Researchers at the University of South Florida have developed a new class of compounds that have anti-parasitic or anti-infective activity, for the treatment of malaria and toxoplasmosis.

Malaria is a tropical disease, spread by mosquitoes from person to person, that exacts a devastating toll in endemic regions, especially Africa, where it claims 1 to 2 million lives each year. Together with an increasing incidence of malaria worldwide, there is an urgent and unmet need for new drugs to prevent and treat malaria, an infection that causes clinical disease manifestations in 300 to 500 million people each year.

Chloroquine replacement drugs are urgently needed to treat and prevent malaria. The endoperoxides, like artemisinin, are being used in other parts of the world for malaria therapy. However, the use of this remedy is limited by reports of ototoxicity and neurotoxic effects of the endoperoxides. Additionally, toxoplasmosis is a leading cause of birth defects and it is estimated that the health care costs due to toxoplasmosis are roughly 5 billion dollars each year in the United States.

USF inventors have developed a new class of compounds that have anti-parasitic and anti-infective activity for the treatment of malaria and toxoplasmosis. They provide potential treatment options against multi-drug resistant organisms such as P. falciparum and P. vivax. Furthermore, they may be effective in treating both the liver and blood stages of malaria as well as other infectious and/or parasitic diseases of humans and animals.

<table>
<thead>
<tr>
<th>Cysts / brain</th>
<th>Control</th>
<th>ATQ 5 mg/kg</th>
<th>ELQ-271 5 mg/kg</th>
<th>ELQ-271 25 mg/kg</th>
<th>ELQ-316 5 mg/kg</th>
<th>ELQ-316 25 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean number of cysts / brain (SEM)</td>
<td>2523 (±294)</td>
<td>1408 (±142)</td>
<td>333 (±38)</td>
<td>402 (±137)</td>
<td>617 (±74)</td>
<td>296 (±43)</td>
</tr>
<tr>
<td>% Cyst reduction from control</td>
<td>0</td>
<td>44%</td>
<td>87%</td>
<td>64%</td>
<td>76%</td>
<td>88%</td>
</tr>
</tbody>
</table>

The efficacy of ELQ-271, ELQ-316, and atovaquone against latent T. gondii infection. The number of cysts per brain was significantly lower for each ELQ group than for the atovaquone group (P < 0.0001).

ADVANTAGES:

- Effective on liver and blood stages of malaria
- Effective against drug-resistant strains of Plasmodium parasites

New, Safe, and Inexpensive

Tech ID # 10A059
Patent #: 8,598,354 / 9,206,131