



Institut Pasteur

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ANNOUNCEMENT OF POSTDOC POSITION AT INSTITUT PASTEUR, PARIS, FRANCE

The Unit of Molecular Parasitology and Signaling at the Institut Pasteur (Paris, France) is seeking applications from outstanding candidates for a 2-year Junior PostDoc position. The project is entitled 'EvoLeish: Mapping mechanisms of evolutionary adaptation underlying fitness gain in New World *L. infantum* strains'. American Visceral Leishmaniasis (AVL) caused by *Leishmania infantum* is a persistent public health challenge in the Americas. These parasites were introduced in the New World ca 500 years ago during the Spanish conquest. How *L. infantum* evolved in this new environment and how ecological adaptation affects today's infection dynamics and the clinical outcome of the disease remains to be investigated. Our project responds to these shortcomings and capitalizes on our recent key discovery that Brazilian *L. infantum* strains carry a 12kb genomic deletion that causes loss of 4 open reading frames (ORFs). We hypothesize that this deletion is under natural selection in the Brazilian environment and that the loss of the genomic region provides a fitness advantage. We will investigate this hypothesis by applying DNA and RNAseq analyses, ribosomal profiling and CRISPR/Cas9 gene editing on deleted (DEL) and non-deleted (NDEL) strains with the objectives to (i) map genomic and transcriptomic responses that may compensate for the deletion of the 4 ORFs, (ii) assess the phenotype of DEL strains after reconstitution of the 4 ORFs by transgenic expression using macrophage and murine infection assays, and (iii) re-engineer the DEL genotype in wildtype *L. infantum* to assess the role of the 4 ORFs in parasite viability, infectivity and fitness. Successful candidates should be familiar with standard molecular biology approaches (PCR, cloning, transfection) and tissue culture. Prior experience with *Leishmania* is not mandatory but useful. Interested candidates should send letter of motivation, CV and the names of three referees for recommendation letters to gerald.spaeth@pasteur.fr. The position will be filled by April 1st 2022.

References

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