International
Human Frontier
Science Program
Organization

30 years of HFSPO

International Collaboration in Frontier Life Sciences Research

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- hints on making a strong application, things to avoid, out of scope)

Awards overview

Who are we

Troels Petersen	Royal Society Te Apārangi
Michelle Wickens	Royal Society Te Apārangi
Professor Vic Arcus	University of Waikato, currently Non-reviewing Chair of the HFSP Research Grant Review
A/Professor Jasna Rakonjac	Massey University, current HFSP grant reviewer
Professor Andrew Mercer	University of Otago, New Zealand's appointed HFSP Board Member

Contact Royal Society Te Apārangi
International.Applications@royalsociety.org.nz

International Human Frontier Science Program Organization

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Established in 1989

Supported by:

Australia, Canada, France, Germany, India, Israel, Italy, Japan, Republic of Korea, Norway, New Zealand, Singapore, Switzerland, United Kingdom, United States of America and European Commission

Headquarters in Strasbourg, France (www.hfsp.org)

Annual budget: ~ USD 57M = NZD 81M

New Zealand Membership administered by Royal Society Te Apārangi on behalf of MBIE

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HFSPO promotes and funds basic research

- innovative, cutting edge research to extend the frontiers of life sciences
- focused on the elucidation of the sophisticated and complex mechanisms of living organisms

HFSPO attaches the highest importance to

- scientific merit
- internationality (especially intercontinentality) and
- interdisciplinarity

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Types of awards

- Research Grants (Program and Emerging Investigator Grants)
- Postdoctoral Fellowships
    - Long-Term Fellowships - postdocs in the life sciences
    - Cross-Disciplinary Fellowships - postdocs from non-biological sciences

Value and duration of awards

- Research Grants – Maximum US$ 450,000 per annum for 3 years
- Fellowships - living allowance as well as a research and travel allowance, 3 years

Timetable

- Research Grants – 2 stage process, Letter of Intent closes March
- Fellowships – applications close in August

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Research Grants: Objectives

Stimulate novel, daring ideas and innovative approaches

- frontier research on the complex mechanisms of living organisms
- all levels of biological complexity
- preliminary results not required

Develop new lines of research through new interdisciplinary collaborations

- Team members from outside the life sciences, working together on bold, novel, potentially transformative ideas

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Research Grants

- Frontier-extending, **paradigm-shifting** research into the complex mechanisms of living organisms, from molecular level to complex biological systems
- Basic life sciences novel, daring ideas, challenging current paradigms in the field, breaking barriers to knowledge
- Innovative approaches with scientists from disciplines outside the traditional life sciences
  - no routine research ("the next logical step")
  - no applications that can be funded by a national research funding body
  - no teams composed of present collaborators
  - no collaborations within a single country
- Investigator driven - no specific areas prioritised other than "frontier extending"
- Science without borders - no restriction on nationality (except first PI is from a HFSP supporting country)
- Emphasis on scientists early in their careers

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Research Grants

- Research grants are provided for teams of scientists from different countries who wish to **combine their expertise** in innovative approaches **to questions that could not be answered by individual laboratories**.
- **Preliminary results are not required** and applicants are expected to develop new lines of research through the research collaboration.
- Highly competitive
- Projects are expected to be at the **frontiers of knowledge and therefore entail risk**

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Program Grants

- teams of 2-4 scientists (rarely 5)
- international (preferably intercontinental)
- interdisciplinary
- at any stage of careers (often in 30s and 40s)

Young Investigator Grants

- as above, but all team members within 5 years of their first independent position
- not more than 10 years after Ph.D.

Funding

- 250k USD p.a. for a team of 2
- 350k USD p.a. for a team of 3
- 450k USD p.a. for a team of 4 (max. funds)

Deadlines

- Letters of intent, mid March
- Invited full applications, early September

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Two Step Selection Process

1. Letter of intent

1. Submission March/April (~700 appl.)
2. Not in scope triaged (~ 10%,)
3. Review by Review Committee members
4. Long short list (~300 most promising applications)discussed at meeting of the Selection Committee (June)
5. Invitations to 80 - 90 to submit full applications (early July)

2. Full applications

1. Submission deadline mid-September
2. Reviewed by up to 6 external reviewers and by Review Committee members
3. Recommendations (~30) made at review committee meeting end of January
4. Approval by Board of Trustees (late March)

Committee members at https://www.hfsp.org/about/governance/secretariat

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Research Grants – Key Aspects

Three year grants

Success rate

- ~ 4% of original Letters of Intent are funded, and
- ~ 10% are invited for submitting full applications
- ~ 40% from final review panel meeting

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Postdoctoral Fellowships

HFSP Fellowships

- Long-Term Fellowships - postdocs in the life sciences
- Cross-Disciplinary Fellowships - postdocs from non-biological sciences

For ambitious postdoctoral scientists to

- undertake frontier research
- move into new areas of study
- work in a new country
- broaden research skills and learn new methodology
- work in a top laboratory

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HFSP Postdoctoral Fellowships

For top postdoctoral researchers proposing innovative, ground-breaking projects

Long-Term Fellowships

applicants with a biology Ph.D. to embark on a new project in a different field

Cross-Disciplinary Fellowships

Ph.D. from outside the life sciences e.g. physics, chemistry, mathematics, engineering or computer sciences

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HFSP Postdoctoral Fellowships

General eligibility criteria

- Work in a new country
  - Citizen of a HFSPO Member? Choose anywhere
  - Not from a Member country? Choose a lab in a Member country.

- Apply within 3 years of Ph.D.

- Must have one first-authorship paper

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Conditions, Support and application deadline

- 3 years
- Living allowances - amount depends on the country; travel and possibly child and parental leave allowances
- 3rd year
  - can be back in home country
  - can be deferred for up to two years
- ~65 fellowships per year (success rate ~ 12%.)

Deadlines

- Registration: mid August
- Submission: late August

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Examples of publications

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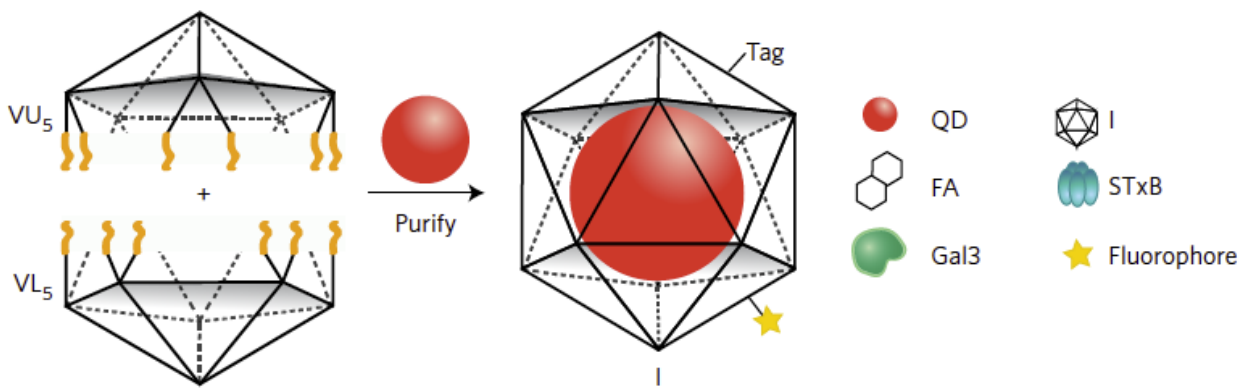
ARTICLES

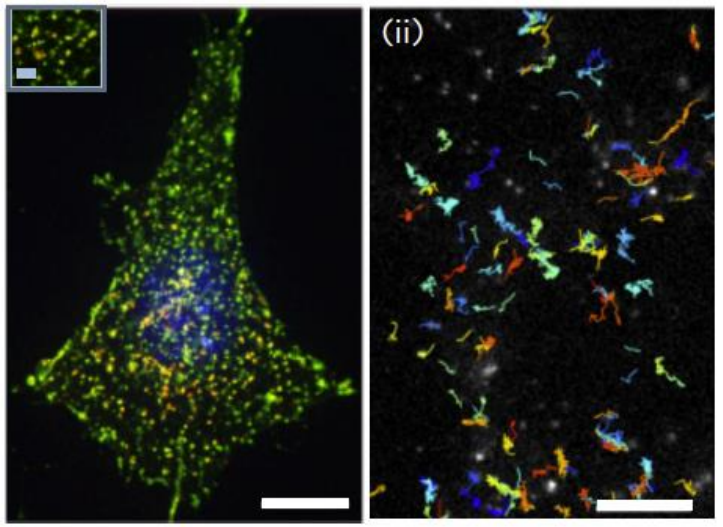
PUBLISHED ONLINE: 22 AUGUST 2016 | DOI: 10.1038/NNANO.2016.150

nature nanotechnology

Quantum dot-loaded monofunctionalized DNA icosahedra for single-particle tracking of endocytic pathways

Dhiraj Bhatia[1,2], Senthil Arumugam[1], Michel Nasilowski[3], Himanshu Joshi[4], Christian Wunder[1], Valérie Chambon[1], Ved Prakash[2,5], Chloé Grazon[6], Brice Nadal[6], Prabal K. Maiti[4], Ludger Johannes[1]*, Benoit Dubertret[3]* and Yamuna Krishnan[2,5,7]*





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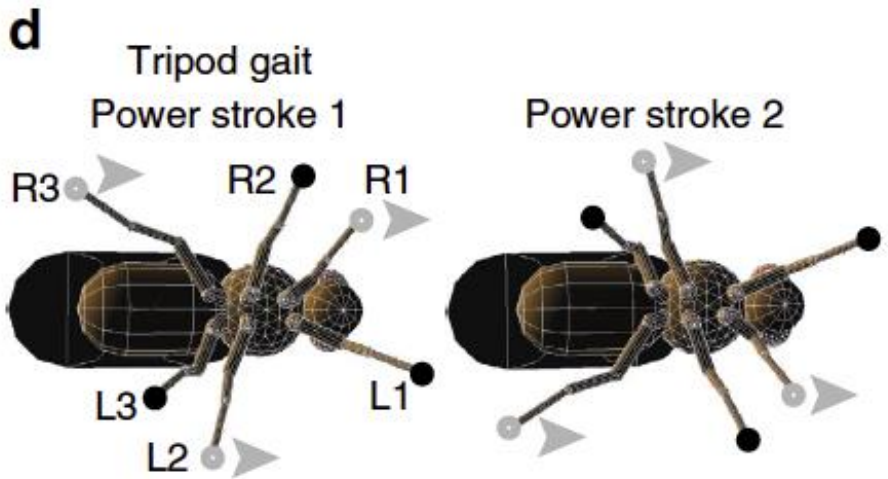
ARTICLE

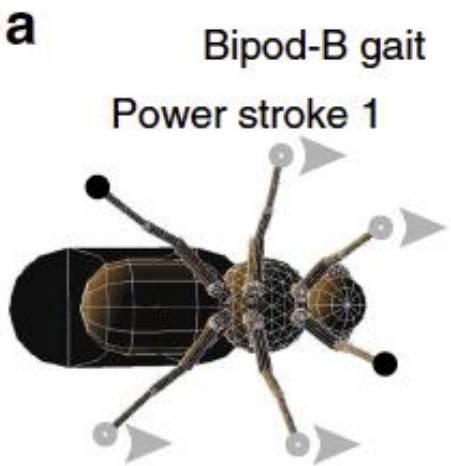
Received 23 Jul 2016 | Accepted 4 Jan 2017 | Published 17 Feb 2017

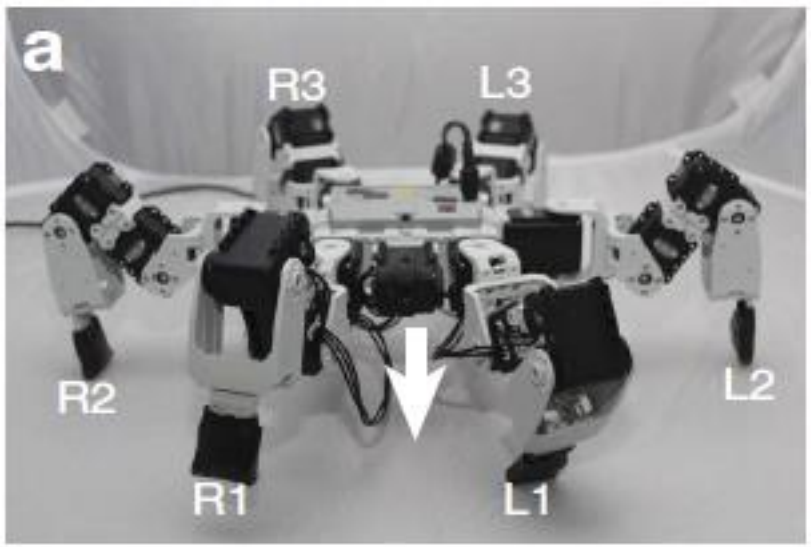
DOI: 10.1038/ncomms14494 OPEN

Climbing favours the tripod gait over alternative faster insect gaits

Pavan Ramdya[1,2,*,†], Robin Thandiackal[3,*], Raphael Cherney[1,†], Thibault Asselborn[1], Richard Benton[2], Auke Jan Ijspeert[3] & Dario Floreano[1]







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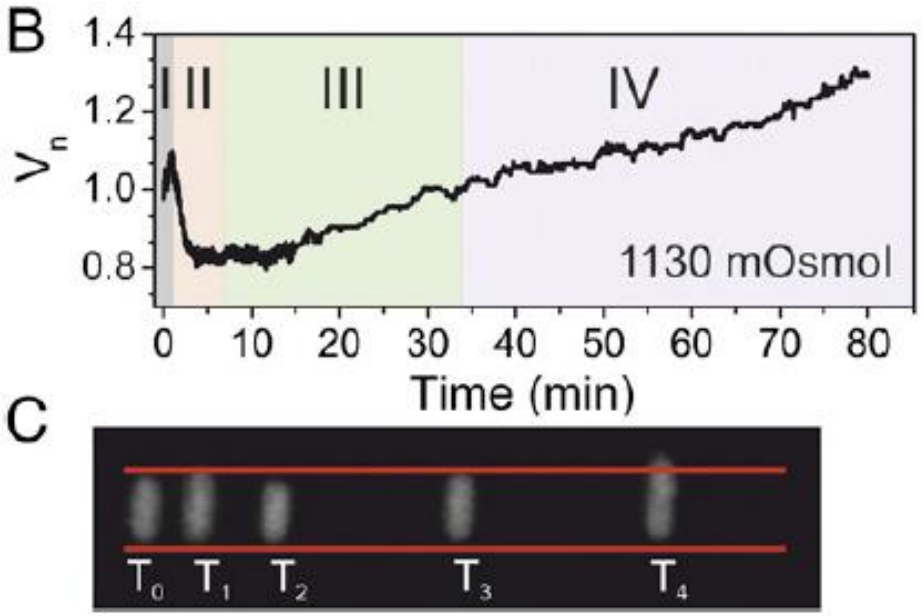
Dynamics of *Escherichia coli*'s passive response to a sudden decrease in external osmolarity

Renata Buda[a,1,2], Yunxiao Liu (刘云啸)[b,1], Jin Yang (杨津)[b,1], Smitha Hegde[a,1], Keiran Stevenson[a], Fan Bai[b,3], and Teuta Pilizota[a,3]

[a]Centre for Synthetic and Systems Biology, Institute of Cell Biology, School of Biological Sciences, University of Edinburgh, Edinburgh EH9 3FF, United Kingdom; and [b]Biodynamic Optical Imaging Centre (BIOPIC), School of Life Sciences, Peking University, Beijing 100871, China

(2016) *PNAS*. **113**, E5838–E5846



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More news, success stories and articles can be found at

https://www.hfsp.org/hfsp-news-events?type=All

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Developing an Application

Principal investigator must hold laboratory in one of HFSPO's member countries

The team must be:

- international and preferably intercontinental,
- not have collaborated and published previously in this area of enquiry

Preliminary results not required

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Developing an Application

Hints on making a strong application

Bring a totally new approach to your research problem

Describe how it is frontier-extending research

- don't shy away from risk though do argue that/how the ideas *can* work

Ensure each investigator is essential

- teams of 2-3 (Young Investigator) and 2 – 4 (Program Grants) are more successful.

Show how the interaction between investigators

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Developing an Application

Avoid:

- routine research, “the next logical step”
- applications that can be funded by your national research funding body
- teams composed of existing collaborators
- collaborations within a single country

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Fellowships

A competitive fellowship application proposes a basic research project that

- is creative, frontier, potential to be transformative
- will introduce you to new fields, theory and methodology

Don't propose a project

- that is only an incremental step forward
- that is a mainstream project in your host's lab
- in which there is no or minimal change in direction from your current and recent research
- that fails to make clear *your* intellectual contribution

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Out of Scope

HFSPO does not support research projects that are:

- Routine, not intellectually challenging, data collecting, observational studies
- Research in for-profit environments (but collaboration possible)
- Applied and translational research, such as :
  - Clinical trials, pharmaceutical development
  - Applied technology or applied engineering
  - Most environmental/ecological or agricultural research (unless about complex basic mechanisms of life)

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Research Grants – Key Aspects

Basic life sciences research

ranging from the molecular and cellular level to complex biological systems including higher cognitive functions and ecosystems

Investigator driven

no specific areas prioritised (the frontiers of life sciences change rapidly)

Emphasis on

participation of scientists from disciplines outside the traditional life sciences

scientists who are early in their careers

Highly competitive

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Award Overview 1990 – 2020

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Award Overview 1990 – 2020

Since 1990, HFSPO has supported:

- 7000 scientists throughout the world
- 1152 collaborative Research Grants
- 3079 postdoctoral Fellowships of ~70 nationalities

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Previous Research Grant and fellowship

see

https://www.hfsp.org/awardees/awards

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Nobel Prizes

Since the beginning of the Program in 1989, 28 HFSP awardees have gone on to win the Nobel Prize. The prizes include Physiology or Medicine, Chemistry and Physics. These awards testify to the high quality of HFSP's selection process and to the breadth of its scientific scope.

https://www.hfsp.org/awardees/nobel-prizes-hfsp-awardees

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Contacts

Warwick Anderson, Secretary General

Barbara Pauly, Director of Fellowships

Almut KELBER, Director of Grants

Secretary-General
Prof. Warwick Anderson

Fellowships
fellow@hfsp.org

Program/Young Investigator Grants
grant@hfsp.org

Website: ***www.hfsp.org***

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