# SIgN Immunology Seminar



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## Double Trouble: Melioidosis in a Diabetic Host

*Host*
Dr Amit Singhal
Singapore Immunology Network, A*Star

*Date*
Friday
2 October 2015

*Time*
2pm – 3pm

*Venue*
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Melioidosis, a tropical infection caused by Burkholderia pseudomallei (Bps) is ten times more prevalent in patients with type 2 diabetes (T2D). It is projected that by 2030, more than half a billion people will be suffering from T2D and majority of the increase will be due to patients living in the tropics. T2D contributes to chronic metabolic complications and increases the incidence and severity of infection. We have previously used samples from T2D patients and three different diabetic animal models to investigate the host-pathogen interactions that may contribute to this increased susceptibility. We have now characterised a diet induced T2D model which in most respects is akin to T2D in humans and have investigated inflammatory responses and survival following Bps infection. The initial systemic inflammatory cytokine response (TNF- , MCP-1 and IL-12) was delayed in T2D mice during the first 12 hrs of infection and by 24 hrs post-infection Bps loads were significantly higher in spleen, liver and lung in T2D compared to non-diabetic animals. Following an initial delay in cytokine production, an exaggerated proinflammatory cytokine response was observed in T2D mice by 48hrs post-infection. T2D mice were highly susceptible to Bps infection, with a median survival of 4 days compared to 12 days for non-diabetic mice. Our observations suggest that dysregulated hyperinflammatory state in T2D and infection results in the high morbidity and mortality.