and ERC Executive Agency director ad interim Jack Metthey



at the national level. I'm a firm believer in 'applied subsidiarity'. As a matter of fact, several countries have launched national initiatives to financially support applicants who passed the ERC quality threshold, but who remained unfunded due to ERC budget limitations. This shows that the ERC peer review system is trusted and acknowledged and that one can combine forces at European and national or regional level.

**research\*eu focus:** And what are the main challenges at the moment?

**Jack Metthey:** A delicate one is to manage the transition from a Commission Directorate to an autonomous Executive Agency without disrupting operations, a kind of 'in-flight transfer'. Simultaneously, the organisation is undergoing a major expansion. Over the past few months, we've more than doubled our personnel. A lot of effort is being put into selecting the right people and integrating them quickly into the organisation.

In parallel with these staffing activities, there are numerous other practical challenges, such as procuring equipment and services, the migration to new IT systems and, last but not least, the move to the brand new Covent Garden building in Brussels which will be the ERC headquarter.

**research\*eu focus:** What is the next phase of the ERC?

**Jack Metthey:** This year, the ERC is undergoing a review, which involves critical and independent scrutiny of the ERC's work and functioning up till now. What has been done and how has it been done? What must still be achieved in the near, and more distant, future? These are the questions the review, which was built into the legislative Decision on FP7, will address. The aim is for the [European] Commission to ensure that the ERC is functioning effectively and properly, and that any improvements necessary are identified. This is an important step and once the review is completed any necessary legislation will be initiated.

Technically, the ERC will start to operate as a fully-fledged autonomous executive agency by the middle of the year. It will, of course, continue to rely on the European Commission for its FP7 budget.

Another thrilling step will be when the first actual research results become visible.

**research\*eu focus:** What are the challenges in the longer term?

**Jack Metthey:** As a newly created organisation, the ERC needs to find its identity and to consolidate its place on the European research funding scene. Also in the longer term, the ERC needs to be respected, not only as a source of funding, operating at the highest level of excellence and for the quality of its peer review, but as a dynamic and inspiring place of work and an organisation that will stand the scrutiny of its peers across the world.

In these times of economic difficulties, the future of Europe depends largely on its capacity to react and to create and deploy knowledge. The ERC will be an asset for Europe's future, building on our scientific talents and reinforcing Europe as an innovative and forward-looking society.

If we get it right — and we must — the ERC will have an enduring and expanding place in the European research scene, a concrete example of European policy-making at its best.

**research\*eu focus:** You have been directing the establishment of the Executive Agency



since October 2006 and were appointed Director *ad interim* in July 2008. What gives you the drive for this job?

**Jack Metthey:** This is one of the most challenging jobs of my Commission career and, with my colleagues, I'm committed to making the ERC a success. It's a privilege to be part of this pioneering phase. The best reward for the work is to see that the ERC is starting to make a difference for research in Europe, and to see the excellence and enthusiasm of the first wave of grantees and of my colleagues! Also, as I said earlier, the continuous support expressed by the scientific community and the political actors is very encouraging.



Covent Garden building



**THE ERC'S FUNDING STRATEGY**

The European Research Council (ERC) is the first European funding body designed to support investigator-driven frontier research through open and direct competition. Its main aim is to stimulate scientific excellence in Europe by supporting and encouraging the very best, truly creative researchers to identify and explore new opportunities and directions in any field of research.

The ERC offers two types of long-term grants, both operating on a 'bottom-up' basis without predetermined research priorities.

- ERC Starting Grants: the objective is to support the independent careers of outstanding researchers, who are at the stage of establishing or consolidating their first research teams or programmes.
- ERC Advanced Grants: the objective is to support pioneering frontier research projects by leading established researchers.

ERC grants support frontier research projects carried out by single research leaders (Principal Investigators, PIs) of any nationality and age. Grant applications should be submitted by the PI and must be supported by a host organisation that is or will be engaging the PI for the duration of the grant.

In order to be eligible for a grant, the PI must be scientifically independent or, for the ERC Starting Grant, at the stage of establishing scientific independence (i.e. starting or consolidating a research team) or, depending on the field, establishing an independent research programme.

**ERC STARTING GRANTS**

Europe currently offers insufficient opportunities for young investigators to develop independent careers and make the transition from working under a supervisor to being independent researchers in their own right. This structural problem leads to a loss of research talent. It also limits the emergence of the next generation of research leaders in Europe.

ERC Starting Grants aim to support up-and-coming researchers who are about to establish or consolidate their own research team and to start conducting independent research in Europe. The scheme targets researchers who show great promise of becoming independent research leaders. It will support the creation of new research teams for the conduct of excellent frontier research projects.

**ERC ADVANCED GRANTS**

The ERC Advanced Grant scheme complements the ERC Starting Grant scheme by targeting researchers who have already established themselves as independent research leaders. Applicants for the ERC Advanced Grant are expected to be active researchers who have a track record of significant achievements appropriate to their field(s) of research in the last 10 years.

The PIs should be exceptional leaders in terms of originality and significance of their research contributions and pursue ground-breaking, high-risk research that opens new directions in their respective research fields or other domains. Grant applications should tackle pioneering and far-reaching challenges at the frontiers of the field(s) addressed, and involve new, ground-breaking or unconventional methodologies, whose risky outlook is justified by the possibility of a major breakthrough with an impact beyond a specific research domain/discipline.

**ELECTRONIC APPLICATION**

ERC grant applications can be submitted only in response to a 'call for proposals' via the web-based Electronic Proposal Submission Service (EPSS). Calls are published on the ERC website, the CORDIS website and in the Official Journal of the European Union. Deadlines for the submission of ERC grant applications are specified in each 'call for proposals'.

**ANNUAL CALLS FOR PROPOSALS**

Calls for proposals for both the ERC Starting Grant and ERC Advanced Grant scheme are published annually. The total budget allocated to the ERC for the period 2007–13 is EUR 7.51 billion. The call budgets will be gradually increased each year and from 2010 on, the ERC will have a total annual budget of over EUR 1 billion.

**INTERNATIONAL PEER REVIEW EVALUATION**

ERC grant applications are evaluated on the basis of scientific excellence as sole criterion, which is examined on three distinct aspects of the research proposal:

- the PI;
- the research project;
- the research environment (pass/fail).

To guarantee transparency, fairness and impartiality in the treatment of proposals, grant applications are selected following an international peer review evaluation process based on 25 panels covering all fields of science, engineering and scholarship.

**FURTHER INFORMATION AND SERVICES****ERC Guide for Applicants**

Detailed information on the ERC Grant schemes and the application procedures is provided in the *ERC Guide for Applicants*, available on the ERC website at: [http://erc.europa.eu/pdf/ERC\\_Guide\\_for\\_applicants.pdf](http://erc.europa.eu/pdf/ERC_Guide_for_applicants.pdf)

**ERC calls for proposals**

Available on the ERC website at: <http://erc.europa.eu/callforproposals>

**ERC National Contact Points**

National Contact Points (NCPs) have been set up across Europe by the national governments to provide information and personalised support to applicants in their native language. The list of NCPs can be found at: <http://erc.europa.eu/ncp>

**ERC news alert**

Via this electronic notification, the ERC informs and alerts potential applicants and other interested parties on latest news and developments posted on the ERC website. To receive ERC news alerts, please register on: <http://erc.europa.eu/newsalert>

## ERC Executive Agency contact details

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## ERC participation at major events

### RESEARCH CONNECTION 2009

*The European Commission's Directorate-General for Research is organising the conference 'Research connection 2009 — networking our way to a research future' in Prague, Czech Republic, on 7 and 8 May 2009.*

The budget of the European Commission for research and innovation is increasing every year and the event will give participants the opportunity to see how they can benefit from it. They will get first-hand information about priorities, objectives and participation rules. In special sessions participants will receive tangible tips. Particular attention will be paid to promising ideas from the new EU Member States.

The event is intended for scientists, entrepreneurs and researchers looking to learn more about successful EU-funded research and funding opportunities and to meet reliable partners for new projects.

A variety of parallel sessions will cover FP7 and its thematic areas. In addition, selected EU-funded projects will be exhibited in order to promote the networking and integration of research activities in Europe.

For further information, please visit:  
<http://ec.europa.eu/research/conferences/2009/rtd-2009>

ERC webpage on this event:  
<http://erc.europa.eu/index.cfm?fuseaction=page.display&topicID=163>

## Web links

- ERC website: <http://erc.europa.eu>
- ERC National Contact Points: <http://erc.europa.eu/ncp>
- ERC calls for proposals: <http://erc.europa.eu/callforproposals>
- ERC Guide for Applicants: [http://erc.europa.eu/pdf/ERC\\_Guide\\_for\\_Applicants.pdf](http://erc.europa.eu/pdf/ERC_Guide_for_Applicants.pdf)
- To receive ERC news alerts: <http://erc.europa.eu/newsalert>
- ERC publications: <http://erc.europa.eu>, choose 'Press & Public', then 'Promotional Material'

### 2010 AAAS ANNUAL MEETING

*The 2010 annual meeting of the American Association for the Advancement of Science (AAAS) entitled 'Bridging science and society' will take place from 18 to 22 February 2010 in San Diego, United States.*

The relevance of science, technology, and engineering as well as scientific literacy to the well-being of society is more profound than ever. The theme of the 2010 AAAS annual meeting — 'Bridging science and society' — calls on every scientist and engineer to make their work both useful and understandable, and on society to discover again the excitement and hope that research and its findings offer.

The conference will bring together an excellent array of speakers addressing some of the most crucial and timely areas of science, technology, engineering, education, and policy-making. The annual meeting is one of the most widely recognised and reported interdisciplinary scientific events, and typically includes up to 10 000 participants and hundreds of members of the national and international media.

For further information, please visit:  
<http://www.aaas.org/meetings/2010>

### 2010 EUROSCIENCE OPEN FORUM

*The fourth edition of the Euroscience Open Forum (ESOF), entitled 'Passion for science' will take place from 2 to 7 July 2010 in Turin, Italy.*

ESOF is the biennial European meeting dedicated to scientific research and innovation created by Euroscience. The great questions of science and technology, emerging scientific and cultural trends, the ethical social doubts and concerns that appear on the horizon of society and the scientific community will be on stage.

The open forum is a unique meeting opportunity in Europe to present and discuss the frontiers of scientific and technological research, the relationship between science and society and to stimulate policies to support scientific research.

ESOF 2010 will address important issues in which science and technology play a central role. Special emphasis will be put on science communication, media issues, and on the relationship between science and society.

For further information, please visit:  
<http://www.esof2010.org>

**For further information on past and future events with ERC participation, please visit the ERC website (<http://erc.europa.eu>) and choose 'Events'**

## Community Research and Development Information Service

<http://cordis.europa.eu>

CORDIS — the Community Research and Development Information Service — is an interactive information platform that keeps you up-to-date with the latest news, progress and initiatives in European research and development (R & D) activities.

CORDIS is free of charge and offers access to R & D funding programmes of the EU as well as to information on partnerships and involvement in R & D activities, and on research projects and their results. As such, it is the official entry point to the Seventh Framework Programme (FP7), its specific programmes, activities, themes and latest developments.



## European Research Council

<http://erc.europa.eu>

The website aims to inform about the European Research Council (ERC) funding activities by providing up-to-date news on ERC developments and achievements, to disseminate the funding strategies and positions of the ERC Scientific Council, and to communicate ERC-funded research by highlighting success stories and scientific breakthroughs accomplished by its grantees.



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