

16th Euro Global Summit and Expo on

Vaccines & Vaccination

June 19-21, 2017 Paris, France

Addressing challenges and solution for using T cell based assays for immune monitoring

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T-cell immunity is critically involved in combating infections and cancer, as well as playing pathogenic roles in autoimmune disease and allergies. Therefore, monitoring antigen-specific T cells and their effector functions is critical for the understanding of these diseases and for proper assessments of the efficacies of specific immune therapies. Yet, unlike the detection of antibodies, reliable measurement of T-cell-mediated immunity has continued to be a major challenge, this resulting from several factors. One such factor is that the antigen-specific T cells of interest typically occur in very low frequencies in test samples such as peripheral blood. In addition, for an assay to reliably measure T-cell function(s) it needs to be warranted that the test conditions are such that the function of T cells in vitro remains unimpaired relative to in vivo. The many variables that can affect T-cell functionality have earned T-cell assays the reputation of being rather fragile, with even minor changes of test conditions potentially having a major impact on the test results. A major breakthrough in the field of T-cell monitoring has been the introduction of protocols that facilitate cryopreservation of PBMC such that, upon thawing, the cells retain their full functionality. The presentation would address considerations for helping in the selection process of bioassays considered for the T cell assays readout for preclinical and clinical trials, as well suggested design of the assay development and validation and testing phase. Discussing assay comparability in monitoring change and variability measured of the T cell assay using ELISPOT as readout.

Biography

Magdalena Tary-Lehmann is a Co-founding Scientist and Chief Scientific Officer for Cellular Technology Limited (CTL) and Adjunct Associate Professor of Case Western Reserve University (CASE) in the Department of Pathology. She has published more than 75 papers in peer-reviewed journals. She provides guidance and oversight for technical operations in the GLP laboratory, ensuring the ongoing scientific excellence of CTL. Over the past decade, she has worked with clients to develop and validate reference samples and controls for use in regulated immune monitoring assays.

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