Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad - 500107

Students' Annual Seminar

Understanding and then controlling the AMA1-RON2 interactions to inhibit malaria parasite entry into red blood cells

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Malaria is a mosquito-borne disease caused by Plasmodium species, the deadly of which is Plasmodium falciparum. There is no vaccine reported yet to tackle malaria. Moreover, the widespread resistance of the frontline medicine 'artemisinin combination therapy' is also responsible for the delayed control of malaria [1, 2]. Therefore, there is an urgent need to develop an alternative and effective anti-malarial therapeutic. In all Apicomplexan parasites a unique invasion mechanism exists that involves moving junction (MJ) formation between the host cell and the parasite [3]. Interactions between two malaria parasite proteins, named Apical Membrane Antigen1 (AMA1) and Rhoptry Neck Protein2 (RON2), participate in the MJ formation. Our aim here is to first understand and then disrupt the AMA1-RON2 protein-protein interaction by natural or non-natural peptides or proteins, resulting the inhibition of Plasmodium falciparum merozoite invasion into red blood cell.

References:

1. Hayton, K. et al., Curr. Genet.54, 223–239 (2008).
2. Ashley, E. A. et al., N. Engl. J. Med.371, 411–423 (2014).
3. Lamarque, M. et al., PLoS Pathog (2011), 7(2):e1001276.

Friday, Apr 12th 2019

11:15 AM (Tea/Coffee at 11:00 AM)

Seminar Hall, TIFR-H