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# Immunological difference in Th1 and Th2 dominant mouse strains in an ICD model. (IRM15P.601)

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## Abstract

Of reported occupational injury associated with workman's compensation, contact dermatitis ranks second most prevalent overall. C57BL/6 and BALB/c differ in their immune responses, tending to be either Th1- or Th2-dominant, respectively. Irritant contact dermatitis (ICD) is an acute inflammatory response that can vary among individuals. Therefore; to better characterize ICD, these two mouse strains were utilized. C57 and BALB/c mice were exposed to benzoalkonium chloride, (BKC) or acetone (control) for 3 or 7 days. Multiplex protein analysis showed pro-inflammatory cytokines such as IL-1β, IL-6, TNF-α, IFN-γ, IL-22, and CSFs (GM-CSF and G-CSF) were all significantly upregulated in C57s at Day 3 as compared to BALB/c. Inflammatory cell chemoattractants such as CXCL1, 2, and 10, as well as CCL3, 4, 5, and 7 also displayed higher expression in C57s. Interestingly, it wasn't until Day 7 that BALB/c mice showed significantly elevated levels of inflammatory mediators such as IL-2, IL-4, IL-5, IL-31, IL-9, IFN-γ, and CCL2 compared to C57. Cytokine mRNA expression also varied between the two strains, but did not necessarily correlate with protein data. In addition, C57 appeared to have worse inflammation than BALB/c as indicated *via* histopathology.

Overall, these results further confirm previous findings in which BALB/c and C57 exhibit different immune responses and may provide a better understanding of dermopathology and allow for specific immunomodulation for therapy.

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