

HORIZON 2020

The European Research Council



European Research Council

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The ERC - An opportunity for Plant Scientists in Frontier Research

**FESP/EPSO 2014 Congress
23rd June. 2014, Dublin**

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Presentation



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- **What is the European Research Council ?...**
- **Support of the ERC in the research area of Plant Science.**

- **What is the European Research Council ?...**
- Support of the ERC in the *research area of Plant Science.*

ERC – Aim



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Mission :

To encourage the highest quality research in Europe through competitive funding and to support investigator-initiated frontier research across all fields of research, selected only on the basis of scientific excellence.

ERC - Principles



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- Part of Horizon 2020.
- Frontier research projects; high risk/high gain research.
- Excellence as the only criterion of selection.
- No predetermined subjects (bottom-up from researchers); all science fields are covered.
- Support dedicated to individual scientists.
- Selection of projects by international peer-review through panels.
- Open to researchers from anywhere in the world willing to do research in Europe or 13 Associated Countries (e.g. Norway, Turkey, Israel) → 50% of working time of the grantee.

Projects can involve partners from anywhere in the world.



ERC Budget

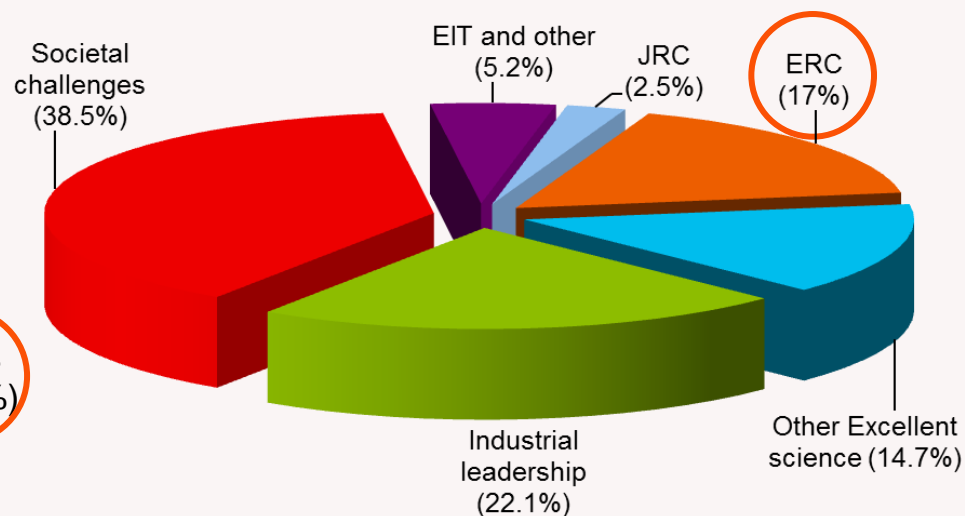
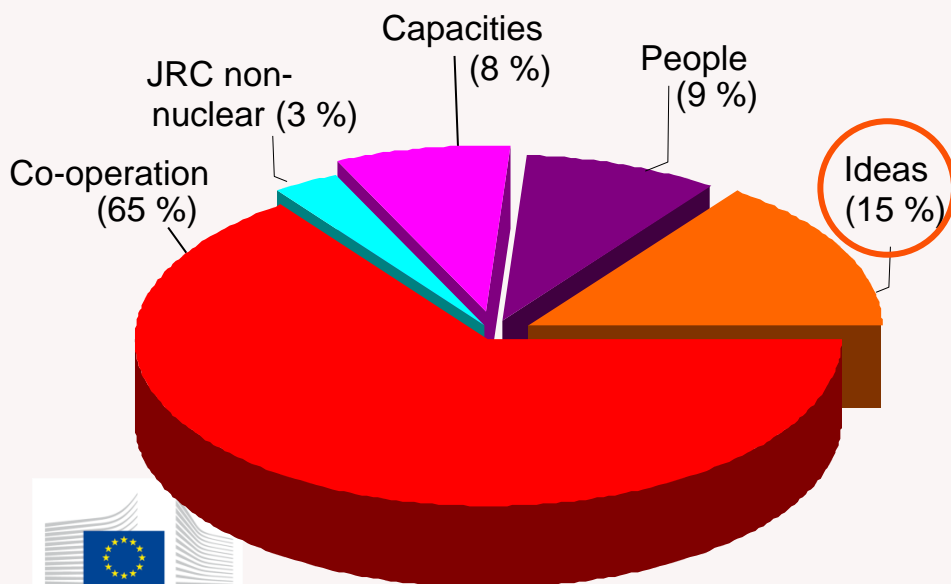


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H2020 budget € 77 billion
ERC budget €13 billion (+73%)

FP7 budget € 50.5 billion
ERC budget €7.5 billion

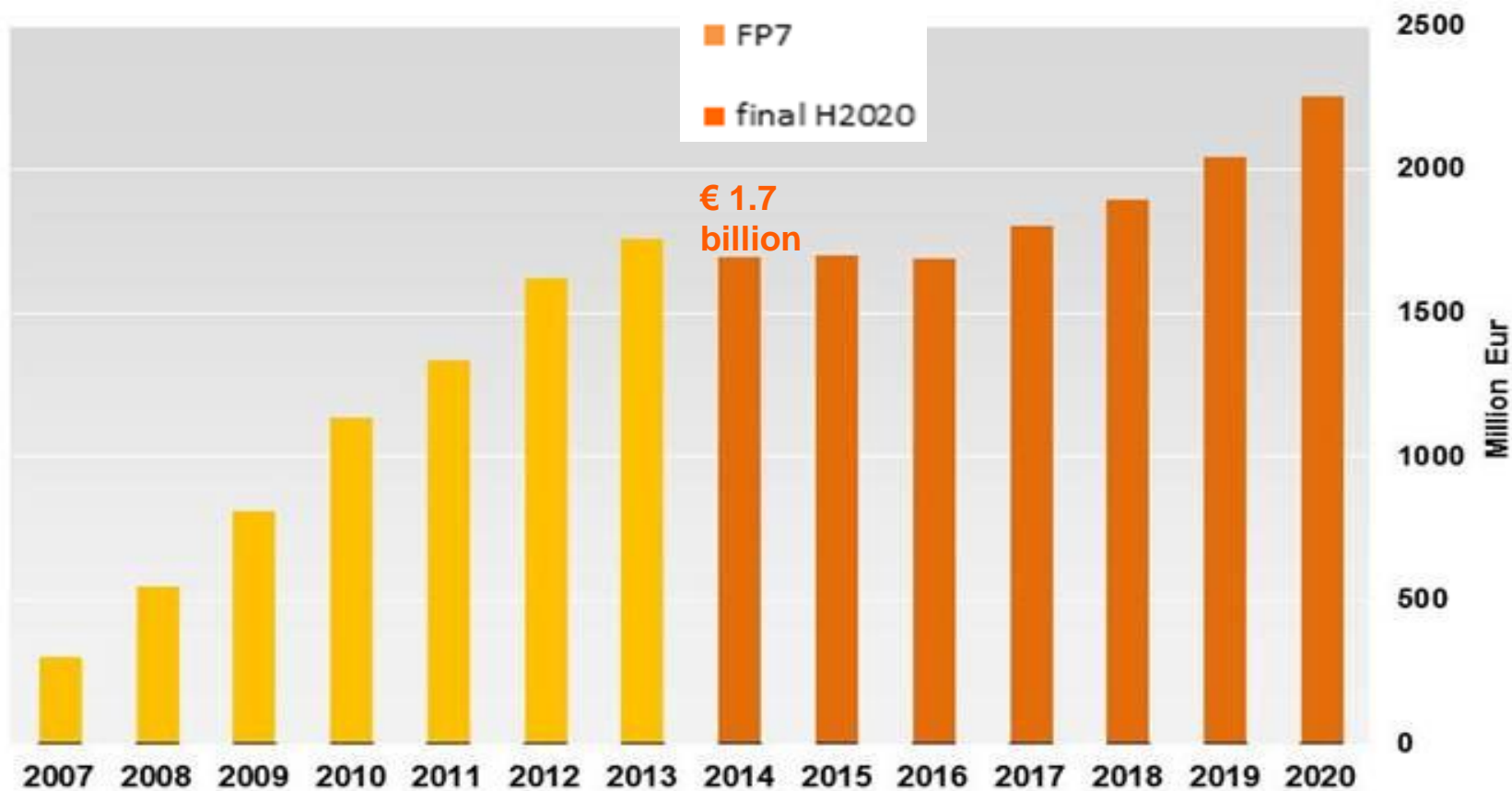


ERC Budget



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ERC Structure : 3 pillars



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The European Commission

- **Provides financing** through the EU framework programmes
- **Guarantees autonomy of the ERC**
- **Assures the integrity and accountability of the ERC**
- **Adopts annual work programmes** as established by the Scientific Council



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Pietro Naj-Oleari

Máire Geoghegan-Quinn

The ERC Scientific Council

- **22 prominent researchers** proposed by an independent identification committee
- **Appointed by the Commission** (4 years, renewable once)
- **Establishes overall scientific strategy**; annual work programmes (incl. calls for proposals, evaluation criteria); peer review methodology; selection and accreditation of experts
- **Controls quality of operations and management**
- **Ensures communication with the scientific community**



The ERC Executive Agency

- **Executes annual work programme** as established by the Scientific Council
- **Implements calls for proposals** and provides information and support to applicants
- **Organises peer review evaluation**
- **Establishes and manages grant agreements**
- **Administers scientific and financial aspects** and follow-up of grant agreements
- **Carries out communications activities** and ensures information dissemination to ERC stakeholders



ERC Scientific Council (22) Members 2014

- **Prof. Jean-Pierre BOURGUIGNON (Mathematics), ERC President**
- Prof. Pavel EXNER (Applied Mathematics & Mathematical Physics), **ERC Vice-President**
- Prof. Carl-Henrik HELDIN (Molecular Cell Biology), **ERC Vice-President**
- Prof. Nuria SEBASTIAN GALLES (Psychology), **ERC Vice-President**
- Prof. Isabelle VERNOS (Molecular and Cell Biology)
- Prof. Nils Christian STENSETH (Ecology & Evolution)
- Prof. Sierd A.P.L. CLOETINGH (Earth Sciences)
- Prof. Nicholas CANNY (History)
- Prof. Tomasz DIETL (Physics)
- Prof. Daniel DOLEV (Computer Sciences)
- Prof. Athene DONALD (Biological Physics)
- Dr. Barbara ENSOLI (Medicine)
- Prof. Reinhard GENZEL (Astrophysics)
- Prof. Timothy HUNT (Biology)
- Prof. Matthias KLEINER (Engineering)
- Prof. Eva KONDOROSI (Biology)
- Prof. Mart SAARMA (Biology)
- Prof. Martin STOKHOF (Philosophy)
- Prof. Anna TRAMONTANO (Biochemistry)
- Prof. Klaus BOCK (Chemistry)
- Prof. Reinhilde VEUGELERS (Economics)
- Prof. Michel WIEVIORKA (Sociology)



ERC Grant Schemes



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Starting Grants

starters
(2-7 years after PhD)
up to € 2.0 Mio
for 5 years

Consolidator Grants

consolidators
(7-12 years after PhD)
up to € 2.75 Mio
for 5 years

Advanced Grants

track-record of
significant research
achievements in the
last 10 years
up to € 3.5 Mio
for 5 years

Proof-of-Concept

bridging gap between research - earliest
stage of marketable innovation
up to €150,000 for ERC grant holders

Synergy Grants (2 exploratory calls)
2 – 4 Principal Investigators
up to € 15.0 Mio for 6 years

ERC International Peer review evaluation:

By 25 Panels



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- Structure: 25 panels distributed in 3 scientific domains
 - 10 in Physical Sciences
 - 9 in Life sciences
 - 6 in Social Sciences and Humanities
- 25 panels per grant scheme (StG, CoG, AdG).
- Each panel consists of 1 panel chair and 12-16 international panel members

ERC International Peer review evaluation: Evaluation criteria

Excellence as sole criterion, to apply to:

1. Research Project (RP)

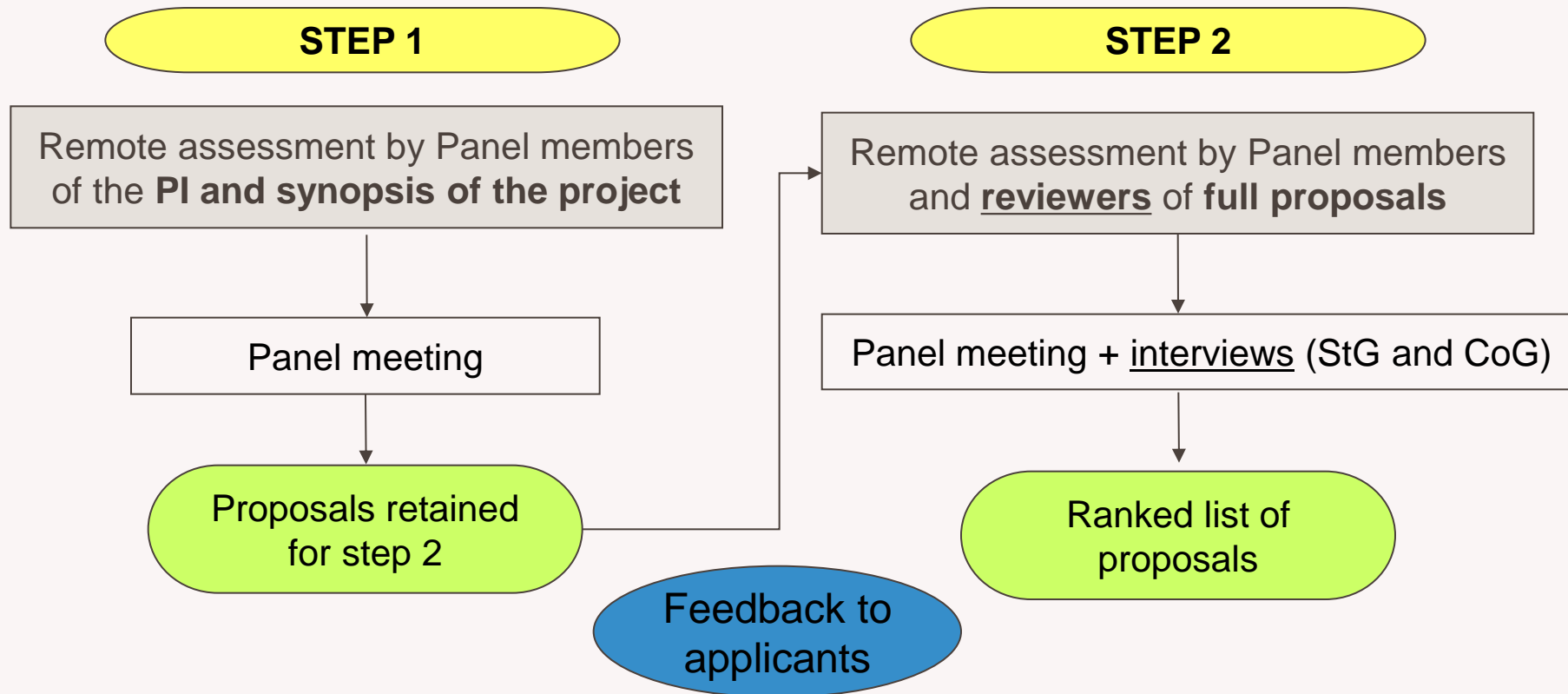
- Ground breaking nature
- High potential scientific impact
- Innovative scientific approach

2. Principle Investigator (PI)

- High intellectual capacity based on her/his track record (e.g. publications).
- High creativity
- High commitment to the project

ERC International Peer review evaluation:

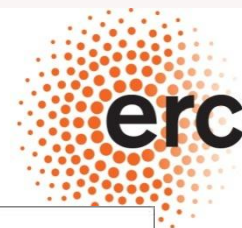
2 Steps procedure



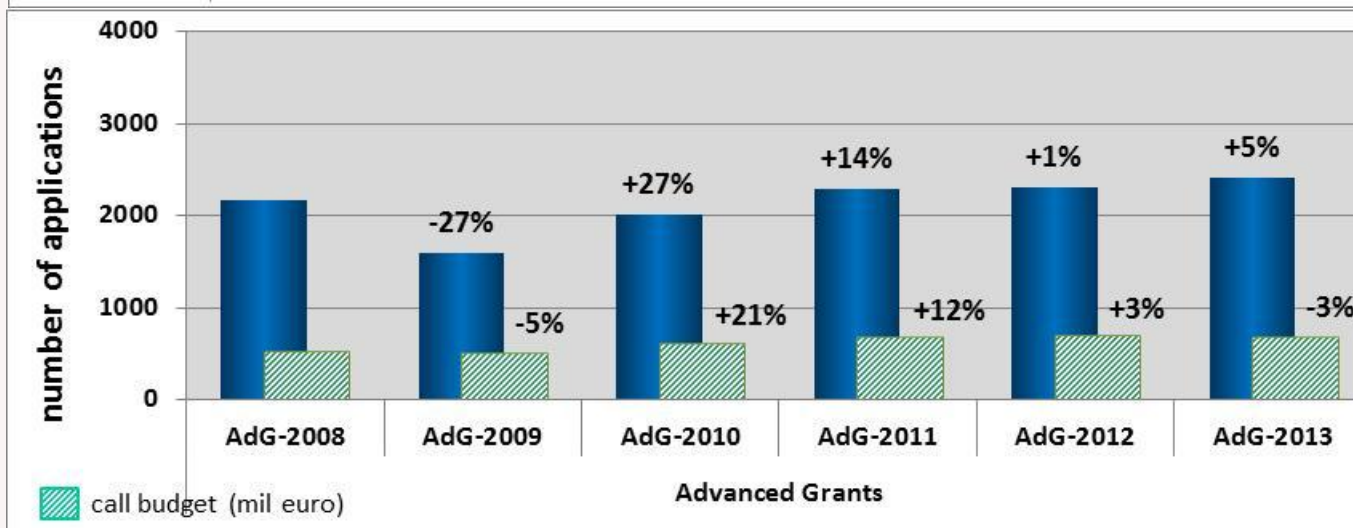
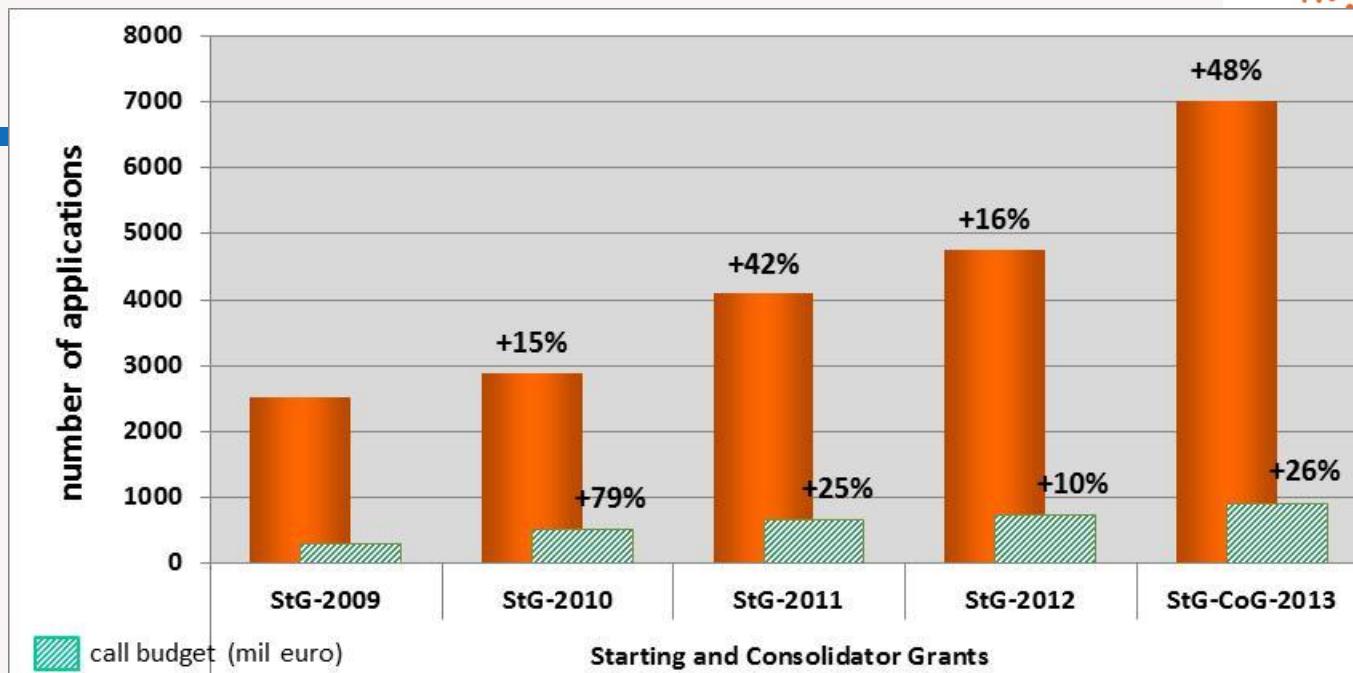
- Right balance between generalist + specialized review
- Appropriate treatment of interdisciplinary proposals

ERC Prospects for the Future

Rising applications



Research Council
European Commission



Achievements of the ERC in FP7

- More than **4,700** grantees (>50% of them StG) + 6 team members per project, from **43,000** applications - Average success rate **12 %** (under H2020 around 7,000 grantees will be funded and 42,000 team members).
- More than **480** different host institutions in **26** countries.
- 50% of PIs in 50 institutions (“excellence attracts excellence”).
- The ERC counts **eight Nobel laureates** and **three Fields Medalists** among its grant holders.
- More than **20,000 articles** acknowledging ERC-funding in peer-reviewed high impact journals between (between 1 and 2 articles in Science or Nature per week)

Presentation



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- *What is the European Research Council ?...*
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ERC Grant Schemes (StG, CoG & AdG)



Panel structure : 3 domains and 25 panels

Life Sciences (LS) → 9 panels

- LS1 Molecular & Structural Biology & Biochemistry
- LS2 Genetics, Genomics, Bioinformatics & Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology & Endocrinology
- LS5 Neurosciences & neural disorders
- LS6 Immunity & infection
- LS7 Diagnostic tools, therapies & public health
- LS8 Evolutionary, population & environmental biology
- LS9 Applied life sciences & biotechnology

Social Sciences and Humanities (SH) → 6

- SH1 Individuals, institutions & markets
- SH2 Institutions, values, beliefs and behaviour
- SH3 Environment & society
- SH4 The Human Mind and its complexity
- SH5 Cultures & cultural production
- SH6 The study of the human past

Physical Sciences & Engineering (PE) → 10

- PE1 Mathematical foundations
- PE2 Fundamental constituents of matter
- PE3 Condensed matter physics
- PE4 Physical & Analytical Chemical sciences
- PE5 Materials & Synthesis
- PE6 Computer science & informatics
- PE7 Systems & communication engineering
- PE8 Products & process engineering
- PE9 Universe sciences
- PE10 Earth system science



ERC Grant Schemes (StG, CoG & AdG)

Panels including Plant Science research in projects



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The LS9 Panel Descriptors :

Plant Science domains in the LS9 descriptors

LS9 Applied Life Sciences and Non-Medical Biotechnology: Agricultural, animal, fishery, forestry and food sciences, biotechnology, genetic engineering, synthetic and chemical biology, industrial biosciences; environmental biotechnology and remediation

- LS9_1** Non-medical biotechnology and genetic engineering (including transgenic organisms, recombinant proteins, biosensors, bioreactors, microbiology)
- LS9_2** Synthetic biology, chemical biology and bio-engineering
- LS9_3** Animal sciences (including animal husbandry, aquaculture, fisheries, animal welfare)
- LS9_4** Plant sciences (including crop production, plant breeding, agroecology, soil biology)
- LS9_5** Food sciences (including food technology, nutrition)
- LS9_6** Forestry and biomass production (including biofuels)
- LS9_7** Environmental biotechnology (including bioremediation, biodegradation)
- LS9_8** Biomimetics
- LS9_9** Biohazards (including biological containment, biosafety, biosecurity)

Project :

Do forests cool the Earth?



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- **Objective:** Modelling effects of forest on climate in order to combine sustained productivity and minimum climate response with portfolios of contrasting forest management strategies.
- **Research:** Forestry, earth system sciences
- The resulting models are considered by the IPCC for the next round of data production.



DOFOCO project

Dr. Sebastiaan Luyssaert, Commissariat à l'énergie atomique (FR)

ERC **Starting grant** 2009

Funding: € 1.3 million for 5 years



Project : Iridescence as adaptive advantage



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- **Objective:** Understand the effect of iridescence of plant on animals behaviour, i.e. attraction/repulsion between the animal and the plant, a factor in plants' survival and propagation
- **Research:** Ecology, animal science (vision and behaviour), plant physiology and genomics.



BlueLeaf project

Dr Heather Whitney, University of Bristol (UK)

ERC **Starting grant** 2010

funding: € 1.1 million for five years



Project :

Disease dynamics in meadow plants



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- **Objective:** Understanding the mechanisms that, in nature, keep diseases in check. Potential application in developing new ways to tackle devastating epidemics in agriculture
- **Research:** Plant pathology and epidemiology



PATHEVOL project

Dr. Anna-Liisa Laine, Helsingin Yliopisto (FI)

ERC **Starting grant** 2011

Funding: € 1.5 million for 5 years



Project :

Getting to the roots of better crops



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- **Objective:** Developing a new imaging technique of root architecture to improve root accessing and absorption of water and nutrients to improve crop yields
- **Research:** Physical imaging, plant ecophysiology, plant genetics
- ERC funds **a unique root imaging platform** operational in January 2014 (with Wolfson Foundation and the University of Nottingham, UK)



FUTUREROOTS project

Prof. Malcom Bennett, University of Nottingham (UK)

ERC **Advanced grant** 2011

Funding: € 3.5 million for 5 years



Project : Meiotic recombination in the design of the next generation of plants



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- **Objective:** Developing new meiotic recombination approach to produce non GMOs plants.
- **Research:** Plant genetic and breeding.



COMREC project

Prof. Holger Puchta, Karlsruher Institut für
Technologie (KIT) (DE)

ERC **Advanced grant** 2010

ERC funding: € 2.5 million for five years



ERC in H2020

Work Programme 2014 Planning



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ERC calls	Budget	Call Publication	Submission Deadline(s)
Starting Grants ERC-2014-StG	485 M€	11 December 2013	27 March 2014
Consolidator Grants ERC-2014-CoG	713 M€	11 December 2013	20 May 2014
Advanced Grants ERC-2014-AdG	450 M€	17 June 2014	21 October 2014

ERC in H2020

Work Programme 2015 Planning



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ERC calls	Budget	Expected Submission Deadline(s)
Starting Grants ERC-2015-StG	411M€	3 February 2015
Consolidator Grants ERC-2015-CoG	603M€	12 March 2015
Advanced Grants ERC-2015-AdG	640M€	2 June 2015

ERC Website: <http://erc.europa.eu>



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