



ERC in 2020 and Beyond

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European Research Council Executive Agency***

What is ERC?



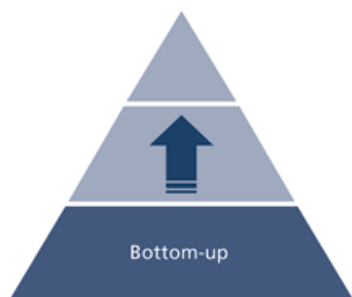
European Research Council

Established by the European Commission



The ERC supports excellence in frontier research through a bottom-up, individual-based, pan-European competition

Budget: € 13 billion (2014-2020) - 1.9 billion €/year
€ 7.5 billion (2007-2013) - 1.1 billion €/year



Legislation

- Scientific governance: independent Scientific Council with 22 members including the ERC President; full authority over funding strategy
- Support by the ERC Executive Agency (autonomous)
- Excellence as the only criterion

Strategy

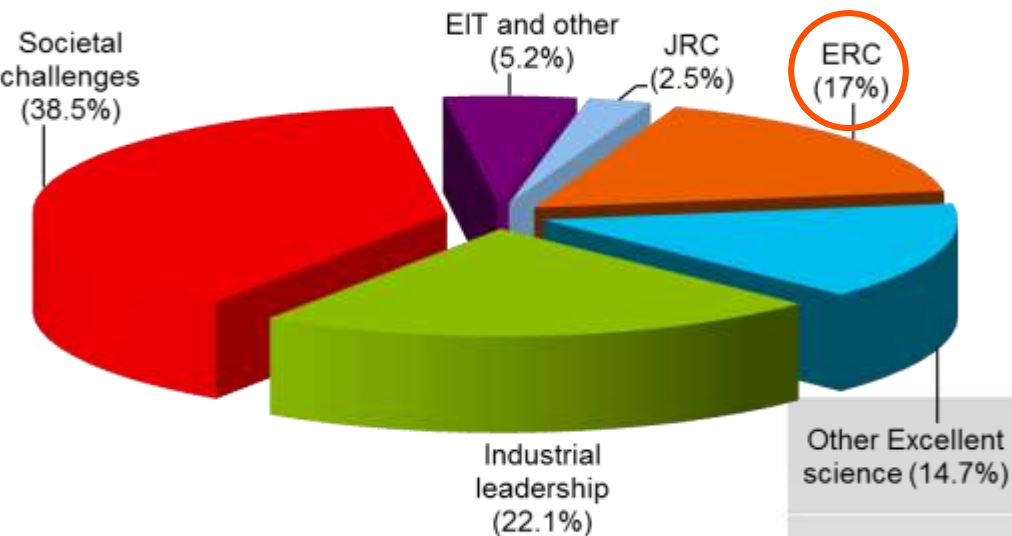
- Support for the individual scientist – **no networks!**
- Global peer-review
- No predetermined subjects (bottom-up)
- Support of frontier research in all fields of science and humanities



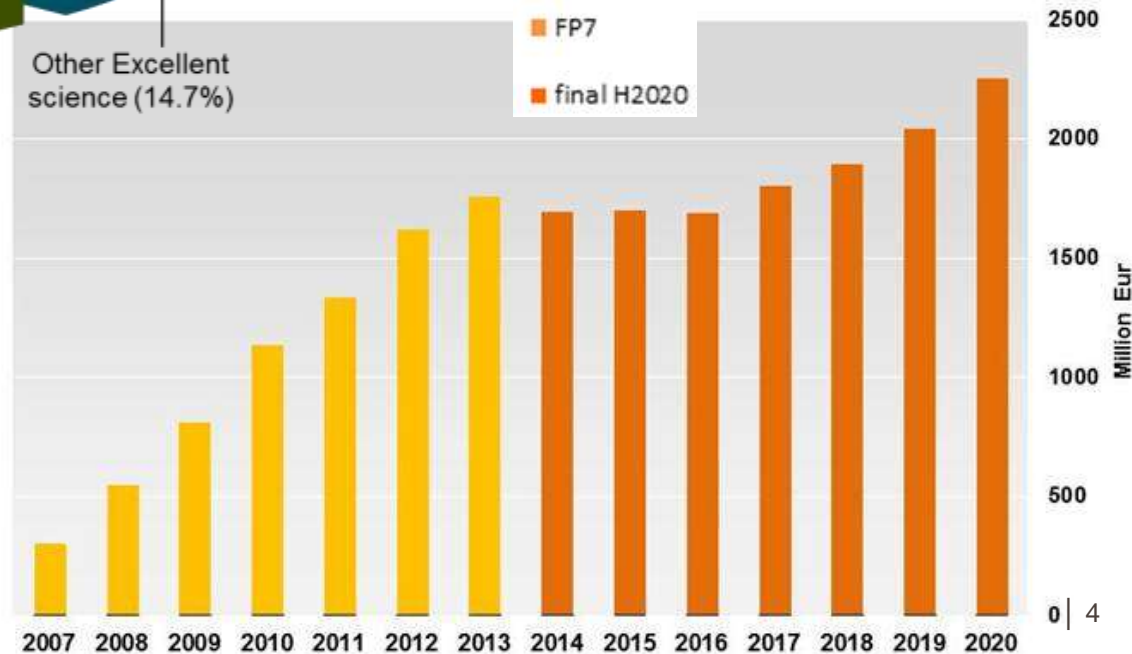
The ERC Scientific Council

- Geneviève AIMOUZNI (Bio-chemistry)
- Manuel ARELLANO (Economics)
- **Jean-Pierre BOURGUIGNON (Mathematics), ERC President**
- Paola BOVOLENTA (Neurobiology)
- Margaret BUCKINGHAM (Biology)
- Eveline CRONE (Psychology)
- Mercedes GARCÍA-ARENAL (History)
- Ben L. FERINGA (Organic Chemistry)
- Eystein JANSEN (Earth Science)
- Andrzej JAJSZCZYK (Electronics and Communication Engineering)
- Tomas JUNGWIRTH (Condensed Matter Physics)
- Michael KRAMER (Astrophysics)
- Kurt MEHLHORN (Computer Science)
- Barbara ROMANOWICZ (Geophysics)
- Martin STOKHOF (Philosophy), **ERC Vice-President**
- Giulio SUPERTI-FURGA (Medical Systems Biology)
- Jesper SVEJSTRUP (Biochemistry)
- Nektarios TAVERNARAKIS (Molecular Systems Biology)
- Janet THORNTON (Bioinformatics and Structural Biology), **ERC Vice-President**
- Lene VESTERGAARD HAU (Physics)
- Michel WIEVIORKA (Sociology)
- Fabio ZWIRNER (Theoretical and High-Energy Physics), **ERC Vice-President**

Horizon 2020 Budget and ERC



ERC Budget 2014-2020
13 billion €



What does ERC offer?

ERC Grant Schemes



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Starting Grants

starters
2-7 years after PhD
(≥ 50% commitment)
up to €1.5 Million
for 5 years

Consolidator Grants

consolidators
7-12 years after PhD
(≥ 40% commitment)
up to €2 Million
for 5 years

Advanced Grants

track-record of
significant research
achievements in the
last 10 years
(≥ 30% commitment)
up to €2.5 Million
for 5 years

Proof-of-Concept

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

Synergy Grants ^{New}

2-4 PIs
to lead to breakthroughs that cannot be
achieved by a PI working alone
up to €10 Million for 6 years



European
Commission

Horizon 2020
European Union funding
for Research & Innovation

ERC is "Our Jewel in the Crown"

"Today's event is one of the most important in my tenure as a Commissioner for one simple reason: You are our jewel in the crown. You are one of the best things to happen in Europe in the last 10 years."

ERC 10th anniversary Speech by Commissioner MOEDAS, 21 March 2017



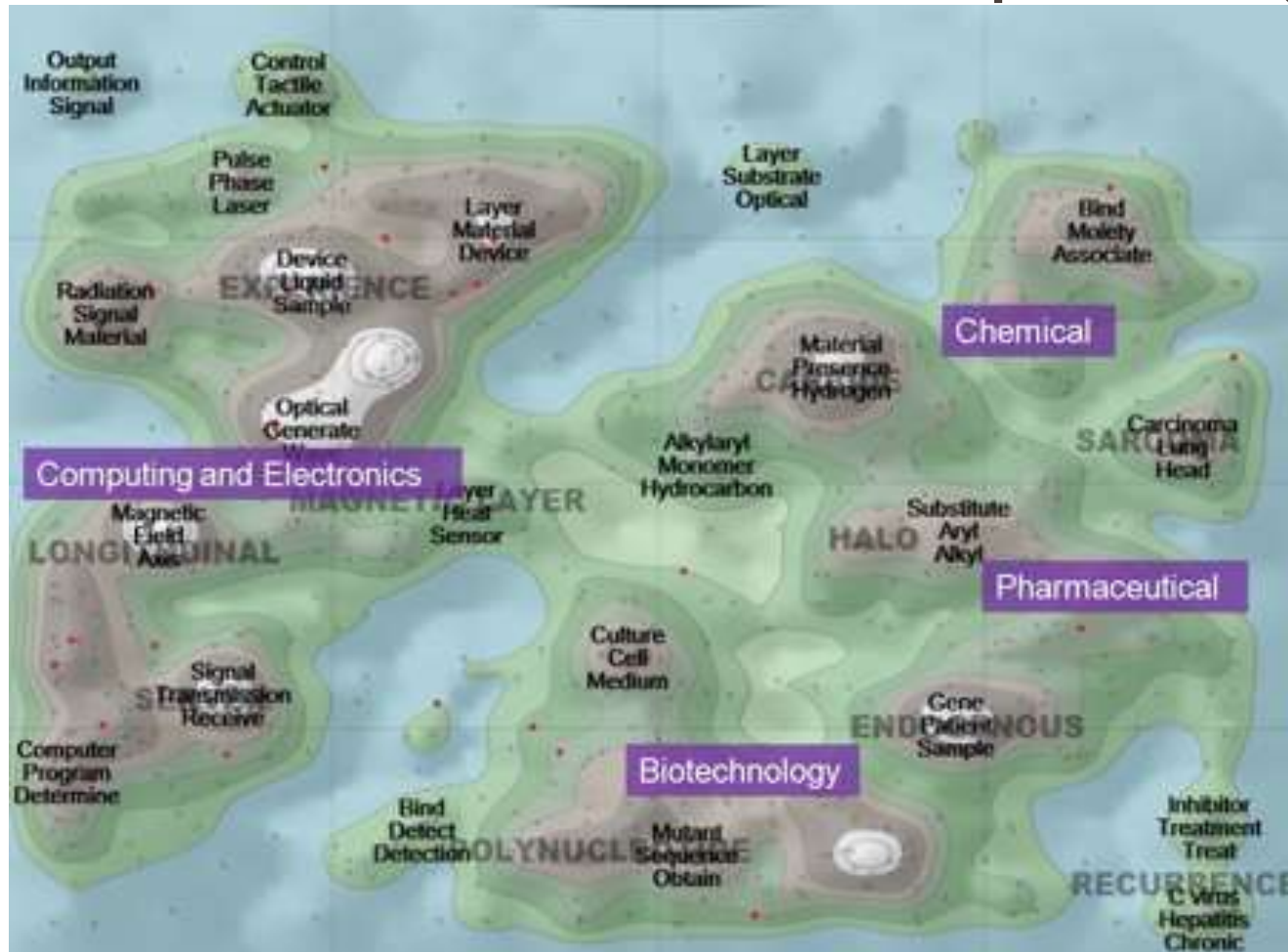
ERC World Best Major Research Funder

- ERC had the highest category normalised citation impact, the highest percentage of papers in the world's top 1% and the highest percentage of papers involving international co-authorship of the top 50 funders.
- Of the 100 most frequently acknowledged funders, only three (all large pharmaceutical companies) have a higher citation impact – though not substantially higher.



Frontier Research Leads to Innovation

With 17% of the budget of the 7th Framework Programme (FP7), the ERC accounts for 29% of FP7-funded patent filings (>800)



Thematic
concept map of
ERC supported
inventions

101 Spin-offs Linked with ERC Projects



Scientific Council Statement on ERC in FP9

- ✓ Continuity
- ✓ Agility
- ✓ Scale-up

Building on a European Success Story to Further Empower European Researchers

Statement by the ERC Scientific Council on the position of the European Research Council in the next European Union Framework Programme for Research and Innovation
5 May 2017

In the space of 10 years, the European Research Council (ERC) has become a real European success story. Its original set-up and governance add a new dimension to the European Union (EU) Framework Programmes, and the funding it provides for the best investigator-driven frontier research complements national efforts. The EU should build on this achievement and scale-up the ERC. Beyond 2021, Europe needs to increase its overall investment in research and innovation to speed up its progress towards becoming a dynamic knowledge society empowering researchers to develop their boldest ideas broadly.

The ERC is based on a simple concept with an ambitious goal. Its backbone is a robust evaluation process which selects the best ideas put forward by daring scientists to push the frontiers of knowledge, drawing from a wider pool of talents and ideas than would be possible for national schemes. It grew steadily in the EU 7th Framework Programme and was consolidated in the next one, Horizon 2020, becoming a reference.

The ultimate goal of the ERC is nothing less than to raise the level, dynamism and creativity of the whole European research ecosystem. It does so by:

- Empowering a new generation of scientists and improving the attractiveness of research institutions across Europe. This is done by supporting the emergence and improving the career prospects of early stage researchers in Europe so as to attract, repatriate and retain the best scientific talent while promoting institutional change;
- Backing research leaders in Europe to push the knowledge frontier and to train and inspire others;
- Providing a reference point for all of Europe's national research entities and individual institutions encouraging further structural reforms, efforts, and investments across Europe.

The goal of the ERC is even more relevant today than it was when it was founded. The pace of technological change has increased to the point that the prosperity and well-being of developed societies depends even more on the ability to generate, share, access and use knowledge and to link it to innovation. Europe still lags behind in terms of world-leading centres of innovation, which develop around world-leading research institutions. Science in the broadest sense, from the natural and life sciences to the social sciences and humanities, is more important than ever to nurture truly open, pluralistic and reflective societies and to enhance Europe's competitiveness.

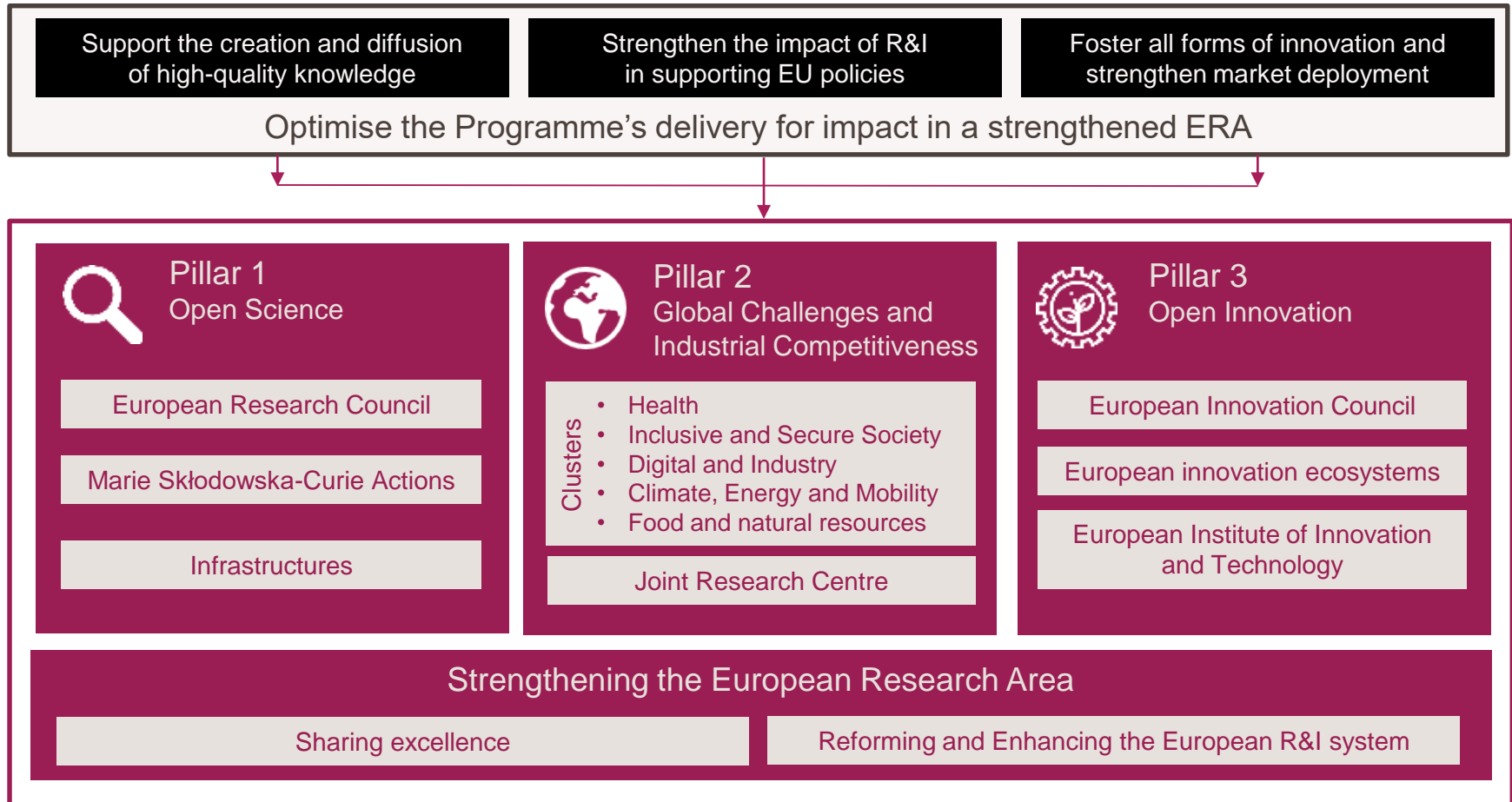
The EU proved capable of delivering on a very ambitious vision for such a project, based on two simple guiding principles: autonomy under the responsibility of a Scientific Council; and an unwavering focus on scientific quality, aiming for excellence. As a result, the establishment of the ERC under FP7, and its continuation under Horizon 2020, are recognised to have been major policy achievements of the EU implemented by the European Commission.

The ERC introduced three major policy innovations in the Framework Programme:

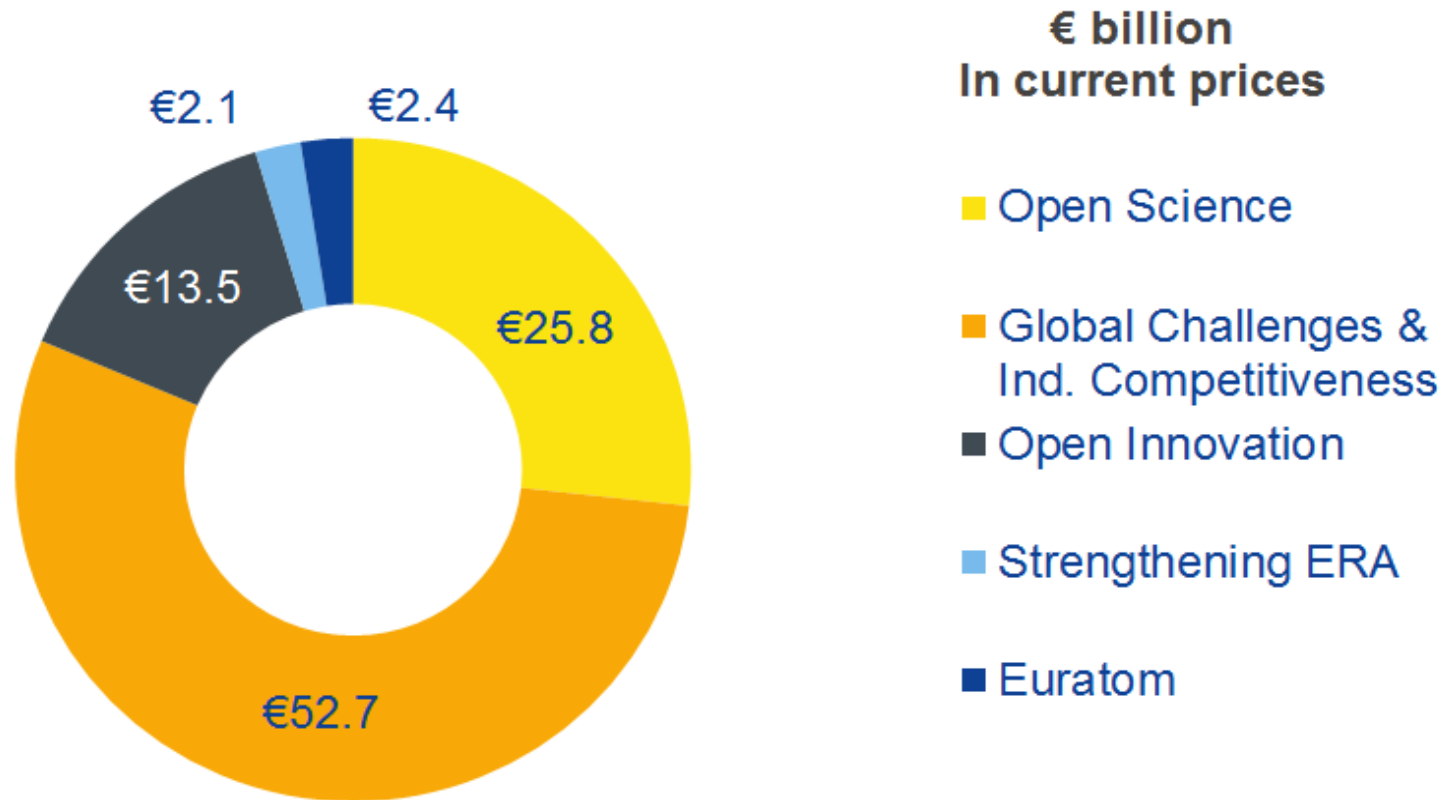
- Complementing national funding, by setting a new objective of significantly and directly strengthening Europe's science base, recognising its pivotal role in developing and attracting talent and investments, contributing to the solution of societal challenges and nurturing public debate;
- Providing flexible, long-term funding to develop ambitious projects proposed by high potential individual researchers of any nationality and in any field, giving them the freedom to take risks at the frontiers of science;
- Implementing the ERC at arm's length from the European Commission and the Member States, by entrusting its strategy to an independent Scientific Council, supported by a dedicated implementation structure, enabling it to focus solely on scientific excellence.

Horizon Europe: Evolution not Revolution

Specific objectives of the Programme



Horizon Europe Budget Distribution



* This envelope includes EUR 3.5 billion allocated under the InvestEU Fund.

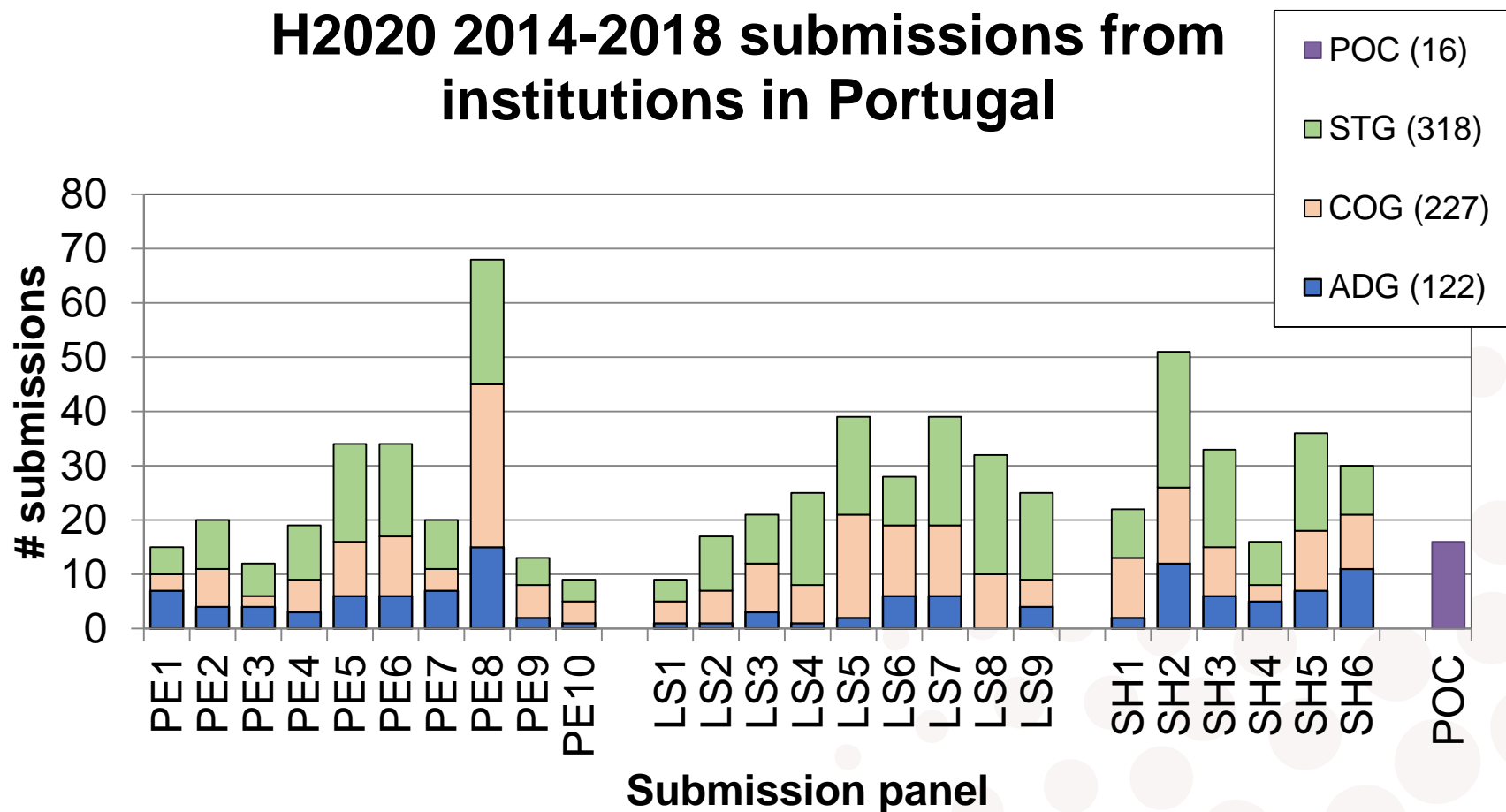
H2020 2014-2018 Submissions by call and panel



European Research Council

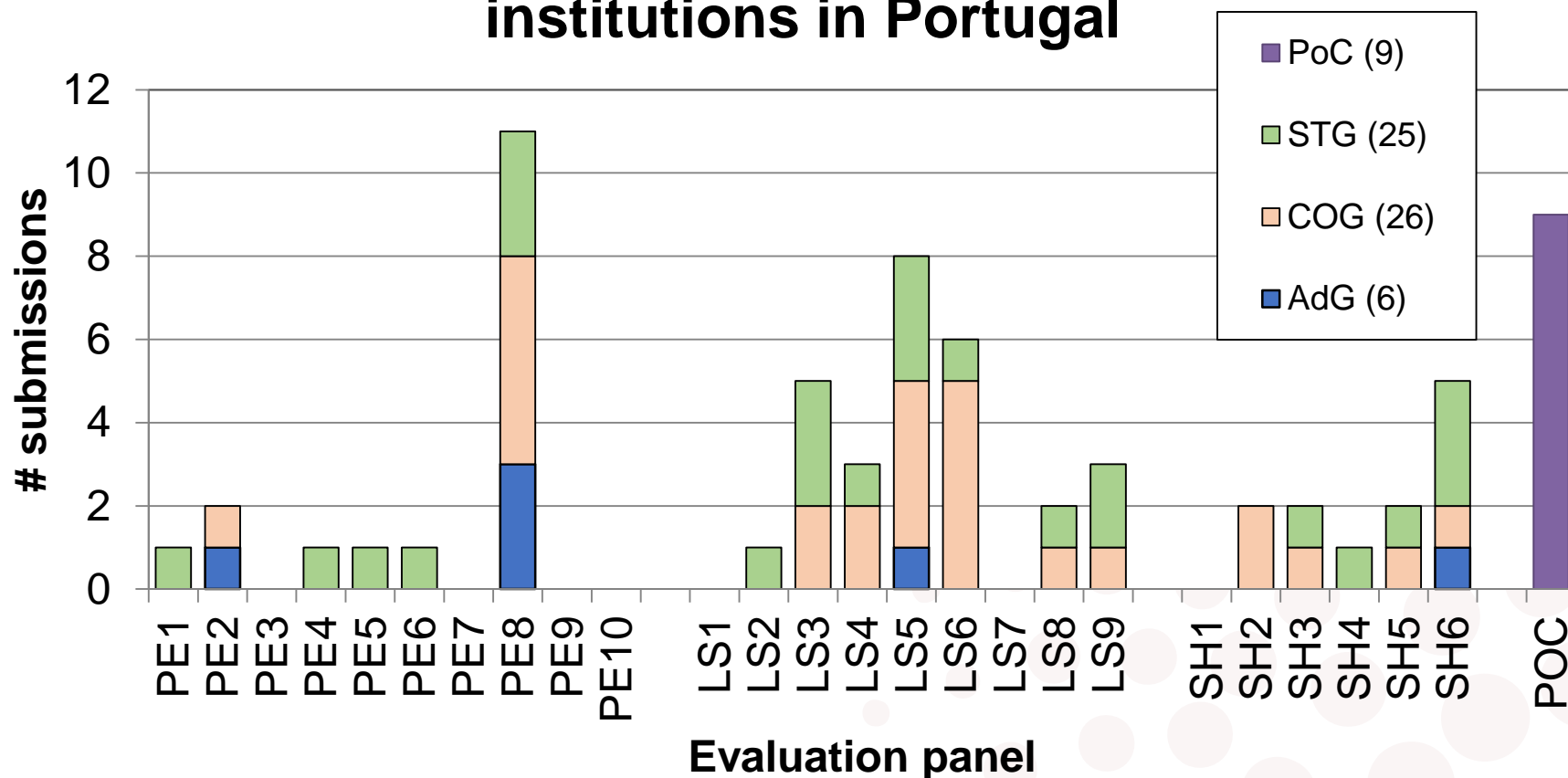
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H2020 2014-2018 submissions from institutions in Portugal



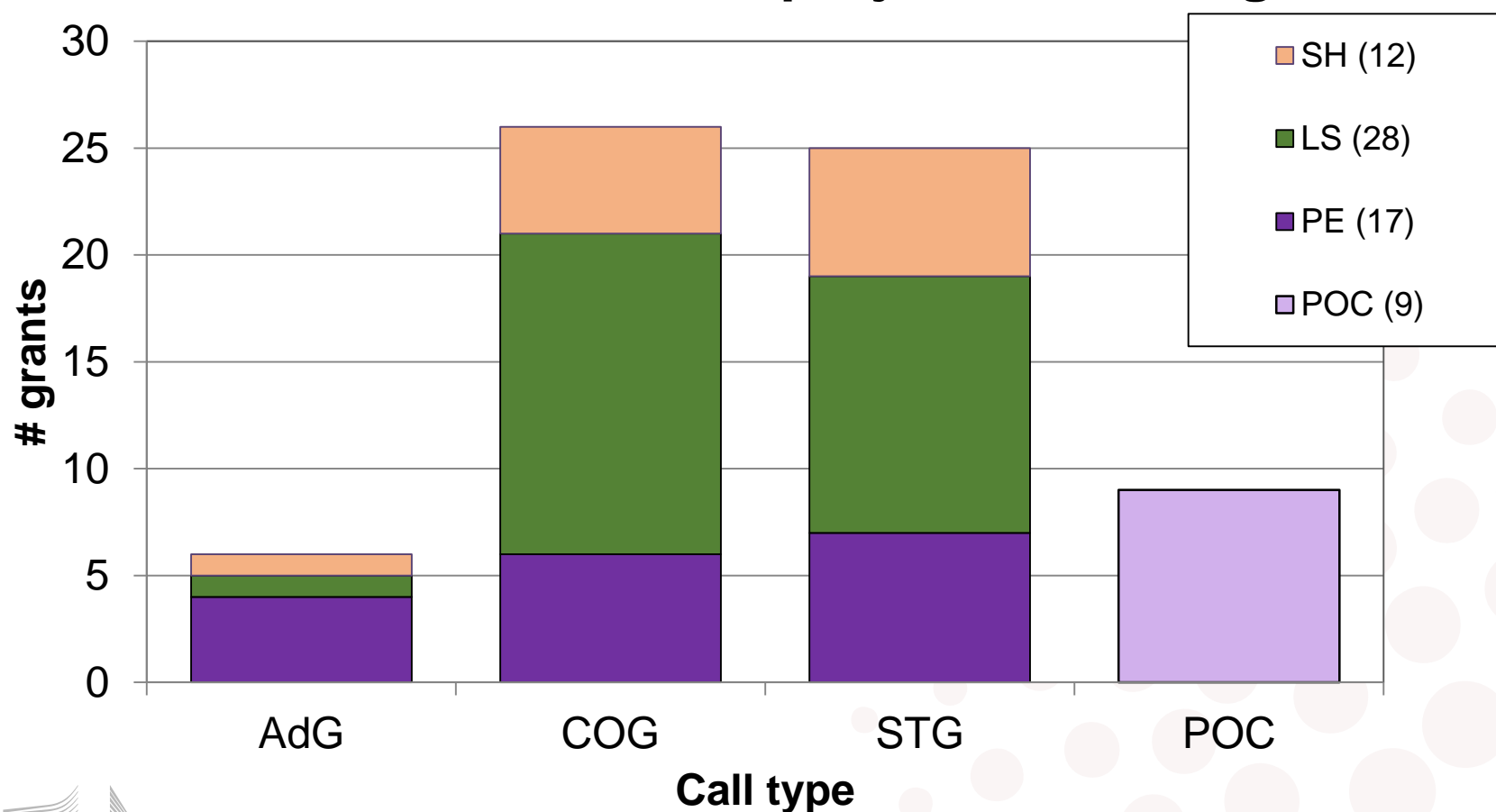
H2020 2014-2018 Funded projects by call and panel

H2020 2014-2018 funded projects from institutions in Portugal



H2020 funded projects in Portugal (signed) – 2018 provisional

ERC H2020 funded projects in Portugal



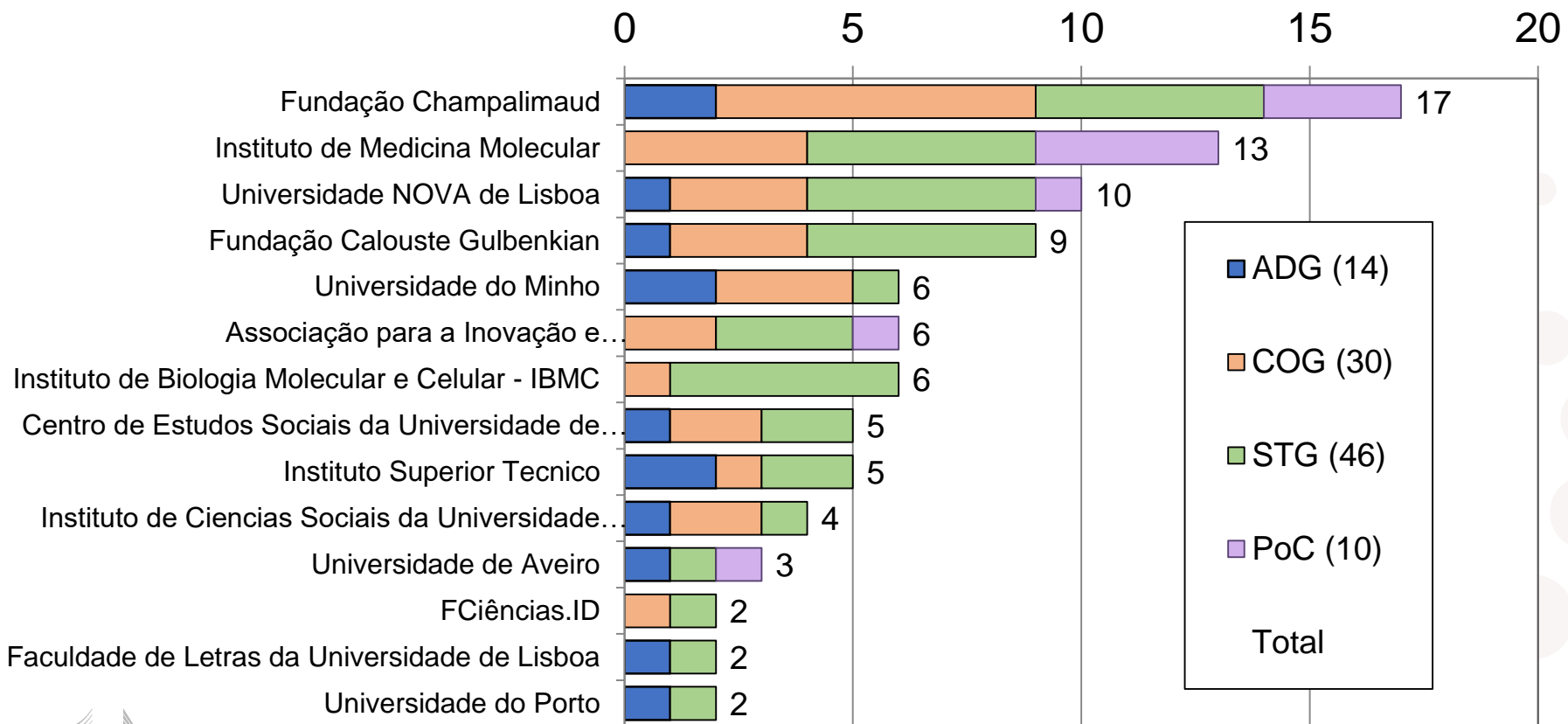
FP7 + H2020 funded projects in Portugal (signed) + 10 additional inst with 1 grant 2018 data provisional



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ERC signed grants in institutions in Portugal



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The European Research Council

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or watch: <https://player.vimeo.com/video/154715819>
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IgYPurTech by Prof. Mara G. Freire

The objective of IgYPurTech was to develop a **novel technique for the purification of egg yolk antibodies** (immunoglobulin Y) and other biopharmaceutical products based on the use of ionic liquids. The long-term goal of the project was to allow the **production of low-cost antibodies** able to fight some chronic diseases.

ERC Grant

- Starting Grant – 2014 → 2019 – 1 386 020 €

Host Institution

- Universidade de Aveiro, Portugal

Project Name

- IgY Technology: A Purification Platform using Ionic-Liquid-Based Aqueous Biphasic Systems



Scientific highlights of ERC funded projects in “Fundamental Constituents of Matter”



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Project: InPairs - In Silico Pair Plasmas: from ultra intense lasers to relativistic astrophysics in the laboratory

Researcher – Luis Silva

Host Institution – Instituto Superior Técnico (PT)

Advanced Grant 2015 – 1.95 MEuro



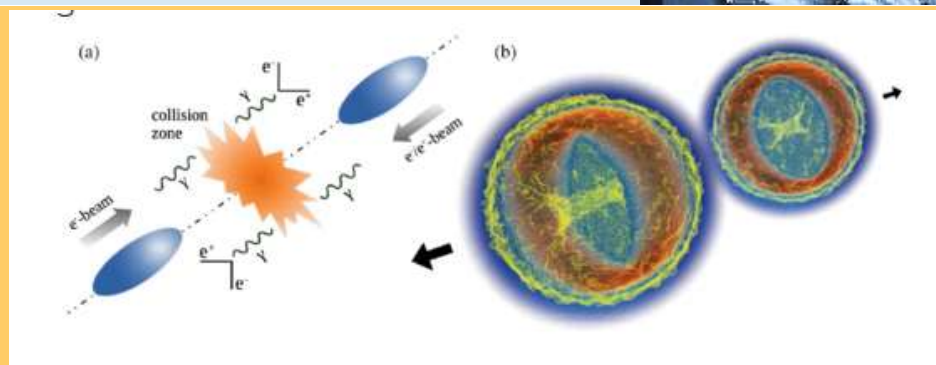
Vision: Understanding Electron-positron pair plasmas in extreme conditions

Approach:

Massively parallel particle-in-cell simulations

Application fields and impact:

- Quantum electrodynamics effects under ultra intense lasers
- Physics of the magnetospheres of compact stellar remnants
- Design of laboratory experiments using ultra high intensity lasers and charged particle beams to mimic the physics of extreme astrophysical regimes.



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Scientific highlights of ERC funded projects in “Fundamental Constituents of Matter”



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MaGRaTh project - Matter and strong-field gravity: New frontiers in Einstein's theory

Researcher – Vitor Cardoso

Host Institution – Instituto Superior Técnico (PT)

Consolidator Grant 2014 – 1.6 MEuro

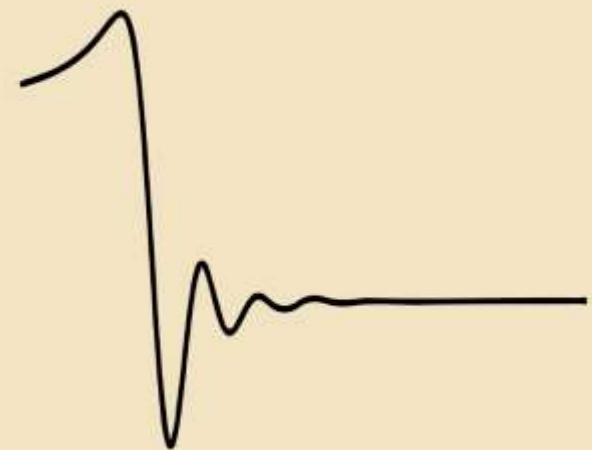


Vision: Understanding black hole physics

Approach: Numerical solution of field equations on a dedicated computing cluster

Application fields and impact:

- Interpretation of experiments: Detection of gravitational waves is not in itself a proof of the existence of black holes
- Strategies for future gravitational wave experiments
- New insights into dark matter



Ceci n'est pas un black hole.