New molecules to burst malaria's bubble

December 2 2014

Dr Natalie Spillman. Credit: Alex Maier

Scientists have released details of a raft of new chemicals with potent anti-malarial properties which could open the way to new drugs to fight the disease.

A new paper in *PNAS* is the third published recently by a group at the Australian National University (ANU). The group has collaborated with scientists from around the globe to uncover potential ammunition in the fight against malaria.

Over 200 million people contract malaria each year, and the parasite that

causes the disease has become resistant to most of the drugs currently available.

"The series of papers shows that the malaria parasite has a real Achilles heel, and describe a range of new ways to attack it," said Professor Kiaran Kirk, Dean of the College of Medicine, Biology and Environment and one of the scientists involved in the project.

Dr Natalie Spillman, from the Research School of Biology at ANU studied the mechanism by which the parasites are killed.

"The new molecules block a molecular salt pump at the surface of the parasite, causing it to fill up with salt," Dr Spillman said

"This has the effect of drawing water into the parasite, causing it to swell uncontrollably and burst."

Although the process of developing the new compounds into clinical drugs is complex and lengthy, Professor Kirk is optimistic the findings will lead to new treatments.

"It's very early days, but these pump-blocking compounds have some of the most promising anti-malarial potential we've seen," he says.

Aspects of the work were carried out with groups at Griffith University, Monash University and the Menzies School of Health Research in Darwin.

"This is a good example of a long-term, international drug development program in which Australian groups have played a key role," he said.

More information: (+)-SJ733, a clinical candidate for malaria that acts through ATP4 to induce rapid host-mediated clearance of

Plasmodium , www.pnas.org/cgi/doi/10.1073/pnas.1414221111