

Cholesterol Inspired 'Trojan Horse' Antiparasitic Compounds

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Abstract

Obligate parasites such as Plasmodium and Toxoplasma require cholesterol to survive and actively replicate. These parasites lack the ability to de novo biosynthesize cholesterol, meaning the lipid must be exclusively derived from host sources. Throughout the intraerythrocytic stages of Plasmodium, cholesterol is depleted from the red blood cell membrane and accumulates within the parasite. A typical approach to the development of anti-parasitic agents might involve developing modulators capable of disrupting this process and effectively starving the parasite. Our aim instead focused on exploiting this import process as a valuable means of delivering steroid-linked drug cargo, or novel cholesterol mimetic steroid-peroxides, to the parasite in a 'Trojan Horse' approach.

Biography

Blake Curtis is a final term dual PhD student between The Australian National University (McLeod group) and the Humboldt University of Berlin. He completed a Bachelor of Advanced Science (ANU), obtaining first honours under the supervision of Prof. Malcolm McLeod. He continued his studies within the group for PhD, and as part of his research conducted a one-year research stay at the Robert-Koch institute (Berlin) in the group of Dr. Martin Blume. His interest lies in synthetic medicinal chemistry, metabolomics and parasitology. He is employed as a chemical analyst at CanTEST (health and drug checking service) and is currently pursuing research in identifying and investigating novel psychoactive substances, utilising techniques such as FTIR, GC-MS, LC-MS and NMR.

