

Malaria Bulletin



OFFICE FOR MALARIA RESEARCH

SEPTEMBER 2014

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South African Champions in Malaria Research No. 3

Brian Sharp

- Born 25 February 1952, deceased 2 April 2007, aged 55 years
- 1981 joined the MRC in Durban and started the Malaria Unit (MU).
- 1999 the MU became the Malaria Research Lead Program (MRLP) and Sharp became director of this program.
- In late 1990's his fight to continue the use of DDT in South Africa paid off when special exemption from the Stockholm Convention's ban on DDT was granted and the use of DDT in malaria control was allowed to continue in South Africa.
- Sharp worked extensively with the Swiss Tropical Institute to compare insect treated nets with indoor residual spraying.
- A hugely successful cross border malaria control initiative with southern Mozambique and Swaziland was established whilst Sharp was at the MRC. This initiative incorporated spraying, community mobilization and surveillance, as well as the diagnosis and treatment of malaria cases
- Over and above the continued use of DDT Sharp fought long and hard for the use of artemisinin combination therapy which, at the time, was deemed to be too expensive.
- Sharp was actively involved on several committees, including the UN Millennium Development Goal's Malaria Task Force and he contributed to many research papers that were published in various journals.
- Besides establishing the cross border malaria control initiative he also advised other African countries on malaria control, e.g. Zimbabwe and Zambia.
- The success of South Africa's malaria control program can largely be contributed to Sharp's determination, commitment and professional integrity during his tenure as Director of the MRLP.

HIGHLIGHTS IN MALARIA RESEARCH

Easier way to manipulate malaria genes

Plasmodium falciparum, the parasite that causes malaria, has proven notoriously resistant to scientists' efforts to study its genetics. It can take up to a year to determine the function of a single gene, which has slowed efforts to develop new, more targeted drugs and vaccines.

MIT biological engineers have now demonstrated that a new genome-editing technique, called CRISPR, can disrupt a single parasite gene with a success rate of up to 100 percent -- in a matter of weeks. This approach could enable much more rapid gene analysis and boost drug-development efforts, says Jacquin Niles, an associate professor of biological engineering at MIT.

"Even though we've sequenced the entire genome of *Plasmodium falciparum*, half of it still remains functionally uncharacterized. That's about 2,500 genes that if only we knew what they did, we could think about novel therapeutics, whether it's drugs or vaccines," says Niles, the senior author of a paper describing the technique in the Aug. 10 online edition of *Nature Methods*.

The paper's lead author is Jeffrey Wagner, a recent PhD recipient and current MIT postdoc in biological engineering. Graduate student Randall Platt, recent PhD recipient Stephen Goldfless, and Feng Zhang, the W.M. Keck Career Development Assistant Professor in Biomedical Engineering, also contributed to the research.

Plasmodium falciparum, a blood-borne parasite carried by mosquitoes, is responsible for most of the estimated 219 million cases, and 655,000 deaths, from malaria per year. Treatments include chloroquine and artemisin, but the parasite is becoming more resistant to these drugs.

There is an urgent need to develop new drugs, but potential genetic targets are hard to identify. In animals such as mice, it is fairly routine to study gene functions by deleting a target gene or replacing it with an artificial piece of DNA. However, in *Plasmodium falciparum*, this approach can take up to a year because it relies on homologous recombination, a type of genetic swapping that cells use to repair broken DNA strands. This occurs very rarely in the genome of the malaria parasite..... Read the full article on the following website:

Massachusetts Institute of Technology. "Easier way to manipulate malaria genes."

ScienceDaily. ScienceDaily, 11 August 2014.

<http://www.sciencedaily.com/releases/2014/08/140811170239.htm>

RECENTLY PUBLISHED PAPERS

1. The RTS,S/AS01 Malaria Vaccine

An important international paper recently appeared in a high-impact journal. Within two weeks of publication, the article had been viewed by 12400± people online. The input of several South African scientists is mentioned in the “Acknowledgements” section. Helminthiasis can diminish the efficacy of particular types of vaccines against malaria and other non-helminthic diseases; and the publication cites a 2007 article (in *Trends in Parasitology*), by two South African parasitologists. It explains how **not** to control for worm infections in clinical vaccine trials.

The reference for the new paper is:

The RTS,S Clinical Trials Partnership. (2014).

Efficacy and safety of the RTS,S/AS01 malaria vaccine during 18 months after vaccination: a phase 3 randomized, controlled trial in children and young infants at 11 African sites.

PLoS Medicine, 11 (7): e1001685.

<http://dx.doi.org/10.1371/journal.pmed.1001685>

2. Yamada H, Vreysen MJ, Gilles JR, Munhenga G, Damiens DD. 2014.

The effects of genetic manipulation, dieltrin treatment and irradiation on the mating competitiveness of male *Anopheles arabiensis* in field cages.

Malaria Journal. 2014 Aug 13;13(1):318.

3. Clifford M Mutero, Randall A Kramer, Christopher Paul, Adriane Lesser, Marie Lynn Miranda, Leonard EG Mboera, Rebecca Kiptui, Narcis Kabatereine and Birkinsh Ameneshewa.

Factors influencing malaria control policy-making in Kenya, Uganda and Tanzania.

Malaria Journal. 2014; 13:305. doi:10.1186/1475-2875-13-305

LOCAL AND OVERSEAS CONFERENCES

These are some of the malaria related conferences advertised for 2014/2015. For more information visit the relevant websites:

1. 25th Molecular Parasitology Meeting (MPM), Woods Hole, MA, USA – 14 to 18 September 2014
https://ws3.mbl.edu/iebms/wri/wri_p1_display.aspx?oc=10&cc=MPM-HOME
2. Challenges in Malaria Research, Oxford, U.K. – 22 to 24 September 2014
www.challenges-in-malaria-research.com/2014/
3. 63rd ASTMH Annual Meeting, New Orleans, LA, USA – 2 to 6 November 2014
<http://www.astmh.org/Home.htm>
4. 62nd Annual Meeting of the Entomology Society of America, Portland, Oregon, USA – 16 to 19 November 2014
http://www.entsoc.org/annual_meeting
5. Impact of Environmental Changes on Infectious Disease, Sitges, Spain – 23 to 25 March 2015
<http://www.iecid2015.com>
6. British Society of Parasitology Spring Meeting, Liverpool, U.K. – 16 to 18 April 2015
<http://www.bsp.uk.net/news-and-events/bsp-events/bsp-spring-meeting-2015-liverpool/>
7. The Malaria Gordon Research Conference, Girona, Spain – 26 to 31 July 2015
<http://www.grc.org/programs.aspx?id=12779>
8. 9th European Congress on Tropical Medicine & International Health, Basel, Switzerland – 6 to 10 September 2015
<http://www.festmih.eu/ectmihbasel2015>

FUNDING OPPORTUNITIES

(Some large, some small!)

Visiting Fellowships, University of Oxford

Closing date: 5th September 2014. Read full details at:

[www.all-souls.ox.ac.uk/content/Visiting Fellowships 2015-2016: Further Particulars](http://www.all-souls.ox.ac.uk/content/Visiting_Fellowships_2015-2016:Further_Particulars)

Research Visit Grant, Society for General Microbiology (SGM)

Closing date: 1st October 2014. For full details, please visit:

www.sgm.ac.uk/en/grants-prizes/travel-research-funds.cfm/research-visit-grants

ACS Award: Encouraging Women into Careers in the Chemical Sciences

Closing date: 1st November 2014. For more information, visit:

www.acs.org/content/acs/en/funding-and-awards/awards/national/bytopic/acs-award-for-encouraging-women-into-careers-in-the-chemical-sciences.html

Other Countries Partnering Awards, Biotechnology and Biological Sciences Research Council

Applications are accepted from 15th September and 13th November 2014. Further details at:

www.bbsrc.ac.uk/funding/internationalfunding/other-countries.aspx

Pedler Award, Royal Society of Chemistry

Deadline: 15th January 2015. Further details available at

www.rsc.org/ScienceAndTechnology/Awards/PedlerAward/Index.asp

PRESENTATION ICE-BREAKER!



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