

### **Bill & Melinda Gates Foundation grant to Portuguese researchers to develop a vaccine against malaria**

Miguel Prudêncio, researcher at *Instituto de Medicina Molecular* (IMM), Portugal, received an award from the Bill & Melinda Gates Foundation to develop an innovative idea for a vaccine against malaria. Miguel Prudêncio's project is one of a few grants, selected among 2400 applications to the call *The Discovery Program of the Bill & Melinda Gates Foundation – Grand Challenges in Global Health* (<http://www.gatesfoundation.org>). This award translates into a funding of US \$100,000 for 18 months.

Miguel Prudêncio and his team at IMM aim to produce a whole-organism vaccine based on a malaria parasite - *Plasmodium berghei* - that only infects rodents and is unable to promote malaria in humans. Their idea is to genetically modify this parasite so it will activate and teach the human immune system to fight the human malaria parasite, hence preventing the disease in humans.

The innovative aspect of this project is the use of a malaria parasite that cannot induce disease in humans. So far, several approaches for the development of a malaria vaccine have been focused on the attenuation of *Plasmodium falciparum*, the parasite that promotes malaria in humans. These strategies are based on the attenuation of the parasite either with radiation or by genetic modification. The problem of these approaches is that they still encompass a risk of the vaccine itself inducing malaria, as a few parasites may evade the attenuation process. In Miguel Prudêncio team's approach, these risks are virtually non-existent, since the parasite they will use infects only rodents and not humans.

During the next 18 months, the research team will focus on demonstrating that the genetically modified rodent parasite is able to induce the expected immune response in human cells and simultaneously confirm the safety premises of the approach. Once this stage is completed the team proposes to test the vaccine in humans by performing clinical trials and controlled assays in regions where malaria is endemic. This second phase of the project might also be funded by Bill & Melinda Gates Foundation.

#### **About IMM and the team**

**Instituto de Medicina Molecular** (IMM), is a reference biomedical research centre in Portugal, having acquired the special status of Associate laboratory of



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the Portuguese Ministry of Science and Technology. IMM's mission is to promote basic, translational and clinical biomedical research with the aim to understand the mechanisms of disease and develop novel therapeutic approaches. The recent creation of the **Academic Medical Centre of Lisbon** gathers in a single consortium the Institute of Molecular Medicine, The Faculty of Medicine of the University of Lisbon and the Hospital de Santa Maria with the aim of developing an integrated perspective of medicine, fostering the transversal biomedical research, from the bench to the clinic. More at: <http://www.imm.fm.ul.pt>

**Miguel Prudêncio** is a Principal Investigator at the IMM Malaria Unit, led by Maria M. Mota. Miguel Prudêncio has a PhD (2000) from the University of East Anglia, United Kingdom, and was a post-doctoral researcher in Leiden University, The Netherlands. His work has focused on the study of malaria infection since 2004.

**For more information please contact:**

Marta Agostinho

Communication and Training unit

Instituto de Medicina Molecular

**E-mail:** [marta-elisa@fm.ul.pt](mailto:marta-elisa@fm.ul.pt)

**Mobile:** +351 918 486 058; **Phone.** +351 21 7999 411

