



THE OCULAR IMMUNOLOGY
AND UVEITIS FOUNDATION

Dedicated to Eye Disease Cure and Education

In Vivo Expression of Perforin by Natural Killer Cells During a Viral Infection

C. Stephen Foster, MD

A potent cytolytic pore-forming protein (PFP, perforin, or cytolyisin) is associated with the cytoplasmic granules of cytotoxic T lymphocytes (CTL) and natural killer (NK) cells. The role of PFP/perforin in cytolytic reactions carried out in vivo is still unclear. We performed immunohistochemical analysis using antibodies monospecific for perforin and made use of a murine uveitis model produced by intracameral inoculation of herpes simplex virus I (HSV-I). The main cell infiltrate found in the anterior segment of virus-inoculated eyes consisted of Thy-1/asialo GM/CD8/CD4 cells, presumably representing NK cells. Perforin staining was detected mainly in cells bearing this phenotype. Perforin was only detected in cells displaying the large granular lymphocyte morphology. A small number of perforin-positive cells (< 5%) colabeled as CD8, indicating that these cells could have belonged to the CTL lineage. These observations show for the first time the presence of perforin-containing NK cells in tissues of animals undergoing acute viral infections.