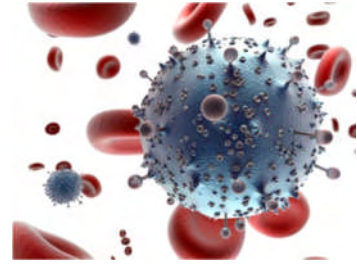




## ELISPOT in Infectious Diseases

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- $\gamma$  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- $\gamma$  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- $\gamma$  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- $\gamma$  ELISPOT kit

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- $\gamma$  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- $\gamma$  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- $\gamma$  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- $\gamma$  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- $\gamma$  ELISPOT

Monkey IL-4 ELISPOT

Monkey species: *Papio anubis*