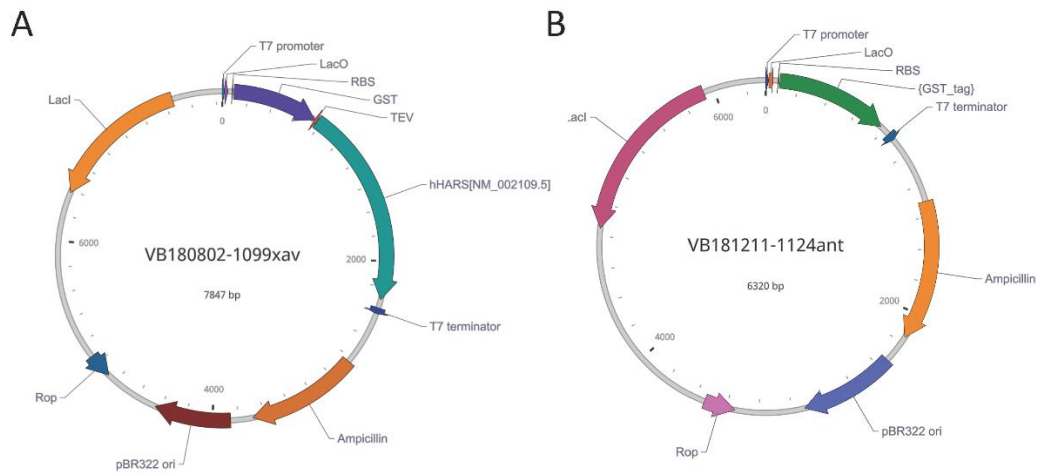
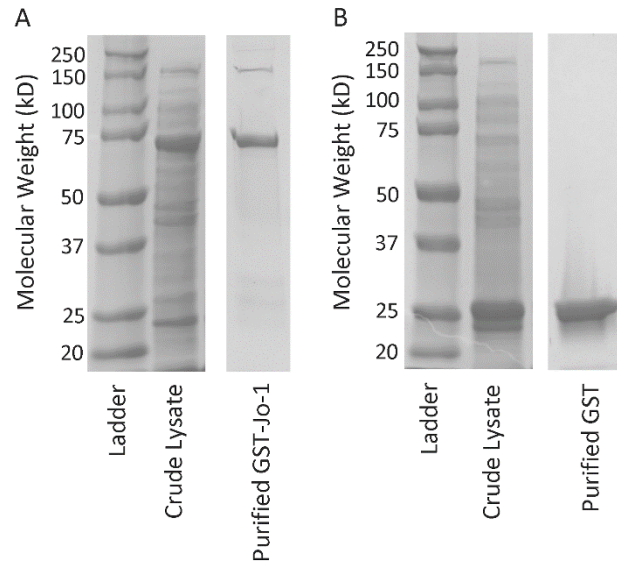


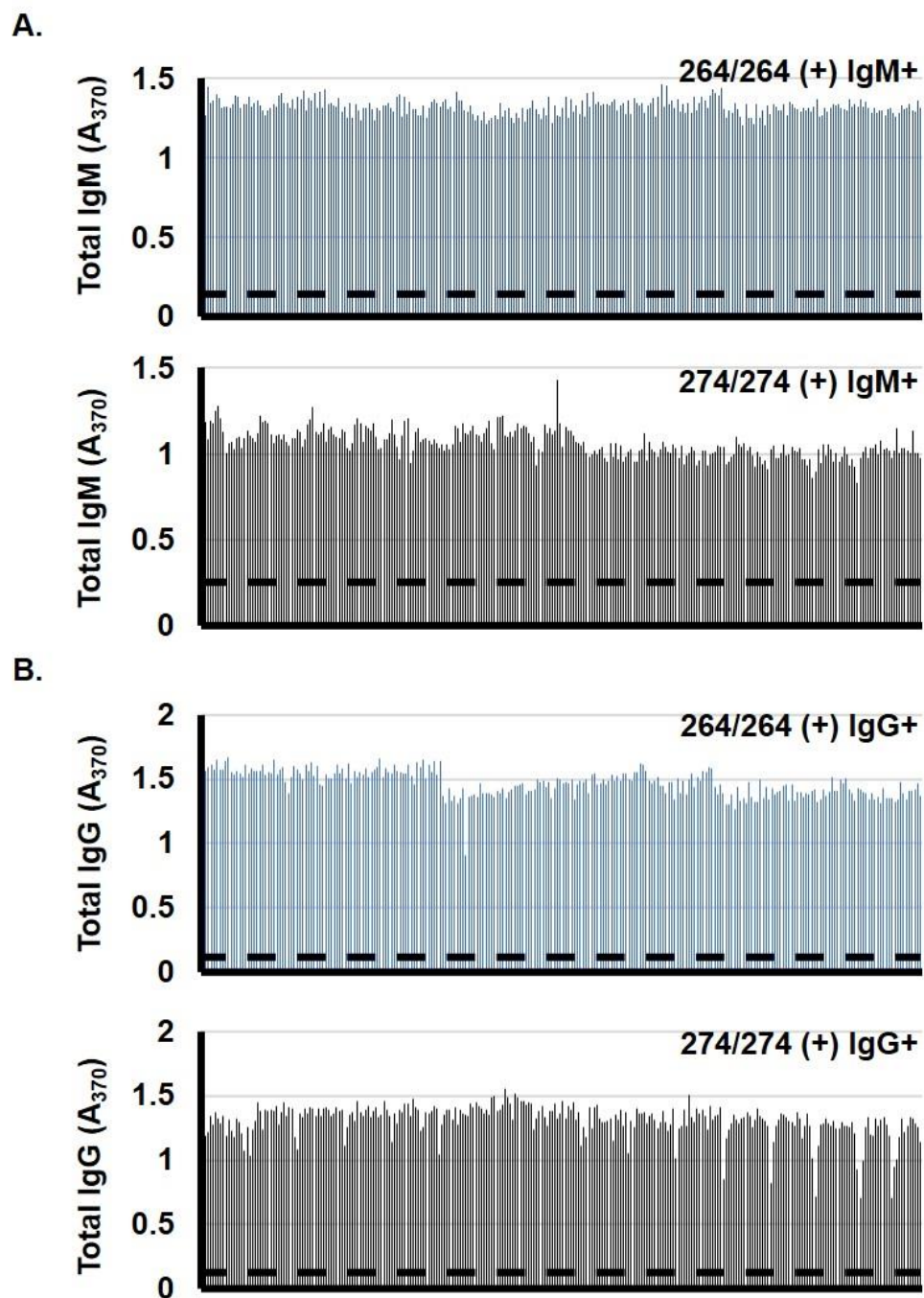


**Supplemental Figure 1. Plasmid Constructs for Recombinant Protein Production.**

**A**, To generate the GST-Jo-1 plasmid, the homo sapiens histidyl-tRNA synthetase (hHARS) transcript variant 1 cDNA sequence (NM\_002109.5) was purchased from a commercial source (VB180802-1099xav, VectorBuilder). **B**, The GST-tag protein was constructed similarly but only included the GST-tag sequence (VB181211-1124ant, VectorBuilder).

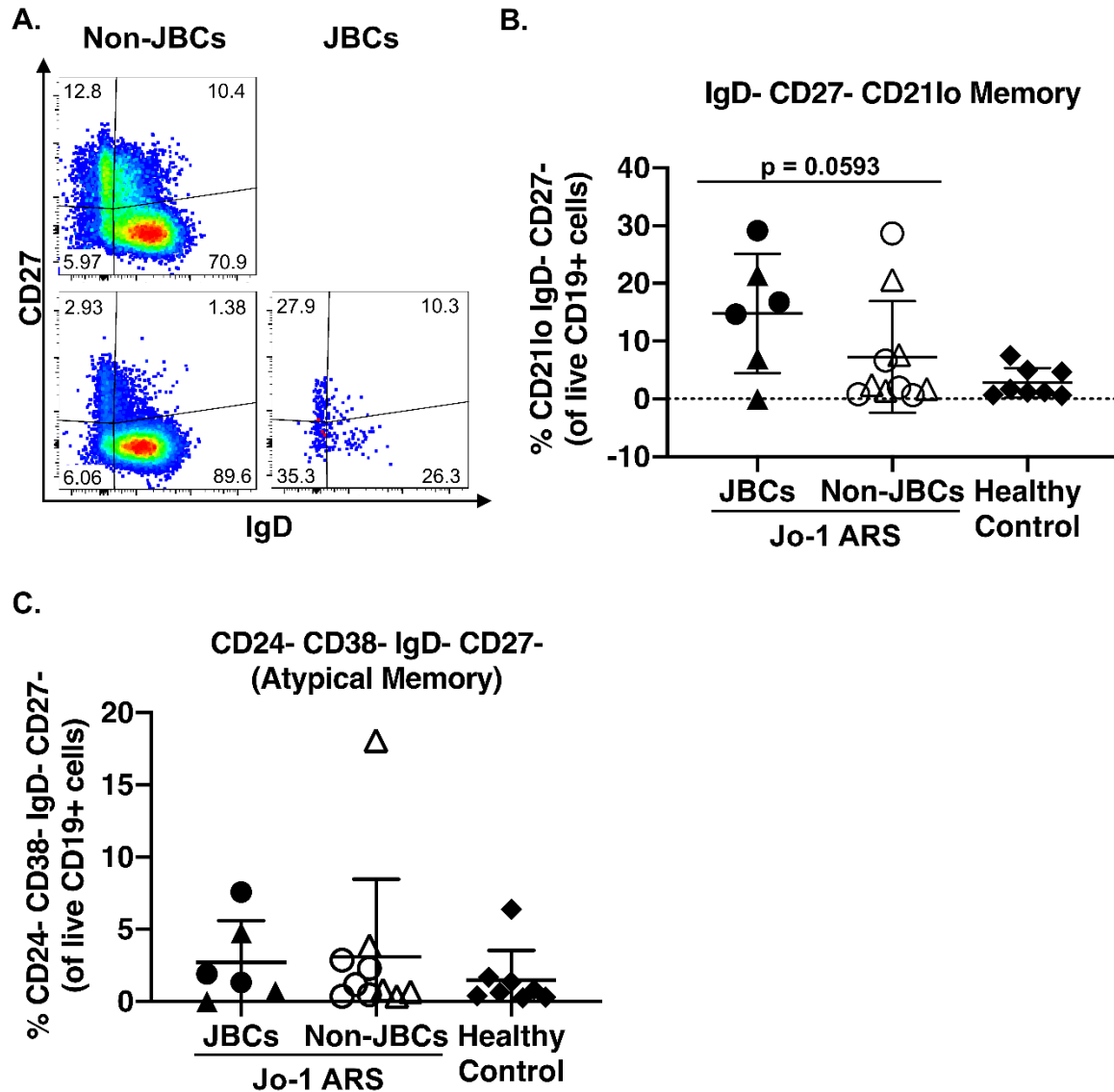


**Supplemental Figure 2. Jo-1-GST antigen purification.** Proteins were purified using glutathione beads and purity was confirmed by SDS-PAGE gel electrophoresis. Gels were stained with QC Colloidal Commassie (Biorad). Representative gels are shown for purification of **A**, GST-Jo-1 and **B**, GST recombinant proteins.



**Figure S3. IgM and IgG antibody is detected in stimulated PBMC cultures from subjects with confirmed Jo-1+ disease.**

**A-B**, PBMCs collected from  $n=5$  Jo-1-ARS subjects were separated into individual wells and polyclonally stimulated as in methods to drive B cell differentiation into antibody-secreting cells. Results from two representative patients (one in orange, the other in blue) are shown. **A-B**, Dashed line defines positive wells with a mean fluorescence for background plus 3 standard deviations for plots representing ELISA data from two different patients. The fraction of positive wells is shown secreting **A**, IgM antibody or **B**, IgG antibody.



**Figure S4. JBCs are not increased among CD21lo CD27- memory b cells or atypical memory.**

PBMCs from patients with active healthy controls (top) or Jo-1 ARS (bottom) were stained with antibodies against the indicated antigens and analyzed using flow cytometry and representative plots are shown. **A**, Live, CD19<sup>+</sup>IgM<sup>+</sup> Jo-1/GST-binding (JBCs) and were gated on CD27/IgD (Left) expression. **B-C**, Flow cytometry identifies the indicated populations among n=3 stable Jo-1 ARS (triangles), n=3 active Jo-1 ARS (circles), and n=8 healthy controls (diamonds). **B**, The frequency of CD21lo IgD- CD27- memory or **C**, atypical memory (as gated in **Fig. 3A-B**) is shown for JBCs and Non-JBCs isolated from IIM patients as well as healthy control B cells. Each data point represents an individual donor, while the bars represent the mean of each category  $\pm$  SD. P values were determined using the Mann-Whitney U test, and significant values are indicated on each panel.