

**POSTER 45****DIFFERENCES IN APOBEC3G EXPRESSION IN CD4+ T HELPER LYMPHOCYTE SUBTYPES MODULATE *vif*<sup>+</sup> AND *vif*<sup>-</sup> HIV-1 INFECTIVITY**

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Based on potential transcription factor binding sites in the APOBEC3G and APOBEC3F promoter sequences, we hypothesized that expression of APOBEC3G and APOBEC3F would vary with T helper lymphocyte differentiation. Naïve CD4+ T lymphocytes were differentiated to T helper type 1 (Th1) and 2 (Th2) effector cells by expression of transcription factors, Tbet and GATA3, respectively, as well as by cytokine polarization. APOBEC3G and APOBEC3F RNA levels, and APOBEC3G protein levels, were higher in Th1 than Th2 cells. HIV-1 produced from Th1 cells contained a greater amount of virion APOBEC3G, and showed decreased virion infectivity, compared to virions produced from Th2 cells. These differences between virions produced from Th1 and Th2 lymphocytes were greater for viruses lacking a functional *vif* gene, but were also seen with *vif*-positive viruses. Over-expression of APOBEC3G in Th2 cells increased the APOBEC3G content, and decreased the infectivity, of virions produced from these cells. Neutralizing anti-interferon- $\gamma$  antibodies reduced levels of APOBEC3G in Th1 cells and subsequently increased infectivity of virions produced from those cells. These data are consistent with a causal role for APOBEC3G in the infectivity difference. These results indicate that APOBEC3G and APOBEC3F levels vary physiologically during CD4+ T lymphocyte differentiation, that interferon- $\gamma$  contributes to this modulation, and that this physiological regulation can cause changes in infectivity of progeny virions, even in the presence of HIV-1 *vif*.