

Royal Society Te Apārangi information session on Human Frontier Science Programme (HFSP)

Troels Petersen, Royal Society Te Apārangi

Jasna Rakonjac, Massey University

Vic Arcus, University of Waikato



**CATALYST
FUND**

Advancing global science partnerships
for New Zealand

EXPLORE | DISCOVER | SHARE

ROYAL
SOCIETY
TE APĀRANGI

Human Frontier Science Programme

The information session will discuss:

- What is the Human Frontier Science Program (HFSP)
- Projects and Fellowships Funding available from HFSP and key dates
- Advice on how to submit a successful HFSP application - what to do and what NOT to do!
- Available New Zealand support for submitting a competitive application (mock panel)

Presenters:

- Troels Petersen, Royal Society Te Apārangi
- Professor Jasna Rakonjac, Massey University
- Professor Vic Arcus, University of Waikato

Both Jasna and Vic are former HFSP review committee members

International Collaboration in Life Science Research

Supported by 17 members

History

The heads of state of the G7 nations approved the proposal by former Prime Minister Nakasone of Japan for establishing the organization at their 1987 summit in Venice.

The international scientific community discussed the scope of the Program and in 1989 the Secretariat started working in Strasbourg (France) to prepare the first awards for 1990.

The original supporting Members were the countries of the **G7**, together with the **EU**. **Switzerland** joined in 1991. **Australia, the Republic of South Korea, India, New Zealand, Singapore, Israel, Norway** and **South Africa** have joined since 2004.

International Collaboration in Life Science Research

New Zealand HFSP membership

- Supported by MBIE
- Administrated by Royal Society Te Apārangi

Troels Petersen – current NZ Board member

Professor Kurt Krause – Current NZ Council of Scientists Member

International Collaboration in Life Science Research

A word cloud centered around the text "Life Science Frontier". The words are arranged in a circular pattern around the central text. The words include: "Innovative", "Transformative", "Excellent", "Novel", "Impactful", "Shift in Research Direction", "Expanding Comfort-Zone", "Original", "Fundamental", "Unique", "Paradigm-Shifting", "Basic", and "High-Risk". The words are in various colors (blue, green, purple) and sizes, with "Frontier" being the largest and most prominent.

Life Science Frontier

International Collaboration in Life Science Research

Basic fundamental research
+
Bold (Crazy) idea
+
No impact statements allowed
=
HAVE FUN

What does HFSP support



Interdisciplinarity: integration of different research fields



Innovative, original projects that hold promise for the future



International (intercontinental) collaborations



Scientific research at the frontiers of knowledge



Competitive ideas: high-risk, high-gain (no preliminary data)



Scientific excellence



Any frontier research topic in the life sciences

Bold new ideas; questions that can only be solved by combining disciplines

International; 2-4 Principal Investigators

Interdisciplinary

HFSP funding opportunities

Research Grants (Program or Early Career)

- 3 years
- 300,000 US\$ (team of 2) to 500,000 US\$ (team of 4, maximum) per year

Postdoctoral Fellowships

- Long-Term Fellowships - for applicants with a PhD in a biological field to embark on a new project in a different area in the life sciences
- Cross-Disciplinary Fellowships - for applicants with a PhD from outside the life sciences who want to move to biological research - no prior training or research experience in the life sciences
- 3 years (of which the last year can be taken in your home country) (Funding depends on country)

HFSP does not support research projects that are:

- Applied and translational:
 - medical, clinical and pharmaceutical research applied technology or applied engineering
 - studies concerned with improving agricultural production and yield
- Environmental/conservation or agricultural/forestry research
- Data collection, observational studies
- Research in for-profit environments (but collaborations are possible)
- Business as usual



HFSP Research Grants

All Research Grants

- team grants for 2-4 scientists
- any basic topic at the frontiers of the life sciences
- a research question that is new for all team members

Research Grants – Program

- scientists at any career stage in their independent career

Research Grants – Early Career

- all team members must be:
 - within 5 years of their first independent position
 - within 10 years after PhD

Accelerator Grants

- allow awarded teams to add a member from one of 7 eligible countries: India, South Africa, South Korea, Singapore, Japan, New Zealand and Norway



International

Human Frontier
Science Program

Organization

What does an HFSP grant look like?

Stimulate

Stimulate novel, daring ideas and innovative approaches in basic life sciences

- preliminary results not required and not wanted
- Investigator driven, no priority areas

Include

Include scientists from outside the life sciences in the team

- to bring new understanding and methodology
- international/intercontinental teams

Develop

Develop new lines of research through new interdisciplinary collaborations

- working together on bold, novel, potentially transformative ideas
- Solve problems that a single lab could not tackle



Developing your grant proposal -Do

Build an international, intercontinental team – start NOW

Each team member should bring a unique approach, and be essential to the team

Think of a question at the absolute frontier of your field and new for yourself

Demonstrate that close, ongoing interaction between team members will happen

Clearly articulate the iterations between theoretical and experimental work

If models are included, give clear information on approaches



International

Human Frontier
Science Program

Organization

Developing your grant proposal – Don't

Propose “The next logical step” in your or another team member’s ongoing research

Propose research that can be funded by your national research funding agencies

Develop collaborations within a single country

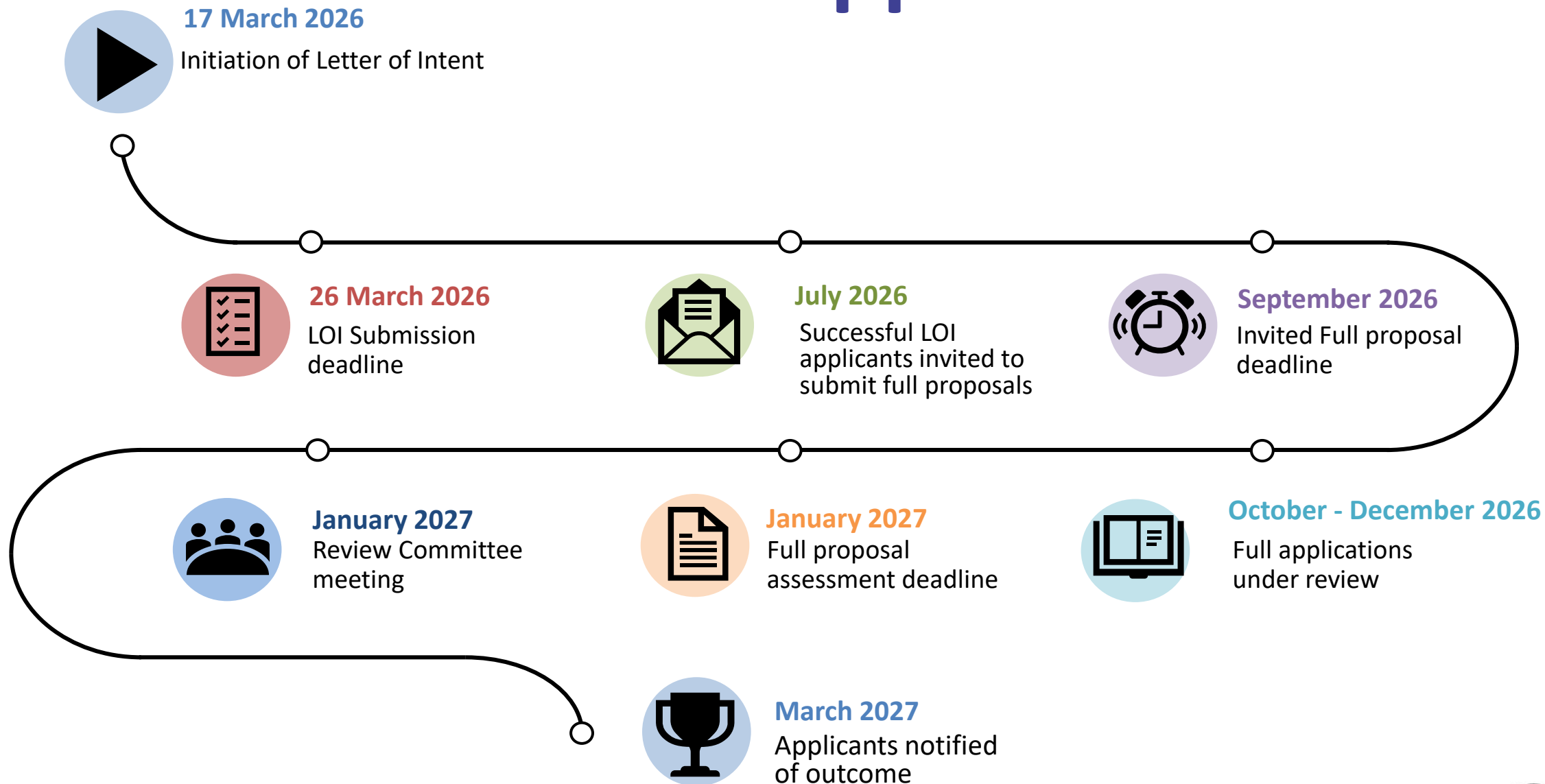
Include more than one member from the same institution

Add someone famous for the name, not the contribution

Start with “we will improve the therapy of...” or “we will cure the ...” – the **research question must be basic**, potential for translation but should not be the focus



Research Grants- Next Call for Applications



Research Grants- Review Process

Letters of Intent:

1. Initiation deadline **17 March 2026**
2. Submission deadline **26 March 2026** (700-1200 Letters of Intent)
3. Peer screening for scientific scope, those out of scope are rejected at this stage
4. Review by 2 Review Committee members
5. Discussion of ~250 most promising LOIs by Selection Committee
6. 80 - 100 invitations to submit proposal (beginning of July)
7. Notification to all teams mid-July

Invited Full Proposals

1. Submission deadline **mid-September 2026**
2. Reviewed by up to 6 external experts
3. Reviewed and ranked by 3 Review Committee members
4. Discussed at the Review Committee meeting end of January
5. Approval by Board of Trustees (late March)
6. Notification **end of March 2027**



HFSP Postdoctoral Fellowships

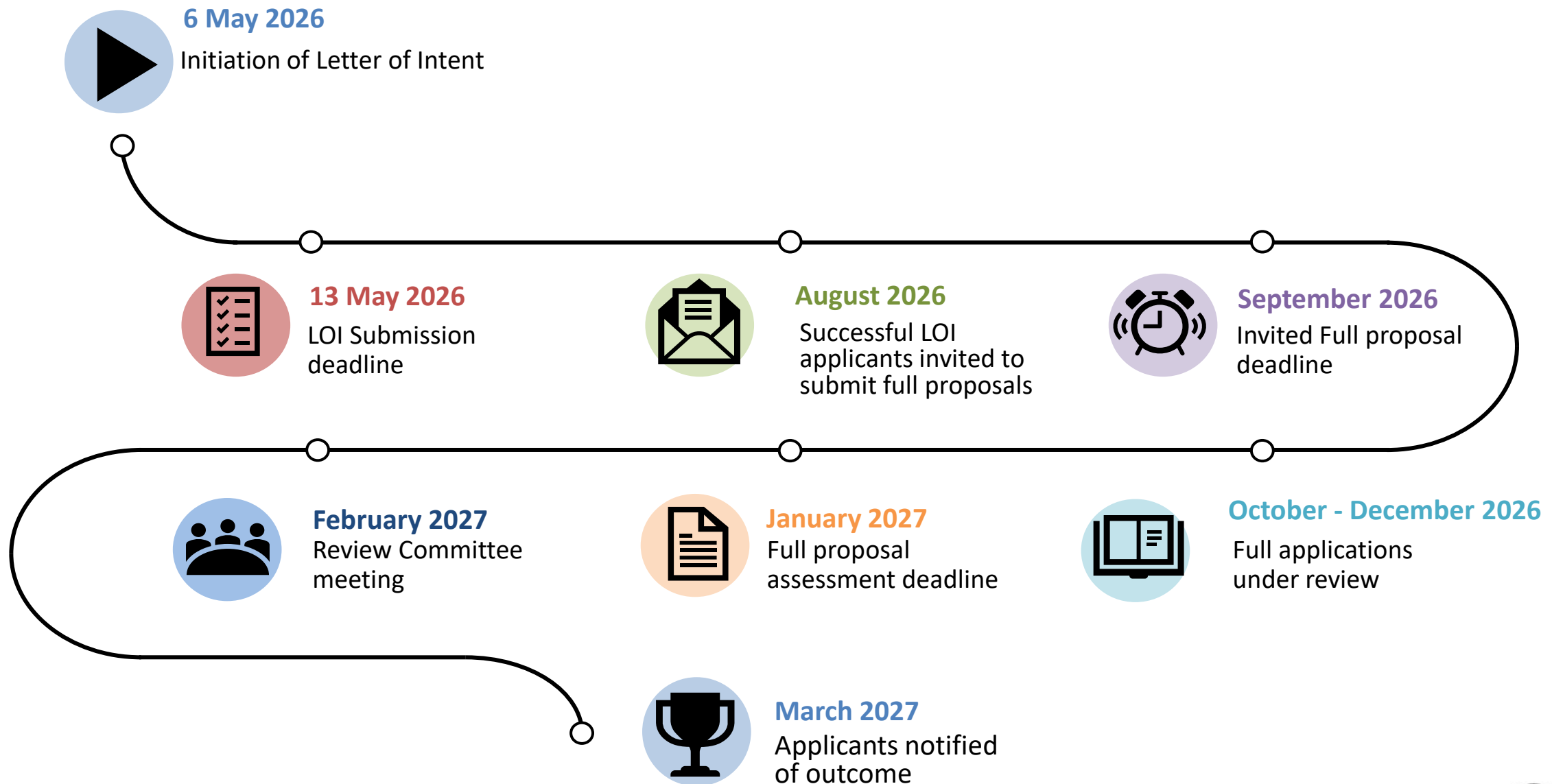


For early career researchers (within 3 years of PhD) that:

- are driven by **adventurous** new ideas (high-risk, high-gain)
- intent to **expand** their work **beyond the scope of the PhD project**
- are willing to **leave their scientific comfort zone** and propose a significant change of fields/topics
- are motivated to **move to a new research environment & country**
- want to experiment with new methods and approaches
- aim to **disrupt existing paradigms** and established ways of thinking



Fellowships- Next Call for Applications



NZ testimonials

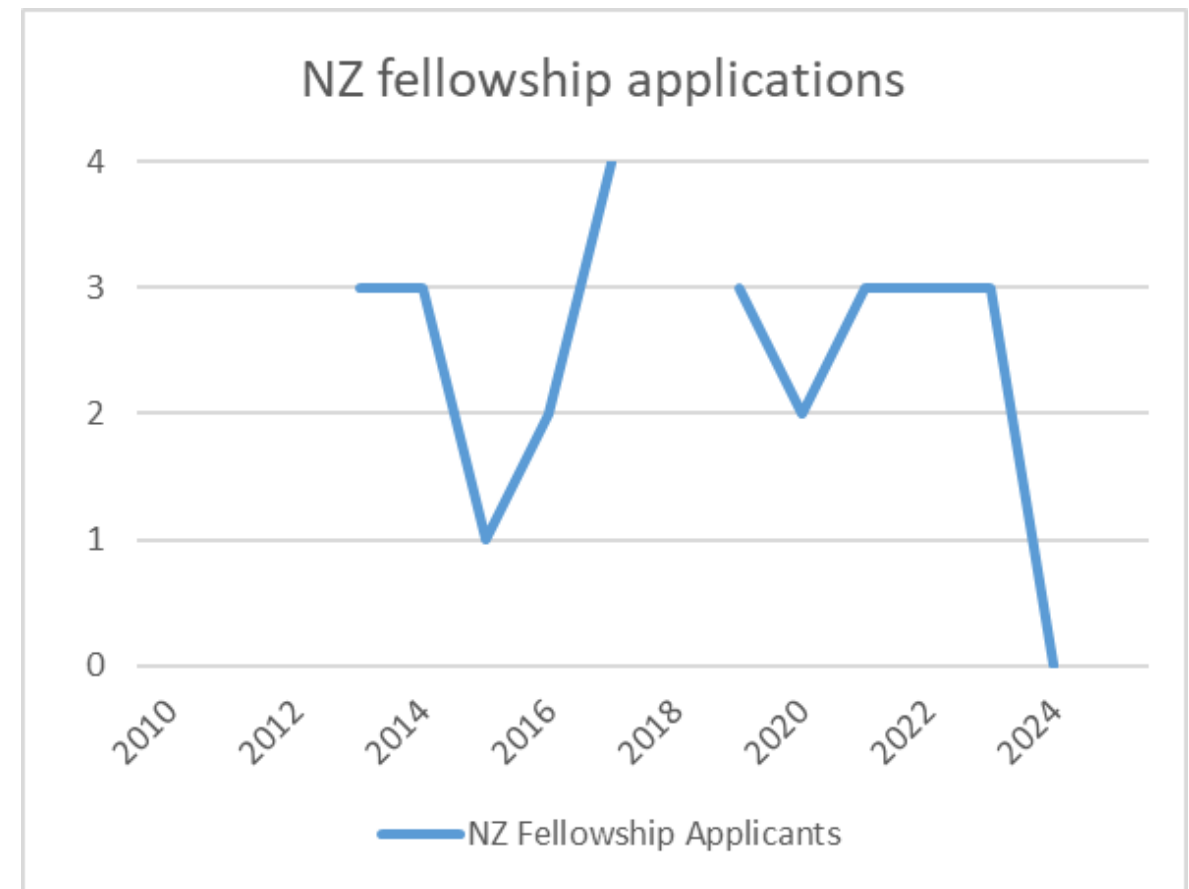
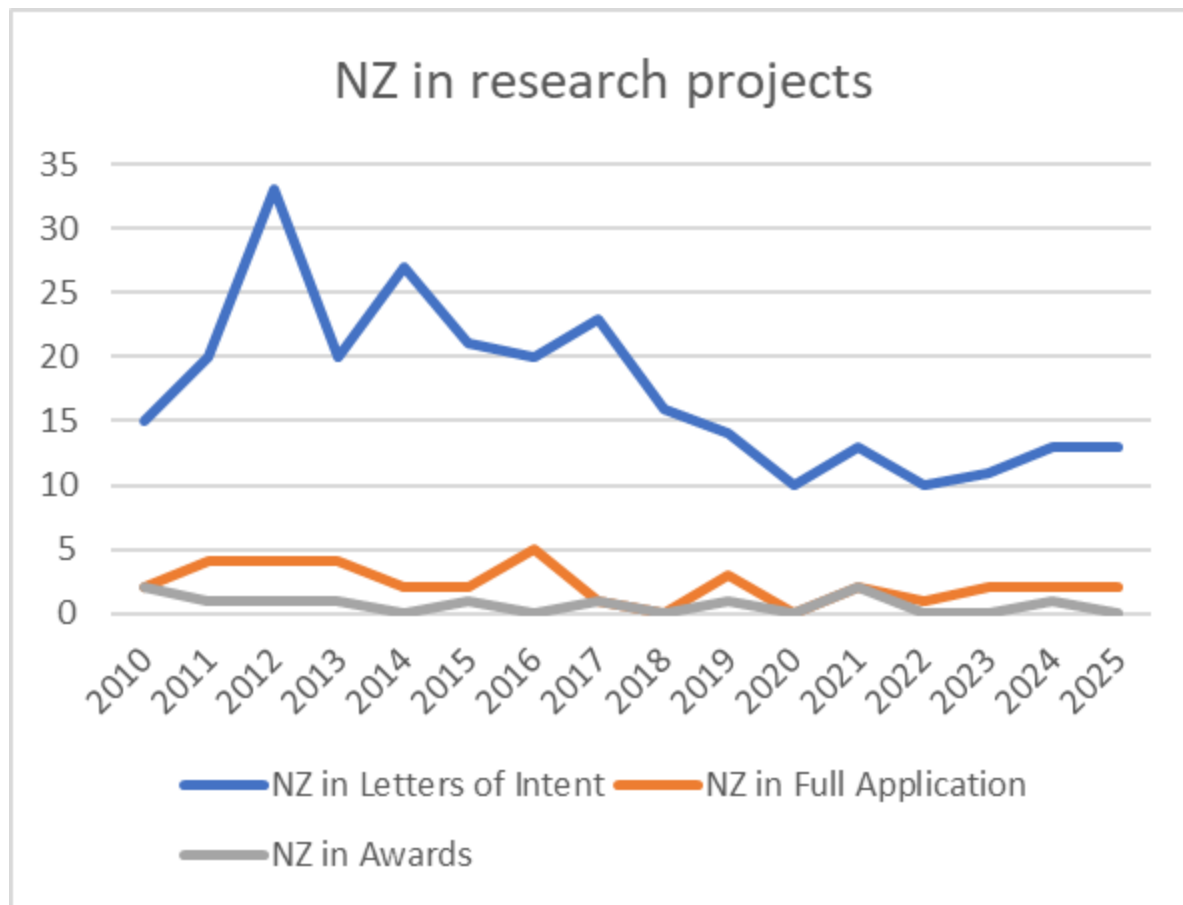
Fellowship awardee

The benefits for my career were MASSIVE! Coming to the UK with my own money gave me flexibility and prestige – being able to refer to myself as a ‘HFSP long term fellow’ has created opportunities on its own – something that I still get a kick out of when introduced to give a talk or apply for a grant...

Project awardee

My career has been well set for many years but this award enables 4 reserachers with very different skill sets to come together and move a field forward in 3 years, in what would normally have take considerably more. Has it benefitted my career? – hugely, I am working with 3 stellar scientists and 4 stellar postdocs on several really exciting questions. How can it get better than that! If we achieve what we hope with one part of our work – the entire field of biological science (medical to environmenta) stands to hugely benefit. This never would have happened had it not been for the HFSP aw

Why are New Zealand scientist not applying for HFSP grants?



Challenges for New Zealand

- Awareness of HFSP and what the organisation funds
- What constitutes a good HFSP project?
- How to write a competitive Letter of Intent (LoI) and full proposal?
- Does not pay for PI salaries or overheads (but can pay for postdocs)
- Connect with international researchers working in a different discipline to yours and that you haven't worked with before – lessons from talking to awardees
 - Cold calling works
 - Leverage your networks' networks

Available application support from Royal Society Te Apārangi

Get feed-back on your Letter of Intent from a New Zealand mock-panel of previous HFSP reviewers

- Send your Letter of Intent (Lol)/questions to international.applications@royalsociety.org.nz
- Mock panel agrees to read at least the first 15 submitted Lols – track on website
- Get started now – the earlier, the better.
- Send us your application at least 6 weeks before HFSP deadline

New Zealand mock Panellists:

- Professor Vic Arcus (University of Waikato)
- Professor John Fraser (University of Auckland)
- Professor Peter Fineran (University of Otago)
- Professor Johanna Montgomery (University of Auckland)
- Professor Jasna Rakonjac (Massey University)

Group of New Zealand scientist that attended HFSP grant writing masterclass

<https://www.royalsociety.org.nz/what-we-do/funds-and-opportunities/human-frontier-science-program/support-for-hfsp-grant-writing-masterclass-and-annual-meeting/>



What does an HFSP fellowship look like?

Project

Propose bold, novel, innovative, frontier research in the life sciences

- preliminary results not required
- New area of research for the fellow

Person

Build new collaborations

- The host supervisor must not be someone you have worked with before
- Moving away from current research focus

Place

Move to a new country

- Develop new skills and resources
- Build networks and new collaborations



Developing your fellowship application – do

Demonstrate that the project is clearly your own idea

Show that the proposal is creative, frontier and basic research, challenges existing paradigms, addresses barriers to progress in the field

Highlight that the fellowship will introduce you to new fields, theory and methodology (a clear departure from your previous research)

Explain how you will adopt new approaches and methodology



Developing your fellowship application – don't

Propose a project that is only an incremental step forward

Propose a project is the next step after your PhD (you need to be willing to significantly change your field of research)

Propose a project that is a mainstream project in your host's lab or that represents the next logical step for your host supervisor

Fail to make clear *your* intellectual contribution

HFSP Projects - Letter of Intent

Jasna Rakonjac

Massey University, New Zealand

HFSP experience:

Research Grants Committee member

2020-2023; 2025

Expertise: Microbiology-Biotech-Immunology

Content

- ▶ Research grants:
 - ▶ Criteria
 - ▶ Team
- ▶ Letter of intent
 - ▶ The review process
 - ▶ Writing style
 - ▶ References

Criteria - 1

▶ Transformative

- ▶ Completely novel idea or concept – gearing for a major breakthrough – think Nobel

▶ Not fundable by common types of govt funding (especially NOT medical, applied or agricultural)

- ▶ Can be in the medical field, but
 - ▶ bring a completely new fundamental concept or
 - ▶ discover a new principle

▶ Interdisciplinary (biology/chemistry/physics/mathematical modelling/geology);

- ▶ More recently interdisciplinary within biology is OK – bioinformatics + cell bio + chemical biology + neurophysiology + psychology

Criteria - 2

- ▶ Daring – risky – high level of difficulty
 - ▶ *However: NOT risky because it is ill-informed – make sure to assemble the team that provides the necessary complementary expertise*
 - ▶ *It is easy to spot when the novelty claim is not genuine, or is due to ignorance of a new field*
- ▶ No preliminary data required (risky, novel, daring)
 - ▶ *Compensated for by outstanding publication record as a proof of scientific rigor and*
 - ▶ *High originality of the published work*

The Team

▶ International

- ▶ preferable intercontinental collaboration of three to four labs – majority of funded projects are three to four labs

▶ New collaboration

- ▶ however one review article together can be tolerated

▶ Outstanding publication record

- ▶ Listed in the app: over past 5 years (the rest is on the web)
- ▶ Lower expectations from the early career proposals

Letters of intent review process

- ▶ Seen by multiple committee members
- ▶ Only 10-20% are selected into the full proposal
- ▶ Really important to stand out against the selection criteria
- ▶ A, B, C, D for each criterion
 - ▶ *A – stands out as an original , transformative, interdisciplinary and novel idea, outstanding team. “Must see the full proposal”*
 - ▶ *B – all the above, albeit, some reservation. “Keen to see the full proposal”*

Letters of intent - a “triage” stage

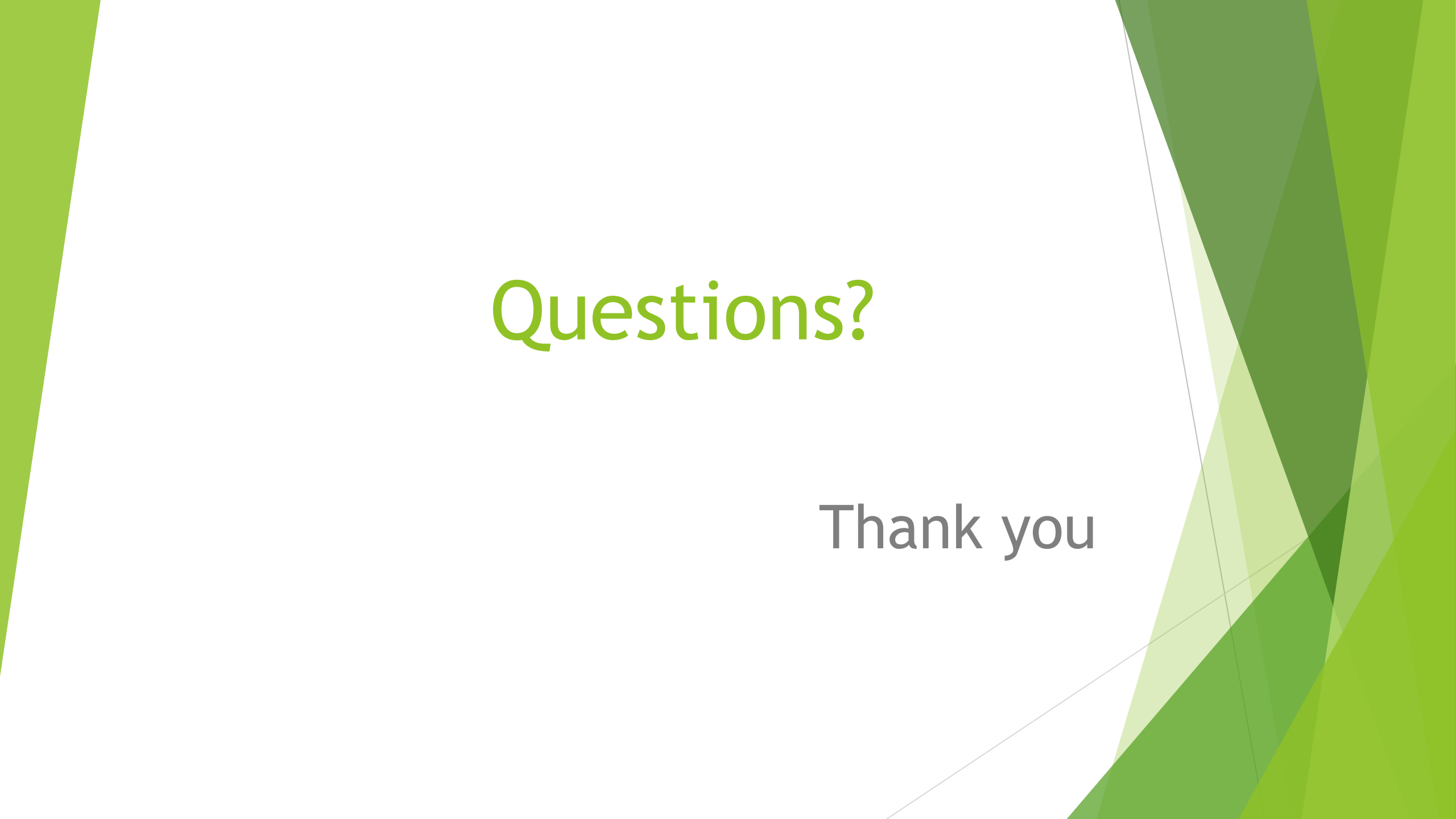
- ▶ Must strive to be an “A” to get into the second round
 - ▶ Some of B’s may get in if highly graded by multiple reviewers
 - ▶ A - 10%
 - ▶ B – 20%
- ▶ Each committee member sees up to 60 Lol’s generally in their general areas of expertise; has to select :
 - ▶ 6 A’s
 - ▶ Up to 12 B ‘s
- ▶ Early Career applications listed separately from program apps; smaller number (about 1/5 of total number of apps – e.g. 12 out of 60)
- ▶ Pre-triaged by the HFSP Staff for obvious ineligibility (not new collaboration, not international, clearly applied or medical)

Writing style

- ▶ Clear, enthusiastic, engaging
- ▶ Written for scientists outside of the immediate or even a wider field, but also for specialists
 - ▶ The committee is composed of neurobiologists, synthetic biologists, biophysicists, ecologists, zoologists, microbiologists, biochemists, physiologists, engineers, chemist, mathematicians.
- ▶ Emphasise general interest-significance should be appreciated by the committee members from unrelated areas of expertise
- ▶ However be factually correct and honest - committee members who are in the close areas of expertise are often assigned to assess the Letter of Intent
- ▶ Check the expertise and publications of the committee members
 - ▶ turnover of the committee is ~3 out of 16 members each year, majority the same as the previous year

References - important for the full proposal stage:

- ▶ Mail reviewers (specialists in the field) are invited to write ad-hoc reviews (up to 6 per application)
- ▶ Specialists in the field, but not collaborators
- ▶ Choice is informed by the references cited in the letter of intent (+ reviewers proposed by the applicants).

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

Questions?

Thank you