Protein kinase E of *Mycobacterium tuberculosis* has a role in the nitric oxide stress response and apoptosis in a human macrophage model of infection

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Serine/threonine kinases [STPKs] are implied in various physiological processes in mycobacteria. We have been working on three serine kinases of M.tuberculosis. Serine threonine kinases PknI , PknE and PknL from *Mycobacterium tuberculosis* have been biochemically and functionally characterized. I would like to present the functional genomics of PknE . We found that the promoter of the PknE gene was expressed under nitrate stress. In order to ascertain the function of this gene a knockout mutant was constructed through specialized transduction. The mutant yielded to the apoptosis generated by the host both under normal and nitrate condition as evinced by TUNEL assay. LDH assay was parallely carried out to rule out necrosis. Interestingly the mutant was impaired in pro-inflammatory cytokines TNF & IL-6 secretion. To elucidate the apoptosis mechanism exhibited by the mutant, global transcriptome profiling was done. Several genes have been upregulated and several genes were downregulated . The data from microarray analysis has been validated by qRT PCR , macro array and western blot techniques. This approach has enabled us to understand the differential expression exhibited by the mutant and thereby the mechanism by which the Pkn E gene modulates apoptosis .