ODCase Inhibitors As Novel Anti-Malarial Drugs

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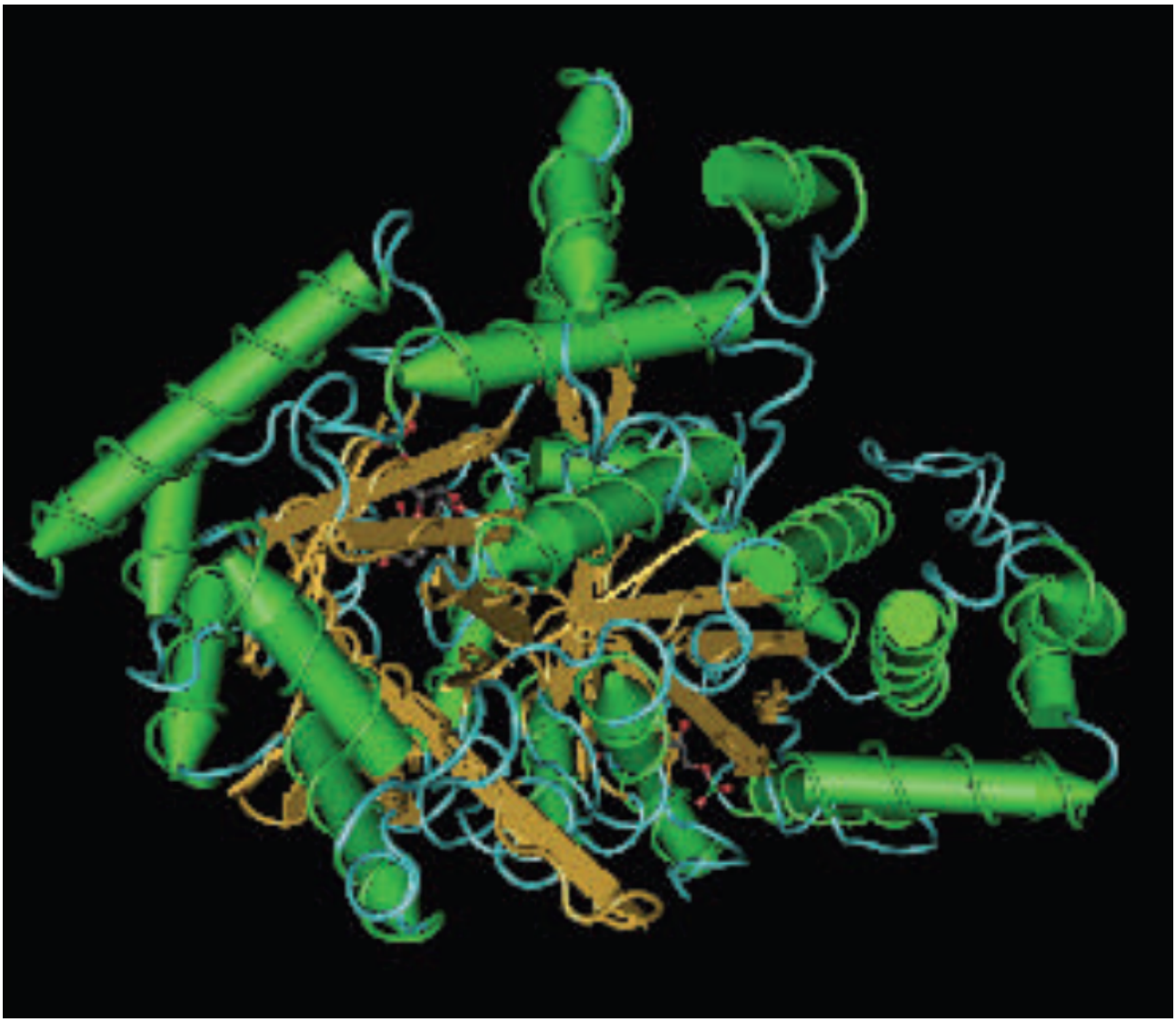
Technology description

Novel family of small molecule malaria therapeutics
Malaria produces an estimated 214 million cases per year among 3.2 billion individuals at risk of the disease and results in an estimated 438 000 deaths – mostly in children under five years of age. Increasing resistance to current anti-malarials has created a critical need for new, low-cost, effective anti-malarials for the developing world.

A new, effective and well-tolerated anti-malarial would also have a significant competitive advantage in the profitable military and travelers' use markets due to undesirable side-effects of therapeutics currently sold for these markets.

Researchers at UHN have developed a novel family of small molecule malaria therapeutics that exploit a key metabolic difference in the nucleotide synthesis pathway between the malaria plasmodium and mammals. This is a previously unexploited target for malaria therapeutic development allowing for the creation of first-in-class therapeutics.

The current lead compound has demonstrated activity against several drug-resistantP. falciparum(the most deadly form of human malaria) isolates in the nanomolar range and has good selectivity. This class of compounds can be synthesized rapidly, are stable and can easily cross membranes. No cross resistance with current anti-malarials has been observed which is consistent with their novel mechanism of action.



Publications

Bello, A. M., et al. A potent, covalent inhibitor of orotidine 5′ -monophosphate decarboxylase with antimalarial activity. J. Med. Chem. 50(5), 915-921 (2007)

Application area

A first-in-class, effective anti-malarial small-molecule therapeutic

Institution

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Inventors

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