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## Confluence of biological inspiration and chemical intuition in search of novel drugs against malaria

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The parasite that causes malaria has been tormenting mankind for a long time and the image of a child dying of malaria every minute continues to haunt us even today. Our handling of malaria for the last hundred years has taught us that the malaria parasite which relishes riding on the invertebrate mosquito vector to fly from one vertebrate victim to another vertebrate host is not easy to control. Its ancient heritage appears to have taught the parasite to emerge with heightened vengeance whenever we have challenged it with either ill equipped vaccines or misused drugs. Today's malaria parasite is well equipped to conquer almost all anti-malarial drugs through resistance and we have miles to go before we have credible vaccines against malaria. While it is true that our best drugs against several diseases including Malaria have been gifts of nature, it is equally true that synthetic medicinal chemistry has played a commendable role in chiseling and tweaking Nature's pharmacophores to enhance potency, decrease toxicity and making drugs affordable for the poorest of the poor. My talk will illustrate the ethos of my laboratory which is to study marine organisms, medicinal plants, *Cyanobacteria* and endophytic fungi for new drugs against Malaria. Towards this mission, we are using high through put fluorescence based micro-titer plate assays to culture the malaria parasite in human red blood cells and to examine the effects of potential drugs on the growth of the parasite. On finding hits, we subject natural extracts to activity guided high resolution chromatographic separation to isolate highly purified compounds against Malaria. Working in close association with "chemical collaborators" we then determine the chemical structures of Nature's pharmacophores and validate the same through chemical synthesis. While the pursuit of discovering novel anti-malarial is continuing, we are currently engaged in fine tuning of a natural antimalarial for optimum medicinal properties and drug ability.

### Biography

Dinkar Sahal's laboratory epitomizes a vibrant atmosphere for both design and discovery of novel antibiotic peptides and anti-malarial drugs. The foundations for understanding the mechanisms of action and discovery of the origins of potency, synergy among antibiotics and broad spectrum of action of antibiotic peptides has been laid in his laboratory. Likewise discovery of novel drugs against drug resistant malaria is a major passion of his laboratory. He has published more than 75 papers in reputed journals and has been serving as a Reviewer and an Editorial Board Member of different journals.

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**Notes:**