

4th International Conference and Exhibition on **Immunology**

September 28-30, 2015 Crowne Plaza Houston River Oaks, Houston, TX, USA

Enhanced mucosal antibody production and protection against respiratory infections following an orally administered bacterial extract: Efficacy and mechanistics

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Secondary bacterial infections following influenza infection are a pressing problem facing respiratory medicine. Although antibiotic treatment has been highly successful over recent decades, fatalities due to secondary bacterial infections remain one of the leading causes of death associated with influenza. We have assessed whether administration of a bacterial extract alone is sufficient to potentiate immune responses and protect against primary infection with influenza and secondary infections with either *Streptococcus pneumoniae* or *Klebsiella pneumoniae* in mice. We show that oral administration with the bacterial extract, OM-85 (Broncho Vaxom), leads to a maturation of dendritic cells and B-cells characterized by increases in MHC II, CD86, and CD40 and a reduction in ICOSL. Improved immune responsiveness against influenza virus reduced the threshold of susceptibility to secondary bacterial infections and thus protected the mice. The protection was associated with enhanced polyclonal B-cell activation and release of antibodies that were effective at neutralizing the virus. Taken together, these data show that oral administration of bacterial extracts provide sufficient mucosal immune stimulation. Further to these findings and to potentiate the various mechanistic means by which OM-85 can modulate the host immune response, a general overview on other recent findings including other therapeutic indication such as asthma will be discussed.

Biography

Christian Pasquali has completed his Master's degree and PhD in Vienna IMP Institute and Compiegne Universities respectively. He was Director of Operational Research and Technology Transfer at Xigen Pharmaceutical and is now directing the unit of Preclinical Research at Vifor Pharma, Geneva. He has published more than 35 papers in peer reviewed journals and has been serving as chairs and speakers in various scientific congress.

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