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Design and synthesis of sugar phosphates for inhibition of tuberculosis maltosyl transferase

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Tuberculosis, a disease caused by bacterial pathogens *Mycobacterium tuberculosis*, was regarded as under control in the past decades. However, the multi-drug-resistant tuberculosis (MDR-TB) and extensively-drug-resistant tuberculosis (XDR-TB) have emerged to become a serious global health crisis. In 2015, there were an estimated 10.4 million new TB cases worldwide, including nearly a half million cases of MDR-TB. 1 Bedaquiline and Delamanid are the effective drugs for treatment of MDR-TB. However, development of new drugs by targeting different TB proteins is still needed for treatment of the MDR-TB and XDR-TB patients. GlgE is a maltosyl transferase that uses maltose-1-phosphate as the substrate. GlgE involves in a four-step pathway for the production of α-glucan from trehalose, an essential process for mycobacterial survival. Inhibition of GlgE will cause accumulation of maltose 1-phosphate, and trigger the self-poisoning of *M. tuberculosis*. GlgE becomes an appealing drug target according to the toxic effect and synthetic lethal pathway. As no effective GlgE inhibitor has been discovered, we thus designed and synthesized some potential GlgE inhibitors by mimicking the structure maltose1-phosphate, the GlgE substrate.

Biography

Wei-Hsin Hsu received her BS from the department of applied chemistry, National Chiao Tung University in Taiwan. Currently, she is a MS student in the department of chemistry, National Taiwan University.

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