The European Research Council

Klaus Bock - Vice President
ERC Scientific Council

EARMA – Bruxelles 17/04/2018
The ERC in a Nutshell

➢ Set up in 2007 by the EU, the ERC funds ambitious projects in frontier research. It aims at:
 ➢ Supporting high quality excellent frontier research throughout Europe in all scientific domains: Life Sciences (LS), Physical Sciences and Engineering (PE), and Social Sciences and Humanities (SH)
➢ Retaining and attracting the best scientific talent to Europe, by offering very substantial grants for up to 5 years
"to reinforce excellence, dynamism and creativity of research in Europe"

Europe has been lagging behind the USA in terms of research with the highest impact (articles among 1% most cited)


*Science and Engineering Indicators 2018*
ERC: a Radical Step Forward for Europe

- Created in 2007, ERC is the first pan-European funding body for blue sky research
- Competition for the best, creative researchers in EU or Associated Countries submitting their most ambitious projects

Strategy

- Only criterion: quality of research aiming for excellence
- Empowering individual scientists to pursue their best ideas
- International peer-review
- No pre-determined subjects (bottom-up)
- Frontier research in all fields of science and humanities
- High-risk/high-gain ambitious projects
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

- 21 prominent researchers proposed by an independent identification committee
- President appointed following recommendation of an independent 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
The ERC Scientific Council,

President
BOURGUIGNON
Jean-Pierre

Vice President
BOCK
Klaus

Vice President
KONDOROSI
Eva

Vice President
STOKHOF
Martin

BOVOLENTA
Paola

DONALD
Athene

MEHLHORN
Kurt

TAVERNARAKIS
Nektarios

WIEVIORKA
Michel

BUCKINGHAM
Margaret

JAJSZCZYK
Andrzej

ROMANOWICZ
Barbara

THORNTON
Janet

ZWIRNER
Fabio

CLARK
Christopher

JUNGWIRTH
Tomas

STENSETH
Nils

VERNOS
Isabelle

CRONE
Eveline

KRAMER
Michael

SUPERTI-FURGA
Giulio

VEUGELERS
Reinhilde
Horizon 2020 Budget and ERC

ERC Budget 2014-2020
€ 13 billion
ERC Grant Schemes

**Starting Grants**
- starters (2-7 years after PhD)
- up to € 1.5 Mio
- for 5 years

**Consolidator Grants**
- consolidators (7-12 years after PhD)
- up to € 2 Mio
- for 5 years

**Advanced Grants**
- track-record of significant research achievements in the last 10 years
- up to € 2.5 Mio
- for 5 years

**Synergy Grants** (re-launched 2018)
- 2 – 4 Principal Investigators
- up to € 10.0 Mio for 6 years

**Proof-of-Concept**
- bridging gap between research - earliest stage of marketable innovation
- up to €150,000 for ERC grant holders
Evaluation Panel Structure 2017
~10,000 proposals, ~1,000 grants
3 calls with 25 panels of 15 members,
Serve every second year for 4 terms.

Life Sciences
- LS1 Molecular and Structural Biology and Biochemistry
- LS2 Genetics, Genomics, Bioinformatics and Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology and Endocrinology
- LS5 Neurosciences and Neural Disorders
- LS6 Immunity and Infection
- LS7 Diagnostic Tools, Therapies and Public Health
- LS8 Evolutionary, Population and Environmental Biology
- LS9 Applied Life Sciences and Non-Medical Biotechnology

Physical Sciences & Engineering
- PE1 Mathematics
- PE2 Fundamental Constituents of Matter
- PE3 Condensed Matter Physics
- PE4 Physical and Analytical Chemical Sciences
- PE5 Synthetic Chemistry and Materials
- PE6 Computer Science and Informatics
- PE7 Systems and Communication Engineering
- PE8 Products and Process Engineering
- PE9 Universe Sciences
- PE10 Earth System Science

Social Sciences and Humanities
- SH1 Individuals, Markets and Organisations
- SH2 Institutions, Values, Environment and Space
- SH3 The Social World, Diversity, Population
- SH4 The Human Mind and Its Complexity
- SH5 Cultures and Cultural Production
- SH6 The Study of the Human Past
2/3 of ERC Grantees are Early in their Careers
ERC Funded Projects by Country of Host Institution

Host country (as of 05/12/2017)

- Advanced Grant
- Consolidator Grant
- Starting Grant

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Success Rate by Country of HI

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Advancing the Frontier of Knowledge

✓ In the **ex-post evaluation** conducted on completed ERC projects, 2/3 resulted in scientific breakthroughs or major advances.

✓ ERC grantees won prestigious awards: 6 Nobel Prizes, 3 Fields Medals, 5 Wolf Prizes,…

✓ 2/3 of the projects have an important degree of **interdisciplinarity**, and projects having made better contributions are more interdisciplinary.
This report is published to mark the 10th Anniversary of the establishment of the European Research Council (ERC). The analysis contained within makes clear that the ERC has contributed a great deal of high impact research to both the European and wider global research bases. The impact of the research supported by the ERC is very high and its support has been acknowledged by researchers engaged in ground-breaking research across multiple fields.
The first reported ERC publications began to appear in 2007 and since then publications acknowledging ERC funding have gone to contributing in 2014 to nearly 7% of EU top 1% most cited publications.
In 2014, for the first time, authors based in the EU appeared on more top 1% cited publications than authors based in US in absolute numbers.

**Shares of 1% most cited publications**

![Graph showing the shares of 1% most cited publications from 2005 to 2014 for different regions, including US, EU28 with ERC, EU28 without ERC, and ERC (EU28).]
"The 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 50 funders most frequently acknowledged by authors in the Web of Science between 2007 and 2016. Of the 100 most frequently acknowledged funders, only three (all large pharmaceutical companies) have a higher citation impact – though not substantially higher."

http://stateofinnovation.com/10th-anniversary-of-the-european-research-council-erc
Globally Outstanding

Output and impact of ERC-funded research compared to EU28 and the world

Source: Clarivate Analytics
Attracting Scientific Talent

✓ The ERC tackles the brain-drain by making Europe a more attractive place for bright minds
✓ Around 17% of the ERC team members are from non-EU countries
✓ 9 countries (including US, China, Korea, Brazil and South Africa) have signed specific agreements with the EU that allow ERC grantees to cooperate with young scientists from around the world
Nationality of ERC project teams (PIs not included)
Analysis of **1,901** Starting and Advanced Grants

EU: 71%
Assoc. Countries: 10%
non-ERA: 17%
unknown: 2%

In all ERC grants
+ **9,000** non-ERA team members, most from
**China, US, India, and Russia**
ERC Scientific Council
Standing Committees & Working groups

CoIME (Conflict of Interest & Research integrity)

CoP (Committee on Panels)

Gender balance

Open Access

Strengthening International participation

Widening European Participation

Innovation and relations with industry

Key Performance Indicators
The Secrets of a Success

✓ The evaluators: high-level scientists from all over the world.
✓ Scientific and financial independence of the grantees.
✓ The length of the grants giving room for being scientifically ambitious.
✓ The simplicity of the scheme and of the procedures.
✓ Efficient management by an autonomous Executive Agency.
✓ Empowering the Scientific Council: 22 scientists as decision makers.
Future Challenges

➢ Need for an enhanced budget for research in the next framework programme (ERC is ~1% of basic Research Funding in Europe)
➢ Enough room for curiosity-driven research in a bottom-up approach (Unfunded A’s about 30% of funded proposals)
➢ Schemes welcoming interdisciplinarity
➢ Need to preserve ERC main features and specificities
➢ Coordination with the programmes of national agencies
➢ Need to promote the impact of the ERC outside the scientific community
Scientific Council
Statement on ERC in FP9

✓ Continuity
✓ Agility
✓ Scale-up

➢ Continuity:
✓ Of structure from the current legal framework
✓ Of governance arrangements: independence of Scientific Council and operational autonomy

➢ Agility:
✓ To innovate and adapt its scientific strategy
✓ To manage its resources flexibly
✓ To use tailor made tools and procedures when necessary

➢ Scale-up:
✓ To turn ERC into one of Europe's main funders
✓ To ensure appropriate success rates
✓ To support more Europe's top-performing researchers
ERC and FP 9
Building on a European Success Story to empower further European researchers

• **Continuity**
  • an appropriate legal framework establishing/continuing the autonomy of the ERC

• **Agility**
  • This agility is necessary to allow the ERC to continue to innovate and adapt its procedures

• **Scale up**
  • the ERC needs a minimum budget of €4 billion per annum and the ERCEA to be given the capacity to hire the relevant personnel to deal with it.
More top talent to fund!

Average of > 400 unfunded top projects each year
ERC Synergy Grants 2019
Budget 400 mio. Euro

- **Objective**: breakthroughs that would not be possible by the individual PIs working alone

- **Grant size**: Up to €10M over 6 years (possibility of additional €4M)

- **Synergy Details**
  - 2-4 PIs of any nationality at any career stage
  - One PI designated as corresponding PI (cPI)
  - Ambitious research projects - new methods, approaches, techniques, research at the interface between disciplines, unconventional approaches, cross-fertilising scientific fields etc
  - 30% of PI's time in the project + 50% in the EU or AC
Believes that the next MFF should see a greater concentration of budgetary resources in areas that demonstrate a clear European added value and stimulate economic growth, competitiveness, sustainability and employment across all EU regions; stresses, in this context, the importance of research and innovation in creating a sustainable, world-leading, knowledge-based economy, and regrets that, due to the lack of adequate financing, only a small proportion of high-quality projects in this field have received EU funding under the current MFF; Calls, therefore, for a substantial increase in the overall budget earmarked for the FP9 programme in the next MFF, which should be set at a level of at least EUR 120 billion; considers this level to be appropriate for securing Europe’s global competitiveness and scientific, technological and industrial leadership, for responding to societal challenges, and for helping to achieve the EU’s climate goals and the SDGs; calls, in particular, for efforts to stimulate breakthrough, market-creating innovation, notably for SMEs;
“Horizon 2020 est aussi un programme clé pour la croissance et le développement des entreprises européennes. Nous y consacrons actuellement 80 milliards d’euros. Si nous décidions de faire passer ce montant à 120 milliards dans le prochain budget, cela permettrait, d’ici à 2040, de créer 420.000 emplois supplémentaires et d’accroître le PIB de 0,3%. Si nous allions jusqu’à 160 milliards cela se traduirait par la création de 650.000 emplois d’ici à 2040 et par un accroissement du PIB de 0,5%. Et l’Union européenne serait alors l’un des principaux acteurs mondiaux dans les domaines de la recherche et de l’innovation.”
After 10 Years, a Success Story
A smaller Miracle for European Policy!

- Over **8,000** top researchers funded since the ERC’s creation in 2007
- Over **50,000** researchers and other professionals employed in ERC research teams
- **€ 13 billion** ERC budget for 2014-2020 under Horizon 2020
- Over **90,000** articles from ERC projects published in prestigious scientific journals
- **745** research institutions hosting ERC grantees – universities, public or private research centres in the EU or associated countries
- **73** nationalities of grant holders
The European Research Council

• More information: erc.europa.eu

• National Contact Point: erc.europa.eu/national-contact-points

• Sign up for news alerts: erc.europa.eu/keep-updated-erc

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  www.linkedin.com/company/european-research-council
Researchers career development and complementary funding schemes

- Post-docs
- Senior Professor
- ERC CoG – Consolidators
- Full Professor
- ERC AdG - Advanced
- Marie Curie
- Junior Professor/ Junior Researcher
- Associated Professor
- Proof of Concept Grants
- Erasmus
- Post-graduates
- Post-docs
- Students
Focus on people

If you let the **best people** grapple with the problems they are **passionate** about, we set the stage for **real scientific breakthroughs**.
Focus on people

Excellence

Flexibility

Trust

Transparency
Rules for Success

✓ There is no satisfactory substitute for excellence
✓ Absolute integrity in everything
✓ Everything in moderation including moderation itself
✓ Hire the best people and then get out of their way
✓ Don’t take yourself too serious
The ERC Proof of Concept grant
PoC – what is it?

**Who can apply:** Holders of an ERC grant with an idea substantially drawn from an ERC-funded project

**What for:** establish the innovation potential of the idea: technical validation, market research, clarifying IPR strategy, investigating business opportunities

**Amount:** €150,000 per grant (18 months) Lump sum. Total budget for 2018: € 20 million

**Evaluation:** Experts in technology transfer check the innovation potential and that the plan is reasonable
PoC – some figures

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget 10ml</th>
<th>Budget 15ml</th>
<th>Budget 20ml</th>
<th>Total</th>
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<tr>
<td>2017</td>
<td>497</td>
<td></td>
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</tbody>
</table>

Proposals*: 139, 120, 279, 426, 323, 408, 497
Funded: 51, 60, 67, 121, 160, 159, 154
Success: 37%, 50%, 24%, 28%, 49%, 39%, 31%

* withdrawn and ineligible not taken into account

- Steady increase in the number of applications (from ≈ 140 to ≈ 500 per year)
- Increase in the annual budget (from 10m to 20m)
- It attracts ≈12% of ERC grantees; ≈ 5% of them hold a PoC
- 3 deadlines per year – only 1 eligible application per PI, per year
- ≈ 770 PoC projects funded by end-2017 (average 35% success rate)
Distribution of ERC Grants by Panel 2007-2015
What does ERC offer?

ERC Grant Schemes

**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

**Synergy Grants**
- New
  - 2-4 PIs up to €10 million for 6 years to lead to breakthroughs that cannot be achieved by a PI working alone
# How to prepare & submit an ERC research proposal

## Proposal structure

### PART A – online forms
- **A1** Proposal info
- **A2** Host Institution and PI info
- **A3** Budget
- **A4** Ethics Issues
- **A5** Call Specific Info (doctoral training, extensions, excluded reviewers etc.)

### Annexes – submitted as .pdf
- HI support letter
- Copy of PhD title
- Documents for extension of eligibility window

### PART B1 – submitted as .pdf
- Extended Synopsis 5 p.
- CV 2 p.
- Early Achievements Record 2 p. (incl. up to 5 publications)

### PART B2 – submitted as .pdf
- Scientific Proposal 15 p.
  - State of the Art & Objectives
  - Methodology
  - Resources

---

**Read the Information to Applicants**
How to prepare & submit an ERC research proposal

ERC Panel structure

Each panel:
Panel Chair and 10-16 Panel Members

Social Sciences and Humanities
- SH1 Individuals, Markets and Organisations
- SH2 Institutions, Values, Environment and Space
- SH3 The Social World, Diversity, Population
- SH4 The Human Mind and Its Complexity
- SH5 Cultures and Cultural Production
- SH6 The Study of the Human Past

Life Sciences
- LS1 Molecular and Structural Biology and Biochemistry
- LS2 Genetics, Genomics, Bioinformatics and Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology and Endocrinology
- LS5 Neurosciences and Neural Disorders
- LS6 Immunity and Infection
- LS7 Diagnostic Tools, Therapies & Public Health
- LS8 Evolutionary, Population and Environmental Biology
- LS9 Applied Life Sciences and Biotechnology

Physical Sciences & Engineering
- PE1 Mathematics
- PE2 Fundamental Constituents of Matter
- PE3 Condensed Matter Physics
- PE4 Physical & Analytical Chemical Sciences
- PE5 Synthetic Chemistry and Materials
- PE6 Computer Science & Informatics
- PE7 Systems & Communication Engineering
- PE8 Products & Process Engineering
- PE9 Universe Sciences
- PE10 Earth System Science
Evaluation of proposals:
Review procedure for StG, CoG and AdG

STEP 1
Remote assessment by Panel members of section 1 – PI and synopsis (part B1)
Panel meeting
Score: B or C
Proposals retained for step 2: Score A

STEP 2
Remote assessment by Panel members and reviewers of full proposal (B1+B2)
Panel meeting + interview (StG and CoG)
Score: B
Ranked list of proposals: Score A

Feedback to applicants
How ERC research proposals are evaluated

Excellence is the sole evaluation criterion

Evaluation of *excellence* at two levels:

- **Excellence of the Research Project**
  - Ground breaking nature
  - Potential impact
  - Scientific Approach

- **Excellence of the Principal Investigator**
  - Intellectual capacity
  - Creativity
  - Commitment
How to prepare & submit a SyG proposal?

Proposal structure

**PART A – online forms**

A1 Proposal info
A2 Host Institution and PI info
A3 Budget
A4 Ethics issues table
A5 Call Specific information

**PART B1 – submitted as .pdf**

Extended Synopsis 5 pages
CVs (2 pages/PI)
Track Records (2 pages/PI)
  Early Achievements (StG and CoG)
  10-year Track-Record (AdG)

**PART B2 – submitted as .pdf**

Scientific Proposal 15 pages
  State of the art and objectives
  Methodology
  Resources*

* if required

**Annexes – submitted as .pdf**

HI support letter
Ethics documentation*

* not included in page limit

Read the Information to Applicants
SyG Proposal

Applications must demonstrate:
- how the project will create synergies and added value
- why/how the research could not be carried out by a single PI alone

Emphasise:
- how the synergies lead to more original and path-breaking research
- new types of joint effort/work
- innovative ways of working together
Evaluation

Excellence - only criterion: research project and PIs
  - synergistic aspects evaluated as part of research project

No predefined panels - different from other ERC calls

cPI lists 4-6 keywords - descriptors for other calls

3 step evaluation process
SyG Evaluation Process

**Step 1**
- Single panel
  - ≤~700 proposals
- Remote evaluation of short proposals
  - SyG PMs + PEVs (PMs of other calls)
- SyG panel chairs meet: preselect proposals for full review
  - No of proposals: 130-170, up to ~7x call budget

**Step 2**
- 5 panels dynamically formed
  - ~130-170 proposals
- Remote evaluation of full proposals
  - SyG PMs + external specialised reviewers
- Panels meet: preselect proposals for interview
  - No of proposals: ~60, up ~3x call budget

**Step 3**
- max 5 interview panels dynamically formed
  - ~60 proposals
- PMs reassess the retained proposals
  - based on step 2 reports + interviews
  - Interviews: all PIs of all proposals in step 3 to be present in Brussels
- Panels rank the fundable proposals
  - ~30 proposals
Re-Application Restrictions

Re-Application restrictions

PI with a proposal evaluated as Category C in Step 1 in SyG2018

Cannot re-apply to StG, CoG, AdG or SyG in 2019
OR for SyG in 2020

PI with a proposal evaluated as Category B in Step 1 OR Step 2 in SyG2018

Cannot re-apply to SyG in 2019
Preparing your proposal:
Tips - Differences between Parts B1 and B2

In Step 1: Panel members see only Part B1 of the proposal (prepare it accordingly!)

- Pay particular attention to the **ground-breaking nature** of the research project – no incremental research. State-of-the-art is not enough. Think big!
- Know your competitors – what is the **state of play** and why is your idea and scientific approach outstanding?
- **Part B1:** **concise and clear presentation** is crucial (not all evaluators are experts in your field)
- Outline of the **methodological approach is recommended** (feasibility assessment)
- Show your **scientific independence** in your CV (model CV provided in the part B1 template)
- Select the 'right' Panel – very **IMPORTANT!**, ID explanation for 2nd panel
Preparing your proposal:

Tips - Differences between Parts B1 and B2

In Step 2: Both Part B1 and B2 are read by Panel Members & Remote Referees

Do not just repeat the synopsis, go into details

- Provide **sufficient details** on methodology, work plan, selection of case studies etc. (15 pages)
- Explain hypothesis or provide preliminary data (if exists)
- Make sure you give full references (excluded from page limits)
- Provide alternative strategies to **mitigate risks**
- Check coherency of figures
- Justify requested resources
  - Explain involvement of team members (ERC proposals are NOT collaborative ones)
  - show the need of collaborators (if any)
Preparation your proposal: Tips - Part B2: Proposal budget considerations

- Budget analysis carried out in **Step 2** evaluation (meeting)
- Panels have responsibility to ensure that resources requested are reasonable and well justified
- Panels do not 'micro-manage' project finances
- Budget cuts need to be justified on a proposal by proposal basis (no across-the-board cuts)
- But **not explained costs are often cut**!
- Panels to recommend a final maximum budget based on the resources allocated/ removed
- **Ask for funding for Open Access** – this is obligatory in Horizon 2020!
Contrary to what you may think.....

- ERC funds 'frontier research', including applied research
- The budget is distributed among the scientific panels as a function of demand.
- The panel descriptors do not represent ERC scientific priorities.
- The success rate is virtually flat across the eligibility window (StG, CoG).
- Publication record is not decisive in selection decisions.
- The Host Institution is not an evaluation criterion.
All calls 2007-2017*
Signed grants from the main calls by country of institution

*work in progress
## All calls 2007-2017*

Signed grants from the main calls

*work in progress

<table>
<thead>
<tr>
<th>Institution (*legal entity)</th>
<th>Country</th>
<th># signed grants from main calls</th>
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<td>*Max Planck Society</td>
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# Signed grants from the main calls

*work in progress

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<td>*CSIC - Spain</td>
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<td>Karolinska Institute</td>
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### Indicative summary main calls 2018 budget

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<th>Submission Deadline</th>
<th>Budget € M (est. grants)</th>
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<td><strong>Starting Grants</strong></td>
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<td>ERC-2018-StG</td>
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<td>17 October 2017</td>
<td>581 (391)</td>
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<td>ERC-2018-CoG</td>
<td>24 October 2017</td>
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<td>ERC-2018-AdG</td>
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<td>30 August 2018</td>
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<td><strong>Synergy Grants</strong></td>
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<td>ERC-2018-SyG</td>
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