

Nudix Hydrolases from *Mycobacterium tuberculosis*, Potential Novel Antibiotic Targets

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The Nudix hydrolases are a family of enzymes identified by a common signature sequence GX₃EX₇REUXEEXGU (U=I, L, or V) that hydrolyze substrates containing a nucleoside diphosphate linked to some moiety x, hence the acronym "Nudix". *Mycobacterium tuberculosis*, responsible for 2-3 million deaths annually, contains 11 potential Nudix hydrolases. We have cloned 9 of the corresponding genes and identified activity for 3 of these enzymes; an ADPribose hydrolase, a diadenosine polyphosphatase, a CTPase. Multi-drug resistance tuberculosis is a major global crisis, thus new antibiotics against novel targets are crucially needed. Since Nudix hydrolases appear to carry out reactions that are vital to the cell by eliminating substrates that would be detrimental at elevated levels such as the ones listed above, these recently identified enzymes may have potential as novel antibiotic targets in *M. tuberculosis*. This research has been supported by the Jeffress Memorial Trust, a Cottrell College Science Award from the Research Corporation, and an NIH AREA grant.