



**REGIONAL CENTRE FOR BIOTECHNOLOGY**  
**Faculty Seminar Series**

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**Understanding the role of complement system in  
*Streptococcus pneumoniae* – host interactions and its  
strategies of complement evasion**

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11:00 AM  
ATPC Seminar Hall

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### Abstract

Gram-positive bacterium *Streptococcus pneumoniae* (pneumococci) are commensals that asymptotically colonize the upper respiratory tract, however alteration in host-pathogen homeostasis results in the ability of pneumococci to gain access to the normally sterile parts of the airways and causes local infections. These include mild infections such as otitis media and sinusitis or life threatening invasive pneumococcal diseases (IPD), including lobar pneumonia, septicemia and meningitis. The pneumococcus is the prime cause of community-acquired pneumonia in adults and accounts for 50-75% cases. In addition, pneumococcal septicemia is a major cause of infant mortality in developing countries including India, amongst children under the age of 5 years. Despite the use of antibiotics and vaccines the mortality rate remains alarming. Therefore, in order to combat the menace of infectious diseases, we must understand how pathogens interact with the human host, identify the mechanisms by which they circumvent the host defense systems and design therapies that specifically attenuate virulence or even correct host defense defects.

The project is focused on translational research in the field of infection biology and innate immunity. It will have an impact on our understanding of the fundamental biological processes underlying the pathology of pneumococcal diseases and the findings will lead to better diagnosis, treatment and would help in the development of several vaccine candidates. Furthermore, the project aims to identify potential complement inhibitor(s) that will be used for the treatment of inflammatory diseases. Identification of such compounds targeting specific levels of complement activation will circumvent problems associated with systemic complement inhibition such as increased susceptibility to infection or autoimmunity.

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