

## Foreword

This is the third time that *Memórias do Instituto Oswaldo Cruz* has launched a special issue entirely devoted to malaria.

The first of these malaria-specific issues published contributions to the International Symposium on Malaria (the 1st of the Brazilian Meetings on Malaria Research), which was held in Rio de Janeiro, Brazil, in 1986, when the number of recorded malaria cases was rapidly increasing in Brazil, due to the disordered immigration to some Amazonian areas in particular. That issue [*Mem Inst Oswaldo Cruz* 81 (Suppl. II); available from [memorias.ioc.fiocruz.br/1986p.html](http://memorias.ioc.fiocruz.br/1986p.html)] represented a significant update of the knowledge on malaria at the time. In 1991, we published a supplement which recorded the main contributions to the IV International Congress on Malaria and Babesiosis, also held in Rio, whose contents are mostly dedicated to malaria studies [*Mem Inst Oswaldo Cruz* 87 (Suppl. III); available from [memorias.ioc.fiocruz.br/1992p.html](http://memorias.ioc.fiocruz.br/1992p.html)]. But the second entirely malaria-specific issue was published in 2007, to celebrate the centenary of the discovery of the exo-erythrocytic cycle of the malaria parasite by the Brazilian researcher Henrique Aragão. The issue included an outstanding set of original papers and reviews from researchers all over the world, covering various malaria-related topics [available from [memorias.ioc.fiocruz.br/102\(3\)/102\(3\).htm](http://memorias.ioc.fiocruz.br/102(3)/102(3).htm)]. The present special issue is the result of a commitment by the scientific community attending the XII Brazilian Meeting on Malaria Research, held in Ouro Preto, Brazil, in 2010, the year in which we celebrated the centenary of the discovery of the resistance of the malaria parasite to quinine by Arthur Neiva, another Brazilian scientist at the Instituto Oswaldo Cruz, where H Aragão also worked. A Neiva's outstanding discovery took place during his field work in Xerém, in the surroundings of Rio de Janeiro, and was published in the second volume of *Memórias* with the title *Formação de raça de hematozoário do impaludismo resistente a quinina* [*Mem Inst Oswaldo Cruz* 1: 131-140, 1910; available from [memorias.ioc.fiocruz.br/pdf/Tomo02/tomo02\(f1\)\\_131-140.pdf](http://memorias.ioc.fiocruz.br/pdf/Tomo02/tomo02(f1)_131-140.pdf)].

At present, it is estimated that half of the world's population is at risk of contracting malaria, a parasitic disease that kills nearly one million people a year worldwide. Therefore, the current issue on malaria studies is being published at a time when malaria eradication is back on the global health agenda. Malaria must be targeted to achieve the anti-poverty goals set by the United Nations Millennium Development Goals, an unprecedented global effort to alleviate extreme poverty by 2015 ([un.org/en/mdg/summit2010/](http://un.org/en/mdg/summit2010/)).

The 28 reviews and original contributions published in this special issue provide an overview of the richness and diversity of topics addressed at the XII Brazilian Meeting on Malaria Research and reflect the state-of-the-art of investigations involving malaria parasites, the vertebrate host and the mosquito vectors. This collection covers new scientific advancements in protective immune responses, vaccine development, mechanisms of pathogenesis, biomarkers for infection and disease, and new targets for chemotherapy based on knowledge of the parasite's metabolic pathways and on ethnobotanical surveys. This issue also provides new insight into future challenges posed by *Plasmodium vivax* infection - the most widely distributed human malaria parasite - highlighting the cytoadherence phenomenon, disease severity and genetic diversity. Beyond outlining the newest strategies of vector control, the program emphasises the role of some regional and secondary mosquito species that have been implicated on malaria transmission. Ultimately, understanding the epidemiology of malaria transmission in endemic countries in Latin America, especially in Brazil and Colombia, and in Africa may aid in developing new approaches to the control and eventual elimination of transmission in some regions, as requested by the Malaria Eradication Research Agenda ([malera.tropika.net/](http://malera.tropika.net/)).

All papers underwent peer review and the usual editorial revision processes. We would like to thank the numerous peer-reviewers from across the world for their detailed and useful critiques of the manuscripts. Without these reviewers, whose expertise covers various fields of the study of malaria, this special issue would not be possible. Therefore, the Editors wholeheartedly thank these scientists for their indispensable assistance.

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