



International

**Human Frontier
Science Program**

Organization

HFSP Postdoctoral Fellowships 2022

Information on Review Process and Assessment Criteria

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Mission and Objectives of the HFSP postdoctoral fellowship scheme

HFSP attaches highest importance to novelty, scientific merit, internationality, and interdisciplinarity.

HFSP Postdoctoral Fellowships support exceptional junior postdoctoral researchers moving to a new research environment to perform innovative, high-risk/high-reward, and potentially transformative research proposals that investigate important problems at the frontiers of the life sciences. HFSP Postdoctoral Fellowships aim to expose awardees to new theories and methods which complement or build on their previous experience and expertise. As such, projects should present the combination of the applicant's skills/talents/experiences and emphasize the suitability and strengths of the host laboratory.

Proposals representing standard or incremental approaches, obvious next steps in the field or for the host laboratory, have lower priority for funding.

Research projects may range from biological functions at the molecular and cellular level up to the level of biological systems, including cognitive functions. All levels of analysis are supported: for example, studies on genes and individual molecules, intracellular networks, intercellular associations in tissues and organs, and networks underlying the complex functions of entire organisms, populations, or ecosystems.

HFSP asks Review Committee members to be aware of the differences between reviewing for a typical national funding body (often emphasizing feasibility and translational impacts) and reviewing for HFSP (emphasizing originality and acceptance of risk).

Types of fellowships

HFSP offers two types of postdoctoral fellowships:

- **Long-Term Fellowships (LTFs)** and
- **Cross-Disciplinary Fellowships (CDFs)**

Long-Term Fellowships are for applicants with a PhD in a biological discipline who will broaden their expertise by proposing a project in the life sciences which is significantly different from their previous PhD or postdoctoral work.

Cross-Disciplinary Fellowships are for applicants with a PhD from outside the life sciences (e.g., in physics, chemistry, mathematics, engineering or computer sciences). Applicants are also expected to propose a project in the life sciences, significantly different from their previous PhD or postdoctoral work, and which may bring new disciplinary approaches to a project in the life sciences.

Successful Postdoctoral Fellowship proposals

- incorporate novel investigative approaches at the frontiers of the life sciences with the potential to disrupt existing paradigms and current ways of thinking. The results of the research are expected to have an impact beyond the immediate field.
- demonstrate the change of field of the applicant and the ability to formulate a research project with the frontier-extending, risky nature and describe how the applicant's unique training and special skill set will allow them to address biological problems in a novel and distinct way.

The applicant may consult with the host supervisor in the development and writing of the proposal, but the project should be primarily the idea of the applicant.

- provide a prospect for novel directions for the research in the host laboratory.
- clearly show how the proposed project is different from the applicants' research to date

(PhD or previous postdoctoral positions) and how it will help the applicant to learn new research approaches and methodologies.

A note specifically on **Cross-Disciplinary Fellowships**: One of the aims of HFSP is to attract scientists with training from outside the classical life sciences to work on a biological problem as they will bring new ways of thinking, as well as unique skills and approaches to the field.

Applicants for a Cross-Disciplinary Fellowship have the unique opportunity to apply their special training, skills and methodologies to address an important new problem or a barrier to progress in a life science field, thus immersing themselves in the fastest growing innovation sector.

The opportunities are wide, and just by way of examples, engineers can use biomechanics approaches and develop robotic tools to understand movement or to develop biosensors and innovative biomaterials for use in the biomedical sciences. Mathematicians can apply their knowledge to predict behavioral patterns of species or to disease development. Chemists can use synthetic biomolecules as novel agents, while physicists can apply their training to understand biofilm development or phase transition in cells or to study coloration in animals or bioluminescent phenomena.

In assessing CDFs, reviewers are asked to bear in mind that the CDF proposals come from researchers who are entering biology after a PhD in a field outside the life sciences. Therefore, a lower level of familiarity with biology, its terminology and its theoretical constructs may be observed in applications. Similarly, a higher level of host-lab involvement in the design of the project is likely and acceptable and should be factored into the scoring of CDF proposals. Overall, a higher level of risk can be accepted for the CDF applications.

Stages of evaluation

The application process involves two stages: an initial Letter of Intent (LOI) statement which will be peer reviewed and the results communicated as quickly as possible. The top applicants will be invited to submit a full application to be again peer reviewed.

Stage 1 (Letters of Intent):

All Letters of Intent are checked for compliance with formal eligibility criteria by HFSP. In addition, LOIs are screened by the three scientific directors of HFSP and members of the Fellowship Review Committee for alignment with the objectives of HFSP and its Fellowship schemes (e.g., basic, interdisciplinary research). The Director of Fellowships will contact individual Review Committee members directly for their help in this first screening step when needed.

Ineligible LOIs or those with research proposals that do not align with the scientific scope of HFSP will not be sent for review and the applicant will be informed.

After this initial screening, eligible LOIs will initially be assigned to two Review Committee members.

They will be asked to use a letter score from A to D to provide a component score for the proposal and the applicant.

The suitability of the host laboratory will be assessed only by a Yes/No/Maybe rating. In cases in which the two reviewers score significantly different from each other, applications will be sent to a third reviewer.

Letter score aggregates will be used to establish a first ranking that will result in a first cut-off. HFSP then invites the top LOIs to submit a full application. Approximately the top 15-20% of eligible LOIs will be invited.

Stage 2 (Full applications):

The full applications will be sent to the same two (or three) main Review Committee members who reviewed the Letter of Intent, plus to 3 external mail reviewers with suitable expertise in the field who will be asked to provide written comments to aid the RC members in their subsequent scoring.

The main Review Committee members will be asked to provide numerical scores from 0-7 for their assigned full proposals, based on a specific set of assessment criteria, and on the evaluations of the mail reviewers (for an explanation of the assessment criteria and the scoring guide please refer to Appendix 1 and 2, respectively).

Review Committee meeting (late January/early February 2022):

A number of full proposals with different scores will be selected as calibration files to demonstrate a broad range of quality from “outstanding” to “fundable”. The aim of the calibration exercise is to introduce Review Committee members (and particularly new members) to the special features of the HFSP assessment criteria, and to establish the range of scores that are appropriate to assign. The calibration files will be discussed and scored by the Review Committee before the rest of the full proposals.

For each calibration file as well as for the remaining full applications, the two (or three) main reviewers will present a summary of the proposal and of the mail reviews and state their initial letter scores and initial numerical scores.

After discussion by the whole Review Committee, the main reviewers will announce their final numerical scores. The rest of the Review Committee will then provide their own numerical scores for the proposals. After each full application has been scored by the whole Review Committee, an average score for each proposal is calculated to generate a ranked list of proposals recommended for funding. No subsequent changes to this ranking are made by HFSP.

Usually, the Review Committee meeting takes place as a face-to-face meeting in the HFSP office in Strasbourg. Depending on the development of the COVID-19 pandemic, it might however have to be conducted virtually.

Assessment criteria – Stage 1 – Letters of Intent

During the Letter of Intent stage, Review Committee members are asked to assess the submitted LOIs and take into account the following considerations:

A comprehensive list of the assessment criteria and a scoring guide are also provided in Appendix 1 (Assessment Criteria) and Appendix 2 (Scoring guide).

Research Plan:

- the scientific originality and innovative character of the proposal.
- the potential impact of the project on science beyond the immediate field.
- whether the proposal addresses an important basic biological problem, challenges existing paradigms and changes current ways of thinking.
- whether the proposal represents a clear departure from the previous research of the applicant which is viewed favourably.

The goal is to fund projects that are innovative, original, interdisciplinary and risky rather than safe and predictable.

Applicant:

- whether the applicant appears ready to embrace the risk of a frontier-pushing project and to step beyond the scope of expertise gained through previous work.
- whether the distinctive background and experience of the applicant will boost the project in unique ways.

Review Committee members are asked to evaluate the quality of the science produced by the applicants and not the number of publications or the impact factor of the journals in which they have published. The overall aim is to identify the frontier science research stars of the future.

Host laboratory and environment:

- whether the choice of host laboratory represents a good fit for the proposed research.

In addition to the letter scores, Review Committee members are also asked to formulate brief comments (3-6 lines) for each proposal.

The assessment of the LOIs will lead to a ranked list with a first cut-off. Approximately the top 15-20% LOIs will be invited to submit a full application and applicants will be informed by the Fellowship Office about the outcome of the first evaluation stage.

Assessment criteria – Stage 2 – Full Applications

After the submission of the full applications, Review Committee members are asked to assess these proposals and take into account the following considerations:

A comprehensive list of the assessment criteria and a scoring guide are also provided in Appendix 1 (Assessment Criteria) and Appendix 2 (Scoring guide). A 'ruler' on how to convert the criteria introduced in Appendix 1 and 2 into a numerical score can be found in Appendix 3 (Numerical scoring guide).

Research Plan:

- whether it is innovative, important, ground-breaking, potentially transformative.
- whether the proposal challenges existing paradigms and is going to change the current way of thinking.
- whether the results will likely make an impact beyond the immediate field.
- whether the proposal is risky, daring or better suited to 'safe' national funding schemes: does it have the 'HFSP' element? Or is it 'more of the same' in the relevant laboratory or from that applicant?
- whether it usefully combines applicant and host laboratory talents.
- whether it is a clear departure from the applicant's previous work.
- whether the applicant came up with the idea himself/herself.

The goal is to fund projects that are innovative, original, interdisciplinary and risky rather than safe and predictable.

Applicant:

- readiness of the applicant to embrace the risk of a frontier-pushing project and potential to tackle research questions at the leading edge of science that go beyond the scope of expertise gained through previous work.
- the level of intellectual contribution of the applicant to the proposed research project.

- potential of the applicant to succeed in their new field and project.
- matching of the background and experience of the applicant to the need of the proposal.
- impact of publications (rather than number of publications and journal impact factor), taking into account field-specific norms, time available, and career breaks such as long illnesses or parental leave; HFSP strongly discourages judgement of an applicant's excellence merely based on number of publications and impact factors of journals in which the applicant has published.
- contribution to the publications, judged from authorship position, stated contributions to each paper, and reference letters.
- awards and prizes
- the level of support, and statements regarding career potential, shown in the reference letters (but reviewers are asked to be aware of exaggerated references, potential cultural and gender biases etc.).
- indications of motivation, leadership, vision, and potential gained from free-form text sections of the proposal.

Host laboratory:

- whether the choice of host laboratory represents a good fit for the proposed research.
- opportunities for the applicant to rise and grow in that particular environment.
- capability of the host supervisor to direct the research of the applicant towards a successful outcome.
- whether the host supervisor's letter of support shows clear commitment and willingness of mentorship.

In addition to a numerical score for each assigned application, Review Committee members are also asked to provide written comments to guide the discussion at the RC meeting.

Ethics and confidentiality

Members of the Fellowship Review Committee are expected to comply with the highest level of ethical standards when evaluating fellowship applications. All applications must be considered confidential, and reviewers must emphasize this if they consult a colleague for a specific application.

Reviewers must not use previously undisclosed information contained in an application for their own research.

The evaluation should provide a constructive and objective assessment of the applications.

Applications must be securely destroyed after review.

Conflicts of interest

Reviewers should disclose as soon as possible any conflict of interest (real or perceived), so that the relevant application can be re-assigned to another committee member.

The HFSP considers Reviewers to be in a conflict of interest if they

- have or had a personal relationship with the candidate.
- are the candidate's current or former supervisor.
- are a collaborator with either the host supervisor or the applicant.
- are a referee for the applicant.
- are employed at the applicant's current or proposed host institution or organisation (e.g., RIKEN, MPI).

During a face-to-face meeting, Review Committee members must leave the room while proposals on which they are conflicted are discussed. If held virtually, Review Committee members will be moved into a virtual breakout room while proposals on which they are conflicted are discussed.

Appendix 1: Assessment criteria for HFSP Postdoctoral Fellowships

Criteria to assess	Considerations for assessment
Excellence of the proposed research plan	
Positioning of the proposal at the leading edge of the life sciences	<ul style="list-style-type: none"> - are the proposal and approaches innovative, original, risky and ground-breaking? - is the proposal at the leading edge of the life-sciences? Is it likely to be a trailblazer for future discoveries? - are the results likely to make an impact beyond the immediate field? - does the proposal challenge existing paradigms and is it going to disrupt the current way of thinking? - does the project address an important new problem or a barrier to progress in an established field? - how significant is the departure of the proposal from previous research of the applicant? <p>Specific for LTFs:</p> <ul style="list-style-type: none"> - how significant is the departure of the proposal from previous research of the applicant? <p>Specific for CDFs:</p> <ul style="list-style-type: none"> - does the proposal combine life sciences and non-life sciences in a unique way?
Excellence of the applicant	
Accomplishments and potential of the applicant	<ul style="list-style-type: none"> - does the applicant appear ready to embrace the risk of a frontier-pushing project and does he/she seem to be able to tackle research questions at the leading edge of science that go beyond the scope of expertise gained through the applicant's PhD? - does the applicant appear to have the potential to succeed in his/her new field and project? - was the research plan developed by the applicant himself/herself or does it seem to be a logical extension of the host laboratory's line of research? <p>Specific for LTFs:</p> <ul style="list-style-type: none"> - will the applicant be exposed to new theories, methods and ideas and will he/she use new approaches? <p>Specific for CDFs:</p> <ul style="list-style-type: none"> - is the specific (non-life science) background of the candidate likely to boost progress in the life-sciences by answering a fundamental question?
Host laboratory and host supervisor	
Standing of the host laboratory	<ul style="list-style-type: none"> - does the choice of host laboratory represent a good fit for the proposed research? - is the host supervisor capable to direct the research of the applicant towards a successful outcome? - is there opportunity for the applicant to rise and grow in that particular environment? - does the host supervisor have a clear mentorship plan?

Appendix 2: Scoring guide for HFSP Postdoctoral Fellowships

Excellence of Research Plan LOIs: scores from A-D Full submissions: scores from 0-7	Indicators
Outstanding LOI: A Full submission: 6-7 (fundable)	<ul style="list-style-type: none"> • highly innovative, frontier and risky • if successful, paradigm shifting and highly impactful for more than the immediate field • very likely that results will change current way of thinking <p>Specific for LTFs: significantly different from previous work Specific for CDFs: perfect combination of life-science and non-life science approaches and questions</p>
Excellent LOI: B Full submission: 4-5 (fundable)	<ul style="list-style-type: none"> • innovative, but less frontier and risky • some aspects might be impactful for the immediate field, but less likely to be paradigm shifting beyond that • likely that some results will change current way of thinking <p>Specific for LTFs: distinct from previous work, but conceptually similar Specific for CDFs: good combination of life-science and non-life science approaches and questions</p>
Accomplished LOI: C Full submission: 2-3 (fundable)	<ul style="list-style-type: none"> • somewhat mainstream and less original • impact beyond the immediate field is likely to be minor • unlikely to change current way of thinking <p>Specific for LTFs: largely based on previous work with few novel aspects Specific for CDFs: unclear whether the non-life science background of the applicant would have an impact on the biological question asked in the proposal</p>
Less competitive LOI: D Full submission: 0-1 (non-fundable)	<ul style="list-style-type: none"> • solid science, but mainstream • no paradigm shifts or major impact expected <p>Specific for LTFs: mainly a continuation of previous work Specific for CDFs: unique experiences and training of applicant are not necessary for or integrated into project</p>
Excellence of Applicant LOIs: scores from A-D Full submissions: scores from 0-7	Indicators
Outstanding LOI: A Full submission: 6-7 (fundable)	<ul style="list-style-type: none"> • applicant eager and capable to think beyond conventional knowledge and does not avoid risk • applicant seems very comfortable to go beyond the scope of previous expertise, to leave his/her comfort zone, and is very likely to succeed in doing so • development of proposal was for the most part the idea of and driven by applicant <p>Specific for LTFs: applicant proposes approaches and techniques that will expose him/her to extremely novel aspects of biology Specific for CDFs: applicant's specific background is ideally suited to boost progress in proposed research question</p>

<p>Excellent</p> <p>LOI: B Full submission: 4-5</p> <p>(fundable)</p>	<ul style="list-style-type: none"> • applicant seems ready to think beyond borders and ready to embrace some risk • applicant provides some evidence for his/her willingness to leave their comfort zone and for the ability to succeed with the new challenges • development of proposal was driven by host and applicant to a similar extent <p>Specific for LTFs: proposes some methods and approaches that are very distinct from previous ones</p> <p>Specific for CDFs: specific non-life science training will likely secure success in new field</p>
<p>Accomplished</p> <p>LOI: C Full submission: 2-3</p> <p>(fundable)</p>	<ul style="list-style-type: none"> • applicant seems to be somewhat risk-avoiding and less likely to be willing to embrace a completely new research area • minor contribution of applicant to the development of the research plan which was mostly driven by the supervisor <p>Specific for LTFs: applicant proposes mostly established methods and approaches that he/she has been exposed to before</p> <p>Specific for CDFs: somewhat unclear how the specific background of applicant will boost progress in new field</p>
<p>Less competitive</p> <p>LOI: D Full submission: 0-1</p> <p>(non-fundable)</p>	<ul style="list-style-type: none"> • applicant does not seem to be ready to embrace a risky and bold research project • development of the research plan which was entirely driven by the supervisor • minimal change in research direction <p>Specific for LTFs: applicant proposes only mainstream and established approaches and techniques</p> <p>Specific for CDFs: unique background of applicant is not integrated into new research plan</p>
<p>Host laboratory and host supervisor</p>	<p>Indicators</p>
<p>Standing of the host laboratory</p> <p>(yes/no/maybe)</p>	<ul style="list-style-type: none"> • are the proposed host laboratory and host supervisor a good fit for the goals in the research plan? • does the host laboratory provide good opportunities and the right infrastructure for the applicant to achieve his/her research goals? • does the letter of support show his/her commitment to mentor and support the applicant?

Appendix 3: Numerical scoring guide for RC meeting (ruler)

Reviewers are asked to plot their scores as they give them, so that they can track their score distribution.

	Less competitive / non-fundable	Accomplished / fundable	Excellent / fundable	Outstanding / fundable
R E S E A R C H P L A N	<ul style="list-style-type: none"> - solid science, but mainstream - no paradigm shifts or major impact expected - mainly a continuation of previous work 	<ul style="list-style-type: none"> - original, but somewhat mainstream - impact beyond the immediate field is likely to be minor - unlikely to change current way of thinking - some new aspects, but largely based on previous work 	<ul style="list-style-type: none"> - innovative, but less frontier and risky - some aspects might be impactful for the immediate field - less likely to be paradigm shifting - likely that some results will change current way of thinking - distinct from previous work, but conceptually similar 	<ul style="list-style-type: none"> - highly innovative, frontier and risky - if successful, paradigm shifting and highly impactful for more than the immediate field - very likely that results will change current way of thinking - significantly different from previous work
A P P L I C A N T	<ul style="list-style-type: none"> - applicant does not seem to be ready to embrace a risky and bold research project - development of the research plan which was entirely driven by the supervisor - minimal change in research direction - applicant proposes only mainstream and established approaches and techniques 	<ul style="list-style-type: none"> - applicant seems to be somewhat risk-avoiding and less likely to be willing to embrace a completely new research area - minor contribution of applicant to the development of the research plan which was mostly driven by the supervisor - applicant proposes mostly established methods and approaches that he/she has been exposed to before 	<ul style="list-style-type: none"> - applicant seems ready to think beyond borders and ready to embrace some risk - applicant provides some evidence for his/her willingness to leave their comfort zone and for the ability to succeed with the new challenges - development of proposal was driven by host and applicant to a similar extent - proposes some methods and approaches that are very distinct from previous ones 	<ul style="list-style-type: none"> - applicant seems extremely eager to think beyond conventional knowledge and does not avoid risk - applicant seems very comfortable to go beyond the scope of previous expertise, to leave his/her comfort zone, and is very likely to succeed in doing so - development of proposal was for the most part the idea of and driven by applicant - applicant proposes approaches and techniques that will expose him/her to novel aspects of biology

0	1	2	3	4	5	6	7
Less competitive / non-fundable		Accomplished / fundable		Excellent / fundable		Outstanding / fundable	