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The LeiSHield-MATI Consortium: An International Project to Understand and Combat Cutaneous Leishmaniasis through Research and Innovation Staff Exchange

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Letter to the Editor

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Dear Editor,

For long, it had become evident to leishmaniases researchers that the pathological outcomes of infections such as cutaneous leishmaniasis (CL) are affected by complex interactions of multiple factors, including the genetic diversities of the parasite and its phlebotomine vector, the immunocompetence of the human hosts, the mammalian reservoirs and last but not least, the environmental conditions, which favors the propagation of the parasite in transition [1]. Hence, simplistic assumptions based on data obtained from small animal models or monitoring the fluctuations of a few available biomarkers [2] have not been able to elevate our understanding of the mechanisms that shape or control CL pathologies. This has left us with no approved vaccination or new therapeutic for any forms of CL. The above shortcomings were addressed during a two-day *Leishmania* panel session within the 2016 meeting of Pasteur Institutes of the MATI region (Morocco, Algeria, Tunisia, and Iran) with the participation of Institut Pasteur in Paris, which was held at Pasteur Institute of Iran in Tehran. The exchange of ideas among the experts in that panel led to the proposition of a multilateral yet integrated research approach toward finding preventive and therapeutic means against the shared CL problem of this region. The main elements of this approach were based on "*Leishmania* genomics", "host immune responses", and "vector and transmission" thematics. Moreover, the issue of the social impact of CL was also raised, with the aim to increase public awareness on societal calamities caused by this neglected disease [3].

Upon a request by the Institut Pasteur International Network (IPIN) and with tremendous contributions of all the involved *Leishmania* researchers and in particular, Dr. Gerard Spaeth (head of Molecular Parasitology and Signaling Unit of Institut Pasteur), the topics and work-packages defined in the aforementioned *Leishmania* panel were developed into a well-defined two-year research project. This proposal entitled "LeiSHield-MATI Project - A multi-disciplinary integrative approach toward understanding clinical, molecular and socio-economic factors underlying cutaneous leishmaniasis across Morocco, Algeria, Tunisia and Iran in collaboration with Institut Pasteur International Network", was evaluated and accepted by external reviewers under supervision of IPIN in 2017 and was consequently approved for funding by each involved Pasteur Institute in the consortium (€20,000 for 2 years per Institute).

Because of the extraordinary potentials of this project, a modified version of the project was submitted to European Union's largest and most challenging Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) action of the Horizon 2020 program, under the supervision of Dr. Spaeth and with a substantial support from Institut Pasteur's Grants Office in Paris. In addition to the previous partners, the University of Gothenburg (Sweden), Charles University in Prague (The Czech Republic), Institute of Tropical Medicine in Antwerp (Belgium) and Acobiom biotechnology company in Montpellier (France) joined as partners with defined responsibilities. After receiving excellent scores by the reviewers, this proposal named

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"H2020 LeiSHield-MATI RISE - A multi-disciplinary international effort to identify clinical, molecular and social factors impacting cutaneous leishmaniasis" was accepted for funding (more than €1.7 million/4 years) in 2017. The project officially started in April 2018 with the primary goal of establishing an innovative, collaborative platform to allow future development of new therapeutic and preventive measures against CL through research and innovation staff exchange and knowledge sharing. By providing mobility for the graduate students and researchers in this program from one to several months, this project can bring together the unique expertise of CL researchers in the endemic areas of the MATI region and the advanced infrastructures and technologies of the European partners.

This model of integrative research on a complex parasitic disease across many borders reminds us of the insight of Louis Pasteur, who more than a century ago wrote: "*Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world*".

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest associated with this letter.

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