Ferrocenyl pentamidine analogs as potential anti malaria agents

Mercado-Ortíz, José.; Montes-González, Ingrid
Department of Chemistry,
University of Puerto Rico, Río Piedras Campus
San Juan, PR 00931-3346

Pentamidine has proved to be a very effective antimalarial, antifungal, antiparasitic, and antibacterial agent and has attracted the attention of the medical industry since it's discovery. Different analogs* and derivative of pentamidine have been tested to determine their biological activity and showing promising results. It has been reported that the addition of carbonyl groups to pentamidine analogs boosts their biological activity. Other studied modifications include different substituents on the aromatic ring, change the amidine group to an imidazoline group, vary the position of the amidine with respect to the aliphatic bridge, altering the nature of the aliphatic bridge by introducing other heteroatoms on the chain, or adding alkyl substituents on the chain. This research will be focused on the synthesis of ferrocenyl pentamidine analogs to study their biological activity as antimalarial agents. Specifically we aim to work three different modifications: change one of the benzamidine groups by a ferrocenyl group; study oxygen and nitrogen as heteroatoms linking the aliphatic chain to the remaining benzamidine group, and instead of an oxygen atom introduce a carbonyl group adjacent to the ferrocenyl group in the linking aliphatic chain. Products will be fully characterized by spectrum and collaborative-based biological will be tested for malaria.

General Synthetic Scheme:

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