

The European Research Council



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The European Research Council: Present Achievements and Future Perspectives

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ERC Vice-President

"ERC in Horizon 2020"
Bucharest-Magurele
5 March 2014

Contents



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- **ERC basics**
- **ERC achievements**
- **ERC in H2020**
- **Romania at ERC**



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ERC basics

ERC basics

What is ERC?

- An autonomous funding body set up by the EU in 2007 and led by scientists
- Funding excellent researchers of any nationality, to carry out frontier research in Europe, via annual competitions
- In all fields of science and humanities, without thematic priorities
- 1 researcher, 1 Host Institution, 1 project, 1 selection criterion
- Substantial grants and a recognised label of excellence
- International, top level peer-review

ERC basics

ERC structure



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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

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 basics

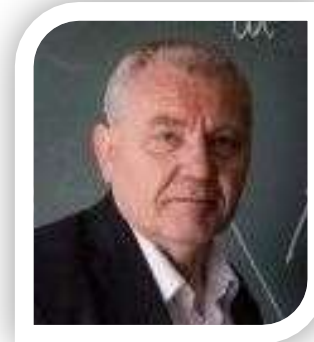
ERC Scientific Council members



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



ERC basics

ERC funding 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 basics

Substantial grants to the very best

➤ The Researcher (PI : Principal Investigator)

- ERC funds individual scientists
- Any nationality, age or current place of work in the world
- Starting, consolidator or advanced grant (depending on work experience and scientific achievements)
- **Exceptional profile: but submit proposal only if ready** - a key change in the new calls are the more stringent resubmission restrictions

➤ Research team

- **The PI can choose national or trans-national team members** if scientific added value proven
- **The grant covers the salary of team members**

ERC basics

Substantial grants to fund frontier research

➤ Frontier research project

- **All fields of fundamental research:** Physical Sciences & Engineering, Life Sciences, Social Sciences & Humanities
- **Bottom-up:** no predetermined subjects, no priorities
- **High risk/high gain**
- **5 years projects**
- **No consortia**

➤ Host Institution (HI) in Europe

- **The one where the researcher already works, or any other institution established in the EU or associated countries**
- **Grants are portable (= the PI can change Host Institution)**
- **Universities, research centres; public or private**

ERC basics

Evaluation of proposals: excellence is the sole evaluation criterion

Evaluation of *excellence* at two levels:

- **Excellence of the Research Project**
 - ✓ Ground breaking nature
 - ✓ Potential impact
 - ✓ Scientific Approach
 - ✓ Added-value of the Group (only SyG)
- **Excellence of the Principal Investigator**
 - ✓ Intellectual capacity
 - ✓ Creativity
 - ✓ Commitment

Referees and panels **evaluate and score** each criterion, which results in a **ranking** of the proposals.

➤ Each panel consists of 1 panel chair and 12-16 panel members

Life Sciences

- 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

- SH1 Individuals, institutions & markets
- SH2 The social world, diversity and common ground
- SH3 Environment, space and population
- SH4 The Human Mind and its complexity
- SH5 Cultures & cultural production
- SH6 The study of the human past

Physical Sciences & Engineering

- PE1 Mathematics
- 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 basics

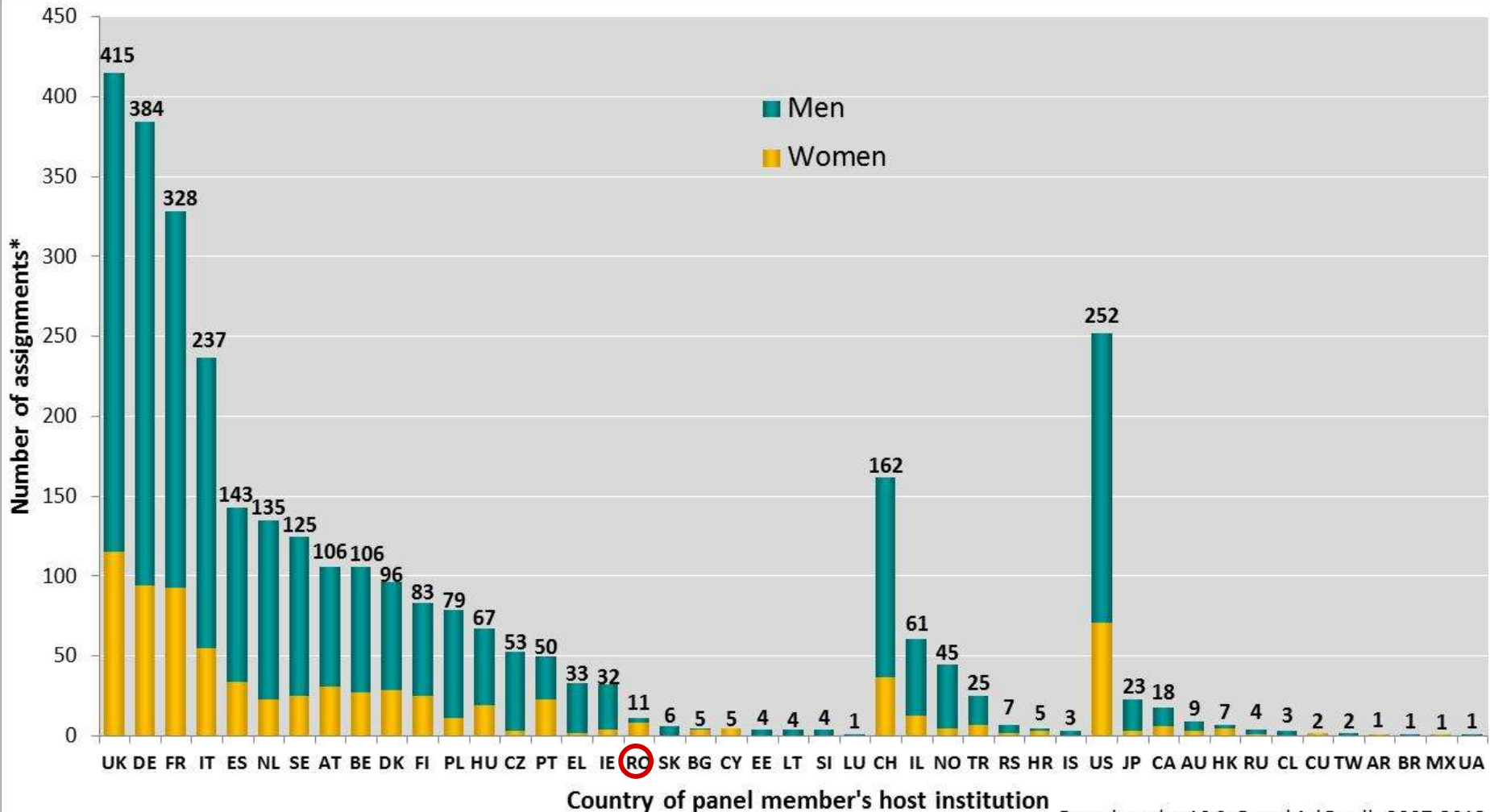
ERC panel members by country of HI and gender

ERC Starting and Advanced Grant calls 2007 - 2012



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Based on the 10 StG and AdG calls 2007-2012



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ERC achievements

ERC Calls

ERC Calls	Total number of applications	of which		
		Evaluated*	Funded	success rates**
Starting Grant 2007	9,167	8,787	299	3.4
Starting Grant 2009	2,503	2,392	245	10.2
Starting Grant 2010	2,873	2,767	436	15.8
Starting Grant 2011	4,080	4,005	486	12.1
Starting Grant 2012	4,741	4,652	566	12.2
Starting Grant 2013	3,329	3,255	300	9.2
Consolidator Grant 2013	3,673	3,604	311	8.6
Starting and Consolidator Grant	30,366	29,462	2,643	10.2
Advanced Grant 2008	2,167	2,034	282	13.9
Advanced Grant 2009	1,584	1,526	245	16.1
Advanced Grant 2010	2,009	1,967	271	13.8
Advanced Grant 2011	2,284	2,245	301	13.4
Advanced Grant 2012	2,304	2,269	319	14.1
Advanced Grant 2013	2,408	2,363	290	12.3
Advanced Grant	12,756	12,404	1,708	13.9
Proof of Concept 2011 - 1&2	151	139	51	36.7
Proof of Concept 2012 - 1&2	143	120	60	50.0
Proof of Concept 2013 - 1&2	292	279	67	24.0
Proof of Concept	586	538	178	36.9
Synergy Grant 2012	710	697	11	1.6
Synergy Grant 2013	449	427	13	3.0

* withdrawn and ineligible proposals not taken into account

** percentage of funded proposals in relation to evaluated proposals

ERC achievements

After 7 years of existence...

- Highly recognised by the research community
- 4 300 top researchers funded (65% are at an early-career stage); 64 nationalities represented
- **Highly competitive** (average success rate 12%)
- Working in almost 600 different institutions in 29 countries
- 50% of grantees in 50 institutions : “Excellence attracts excellence”
- **Benchmarking** effect: impact on national programmes and agencies; national funding for best "runners-up"
- Efficient and fast grant management

ERC achievements

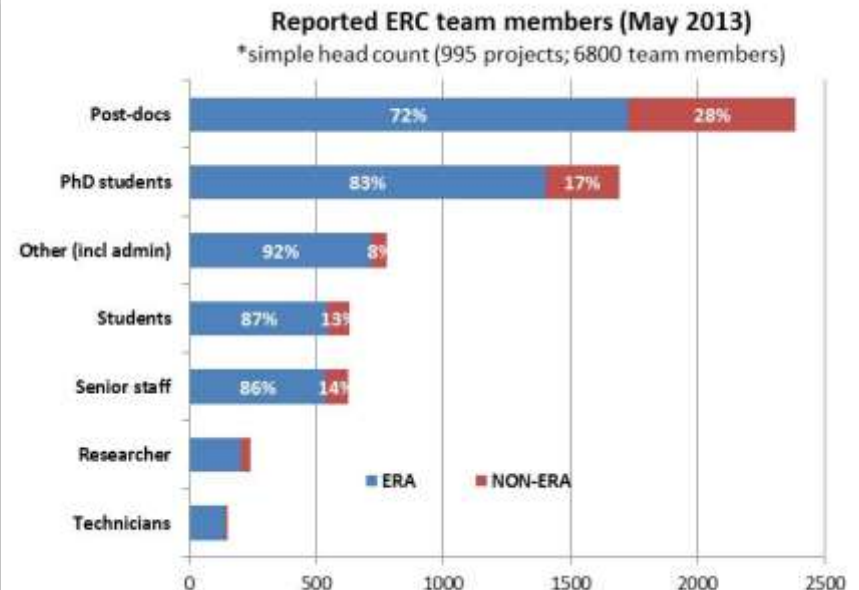
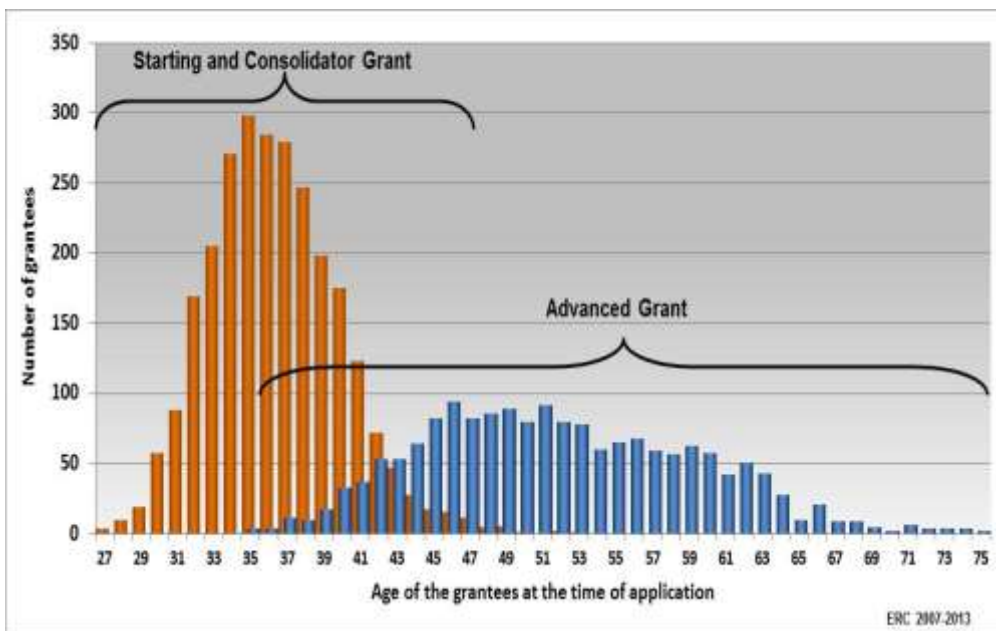
Developing a new generation of excellent scientists



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- The ERC is funding the next generation of **world-class scientists**
- 60% of ERC grantees are at an **early-career stage**
- 2/3 of team members are people in the **training phase of their career** (PhD students or post-doctoral researchers)



ERC achievements

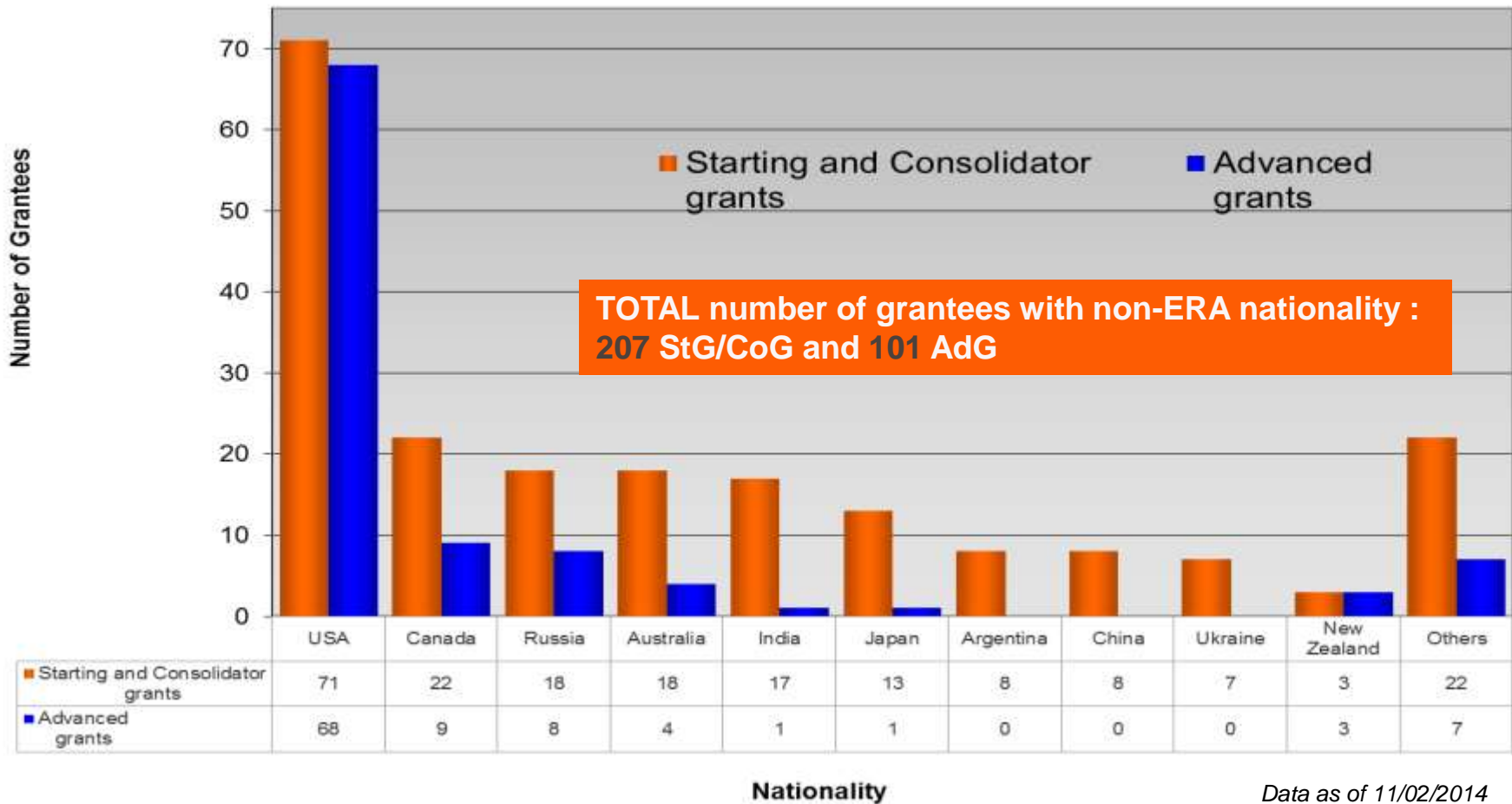
ERC grantees with a non-ERA nationality*

ERC Starting, Consolidator and Advanced Grant calls 2007 – 2013



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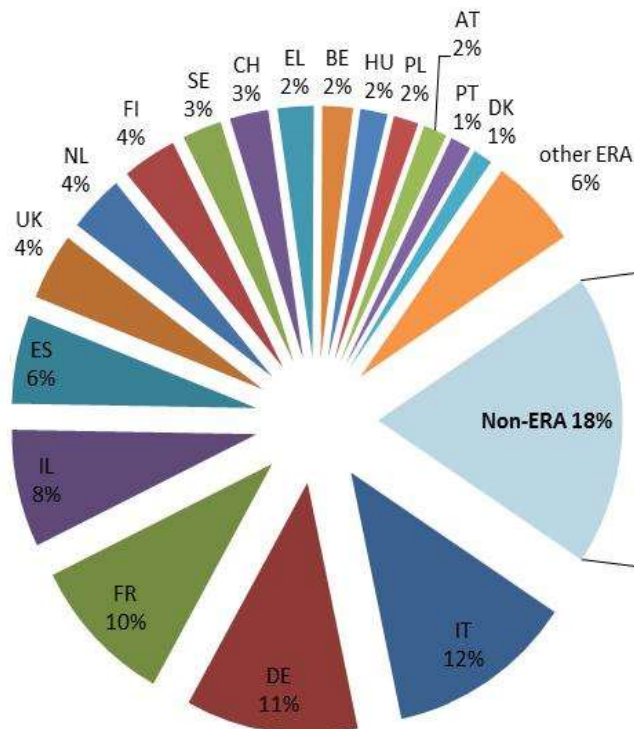


ERC achievements

Attracting excellent researchers

Composition of ERC teams (PIs not included)
Analysis of 995 Starting and Advanced Grants

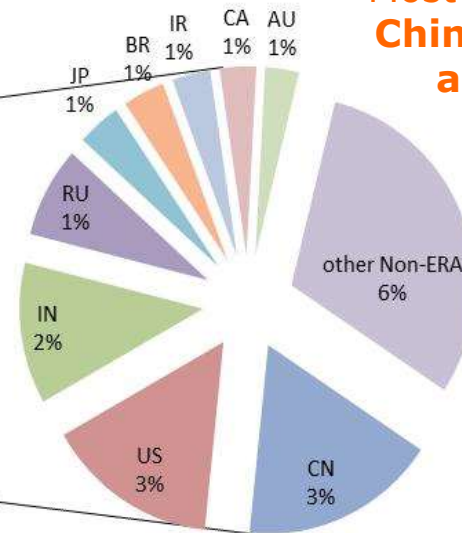
Distribution of ERC team members by nationality



42 Romanian scientists (~1%) work on these 995 projects as post-docs (26), senior scientists (8), PhD students (4) and other categories of staff (4)

EU: 67%
Assoc. Countries: 12%
non-ERA: 18%
unknown: 3%

**Most non-ERA from
China, US, India,
and Russia**



53% of non-ERA team members "attracted" to Europe with the ERC grant (10% of all team members)

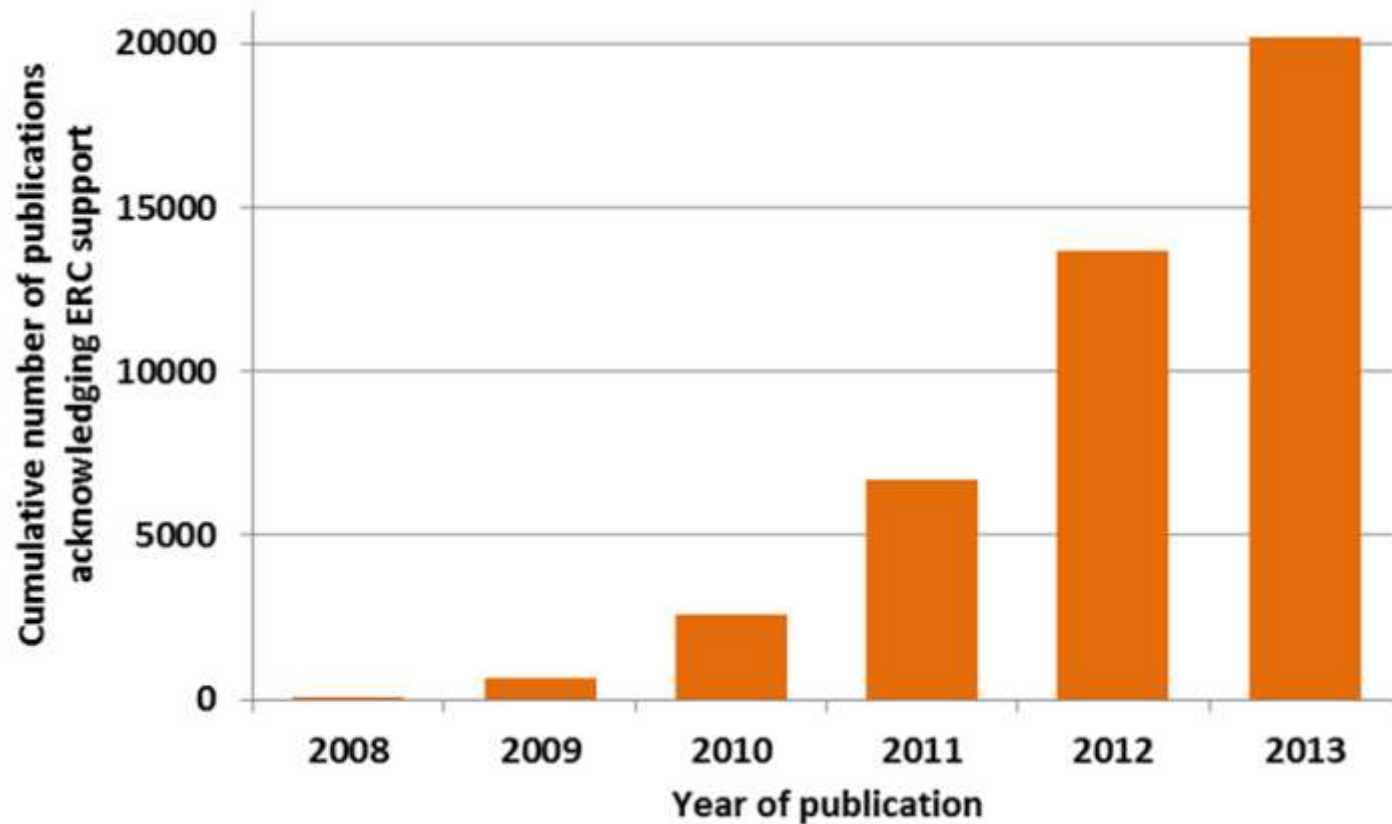
ERC achievements

Publication from ERC funded projects



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Already over **20.000** papers acknowledging ERC support published in international, peer reviewed journals.

ERC achievements

Highly distinguished grantees



Serge Haroche
Nobel 2012

ERC Grantee
AdG 2009



Konstantin Novoselov
Nobel 2010

ERC Grantee
StG 2007
ERC Grantee
SyG 2012



Ada Yonath

ERC Grantee
AdG 2012



Andre Geim

ERC Grantee
AdG 2012



Christoforos Pissarides

ERC Grantee
AdG 2012



Theodor Hansch

ERC Grantee
AdG 2010



James Heckman

ERC Grantee
AdG 2010



Jean-Marie Lehn

ERC Grantee
AdG 2011



Stanislav Smirnov **AdG 2008**
Simon Donaldson **AdG 2009**
Elon Lindenstrauss **AdG 2010**

2013 Wolf Prize awarded to Peter Zoller - **SyG 2012**
2013 Holberg Prize awarded to Bruno Latour - **AdG 2010**
2013 Crafoord Prize awarded to Lars Klareskog - **AdG 2009**

Other Prizes awarded to ERC grantees

EMBO GOLD MEDAL 2011 – Simon BOULTON - **AdG 2010**
FEBS|EMBO WOMEN IN SCIENCE 2011 - Carol ROBINSON - **AdG 2010**
EMBO GOLD MEDAL 2010 – Jason W CHIN - **StG 2007**
THE SHAW PRIZE IN MATHEMATICAL SCIENCES 2011 - Christodoulou Demetrios - **AdG 2009**
CRAFOORD PRIZE 2011 and EUROPEAN LATSIS PRIZE 2010 – Ilkka Hanski - **AdG 2008**
L'ORÉAL-UNESCO AWARD FOR WOMEN IN SCIENCE 2011 - Anne L'Huillier - **AdG 2008**
WOLF PRIZE 2010 – Anton ZEILINGER, David BAULCOMBE - **AdG 2008**, Alain ASPECT - **AdG 2010**
MILLENNIUM AWARD 2010 – Michael GRATZEL - **AdG 2009**

2012 Prizes awarded to ERC grantees

EMBO GOLD MEDAL 2012 Jiri FRIML - **StG 2011**
BALZAN PRIZE 2012 David BAULCOMBE - **AdG 2008**
EUROPEAN LATSIS PRIZE 2012 Uffe HAAGERUP - **AdG 2009**
KELVIN PRIZE 2012 Colin McINNES - **AdG 2008**
LEIBNIZ PRIZE 2012 Michael BRECHT - **AdG 2008** & Joerg WRACHTRUP - **AdG 2010**

ERC achievements

A success story for European research



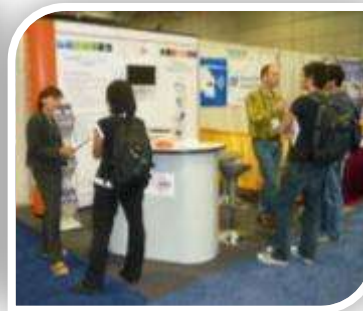
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More than **5 years of excellent IDEAS**



Events around the world - *ERC goes global* campaign



Wide **media** coverage (both specialised & general press)



User-friendly **website** and **social media** accounts



NCPs
AV products
Quarterly e-newsletter
Specific brochures & more



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ERC in H2020

ERC in the H2020 structure

➤ The HORIZON 2020 main components:

- Excellent Science
 - ➔ *World class science is foundation of technologies, jobs, well-being*
 - ➔ *Europe needs to develop, attract, retain research talent*
 - ➔ *Researchers need access to the best infrastructures*
- Industrial leadership
- Societal challenges

➤ Excellent Science:

- **European Research Council** (budget under H2020: € 13.1 billion)
- Future and Emerging Technologies
- Marie Skłodowska Curie Actions
- Research Infrastructures

ERC in H2020

Budget Horizon 2020

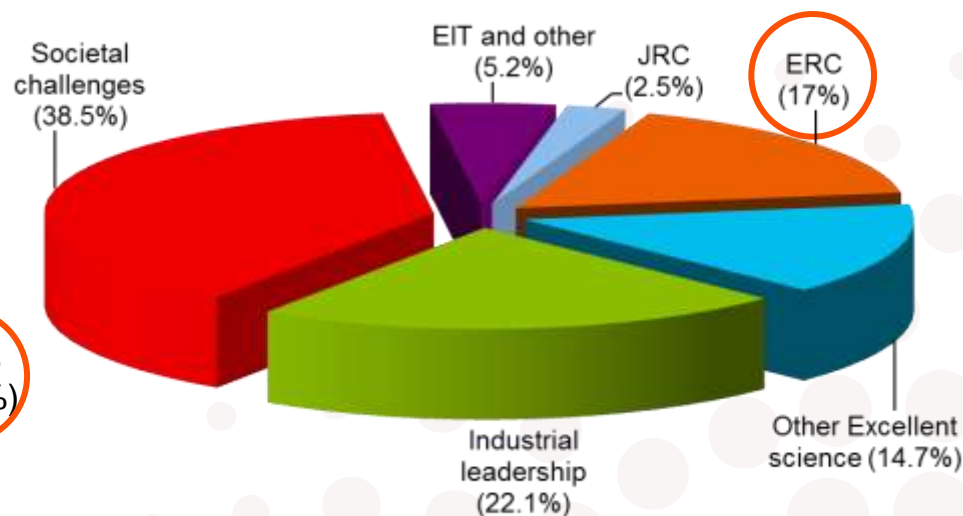
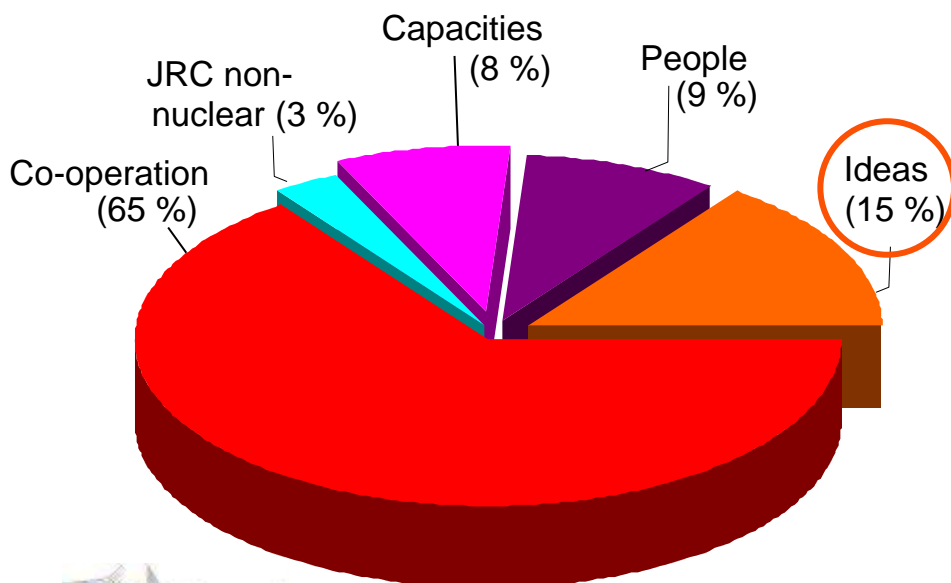


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H2020 budget € 77 billion
ERC budget € 13.1 billion

FP7 budget € 50.5 billion
ERC budget € 7.5 billion



ERC in H2020

Changes and continuity

➤ **Essential features maintained:**

- Same schemes, same principles, same selection procedures/criteria
- Independent Scientific Council with full authority over funding strategy
- Executive Agency with autonomous operation

➤ **Increased budget (13.1 Bio € in current prices for 2014-2020):**

- More opportunities than ever for top research talents

➤ **Strengthening the Scientific Governance of the European Research Council:**

- Strengthening the links between the Scientific Council and the Executive Agency
- Merging positions of President of ERC and Secretary General
- Full-time President based in Brussels
- 3 Vice-Chairs elected from amongst the Scientific Council members

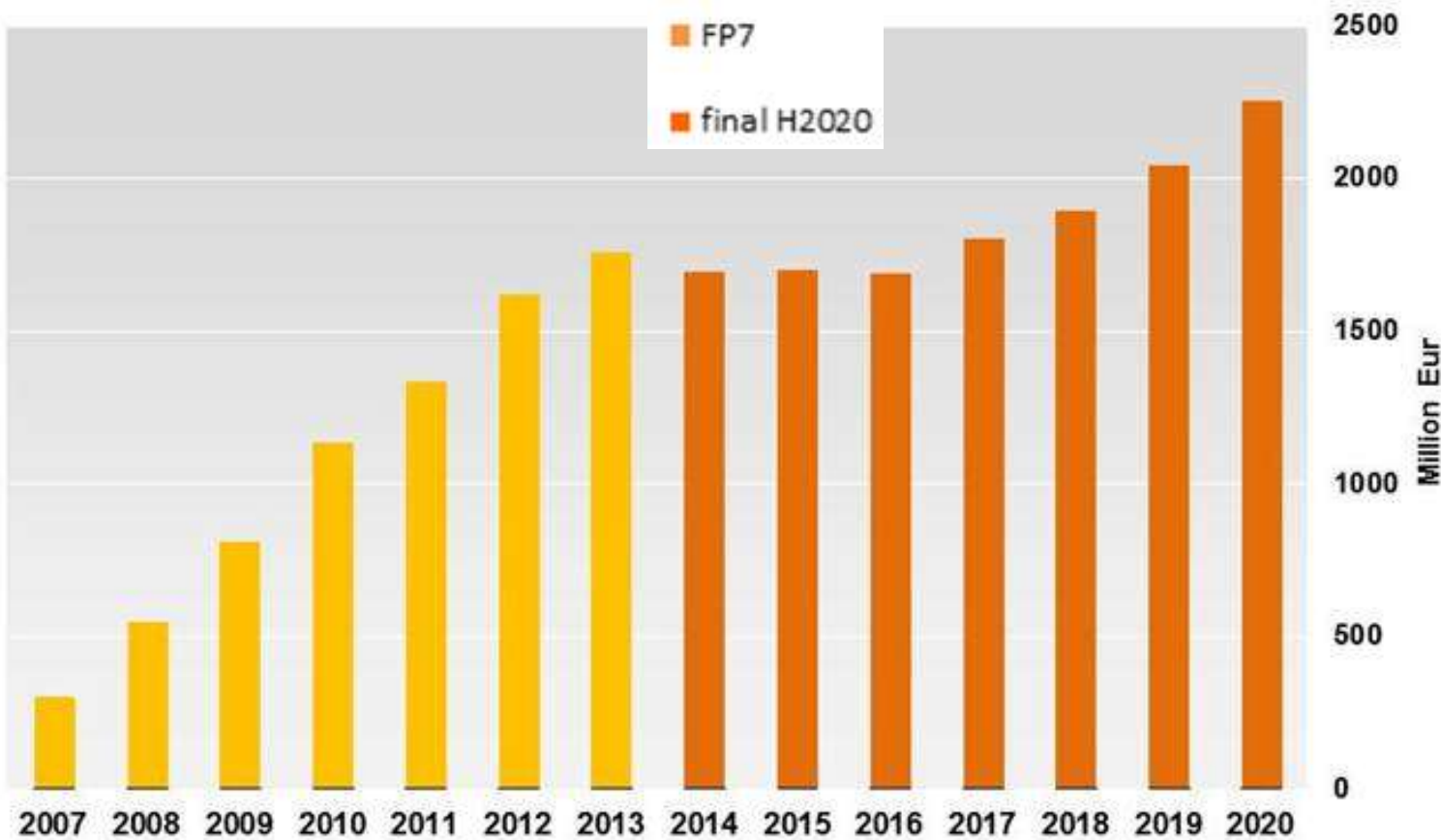
ERC in H2020

2014 – 2020 budget



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Romania at ERC

Romania at ERC

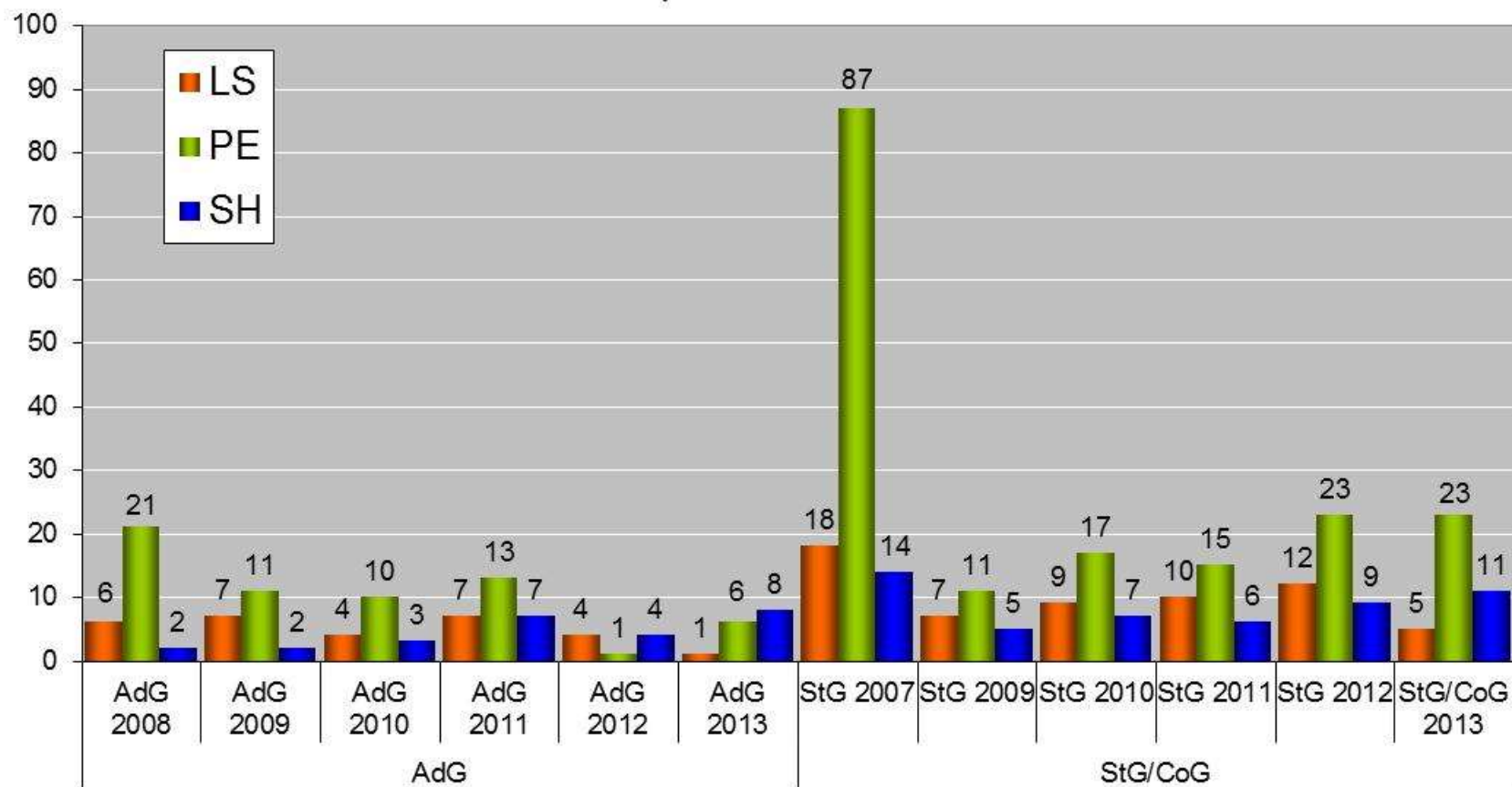
Evaluated proposals from Host Institutions in Romania



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406 evaluated proposals from host institutions in Romania,
by ERC call and domain



Romania at ERC

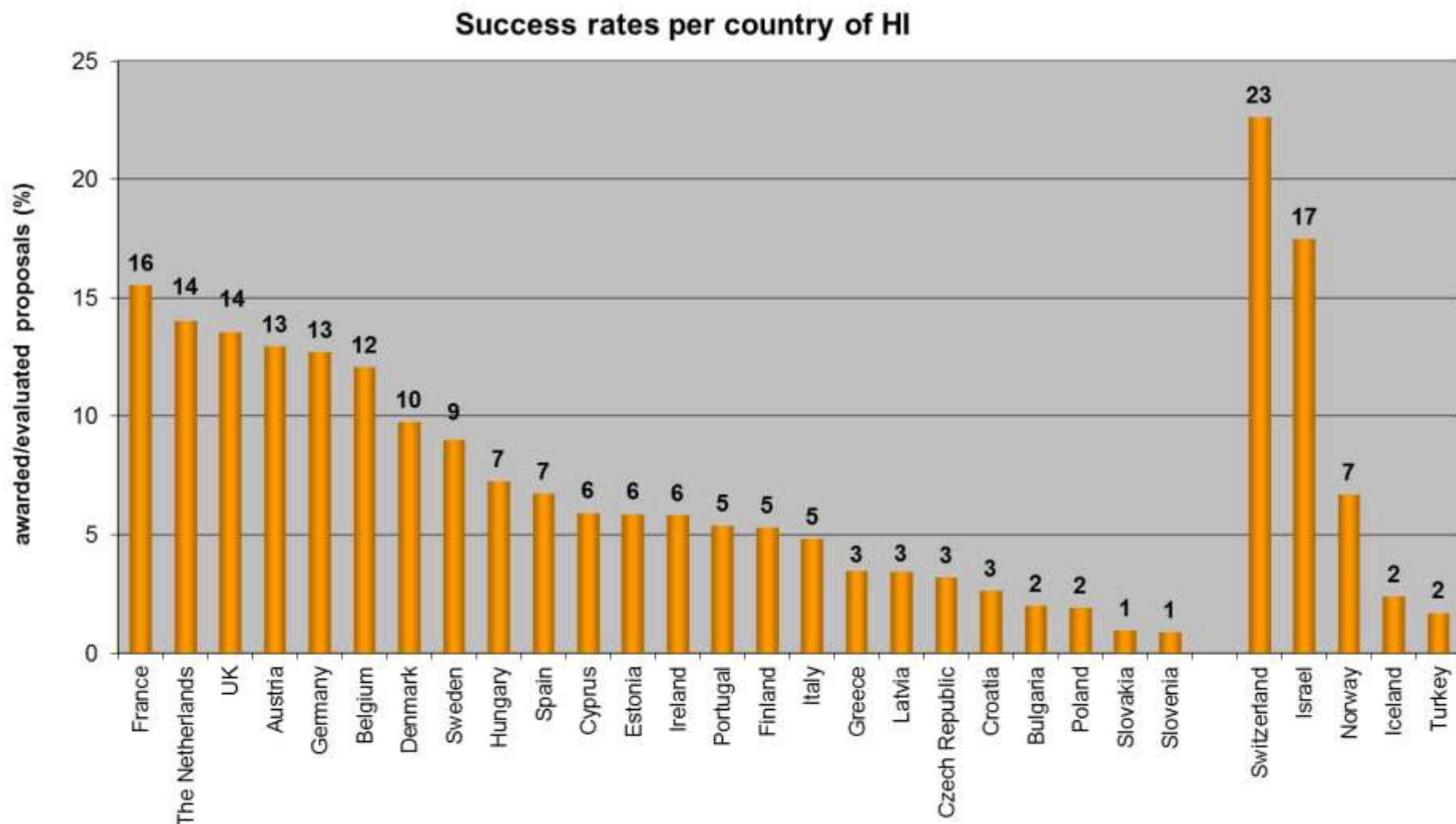
Success rates per country of Host Institution

No ERC grantee based at a Host Institution in Romania



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Romania at ERC

Mobility of researchers

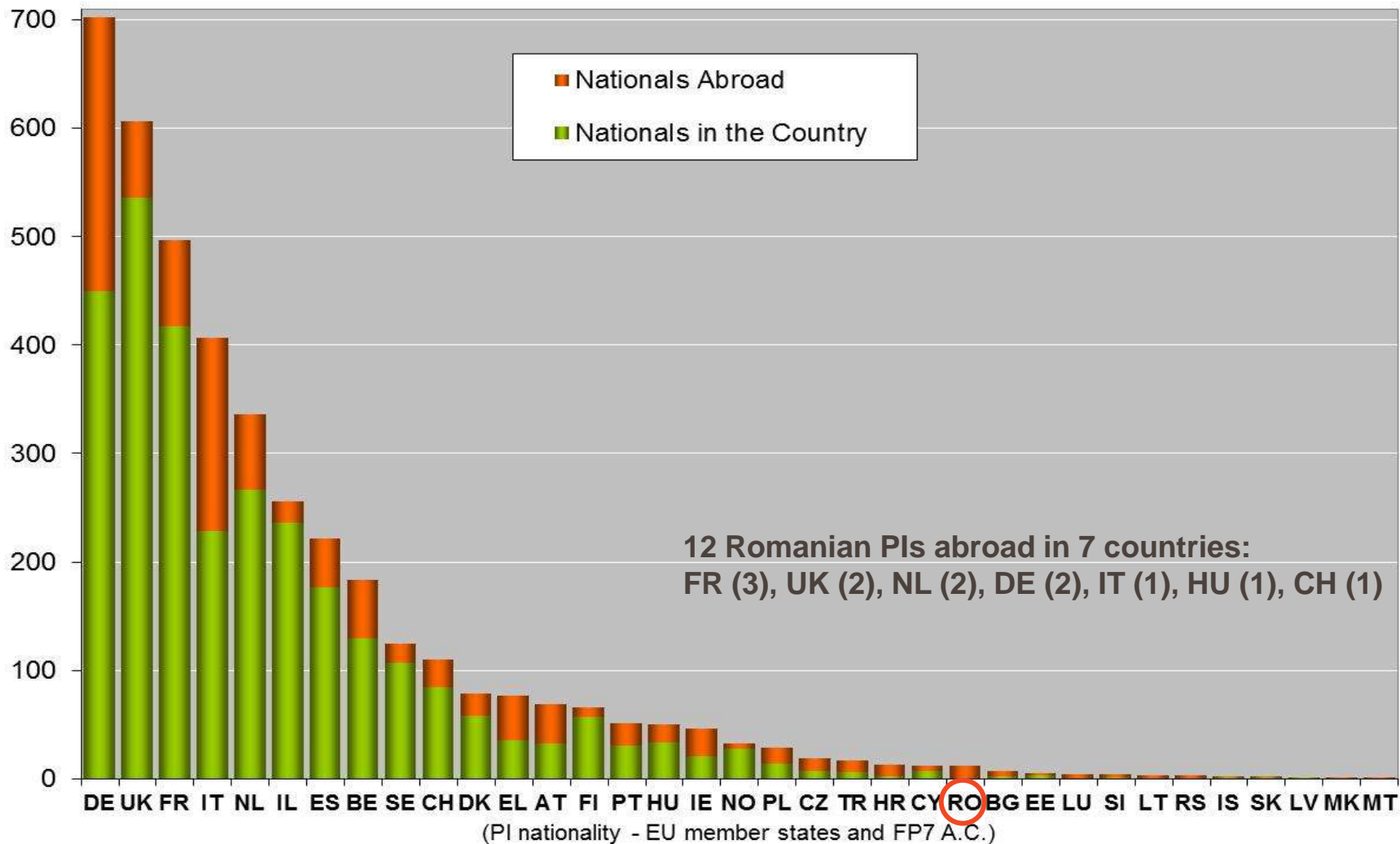
ERC StG, CoG and AdG calls 2007-2013



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Nationality as last declared by the principal investigator



Romania at ERC

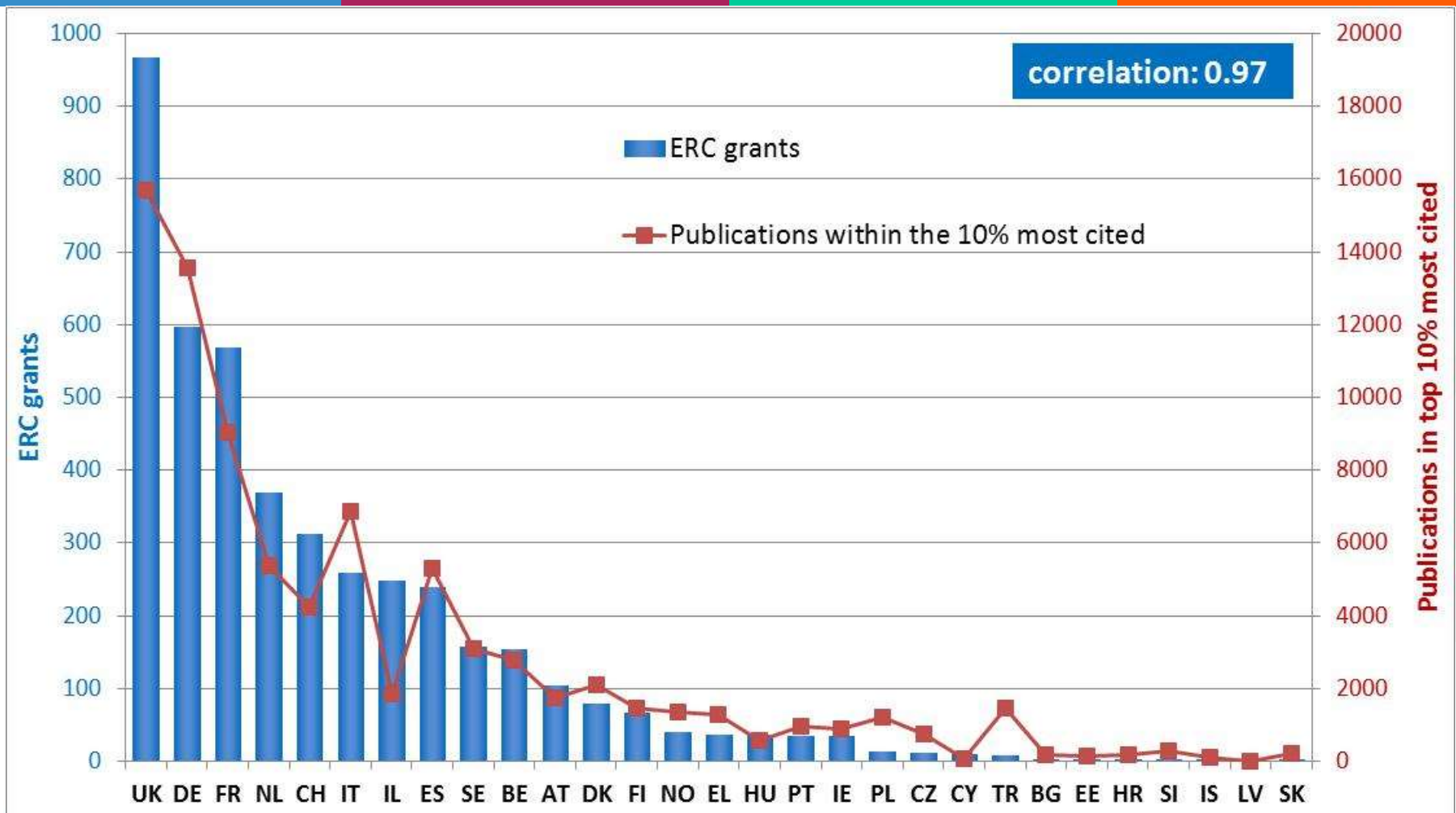
ERC grant distribution to countries of HI

ERC StG, CoG and AdG calls 2007-2013



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*) Host institution refers to the organisation with which the first grant agreement was signed | 31

Romania at ERC

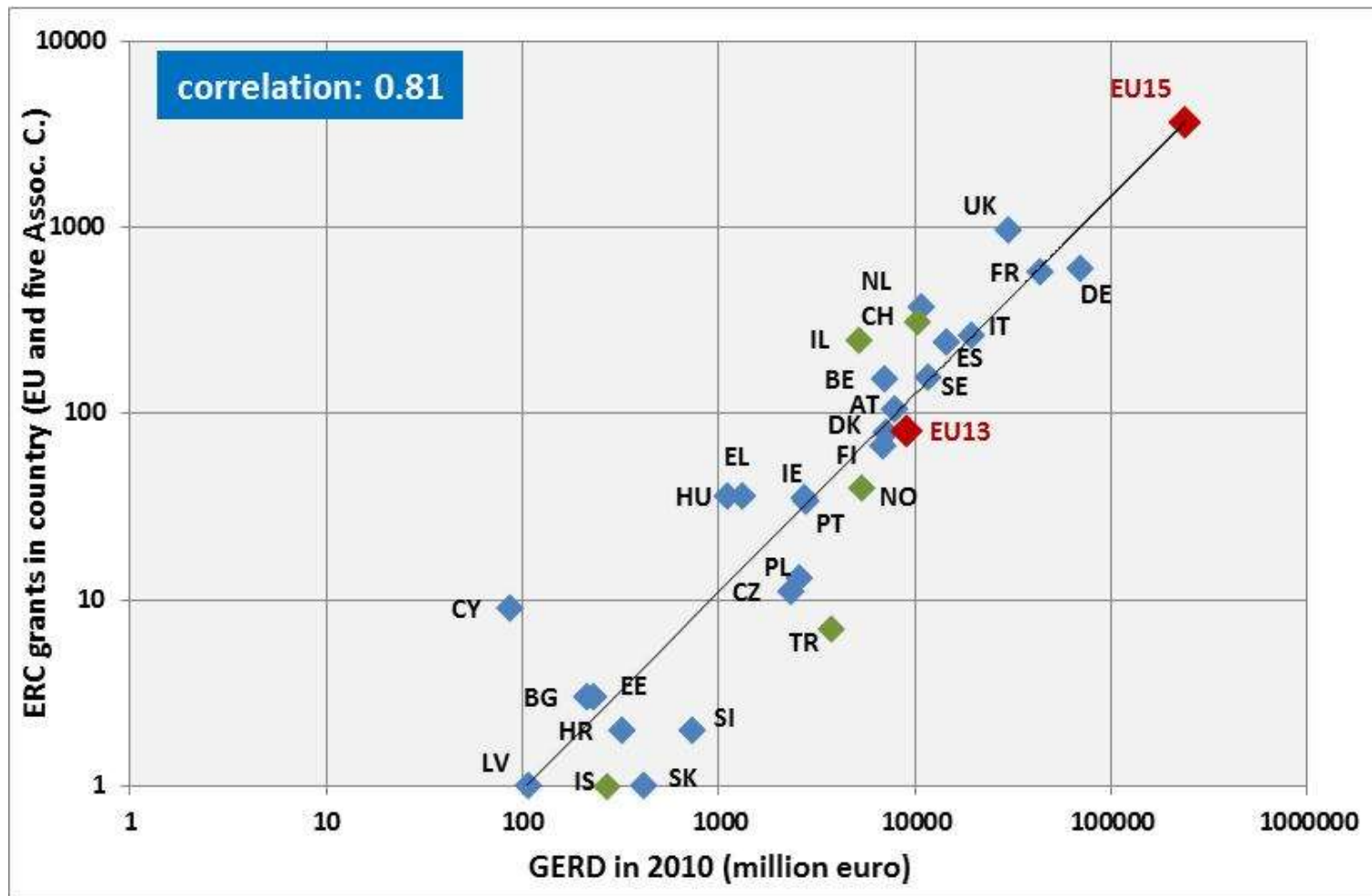
Distribution of ERC grants vs. R&D expenditure by country

ERC StG, CoG and AdG calls 2007-2013



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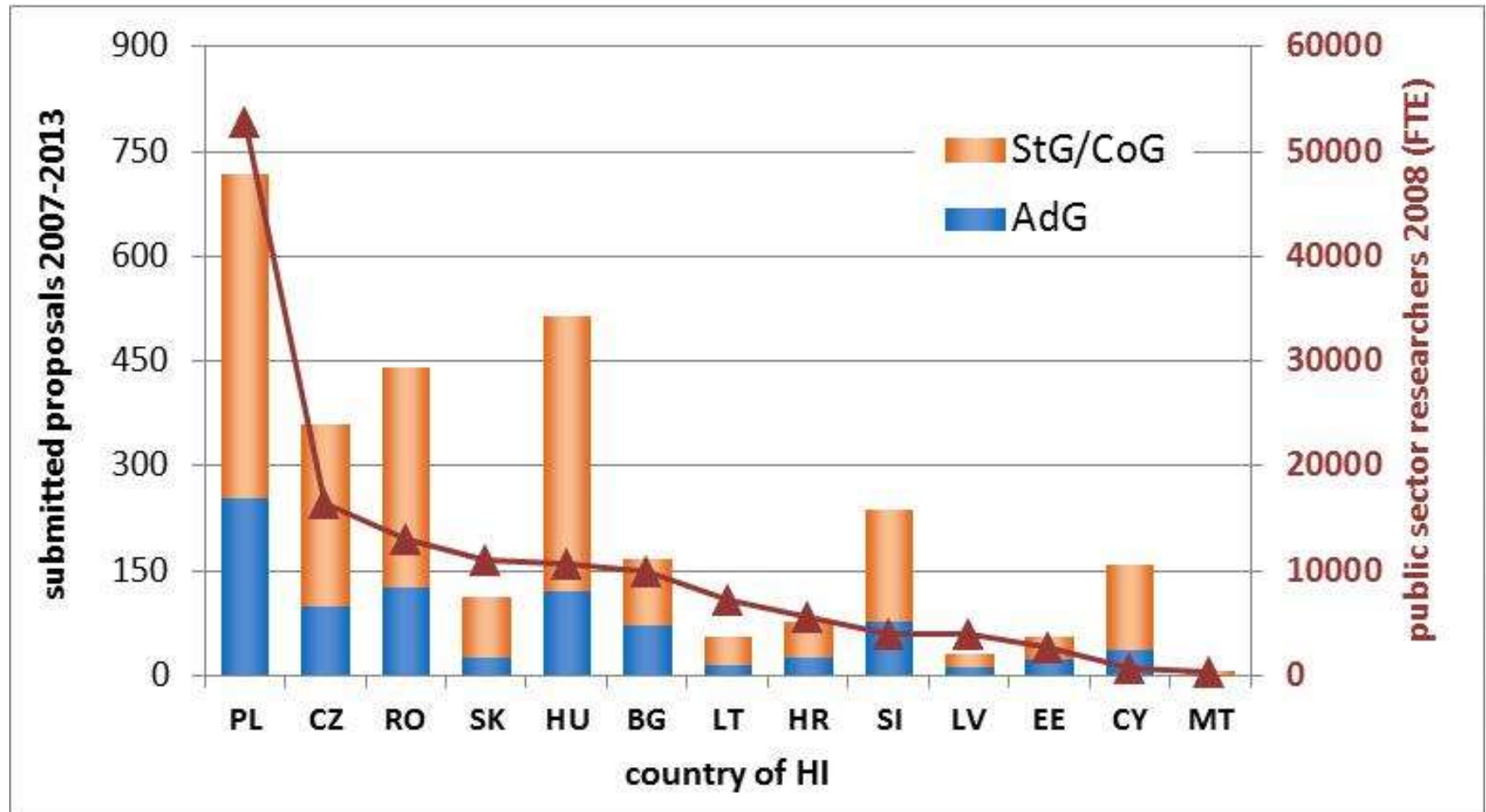


Romania at ERC

Submitted proposals with host institutions in newer member states (ERC calls 2007-2013)



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Romania at ERC

Participation of newer member states in ERC calls

ERC calls 2007-2013 (without Consolidator 2013)

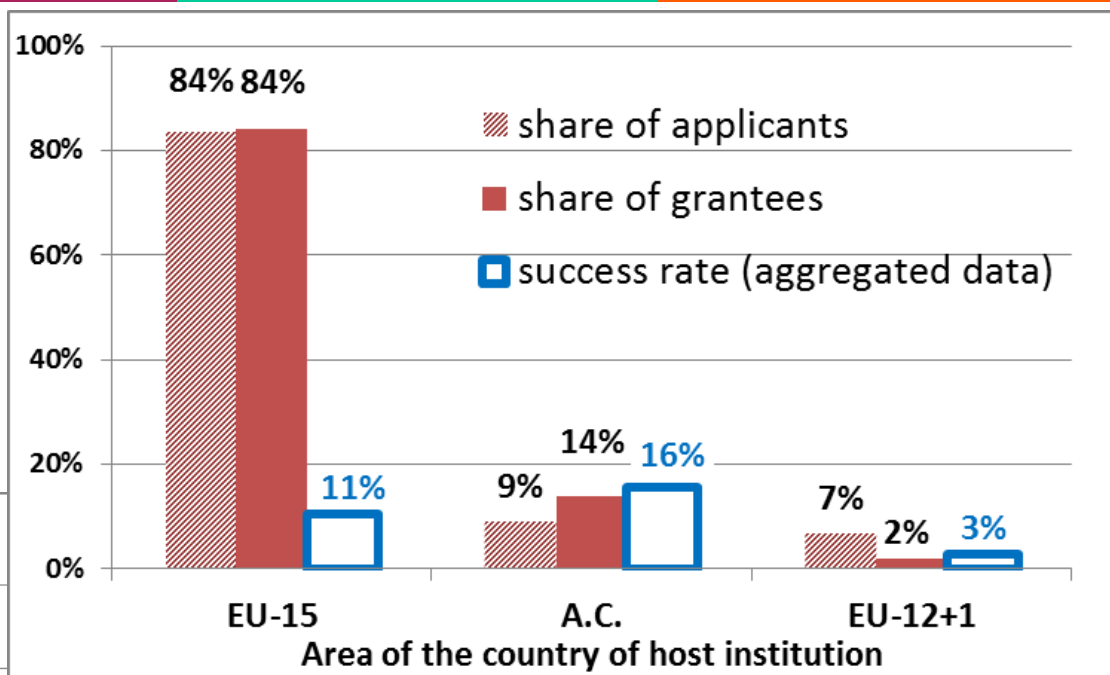


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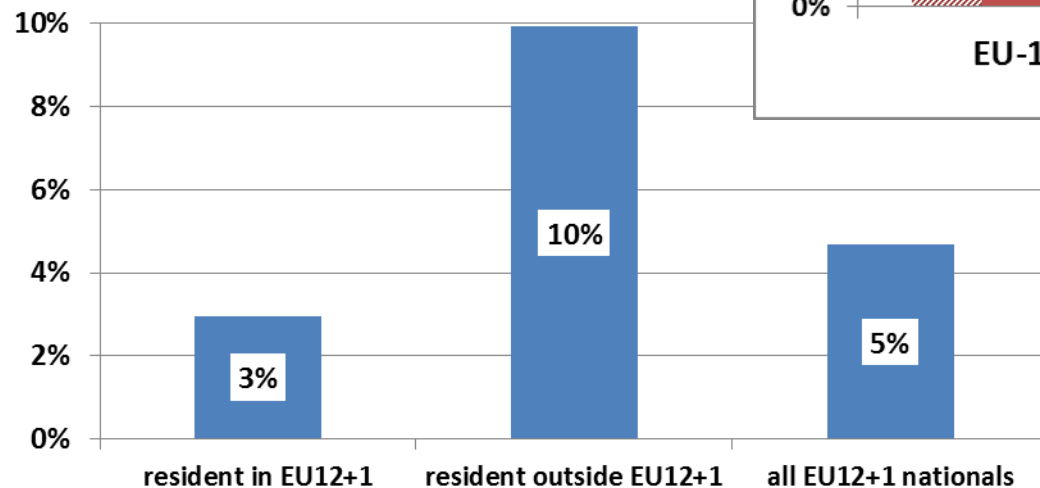
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Share of EU12+1 public researchers in EU&AC = **16%**

Share of EU12+1 GERD in EU&AC = **3%**



Success rate of EU12+1 nationals



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erc.europa.eu

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