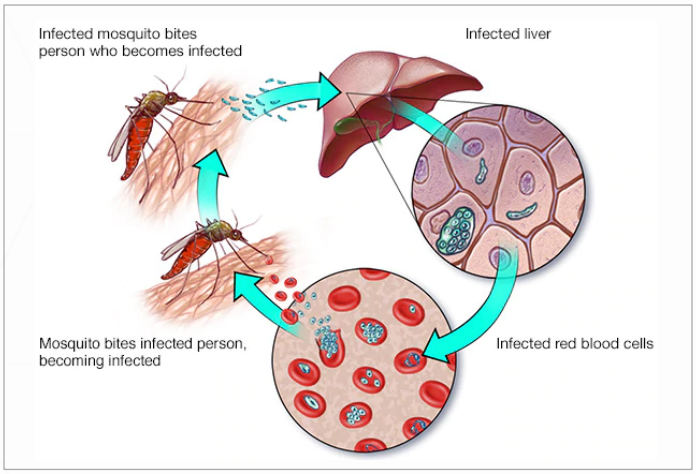
Potent Antimalarial Compound

VTIP 20-063: "A Novel Antimalarial with Activity Against Several Life Stages of Malaria"

THE CHALLENGE

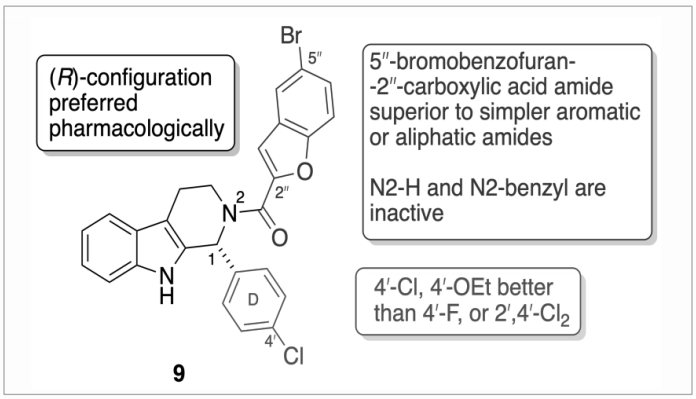
Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitos and is a significant world health problem. The disease kills 430,000 persons per year and sickens over 2,00,000. The development of a successful malaria vaccine is still decades away, and malaria parasites have become resistant to all existing therapeutic drugs. In addition to those living in malaria-endemic areas, US, French, and NATO forces are often deployed in Africa, where 90% of malaria mortality occurs. These service members and travelers alike need new and more effective preventative medications.



Malaria transmission cycle.

OUR SOLUTION

Described herein are tetracyclic compounds that, in some embodiments, can be effective to treat and/or prevent malaria in a subject in need thereof. In some embodiments, the compound(s) described herein can be effective to inhibit the growth, infectivity, transmission, and/or kill a parasite of the species Plasmodium (e.g. P. falciparum, P. vivax, P. ovale, P. malariae, and/or P. knowlesi) in one or more stages of its life cycle (e.g. in the asexual and/or sexual blood stages or liver stage) or a symptom thereof. The compound is not toxic to normal human cells, or to E. coli, showing that it is not generally cytotoxic.



Structure-activity relationship diagram.

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