Towards a better understanding of the skin-dwelling African trypanosomes biology

Postdoctoral Research Fellow (m/f) in Molecular Parasitology – 30 months

Scientific Environment

Institut de Recherche pour le Développement (IRD)
The French National Research Institute for Sustainable Development (IRD), an internationally recognised multidisciplinary organisation working primarily in partnership with Mediterranean and inter-tropical countries, is a French public establishment under the joint authority of the French Ministry of Higher Education and Research and the Ministry of Foreign A airs and International Development.

Via its network and presence in fifty or so countries, it takes an original approach to research, expertise, training and knowledge-sharing, to the benefit of countries and regions that make science and innovation key drivers in their development

INTERTRYP Unit (UMR IRD/CIRAD). With their Southern and European partners, Intertryp has adopted an integrated "One Health" approach to all aspects of the Trypanosomatid cycle—hosts, parasites, vectors, microbiota and the environment, in order to: (i) diagnose, analyse, develop and provide partners in the South and neglected populations with ways of controlling and eliminating these diseases, and (ii) improve public and animal health, and increase food security in a context of global change. This is accompanied by a strong skill-development and capacity-building component for our partners.
https://umr-intertryp.cirad.fr

Geographic localization

Montpellier (France), with fieldwork in Guinea Republic and Ivory Coast.

Project description

The fellow will integrate the « TRYPADERM » project, granted by the French ANR and led by the Pasteur Institute, to explore the role of the African trypanosomes that have been recently discovered in an original reservoir: the skin. *Trypanosoma brucei gambiense* causes Human African Trypanosomiasis (HAT). These extra-cellular protist parasites are transmitted by tsetse flies and proliferate in the host blood. We have recently demonstrated that the skin was a major yet overlooked anatomical reservoir for trypanosomes that may thwart control programs. This project aims at understanding the biological significance of skin parasites, especially how they impact our current view of transmission, diagnosis and treatment. We will (1) unravel the development of skin-dwelling parasites (differentiation, proliferation, migration), (2) study host/parasites interactions (sequestration, skin remodelling) and (3) further translate these results into applications (prevalence, treatment efficacy and new detection methods). Overall, this multi-disciplinary project will greatly increase our understanding of trypanosome biology in a yet unexplored compartment, and will be determinant for the possible HAT elimination.

Skills, experience and qualifications

The candidate will conduct a transversal investigation that will combine the development of new diagnostic tools to detect and to isolate *T. brucei gambiense*, with field studies (in Republic of Guinea and Côte d'Ivoire) that will consist in screening and identifying people who harbour skin-dwelling parasites. The samples will be analysed in particular by the mean of NGS technics (DNA- and RNA-Seq) that will allow us to unravel the molecular and cellular mechanisms underlying this phenomenon.

The candidate should demonstrate

- ✓ A strong Molecular Biology background, with special emphasis to NGS analysis.
- ✓ A good experience in Cellular Biology combined with animal experimentation skill.
- ✓ Skills for field and team work, with capacity of autonomy and adaptability.
- ✓ Strong publication track record with at least one first-author paper in a reputed peer-reviewed journal.
- ✓ Previous experience in developing countries will be appreciated (particularly in the context of Neglected Tropical Diseases)

The applicant is required to hold a Ph.D. in biology, molecular biology, biochemistry or a related field, and has solid written and oral communication skills (with 2 to 5 years postdoc experience). French and English languages are required.

Complementary information

Salary will be in conformity with the salary grid of the IRD, according to the candidate experience.
Starting date: November-December 2018.
If you are interested, please send your CV, two recommendation letters, and a letter of interest where you explain: A/How you would fit to this position (skills and expertise), B/What your most important scientific achievement is and C/What your research interests and long-term career plans are.

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