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**Award year 2018**

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## 1. Research Grants

### 1.1. Distinguishing Features of the HFSP Research Grant Program

The Human Frontier Science Program (HFSP) is a niche program that supports **innovative** basic research into **fundamental** biological problems with emphasis placed on **novel** and interdisciplinary approaches that involve scientific exchanges across national and disciplinary boundaries. **Successful projects often involve an element of risk (see [2.2.e](#) below)**. The participation of scientists from disciplines outside the traditional life sciences such as biophysics, chemistry, computational biology, computer science, engineering, mathematics, nanoscience or physics has made biological research increasingly quantitative and will continue to do so. Such collaborations have opened up new approaches for understanding the complex structures and regulatory networks that characterize living organisms, their evolution and interactions.

**To stimulate novel, daring ideas and innovative approaches, preliminary results are not required in research grant applications.** The HFSP places special emphasis on encouraging scientists early in their careers – this is expressed both in the establishment of a special Young Investigators' Grant and in encouraging scientists early in their careers to participate in the Program Grants. Applicants are expected to develop **new** lines of research through the collaboration.

### 1.2. Guidelines for applicants

These guidelines provide the essential information necessary to submit a **research grant** application for the **award year 2018**. You should pay particular attention to the types of innovative projects that fall within the funding priorities of the HFSP, and to the aims of the Young Investigators' and Program Grants (for details see below). See also '[Writing a letter of intent](#)' for tips.

You must first submit a **“letter of intent”** to apply for a grant. **To submit, you must connect to our HFSP extranet site (see [item 8](#)) and obtain a reference number LIXXXXXX/2018 by March 20<sup>th</sup> 2017.** The deadline for receipt of this letter, also submitted via the extranet site, is **March 30<sup>th</sup> 2017** for awards to be made in March 2018. You will be notified early July 2017 whether you are invited to submit a full application, with a deadline mid-September 2017. More details are provided in [Item 8](#), “How to Apply”.

Projects will be pre-screened upon reception by a small *ad hoc* scientific committee for their innovative nature, the novelty of the combination of expertise proposed in the field and their international, preferably intercontinental, nature. Any project that does not meet these requirements or those of section [2.2](#), will not be sent for review and the Principal Applicant will be informed as soon as possible after the submission date.

HFSP is a signatory to the San Francisco Declaration of Research Assessment ([DORA](#)) which we consider to be an incentive to evaluate research proposals on the basis of their content and not solely by the criterion of Journal Impact Factors (JIF). Reviewers at all stages of the HFSP grant application process are advised that they should consider the quality of the research published and/or proposed in an application. While productivity may be an important factor, the assessment will be based on the content of articles and not the JIF. Furthermore HFSP reviewers are asked to consider the influence of candidates' publications (including [preprints](#) deposited on public servers) in advancing knowledge in a given field (or throughout biology).

**Eligibility requirements for applicants:** The Principal Applicant of a Research Grant must have a laboratory in a member country (with the exception of HFSP Career Development Awardees – see section 4.2.). All team members are expected to direct a research group (however small), and they must have a doctoral degree (PhD, MD or equivalent). The HFSP award is not intended to create scientific independence, this is a decision of the research institute prior to the application.

Two kinds of research grants are available, the **Young Investigators' Grants** and **Program Grants**. The following guidelines apply to both unless stated otherwise.

Contact for correspondence: [grant@hfsp.org](mailto:grant@hfsp.org)

## 2. Scientific scope

### 2.1. General areas of support

Research grants are available for projects concerned with basic approaches to understanding the complex mechanisms of living organisms. Topics covered range from molecular and cellular approaches to biological functions to systems neuroscience including cognitive functions. The HFSP funds novel collaborations that bring scientists with distinct expertise together to focus on problems at the **frontiers** of the life sciences. The innovative aspect of the project is a major criterion in the review of HFSP research grants. **A brief explanation of the contributions of the different expertises should be provided in the summary which will be used in piloting the review process.**

### 2.2. Specific requirements

- a. Novel combinations of expertise are a major feature of HFSP-sponsored projects and those involving truly novel interdisciplinary collaborations will be given clear preference. Special conditions apply for Young Investigators (see 3.1. below).
- b. Applicants are expected to develop new lines of research through the collaboration. Projects must be distinct from applicants' other research funded by other sources.
- c. The collaboration between all team members must be absolutely necessary to achieve the aims of the project. "Concerted action" programs, in which each team member performs a self-contained project under a general theme without extensive interaction with the other team members are not considered to be collaborative.
- d. The HFSP funds basic research. We aim to support teams of scientists at the forefront of research in their respective areas, whose collaborative projects open up new frontiers in fundamental biology. Projects of a primarily pathophysiological nature are not supported. Nor does the HFSP support projects of a purely applied nature. For instance, projects aimed specifically at developing methods of treatment or diagnosis, or those directly concerned with agricultural or environmental problems such as crop yield or bioremediation will not be considered eligible. Studies related to disease are only considered if they allow new insights into fundamental biological mechanisms.
- e. **Many applicants do not appreciate what HFSP understands by 'risk'. It is not simply that « It's risky because it may or may not work ». A hand waving « but we hope it will », followed by a few vaguely described experiments, will not convince the reviewers. What is expected is that according to the team's calculations there is a reasonable chance that it will work (this is developed further in the [FAQ](#) sheet).**

- f. The scope of HFSP funding ranges from the biomolecular level to studies of whole organisms. It does not extend to the level of populations or ecosystems. However studies of the mechanisms of species-species interactions or their co-evolution are eligible.
- g. Collaborative research aimed at developing novel methods or the study of analogs or models of biological activity are welcome if these methods allow new biological questions to be answered in the context of the aim of the HFSP to fund fundamental research.
- h. Projects which involve only extensive genome mapping or sequencing are not eligible to receive HFSP funding. However, this does not exclude functional studies based upon use of genome data. Systematic screening approaches (“fishing expeditions”) geared to identifying new biological components or reagents are outside the scope of the HFSP.
- i. Projects using “-omics” approaches that will generate large datasets but provide no convincing methodology for their analysis are not eligible.

See also the [FAQ](#) sheet on the HFSP site for common reasons for rejection.

### 3. Types of award: Young investigators’ and Program Grants

#### 3.1. Young Investigators’ Grants

Specific features of the Young Investigators’ Program.

Recognising the challenge of establishing an independent research group at an early stage of a career, a special consideration will take into account the overall level of interdisciplinarity in Young Investigator applications. Newly appointed investigators will be expected to propose projects with team members having distinct expertise and coming from different areas of the life sciences (if not from outside the life sciences). Projects from more established investigators will preferably involve collaboration with scientists from outside the life sciences, as in the Program Grants. The Review Committee will be instructed to assess this when reviewing applications.

**General aims:** It is to be expected that outstanding young scientists, in the initial period of their independent careers, are in a particularly good position to formulate innovative and fertile research projects. Typically, “Young Investigators” will have completed one or two periods of postdoctoral training and be appointed to staff positions that allow them to initiate and direct their own independent lines of research.

Formal eligibility requirements: **all** members of a Young Investigators’ grant team must be within 5 years of obtaining an independent position (see below) but must have obtained their **first doctoral degree (PhD, MD or equivalent)** not longer than 10 years before the deadline for submission of the letter of intent. Exceptions may be made for periods of compulsory military service, parental leave or absence for medical conditions. Within the framework of the objectives of the HFSP and these formal requirements, the deciding factor in making awards will be whether the basic aim of the Young Investigators’ program is fulfilled.

- a. An independent position would typically be “Assistant Professor”, “Lecturer” or equivalent. In some countries, younger scientists work in departments in which the direction of research is defined by the Head of Department, and are therefore not strictly independent. In these cases, the Young Investigator should be a project leader directing a research group. In such cases, written confirmation may be requested from the Head of Department that the applicant is able to carry out the research independently. They must have full responsibility for the day to day running of their laboratories and will have full control of the HFSP funds.

- b. Scientists who have already been appointed to senior positions are not eligible to apply for the Young Investigators' program, even if they are formally within the 5-year limit, but they may apply for a Program Grant.
- c. "Postdocs" are not eligible to apply.

### 3.2. Program Grants

**General aims:** Program Grants are meant to allow teams of independent researchers to develop new lines of research through the collaboration. Priority will be given to new, innovative research projects for which preliminary results might not necessarily be available. Applications including independent investigators early in their careers are encouraged.

Formal eligibility requirements: all members of a Program Grant team must be in a position to initiate and direct their own independent lines of research. They must have responsibility for their own laboratories and show evidence of independence. "Postdocs" are not eligible to apply.

### 3.3. Features common to both Young Investigators' Grants and Program Grants

**Amount of award:** Teams will receive up to \$450,000 per year for the whole team depending on the size of the team (see [5.2.](#) below).

**Interdisciplinarity:** Applicants may establish a national interdisciplinary collaboration involving scientists with widely differing expertise, but this must be integrated into an international team (with emphasis on intercontinental collaborations – please see the [FAQ](#) sheet). In such cases the team members representing different disciplines from the same country will be considered as 1.5 team members for calculating the amount of the award. Two team members from the same country having closely related expertise will be considered as a single team member for calculating the amount of the award. Such calculations are made only after the scientific review is completed and an award recommended. All team members, even those located in the same country, must be designated as co-applicants on the online form.

Applicants are strongly advised to be clear about the content of any proposed modeling contribution. Reviewers are expecting details of the mathematical methods and an appreciation of the limits of the proposed approach.

**Review Procedure:** Applications for Young Investigators' Grants and Program Grants will be reviewed in parallel but independently from each other. The final numbers of awards of Young Investigators' and Program Grants will be decided considering the proportion of applications received, the relative quality of applications in the two groups and the funds available.

## 4. Research Teams

In addition to the above special requirements for the Young Investigators' and Program Grants, the following conditions must be met by all grant applications:

### 4.1. Structure of research team

Scientists applying for a research grant must organize an "international research team" or "team". The team is to be made up of "members", whereby one member of the team is designated as the "Principal Applicant" and the others as "Co-Applicants". Only international research teams (with

emphasis on intercontinental collaborations), not individual researchers, are eligible. The Principal Applicant must be located in a member country (see [4.5.](#)). Co-Applicants need not be located in one of the member countries.

#### **4.2. Principal Applicant**

The international team must designate one of its members as the Principal Applicant. The Principal Applicant must be located in an HFSP member country (see [4.5.](#)). However, current or former CDA awardees can also act as the Principal Applicant in an HFSP Research Grant irrespective of the location of their laboratories as long as the team includes at least one Co-Applicant from an HFSP member country. The Principal Applicant will be responsible, on behalf of the team, for planning and coordinating the research. He/she will also act as the liaison with HFSP and be required to submit annual budgets as well as progress reports. If, on the basis of those progress reports, the Principal Applicant considers that a team member is not contributing as planned to the project, then, in liaison with HFSP, he/she may propose a reduction in that member's budget, or, exceptionally, ask them to leave the project. If a team member changes institute, the Principal Applicant will be asked to confirm that this move will not be deleterious to the project.

#### **4.3. Affiliation**

The Principal Applicant must be from a non-profit academic institution. The team may include members from for-profit organizations if their expertise is necessary for the project. However, team members from for-profit organizations may not receive any funds and will not be considered in calculating the amount of award. In the case of a two-member team with one member in a for-profit institution, the total award will be reduced to \$125,000 per year (see also item [5.2.](#)).

#### **4.4. Number of team members**

The number of team members should normally be 2 – 4 and no more than 4 unless an increase in the number of members is clearly critical for the interdisciplinary nature of the project. However please note that teams of 5 members are rarely successful.

#### **4.5. Country of Affiliation**

The Principal Applicant representing the international team must be located in one of the member countries. Co-Applicants can be located in any country.

The member countries are currently Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus (EU part only), the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Poland, Portugal, the Republic of Ireland, the Republic of Korea, Romania, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the United States of America.

#### **4.6. Internationality**

- a. At least one member of the international research team must have his/her laboratory in a country other than that of the Principal Applicant.
- b. Teams should normally have only one member with a laboratory in any one country unless an increase in the number of members from one country is clearly critical for the interdisciplinary nature of the project (see “Interdisciplinarity” in [3.3.](#), and [5.2.](#) for the financial consequences of



including more than one team member from any one country). **When applicants have a double affiliation, both will be considered active.**

- c. Clear priority will be given to intercontinental collaborations.
- d. Research carried out within only one country is not eligible.

#### **4.7. Concurrent applications**

- a. **No individual may be an applicant on more than one letter of intent** in this review round. Please make sure that ALL applicants (either Young Investigators' Grants or Program Grants, as Principal Applicant or Co-Applicant) are aware of this rule. If anyone applies on two or more letters of intent (including a Young Investigators' Renewal – see below), these will all be removed from the competition.
- b. Scientists cannot hold an HFSP Research Grant and an HFSP Long-Term Fellowship at the same time.
- c. Holders of HFSP Career Development Awards may apply for HFSP Research Grants (see also [4.2.](#) above).

#### **4.8. Renewals for Young Investigator teams**

Applications for renewals of a HFSP grant will not be considered, except for those of Young Investigator teams in their third year (or the period of a no-cost extension) of a current award (currently awardees from 2013 and 2014). The Principal Applicants of the eligible teams will be contacted directly with the conditions and application instructions. This will be highly competitive and these applications will be considered in parallel, and in competition, with the new full applications at the January meeting of the Review Committee.

#### **4.9. New applications from previous awardees**

- a. Scientists who are already receiving support from an HFSP research grant (as Principal Applicants or Co-Applicants) are not eligible to apply for a second research grant. However awardees from 2014 may apply for a new grant on condition that it does not start until after termination of the current award (which includes the approval of their final financial report), and that the project and team members are distinct from the current grant. Awardees from 2015 and 2016 are not eligible.
- b. Each applicant (Principal Applicant or Co-Applicant) who has previously been awarded an HFSP research grant (as Principal Applicant or Co-Applicant) must provide information about the objectives and outcome of the former project, together with a statement of its relationship to the current application. Applications bearing a strong similarity to previous awards, either in team composition or topic of research, will be seen as renewals and thus not considered.

## **5. Budget**

### **5.1. Use of funds**

The research institutions in which the proposed research is to be carried out must provide the facilities and equipment necessary for members to carry out their proposed research. The funds provided by the HFSP are not intended to replace or supplement current domestic programs nor to provide basic institutional infrastructure. They are to be used specifically to support new international collaborative programs. However, if additional scientific equipment is essential in



order to perform the joint collaborative research, this can be purchased using the grant funds. Additional scientific personnel must also be part of the new collaborative element.

## 5.2. Amount of award

- a. The current mode of funding is as follows, but may be subject to revision before full applications are invited, to take into account HFSP's budget: \$250,000 for a team of 2; \$350,000 for a team of 3; \$450,000 for a team of 4 or more. These figures represent the amount awarded to the whole team per year for a period of 3 years.
- b. Two or more members from the same country will be considered as a single team member for purposes of calculating the award, unless they constitute an interdisciplinary collaboration in which case they will be awarded an amount equivalent to 1.5 team members (currently \$300,000 for a team of '2.5' and \$400,000 for '3.5' team members).
- c. In the case of a two-member team with one member in a for-profit institution, the total annual award will be reduced to \$125,000. In other cases the for-profit member will not be included when calculating the amount of the award.

*Important: The HFSP budget is determined in US dollars. While payments may be requested in another currency, the amount in that currency will be determined by the exchange rate against the US dollar at the time of each transfer (and thus may vary for each annual payment). HFSP reserves the right to wire funds in local currency.*

## 5.3. Tenure of Grant

Each grant is awarded for a period of three years.

## 5.4. Method of payment

In the event of an award being made, the distribution of funds will be decided by the team members and transferred by the HFSP to each team member separately.

## 5.5. Financial reporting

Institutions are expected to maintain complete lists of all expenditure from the HFSP award. A financial report based on these lists will be required for the full three years of the award. This will be organised by the Principal Investigator at the end of the grant. In addition, all invoices, pay-slips, etc. must be retained for at least two years after the end of the grant period in case of audit. Reporting practices may be subject to modification during tenure of the grant if required by the HFSP Board of Trustees or auditors.

## 5.6. Permissible expenses

**Note** that a budget proposal is **not** required at any stage of the application process. The following information is provided to allow applicants to see the scope of funding permitted in case an award is made.

### 5.6.1. Equipment

Purchase of equipment must be essential for the new collaboration which is proposed. Purchase of equipment to supplement current domestic programs is not allowable. Participating laboratories should already be equipped to pursue their current research. HFSP

grants are not awarded to institutions but to individuals in an international collaborative research team; as a consequence, equipment purchased through the support of an HFSP research grant should follow the grantee in case he/she moves to another institution.

#### **5.6.2. Materials and supplies**

Costs of reagents, animals, disposables. Computer software necessary for the scientific collaboration is permissible, general office software may be included in [5.6.7.](#) (within the 10% maximum limit).

#### **5.6.3. Services**

Consulting services and computer services *specific to the project*, including rental fees (fees for computer or telephone networks may be included in the indirect costs see [5.7.2.](#)).

#### **5.6.4. Salaries**

The participation of additional personnel must be essential for the new collaborative research. Salary support or other direct remuneration cannot be allocated for the Principal Applicant or Co-Applicants or other faculty (including “summer salaries”). Salaries are allowable for research assistants (post-doctoral scientists, graduate students, technicians) but not for institutional staff such as secretaries, nor laboratory managers. The salaries shall be in accordance with the salary scales of the institutions concerned. These awards are intended to support research by trained personnel. They are not training programs. In consequence, while student stipends are allowed, **student tuition fees are not a permissible expense.**

#### **5.6.5. Communication expenses**

- a. Publication (costs of publication of research results including open access fees see link <http://www.hfsp.org/funding/open-access-policy>): article translations, mail etc...
- b. Express courier services (Fedex, DHL, TNT, UPS etc.).

#### **5.6.6. Travel and per diem**

- a. For individual team members and their laboratory personnel visiting other team members (domestic and foreign travel, per diem allowances for up to three months each year). This may also include joint meetings of team members and their laboratory personnel. Scientific advisors, exterior to the project, may also be invited to such meetings.
- b. Scientific meetings, or external training courses, related to the HFSP project (may include registration fees for scientific conferences).
- c. All team members are expected to attend a meeting of awardees organised by the HFSP in the third year of the award. Awardees are expected to cover travel and accommodation expenses for this out of the grant award.

#### **5.6.7. Other expenses**

A maximum of 10% of the direct costs of the award, at each research institution, may be used for indirect costs. These must be taken from the funds awarded; no further funds will be provided by HFSP for indirect costs (overheads).

### **5.7. Impermissible expenses**

#### **5.7.1. Investigators' salaries**

The Principal Investigator or Co-Investigators may not receive personal remuneration from an HFSP grant either in the form of a salary (even in part) or consultation fees.

#### **5.7.2. Indirect costs (overheads)**

No more than 10% of the direct costs of the award, at each research institution, may be used for indirect costs. These must be taken from the funds awarded; no further funds will be provided by HFSP for indirect costs (overheads).

#### **5.7.3. Tuition Fees**

While student stipends are allowed, student tuition fees are not considered a permissible expense.

## 6. Ethical considerations

HFSP expects that applicants will adhere to the most stringent international criteria of good scientific conduct in preparing their application. See for example the guidelines prepared by Dr. Miguel Roig (may be downloaded from <http://ori.hhs.gov/education/products/plagiarism/>). HFSP's policy on scientific misconduct (<http://www.hfsp.org/funding/scientific-misconduct-policy>) is available on the HFSP website.

HFSP requires that each awarded grant satisfies the following requirement: In accepting an award from HFSP, each team member agrees to conform strictly to the codes of practice, regulations and laws which govern the ethical conduct of scientific research in his/her own laboratory/institution. He/she is solely responsible if any of these regulations are infringed. He/she also agrees not to undertake any research jointly with scientists in another country where experimental procedures which are forbidden in his/her own laboratory/institution are permissible in the collaborating laboratory/institution.

## 7. Intellectual property rights and publications

- a. The assignment of intellectual and industrial property rights generated from research conducted under the HFSP will be determined by the parties concerned (researchers, their research organizations or institutions) on a case-by-case basis. Such arrangements may comprise: provisions about diffusion of information such as disclosure and methods of publication, and provisions regarding ownership and exploitation of the results arising from the research conducted under the HFSP. The HFSP will not assert any claim to the intellectual and industrial property rights.
- b. The HFSP will not become involved in any disputes that may arise over intellectual property rights in respect of research conducted under the Program.
- c. The submission of a manuscript for the publication of research funded by HFSP cannot be delayed by the research team or their research institutions for more than forty-five days after the manuscript is completed. The results of the research must be published promptly in internationally recognized scientific journals and not delayed for more than this period for commercial reasons or any other reasons unconnected with its agreed scientific accuracy and presentation.
- d. An acknowledgement of support by the Human Frontier Science Program must be included in all publications resulting from work carried out under the grant.

## 8. How to apply:

### Deadlines:

**i. Compulsory initiation of a letter of Intent by obtaining a LIXXXX/2018 reference number by March 20<sup>th</sup> 2017**

**ii. Submission of Letters of Intent: March 30<sup>th</sup> 2017**

Please read the guidelines and the document [‘Writing a letter of intent’](#) carefully to establish whether your project is clearly in tune with the requirements and emphasis of the research grant program. You must first submit a letter of intent to apply for a grant, which must be done online as described below. The main steps in applying are as follows:

1. The research team must designate one member as Principal Applicant, who will be responsible for final submission of the letter of intent. Note the requirement that the Principal Applicant must have his/her primary laboratory in a member country. See Item [4.3](#) of the guidelines (“Research Teams”) for more detail.
2. In setting up the team, the Principal Applicant **must ensure that no team member is a Principal Applicant or Co-Applicant on another proposal** (see Item [4.7](#) in the guidelines). Failure to ensure this will result in all those applications being withdrawn from the competition.
3. The Principal Applicant must obtain a 2018 reference application number on the HFSP extranet site (at the address <https://extranet.hfsp.org/> this site will be accessible from mid-January 2017). The Principal Applicant will first have to set up a password (if not already in the HFSP database) that will give access to the online application form and further instructions concerning online submission (including the addition of the other team members). It is essential to obtain a 2018 reference number as soon as the team has seriously decided to submit a letter of intent. Team members can be modified up to the final submission date. An application number must be obtained by March 20<sup>th</sup> at the latest. Principal applicants already listed in the HFSP database (e.g. those re-applying from last year) **must** also obtain a 2018 reference number by March 20<sup>th</sup>.
4. The letter of intent must be submitted by March 30<sup>th</sup> 2017. No changes can be made to the letter of intent after final submission.
5. The Principal Applicant will be notified by the beginning of July if the team is invited to submit a full application. The deadline for the full application will be mid-September 2017.

## 9. Technical tips

Tips for each section are given on the website itself. If new problems are reported, tips will be added to the relevant pages to help in the submission procedure.