New Marine-Based Compounds and Aurora Kinase Inhibitors May Effectively Combat Malaria

UCF researchers have identified new compounds that may treat malaria infections more effectively than current anti-malarial drugs. The malaria parasite, Plasmodium falciparum, has developed resistance to most anti-malarial treatments, including chloroquine and artemisinin. Since the UCF anti-malarial compounds have structures different from current anti-malarias, the new compounds can potentially be used to treat new cellular targets and inhibit the growth of drug-resistant Plasmodium parasites, such as P. falciparum.

Technical Details

Technology 32882: UCF and Florida Atlantic University (FAU) researchers have isolated novel anti-malarial compounds from a library of enriched marine natural products, including cembranoid-type diterpenes, microsclerodermins, dercitamides and bis-indoles. Representative compound, Nortopsentin A, exhibits antiplasmodal activity against P. falciparum chloroquine-resistant Dd2 cells (IC50 0.6μM).

Technology 33963: UCF researchers have identified new anti-malarial compounds by 1) screening a library of optimized Aurora kinase inhibitors, and 2) repurposing human Aurora kinase proteins. Aurora kinase is a cell cycle regulatory protein involved in cell growth and development. The identified compounds inhibit the growth of chloroquine-resistant P. falciparum. These potent inhibitors (EC50 < 1 μM) were identified in cell-based screening using SYBR Green I fluorescence-based assay.

Partnering Opportunity

The research teams are looking for partners to further develop the technologies for commercialization.

Stage of Development

Preclinical

Benefits

- Ability to act upon novel cellular targets
- May alleviate the problem of drug resistance
- May be used to treat or prevent one or more symptoms of malaria

Applications

Anti-malarial drugs and malaria therapy

Technology #32882

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