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(57) Abstract :

ABSTRACT INDOLE CLUBBED TRIAZOLE DERIVATIVES AS CELL WALL INHIBITORS FOR TUBERCULOSIS THERAPY The present invention relates to novel compounds, N-(2-chlorophenyl)-2-(4-((3-formyl-1H-indol-1-yl)methyl)-1H-1,2,3-triazol-1-yl)acetamide (IN2) and (E)-N-(2-chlorophenyl)-2-(4-((3-(3-oxo-3-(p-tolyl)prop-1-en-1-yl)-1H-indol-1-yl)methyl)-1H-1,2,3-triazol-1-yl)acetamide (INM2), designed as inhibitors of Mycobacterium tuberculosis cell wall biosynthesis. These compounds were synthesized through a retrosynthetic approach, ensuring high purity and yield. The compounds exhibit potent antimycobacterial activity with minimal cytotoxicity against normal cells. Their efficacy was confirmed through MIC assays, showing low concentrations required for inhibition of M. tuberculosis. In addition, the compounds demonstrated comparable potency to the standard drug SQ109 in cell wall inhibition assays. The invention offers promising lead candidates for the development of safer and more effective anti-TB therapies, addressing both replicating and non-replicating bacteria, and overcoming challenges such as drug resistance and high treatment costs. Fig. 1

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