Validation and Implementation of Human-specific Multiplex Analysis to Quantify the Inflammatory Response in the Plasma of Common Marmosets (*Callithrix jacchus*)

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The common marmoset (*Callithrix jacchus*) is a robust animal model that is used in a variety of research contexts. However, there is a paucity of commercially available immunoassays validated for use in this animal model. Therefore, the ability to validate and implement an immunoassay for common marmosets would be novel and valuable to the field. The first place to start in such an effort is to determine cross-reactivity between an established human-specific assay against marmoset analytes. To quantify immune-related markers produced by marmosets, we began with the MesoScale Diagnostics V-PLEX Human Biomarker 40-Plex Kit (MSD Cat # K15209D). We collected marmoset peripheral blood samples to conduct this study. We stimulated marmoset white blood cells to secrete inflammatory proteins using three different methods to ensure full immune activation. We also tested marmoset plasma to determine whether there were any inherent challenges associated with using this biological matrix in the assay. We used three validation tests, spike recovery, linearity, and parallelism. Of the 40 markers tested with the human-specific kit, we validated 18 as cross reactive for marmoset proteins. Of the 18, we determined that 12 were highly reproduceable, 4 were reproducible, and 2 could be detected but with low reproducibility.