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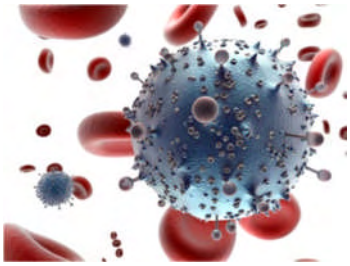
ELISPOT in Infectious Diseases



The ELISPOT assay can be particularly helpful in studying infectious diseases. Often reliable measurements are needed of immune responses to specific bacterial, parasitic or viral infections. For example, in Mycobacterium tuberculosis qualitative ELISPOT data for specific early secretory antigens offer improved specificity over the purified protein derivative (PPD) skin test reaction in the detection of M. tuberculosis infection. Furthermore, immune responses against pathogens can be monitored through time in a follow-up, to estimate the induction of a substantial memory response in vaccine recipients. One of the advantages of the ELISPOT assay is that it detects single antigen-specific T cells only thereby permitting the direct calculation of responder T cell frequencies. Many researchers study the balance between two CD4+ T cell responses (namely Th1 and Th2), which can be identified by the nature of different and mutual exclusive secreted cytokines. For example, researchers use different ELISPOT assays simultaneously to study antigen-specific T cell responses for Th1 (e.g. IFN-γ and IL-2) and Th2 (e.g. IL-4 and IL-13) cytokines in (non) vaccinated subjects.

Examples of studies using our ELISPOT assays:

Bai B., Hu Q., Hu H., Zhou P., Shi Z., Meng J., Lu B., Huang Y., Mao P., and Wang H.
Virus-like particles of SARS-like coronavirus formed by membrane proteins from different origins demonstrate stimulating activity in human dendritic cells.
PLoS One **3:**e2685 (2008). *Abstract*
U-CyTech products used in this study:
Mouse IFN-γ ELISPOT
Mouse IL-4 ELISPOT

Chea S., Dale C.J., De Rose R., Ramshaw I.A. and Kent S.J.
Enhanced cellular immunity in macaques following a novel peptide immunotherapy.
J Virol **79:**3748-57 (2005). *Abstract*
U-CyTech products used in this study:
Monkey IFN-γ ELISPOT kit
Monkey species: ***Macaca nemestrina***

Chen L., Zhang Z., Chen W., Li Y., Shi M., Zhang J., Wang S., and Wang F.S.
B7-H1 up-regulation on myeloid dendritic cells significantly suppresses T cell immune function in patients with chronic hepatitis.
B. J Immunol **178:**6634-41 (2007). *Abstract*
U-CyTech products used in this study:
Human IFN-γ ELISPOT kit

ANIARA 7768 Service Center Drive • West Chester OH 45069
Phone: 513.770.1991 Toll Free: 866.783.3797 Fax: 513.573.9241 Email: info@aniara.com
www.aniara.com

Hamano T., Matsuo K., Hibi Y., Victoriano A.F., Takahashi N., Mabuchi Y., Soji T., Irie S., Sawanpanyalert P., Yanai H., Hara T., Yamazaki S., Yamamoto N., and Okamoto T.
A single-nucleotide synonymous mutation in the gag gene controlling human immunodeficiency virus type 1 virion production.
J Virol **81:**1528-33 (2007). *Abstract*
U-CyTech products used in this study:
Human IFN-γ ELISPOT kit

Skowera A., de Jong E.C., Schuitemaker J.H., Allen J.S., Wessely S.C., Griffiths G., Kapsenberg M., and Peakman M.
Analysis of anthrax and plague biowarfare vaccine interactions with human monocyte-derived dendritic cells.
J Immunol **175:**7235-43 (2005). *Abstract*
U-CyTech products used in this study:
Human IFN-γ ELISPOT kit
Human IL-2 ELISPOT kit
Human IL-4 ELISPOT kit
Human IL-13 ELISPOT kit

Stittelaar K.J., Neyts J., Naesens L., van Amerongen G., van Lavieren, R.F., Holy A., De Clercq E., Niesters H.G., Fries E., Maas C., Mulder P.G., van der Zeijst B.A., and Osterhaus A.D.
Antiviral treatment is more effective than smallpox vaccination upon lethal monkeypox virus infection.
Nature **439:**745-8 (2006). *Abstract*
U-CyTech products used in this study:
Monkey IFN-γ ELISPOT
Monkey species: ***Macaca fascicularis***

Verstrepen B.E., Bins A.D., Rollier C.S., Mooij P., Koopman G., Sheppard N.C., Sattentau Q., Wagner R., Wolf H., Schumacher T. N., Heeney J.L., and Haanen J.B.
Improved HIV-1 specific T-cell responses by short-interval DNA tattooing as compared to intramuscular immunization in non-human primates. Vaccine **26:**3346-51 (2008). *Abstract*
U-CyTech products used in this study:
Monkey IFN-γ ELISPOT
Monkey IL-2 ELISPOT
Monkey IL-4 ELISPOT
Monkey species: ***Macaca mulatta***

Zhang W., Ahmad G., Torben W., Noor Z., Le L., Damian R.T., Wolf R.F., White G.L., Chavez-Suarez M., Podesta R.B., Kennedy R.C., and Siddiqui A.A.
Sm-p80-based DNA vaccine provides baboons with levels of protection against Schistosoma mansoni infection comparable to those achieved by the irradiated cercarial vaccine.
J Infect Dis **201:**1105-12 (2010). *Abstract*
U-CyTech products used in this study:
Monkey IFN-γ ELISPOT
Monkey IL-4 ELISPOT
Monkey species: ***Papio anubis***

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Phone: 513.770.1991 Toll Free: 866.783.3797 Fax: 513.573.9241 Email: info@aniara.com
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