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# Identifying the Host Substrates for the Mycobacterial Virulence Factor Protein Kinase G

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**Abstract :** Tuberculosis caused by Mycobacteria tuberculosis is a dreadful disease and more so with the advent of extreme and total drug-resistant species. Mycobacterial pathogenesis is an ever-changing paradigm from phagosome maturation block to phagosomal escape into macrophage cytosol and finally acid tolerance and survival inside the lysosome. Mycobacteria are adept at subverting the host immune response by highjacking host cell signaling and secreting virulence factors. One such virulence factor is a ser/thr kinase; Protein kinase G (PknG), which is known to prevent phagosome maturation. The host substrates of PknG, allowing successful pathogenesis still remain an enigma. Hence we carried out a comparative phosphoproteomic screen and identified a number of substrates phosphorylated by PknG. We characterized some of these substrates in vivo and in vitro and observed that PknG mediated phosphorylation of these substrates leads to reduced TNFa production as well as decreased response to TNFa induced macrophage necroptosis, thus enabling mycobacterial survival and proliferation.

**Keywords :** mycobacteria, Protein kinase G, phosphoproteomics, necroptosis
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