Edward McGowan, J AIDS Clin Res 2017, 8:6(Suppl)
DOI: 10.4172/2155-6113-C1-017

T cell immunogen discovery and design for HIV

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HIV remains a significant global health burden and an effective vaccine remains a goal. During infection, control is mediated by a Tcell response and a vaccine will need to induce these cells. HIV has extreme sequence diversity, however, selection pressures at the transmission event restrict this. Consequentially, we are identifying viruses with an estimated date of infection of less than 60 days, from HIV infection cohorts allowing characterisation of the Transmitted Founder Virus. Diversity is assessed for sequence and function, ensuring broad sequence and phenotypic coverage. A further issue when designing a T-cell mediated immunogen is the diversity of the HLA. In order to restrict this impact, modelling is performed, allowing definition of potential epitopes with breadth and coverage. These epitopes are produced as peptides allowing assessment of specific responses in individuals who are effectively controlling virus. The information is collated and viruses which best reflect diversity and modelled peptides are selected for inclusion in a virus panel for functional assessment of T cell responses. By identifying regions of the virus most susceptible to immune control at the point of transmission, that we will use to generate a mosaic vaccine insert.

Biography

Edward McGowan currently working as the Scientific Director of the International AIDS Vaccine Initiative (IAVI) sponsored Human Immunology Laboratory (HIL) at Imperial College in London. Edward have approximately 15 years of experience as an Immunologist, the first 9 of which were spent working on vaccine adjuvant design studies where he investigated both arms of the adaptive immune response and innate immunity with a particular focus to mechanisms of Dendritic Cell activation. Since 2015 Edward working as Scientific Director at the HIL.

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