



# MHRD – Global Initiative on Academic Network (GIAN) Malaria Control Strategies: Drug design and Vaccine Development

Department of Biochemistry, School of Life Sciences,  
University of Hyderabad, INDIA.

5<sup>th</sup> August to 17<sup>th</sup> August, 2019

This workshop will cover all aspects of *Plasmodium* biology with a special emphasis on innovative approaches towards identification of anti-malaria drug targets. To that end, this course will also address the various tools available for the genetic manipulation of the parasite which is instrumental for the functional analysis of *Plasmodium* genome. This course will give the overview of the efforts made so far towards the development of malaria vaccine highlighting the probable reasons for the past failures, setting the stage for brainstorming discussions on improved strategies for drug design and vaccine development.

## Topics to be discussed:

- Breaking the cycle: Mosquito-human-mosquito
- Development of malaria vaccine: lessons from the past and future prospects
- Development of antimalarial drugs: tackling the drug-resistance issues
- Biology of parasitism: identification of novel drug targets and future prospects
- Genetic manipulation of *Plasmodium* genome: distinguishing between redundant and non-redundant drug targets

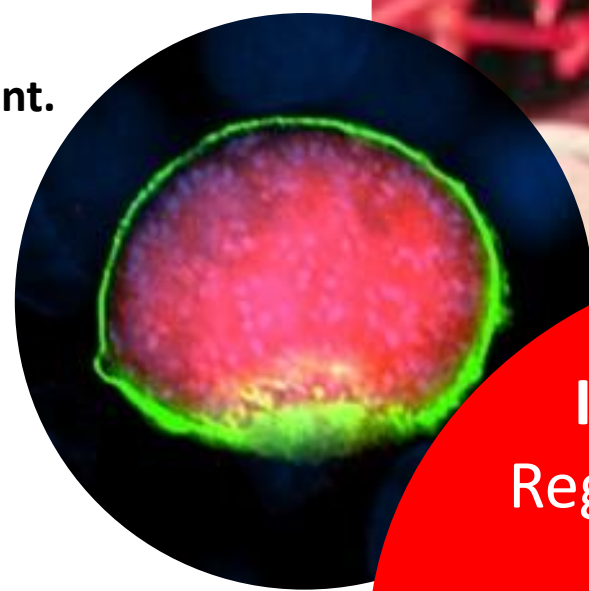
## Hands on training:

- *Plasmodium* culturing and estimation of parasitemia
- Maintenance of *Anopheles stephensii* colony and initiation of *Plasmodium berghei* cycle in mosquito
- Demonstration of different *P. berghei* stages in *A. stephensii* using GFP and mCherry reporter lines
- Isolation of salivary gland sporozoites, counting and performing invasion assay in HepG2 cells
- Live demonstration of sporozoite gliding motility
- Preparation of parasite antigens and Western blotting
- ELISA to determine antigen-antibody reaction
- Drug inhibition assay: IC<sub>50</sub> determination
- qRT-PCR to quantitate the expression of *var* genes

## Registration fees:

- Participants from abroad: US\$500
- Faculty/ Scientists: Rs. 5,000/-
- Students/ PDFs: Rs. 3,000/-
- Industry personnel: Rs. 20,000/-

The above fee includes all course material, internet facility, lunch and snacks. The participants will be provided with shared accommodation on payment basis.



**Important dates:**  
Registration deadline:  
10<sup>th</sup> June  
Intimation to candidates:  
15<sup>th</sup> June  
Payment deadline:  
5<sup>th</sup> July

## Course instructors:

Prof. Nirbhay Kumar, George Washington University, USA  
Prof. Mrinal K. Bhattacharyya, University of Hyderabad, India  
Dr. Kota Arun Kumar, University of Hyderabad, India

## Guest speakers:

Dr. Geetha Bansal, NIH, USA  
Dr. Sunanda Bhattacharyya, University of Hyderabad, India

## Who should attend:

Masters and PhD students, post doctoral researchers, technicians and new investigators who would like to venture into the area of molecular parasitology and malaria research.

Interested candidates must login at GIAN-MHRD website (<http://www.gian.iitkgp.ac.in>) to fill application. Please submit your CV and a statement on why you want to take this course.

For any further queries contact: gianonmalaria@gmail.com

## Course coordinators:

Prof. Mrinal Kanti Bhattacharyya, Department of Biochemistry, School of Life Sciences, University of Hyderabad, India  
Dr. Kota Arun Kumar, Department of Animal Biology, School of Life Sciences, University of Hyderabad, India