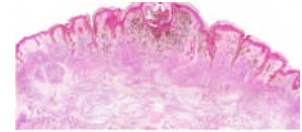




## ELISPOT in Cancer Research

Development of cervical cancer and hepatocellular carcinoma is strongly associated with high-risk human papillomavirus (HPV) and hepatitis B virus (HBV) infection, respectively. Researchers try to bring these forms of cancer to a halt by looking for specific and selective tumor antigens (often of viral origin) to apply in tumor-specific cancer vaccines. For this work, researchers need to monitor the kinetics of vaccine-induced T cell immunity and study the ability of antigens to induce specific cytotoxic T lymphocyte activity *in vitro*. For this purpose, the ELISPOT assay is an ideal tool to detect peptide-specific activated functional CD8 (+) cytotoxic T lymphocytes. By using a pool of peripheral blood mononuclear cells, the peptide of interest may be compared to control peptides, for its ability to induce cytokine release by single T cells. The researcher can use the number of spots in the ELISPOT to quantify responder T cell frequencies and evaluate the immunogenicity of these possible vaccines.



### Examples of studies using our ELISPOT assays:

**Bian T., Wang Y., Lu Z., Ye Z., Zhao L., Ren J., Zhang H., Ruan L. and Tian H.**

Human papillomavirus type 16 L1E7 chimeric capsomeres have prophylactic and therapeutic efficacy against papillomavirus in mice.

Mol. Cancer Ther. **7**:1329-35 (2008). [Abstract](#)

**U-CyTech products used in this study:**

Mouse IFN- $\gamma$  ELISPOT kit

**Chiriva-Internati M., Yu Y., Mirandola L., Jenkins M.R., Chapman C., Cannon M., Cobos E. and Kast W.M.**

Cancer testis antigen vaccination affords long-term protection in a murine model of ovarian cancer.

PLoS One **5**:e10471 (2010). [Abstract](#)

**U-CyTech products used in this study:**

Mouse IFN- $\gamma$  ELISPOT kit

Mouse TNF- $\alpha$  ELISPOT kit

**Gholamin M., Moaven O., Farshchian M., Mahmoudi M., Sankian M., Memar B., Forghani, M.N., Malekzadeh R., Rajabi-Mashhadi M.T. and Abbaszadegan M.R.**

Induction of cytotoxic T lymphocytes primed with tumor RNA-loaded dendritic cells in esophageal squamous cell carcinoma: preliminary step for DC vaccine design.

BMC Cancer **10**:261 (2010). [Abstract](#)

**U-CyTech products used in this study:**

Human IFN- $\gamma$  ELISPOT kit

**Griffioen M., Borghi M., Schrier P.I., Osanto S. and Schadendorf D.**

Analysis of T-cell responses in metastatic melanoma patients vaccinated with dendritic cells pulsed with tumor lysates. *Cancer Immunol Immunother* **53**:715-22 (2004). [Abstract](#)

**U-CyTech products used in this study:**

Human IL-13 ELISPOT antibody pair

**Li J., Zeng X.H., Mo H.Y., Rolen U., Gao Y.F., Zhang X.S., Chen Q.Y., Zhang L., Zeng M.S., Li M.Z., Huang W.L., Wang X.N., Zeng Y.X. and Masucci M.G.**

Functional inactivation of EBV-specific T-lymphocytes in nasopharyngeal carcinoma: implications for tumor immunotherapy.

*PLoS One* **2**:e1122 (2007). [Abstract](#)

**U-CyTech products used in this study:**

Human IFN- $\gamma$  ELISPOT kit

**Meng J.Z., Dong Y.J., Huang H., Li S., Zhong Y., Liu S.L., and Wang Y.D.**

Oral vaccination with attenuated *Salmonella enterica* strains encoding T-cell epitopes from tumor antigen NY-ESO-1 induces specific cytotoxic T-lymphocyte responses.

*Clin Vaccine Immunol* **17**:889-94 (2010). [Abstract](#)

**U-CyTech products used in this study:**

Mouse IFN- $\gamma$  ELISPOT

**Shang X.Y., Chen H.S., Zhang H.G., Pang X.W., Qiao H., Peng J.R., Qin L.L., Fei R., Mei M.H., Leng X.S., Gnjatic S., Ritter G., Simpson A.J., Old L.J. and Chen W.F.**

The spontaneous CD8+ T-cell response to HLA-A2-restricted NY-ESO-1b peptide in hepatocellular carcinoma patients. *Clin. Cancer Res.* **10**:6946-55 (2004). [Abstract](#)

**U-CyTech products used in this study:**

Human Granzyme B ELISPOT antibody pair

**Slager, E. H., Borghi, M., van der Minne, C. E., Aarnoudse, C. A., Havenga, M. J., Schrier, P. I., Osanto, S., and Griffioen, M.**

CD4+ Th2 cell recognition of HLA-DR-restricted epitopes derived from CAMEL: a tumor antigen translated in an alternative open reading frame.

*J. Immunol.* **170**:1490-7 (2003). [Abstract](#)

**U-CyTech products used in this study:**

Monkey IL-13 ELISPOT kit

Monkey species: *Macaca mulatta*