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Chemotherapeutic development strategies for schistosomiasis

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Schistosomiasis is endemic in 76 countries and territories and infects more than 200 million individuals with almost 800 million people at risk of infection. As a neglected tropical disease, therapy and control relies on just one drug, praziquantel (PZQ). The dependency on a single drug is of considerable concern should development of clinically relevant resistance arise and spread. Accordingly, this chapter summarizes the current state-of-the-art in the development of new antischistosomal small molecules. Attention is also given to molecules that are either in the clinic (e.g., semisynthetic artemisinin derivatives) or under preclinical development (e.g., PZQ analogs, synthetic trioxolanes, alkylaminoalkanethiosulfuric acids). Further, the chapter summarizes efforts to identify lead molecules to validated drug targets (e.g., redox enzymes, cysteine proteases), and finally, the novel application of higher-throughput screening as part of the "hit" identification process.

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