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# Adjuvant-guidance of T cell responses

**Magdalena Tary-Lehmann**
Cellular Technology Limited (CTL), USA

Adjuvants are important enhancers of the immune response. The choice of adjuvant is especially crucial in the context of subunit vaccine approaches. In the past, adjuvants have been used with little knowledge of the mechanism by which they exert their effects.

Studies on the role of adjuvants on $CD4^+$ T cell responses have shown that different types of adjuvants can polarize the cytokine response while inducing the same proliferative capacity, specificity and avidity of $CD4^+$ T cells. Such responses were shown to be independent of the antigen used and genetic background of the host. Would this also be the case for $CD8^+$ T cells? What is the contribution or importance of providing $CD4^+$ T cell help or toll-like receptor (TLR) ligation in the generation of these $CD8^+$ T cell responses? Studies have shown that $CD8^+$ T cells are guided differently than $CD4^+$ T cells. In addition, it was found that the use of different adjuvants can induce the generation of different CTL populations: cells which kill but do not produce IFN-gamma, cells which do not kill but produce IFN-gamma, and cells which both kill and produce IFN-gamma. By understanding the extent to which one can guide the T cell responses through the use of adjuvants and appropriate $CD4^+$ T cell help or TLR agonists, one can improve both vaccine efficacy and safety. These have broad implications not only for vaccine development, but also in the fields of autoimmunity, transplantation, and tumor biology.

## Biography

Magdalena Tary-Lehmann is an Adjunct Associate Professor of Case Western Reserve University (CASE) Department of Pathology, Co-Founding Scientist and Chief Scientific Officer for Cellular Technology Limited (CTL). 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 and regulatory agencies to develop and validate reference samples and controls for use in regulated immune monitoring assays.

magda.tary-lehmann@immunospot.com