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 \textit{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:

Human papillomavirus type 16 L1E7 chimeric capsomeres have prophylactic and therapeutic efficacy against papillomavirus in mice.
U-CyTech products used in this study:
Mouse IFN-γ 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.
U-CyTech products used in this study:
Mouse IFN-γ ELISPOT kit
Mouse TNF-α ELISPOT kit

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). \textit{Abstract}
U-CyTech products used in this study:
Human IFN-γ ELISPOT kit

U-CyTech products used in this study:
Human IL-13 ELISPOT antibody pair


U-CyTech products used in this study:
Human IFN-γ ELISPOT kit


U-CyTech products used in this study:
Mouse IFN-γ ELISPOT


U-CyTech products used in this study:
Human Granzyme B ELISPOT antibody pair


U-CyTech products used in this study:
Monkey IL-13 ELISPOT kit

Monkey species: Macaca mulatta