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Mucosal immunisation against respiratory tract infections

Induction of mucosal immune responses best occur through priming of mucosal associated lymphoid aggregates that selectively sample the milieu bathing the mucosal surfaces. Despite considerable research and the advantages of mucosal immunisation, few oral vaccines are routinely available for use today with the results of many oral vaccine trials being variable and suboptimal at best.

Over the last three decades our group has undertaken extensive studies in animal models and in human trials to develop an effective oral vaccine against respiratory tract infections caused by non-typeable Haemophilus influenzae (NTHi) and Pseudomonas aeruginosa. Human studies have focused on subjects with chronic obstructive pulmonary disease (COPD) and bronchiectasis. Animal studies of acute and chronic respiratory infection models have provided proof of concept pre-clinical data and significant knowledge about the immunological mechanisms induced by mucosal immunisation.

Oral immunisation of subjects with COPD against NTHi has resulted in a significant reduction in acute exacerbations, hospitalisation and antibiotic prescriptions. For *P aeruginosa*, administration of an oral whole killed cell vaccine reduced number of *P. aeruginosa* cultured from sputum and induced a functional antibody response against the vaccine strain in subjects with bronchiectasis.

These studies clearly demonstrate that oral immunisation should be considered as an effective route of vaccination for infections of the respiratory tract.

Biography

Professor Allan Cripps is recognised internationally for his research in the field of mucosal immunology. Much of this work has been directed towards mucosal immunisation against a range of bacterial pathogens, particularly those of the respiratory tract. He has published extensively in the peer reviewed literature, presented his research findings at numerous international scientific and medical conferences and has been the recipient of a large number of competitive government and industry research grants. In addition, Professor Cripps has a significant patent portfolio in the fields of diagnostics and vaccine candidate protein antigens. Professor Cripps is currently the executive head of the Health Faculty at Griffith University and maintains his keen interest in mucosal immunology and respiratory tract infections. He is also the Editor in Chief of the journal pneumonia and is an active member of a number of committees and Boards in the fields of immunology, infectious diseases and vaccinology.

In 2015 he was awarded the Order of Australia (AO) for distinguished service to tertiary education as a senior administrator, and to public health as a leading immunologist, academic and researcher in the area of mucosal immunisation.

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