

Real Time Analysis of Select Genes in MuLV Infected BALB/c and C57 Bl/6 Mice

Mouse AIDS (MAIDS), caused by exposure to Murine Leukemia Virus (MuLV), is an effective model system used to study human HIV infection and AIDS. BALB/C and C57Bl/6 are two inbred strains of mice that are resistant and susceptible, respectively, to the disease caused by this retrovirus. DNA microarray based studies conducted on the leukocyte transcriptomes of both mice indicated that a number of immune response genes that were differentially expressed during the first two weeks post infection. We are currently attempting to verify and quantify these gene expression differences through Real Time PCR methods. Individual genes were selected for analysis based on two criteria; an expression differences of five fold or higher and the potential for immunologic significance. Some of the genes chosen for follow up include CD152, CD38, Tumor Necrosis Factor (TNF) _ and Interferon Gamma (IFN) _ . CD38 plays a major role in B cell differentiation and activation and is expressed in large quantities on the surface of plasma cells and some T cells. CD152 or Cytotoxic T-Lymphocyte associated Antigen (CTLA-4), plays a key role in inhibiting T cell responses. Both TNF _ and IFN _ are key cytokines expressed during the innate and adaptive stages of immunity.

Primer and probe sets were designed for each gene such that primers spanned exon boundaries to prevent amplification of any genomic DNA. Primer pairs were then optimized for molar ratio, magnesium concentration and annealing temperature. Preliminary Real Time PCR experiments with SYBR green showed primers in optimal working condition. Subsequent experiments were conducted with matched sets of primers and TAQman probes to quantify gene specific mRNA present in spleen leukocytes from each mouse strain. Preliminary results comparing the expression patterns of these genes in BALB/c and BIL/6 at days 3,7 and 10 post MuLV exposure will be presented.