

Strain-specific differential gene expression in a mouse model of AIDS using DNA-microarrays.

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Murine acquired immunodeficiency syndrome (MAIDS) is a retrovirus-induced disease caused by a specific mixture of the murine leukemia virus (MuLV), LP-BM5 (Mosier, 1996). Two strains of mice are used in MAIDS investigations; (1) the resistant strain, BALB/C and (2) the susceptible strain, C57BL/6. The objective of my research project is to identify the immune genes that are important in establishing the strain-specific disease induced by MuLV at one week post-infection using a DNA microarray approach. Prior microarray experiments done at 3 days post-infection showed that certain immune genes are differentially expressed in the resistant and susceptible strains. Natural killer cell genes are highly upregulated in BL/6 mice whereas acute phase immune response genes and MHC genes are highly upregulated in BALB/C mice. My project will supplement these data by investigating the gene expression pattern at later stages of infection, by following virus-specific gene expression in addition to host cell expression on our new microarrays, and by defining any innate differences between BL/6 and BALB/C mice using mock infected animals. Subsequently, the relative significance of identified genes of interest can be characterized and studied in greater detail, using such techniques as real-time PCR and protein expression assays. Data collected from these studies will be used to develop models of early immune activation events in this AIDS model system.