



Speaker Profile

Speaker **Soman Ninan Abraham**

Designation Professor
(Grace Kerby Distinguished Professor of Pathology)
Pathology, Clinical Science Dept., Duke University School of Medicine, Durham, NC, USA .

Title A Vaccine Against Recurrent Urinary Tract Infections

Abstract Recurrent urinary tract infections (UTIs) are a highly prevalent, costly, and burdensome condition affecting women of all ages, races, and ethnicities. Much of the recurrence of this infection is ascribable to persistence of bacteria within intracellular reservoirs with the bladder epithelial lining. Within bladder cells, bacteria can resist elimination by antibiotics and when antibiotic treatment is concluded the bacteria exit bladder cells, multiply in urine to initiate another flare up. Because of this cycle of recurrence, there has been keen interest in developing vaccines against uropathogenic *E.coli* (UPEC). However over the past 2 decades, various vaccines have been tried out with limited success. This is in part because of the inability of bacteria-specific antibodies to dislodge intracellular bacteria within bladder cells. Recently, we found that in mouse models of UTIs, pathogen-specific T cells are highly effective in eliminating intracellular bacteria in the bladder. Further, we found that by immunizing the mouse bladder directly with a formulation comprising of a prominent bacterial antigen and the adjuvant CpG, we could promote not only the generation of pathogen specific T cells, but their recruitment directly into the bladder, resulting in complete elimination of bladder bacteria and protection against future infections. We are currently optimizing the vaccine formulation and vaccination protocol in preparation of a clinical study.

Biography Prof. Soman`s laboratory is interested in developing innovative approaches for curbing microbial infections through the study of the molecular interactions occurring between pathogenic bacteria and prominent immune and epithelial cells. There are two major research areas being pursued in his laboratory. The first involves elucidating the role of mast cells in modulating immune responses to microbes. The second area of research investigates cross-talk between distinct infectious agents such as Uropathogenic *E. coli*, *Salmonella typhimurium* and *Yersinia pestis* and the immune system.

Prof. Soman did his undergraduate and Master's degree from Ahmadu Bello University (Nigeria) and PhD from Newcastle University (UK). He undertook his Postdoctoral Fellowship at University of

Tennessee Knoxville. Some of his current appointments and affiliations include; Professor (Molecular Genetics and Microbiology), Professor (Immunology), Professor (Cell Biology) and Member of the Duke Cancer Institute.

**Research
interests**

- Host-pathogen crosstalk, Role of Mast cell in modulating innate and adaptive immune responses to microbes
- Vaccine development against emerging infectious agents
- Urinary tract infections and the development of novel strategies to combat these infections

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