

## **Authentication of Key Resources**

To enhance the reproducibility of the studies and data generated in this project, Key Resources, including reagents, antibodies, chemicals, and mice will be authenticated before use.

1) **Commercial Antibodies:** In all of our studies, we validate any commercial antibodies by testing them for specificity against known tissues as controls for each experiment, with both positive and negative controls being performed on each batch. For the CAIA model, mice will receive the same lot of Arthrogen-CIA antibody cocktail to ensure uniform disease manifestation.

2) **Reagents and Chemical Inhibitors:** For chemical inhibitors, each batch will be tested on model cell systems to ensure the specificity and activity of the inhibitor. We routinely test cytokines such as interleukin 1, TNF, and IL-6 and their inhibitors for potency using a luciferase based reporter cell line (Brunger et al., Stem Cell Reports 8:1202-1213, 2017).

3) **Gene editing:** All CRISPR-based gene edits will be validated using PCR, Surveyor assay, or DNA sequencing to confirm the precise edits and rule out off-target editing effects.