Quinazolinone Amination en route to Compound Library Preparation for the Study of Chagas Disease

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Abstract:

Chagas disease is a parasitic infection caused by Trypanosoma cruzi. The disease is mostly found in Latin America and is one of the most neglected disease by researchers. Of the 8 million people currently affected 30%-40% will progress from the acute stage to chronic stage. The current treatments are effective for acute stage patients but have toxic side effects. There are no current treatments for the chronic stage patients so early detection is key. Quinazolinones are privileged structures that are found in a variety of bioactive natural products. They have a range of biological activity which include anti-inflammatory and cardiovascular activity. After copious amounts of research, they found that quinazolinone core with an alkyl and amine group have some effect on T. cruzi. Our research is building a portfolio of derivatives of the alkyl-quinazolinone structure with different amines to then test their efficacy against Chagas disease. We used thin layer chromatography (TLC) to indicate whether the reaction went to completion with H-NMR data analysis. We hypothesized that primary amines would have higher yields than secondary amines, which proved to be true. This research is a small contribution to the compound library, but builds our knowledge of possible compounds that could be effective.