French Priority Research Programme (PPR) on Antibiotic resistance:

Call for junior and senior researcher positions

CONTEXT AND OBJECTIVES

Following the first research call "Antibiotic resistance: understand, innovate, act" and second call for three national structuring tools and platforms, the French Priority Research Programme (*Programme prioritaire de recherche*, PPR) on antibiotic resistance launches its third research **call for junior and senior researcher positions**. Candidates will develop research of excellence in the field of antibiotic resistance to enrich the research environment being built in France. The PPR is coordinated by the French National Institute for Health and Medical Research (*Institut national de la santé et de la recherche médicale,* Inserm).

AVAILABLE POSITIONS

Senior researcher positions

The senior researcher positions aim to attract scientists of excellence – without nationality considerations - to develop multi-disciplinary research projects on antibiotic resistance in France, favouring a One Health approach when possible or relevant. Candidates aiming to fully integrate the French research system are encouraged. These positions will be hosted in an established laboratory on the French territory.

Junior researcher positions

The junior researcher positions will enable young scientists to set up and lead a research team within an established laboratory in France and develop projects of excellence on antibiotic resistance.

Recommended research expertise

The research expertise of the candidates will have to cover at least one of the following 4 research themes pertinent to all three health sectors (human, animal and the environment). A summary of each theme can be found at the end of this document and is detailed in French in the call research projects "Antibiorésistance: comprendre, innover, agir" (https://anr.fr/fileadmin/aap/2020/ia-aap-ppr-amr-2020.pdf).

- Dynamics and control of the emergence, transmission and spread of antibiotic resistance.
- Optimising the use of antibiotics in human and veterinary medicine.

- Individual, ethnological and sociological, economic, political and cultural determinants of antibiotic resistance.
- Therapeutic innovation.

<u>TERMS AND CONDITIONS</u>

Duration

Projects may start as early as the 1st trimester of 2023 for a duration ranging from 18 to 60 months for senior positions and 48 to 60 months for junior positions.

Eligibility criteria

- Senior researcher positions
    - The call is open to all nationalities.
    - French or foreigner research scientists living in a country other than France are encouraged to apply.
    - More than 10 years of research experience since having defended their PhD or equivalent doctoral degree are required.
    - A shared position with the institute of origin of the candidate can be considered, provided that a minimum of 50% of the activity is carried out in France for the duration of the contract. Temporary research exchange such as visiting professorships or sabbaticals are not encouraged.
    - For maternity and paternity leaves, the years of research experience requested since the PhD defence can be extended by the documented amount of leave taken for each child born before or after the PhD award, at the candidate's request.

- Junior researcher position
    - Experience criteria: open to any young scientist, whatever their present position and nationality, who have defended their PhD or equivalent doctoral degree within 3 to 10 years as of February 3rd, 2022.
    - Applicants cannot develop their project within their current structure if they have been working there for more than 24 months. However, a change of structure renders the candidate eligible. Returning to the laboratory where the candidate carried out his/her PhD is not encouraged.
    - Candidates who have either a permanent or temporary position in a French national research organism or university at the time of submission are eligible.
    - For maternity and paternity leaves, the time criteria requested since the PhD defence (ref. "Experience criteria") can be extended by the documented amount of leave taken for each child born before or after the PhD award, at the candidate's request.

Evaluation criteria

- PPR research positions will be awarded based on scientific excellence.
- Quality of the applicant: candidates should be able to show their professional experience and achievements attested by significant publications (as main author – first, last, corresponding or co-authorship position), additional responsibilities such as their role in the laboratory, teaching, participation in international boards and committees, invitations to international conferences, awards, fellowships, patent applications and licences, creation of start-ups and other relevant activities.

- Multi-disciplinary expertise will be encouraged.

Funding

- Senior research positions: € 1M maximum over 18 to 60 months for each grant within a total budget of € 4M.
- Junior research positions: € 500k maximum over 48 to 60 months for each grant within a total budget of € 3.5M.
- The host laboratory will have to provide the selected candidate with a dedicated laboratory space of about 50m² for junior positions and approximately 80m² for senior positions and access to local technological facilities.

IMPORTANT DATES

- November 23rd, 2021: call opening
- February 3rd, 2022: deadline for online submission and letters of recommendation
- April 2022: publication of first step selection
- May 2022: discussions between pre-selected candidates and potential host laboratories to facilitate the candidates' projects development.
- Second step according to the ANR timeline
- 2nd semester 2022: definite selection of research laureates by the ANR
- As early as the 1st trimester, 2023: Start of the contract

Selection process agenda

First step: call for applications coordinated by Inserm
- Candidatures are to be submitted through the Inserm EVA3 online platform (https://www.eva3.inserm.fr/login).
- The deadline for applications is February 3rd, 2022.
- Candidates will be assessed on their proven scientific excellence by a specialised scientific expert committee.
- Only selected candidates will be eligible to apply to the second step.
- Selected candidates of the first step will be notified of the committee's decision in April 2022.

Second step: call for projects coordinated by the French National Research Agency (*Agence nationale de la recherche*, ANR)
- Eligible candidates will be notified of the submission process and timeline organised by the ANR, following the Inserm committee decision.
- The second step will require submission of a project proposal in collaboration with a host laboratory based in France.

Host laboratory envisaged for step two:
o The research project must be conducted in a French host laboratory.
o Identification of a host laboratory is not mandatory at the first selection step. A non-exhaustive list of possible host laboratories can be found on the French national antibiotic resistance portal (https://ppr-antibioresistance.inserm.fr/en/forces-de-recherche-francaises/les-equipes/). Candidates are free to contact any French laboratory having activities linked to antibiotic resistance.

o The host laboratory must be involved in the design of the research project and the applicant should ensure that the host laboratory has all the equipment needed for the proposal, to guarantee that the best conditions are met for success.

DOCUMENTS REQUIRED FOR CANDIDATE APPLICATION (see "Guide for applicants" for further information)

1. Online Form (submission website address: https://www.eva3.inserm.fr/login)
2. Curriculum Vitae
3. PhD diploma
4. A brief description of the candidate's scientific career and major accomplishments
5. A motivation letter highlighting the candidate's interest in integrating the French research environment
6. Two letters of recommendation

CONTACT DETAILS

PPR directorate: direction-ppr-antibioresistance.i3m@inserm.fr
Technical assistance relative to the EVA3 Inserm platform: eva.dsi@inserm.fr

COMPLEMENTARY INFORMATION

The complete details of the PPR are available on the French National Antibiotic Resistance Portal, a tool dedicated to research:
https://ppr-antibioresistance.inserm.fr/en/

Summary of the 4 research themes of the PPR *(please find a detailed description in French in the following document https://anr.fr/fileadmin/aap/2020/ia-aap-ppr-amr-2020.pdf, section 1.2, subsection "Challenges" and https://ppr-antibioresistance.inserm.fr/fr/ppr-antibioresistance/objectifs-du-programme-antibioresistance/ , section describing axes 1-4)*:

- **Dynamics and control of the emergence, transmission and spread of antibiotic resistance** *(Challenge 1)*

We are facing a global dissemination of antibiotic resistance. Taking action against this affliction requires studying the mechanisms of emergence, transmission and spread of antibiotic resistance, including in the environment, animal and human ecosystems, using a combination of mechanistic and novel information-based technology approaches. The ultimate objective is to model processes in order to assess and predict the level of risk of acquisition, transmission and spread of antibiotic resistance.

- **Optimising the use of antibiotics in human and veterinary medicine** *(Challenge 2)*

To develop and evaluate new tools, methods or strategies to develop antibiotic stewardship practices and improve the appropriateness of antibiotic prescriptions and use, such as: (i) rapidly differentiating bacterial infections from other types of infections, and characterising antibiotic resistance mechanisms and susceptibility and assessing the impact of these diagnostic tests on clinical practices; (ii) minimising the effects of dysbiosis on human, animal and environmental microbiomes ; (iii) controlling epidemic risks to reduce transmission and avoid the excessive use of antibiotics; (iv) evaluating best practices, taking into account risks and benefices of innovations, to limit the development of antibiotic resistance; (v) optimising strategies for prescription and use of antibiotics (preventive or curative) to reduce the risk of resistance in humans, animals, and the environment. The development of diagnostic, modelling, data mining and deep learning tools are encouraged.

- **Individual, ethnological and sociological, economic, political and cultural determinants of antibiotic resistance** *(Challenge 3)*

It is important to improve our understanding of decision-making processes underlying antibiotic use and to identify environments and mechanisms that improve prescription and usage. It is also necessary to analyse and identify ways to promote infection prevention and control practices and minimise the release of antibiotics into the environment. This requires analysing, understanding and characterising contextual determinants and social factors, identifying economic logics, individual or professional practices, legal frameworks, dialogues, situations, observing population groups, social, institutional and private actors, and locations for decision-making and communication of the problematic. The objective is to identify the social and economic impacts of these behaviours and practices, as well as their consequences.

- **Therapeutic innovation** *(Challenge 4)*

New therapeutic and preventive strategies must be considered to counter the development of antibiotic resistance through a holistic approach that integrates environmental considerations, animal contexts and human health. This scientific challenge aims to identify and develop innovative therapeutic and preventive alternatives that respect commensal flora and non-targeted bacterial ecosystems. The identification of new molecules, the repositioning or combination of existing molecules, immunotherapy, phage therapy or faecal transfer are at the heart of this challenge. If necessary, all these strategies can be combined with modelling and artificial intelligence approaches.