AMINOTHIAZOLES SERIES TARGETING *MYCOBACTERIUM TUBERCULOSIS*

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Tuberculosis, caused by *Mycobacterium tuberculosis* (Mtb), resulted in 1.3 million deaths globally in 2022, with 10.3 million infections, underscoring the urgency for novel drug regimens have the potential to be shorter treatment duration, safer and cost-effective around the globe. Parish group showed aminothiazoles (AmT) series have excellent drug-like properties and kill Mtb. This research proposed to further explore AmT and their substitution patterns to develop small-molecule inhibitors against Mtb. Our overall goal was to synthesized novel AmT compounds and test *in vitro* assays against Mtb and HepG2 cells for activity and cytotoxicity. Using amide coupling reagents, we synthesized eight AmT compounds with substitutions at the C-2 and C-4 positions and modifications on the aminothiazole core. *In vitro* assays results of 2 novel AmT compounds with substitution on the thiazole core that is attached to 2-pyridine ring shows excellent potency IC_{90} <10 µM and are cytotoxic against HepG2 cells. We also found unsubstituted thiazole core attached to 3-pyridine ring did not show activity against Mtb. Therefore 2-pyridine attached to the C-4 position of the thiazole core is preferred over the 3-pyridine. Despite the loss of activity of the 3-pyridine substitution in AmT against Mtb, our findings guide further exploration of other thiazole regions with different substitutions for potential novel molecules to reduce global mortality rates caused by Mtb.