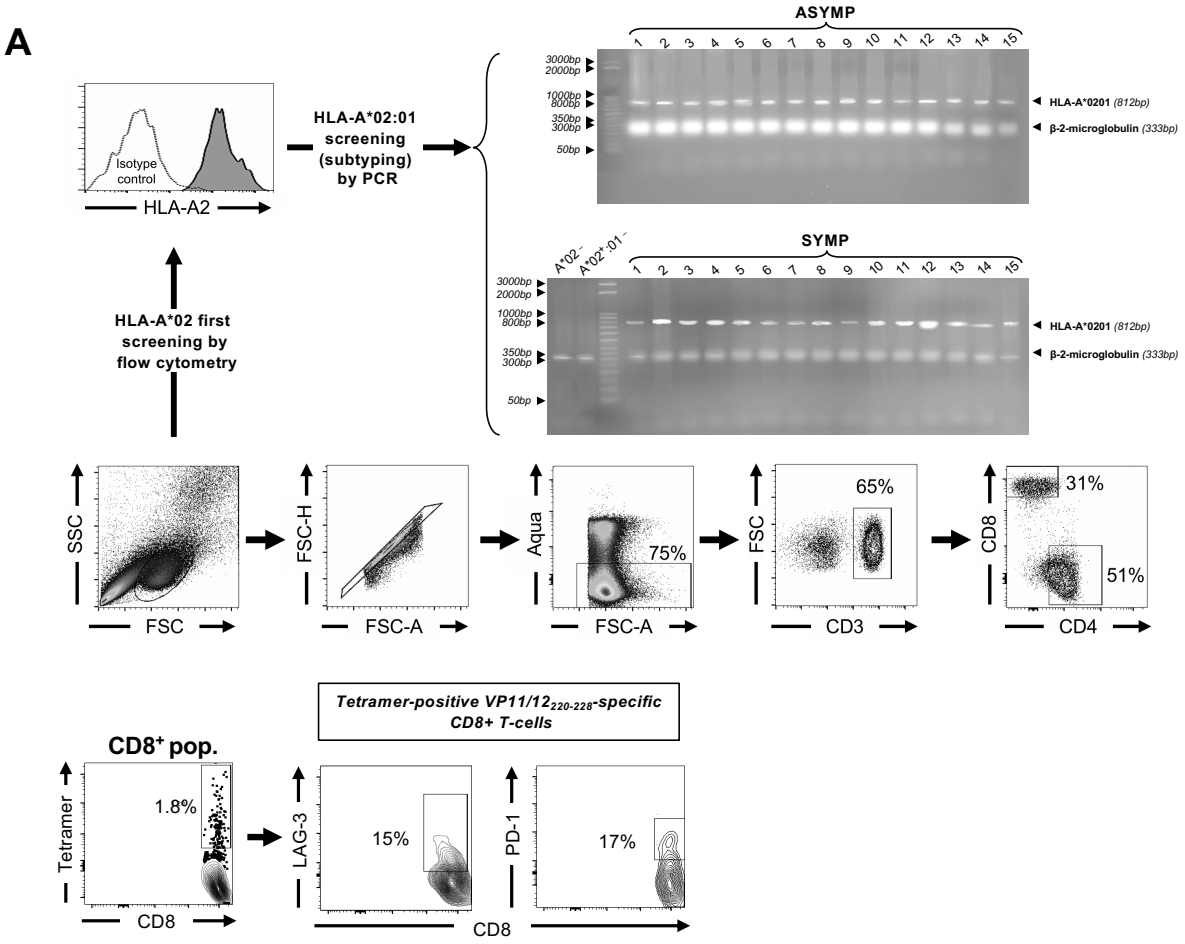

Figure S1: ***HLA*02:01 subtyping and gating strategies applied to human PBMCs-derived HSV-1 VP11/12$_{220\text{-}228}$-specific CD8$^+$ T cells*****:** (**A**) HLA typing: HLA-A*02 patients were first screened by flow cytometry, and subtyping subsequently performed by PCR to include only HLA-A*02:01 subtyped individual in the study. Gating strategy used for sorting and analysis of HSV-1 VP11/12$_{220\text{-}228}$-specific CD8$^+$ T cells from PBMCs of SYMP vs. ASYMP individuals is shown.

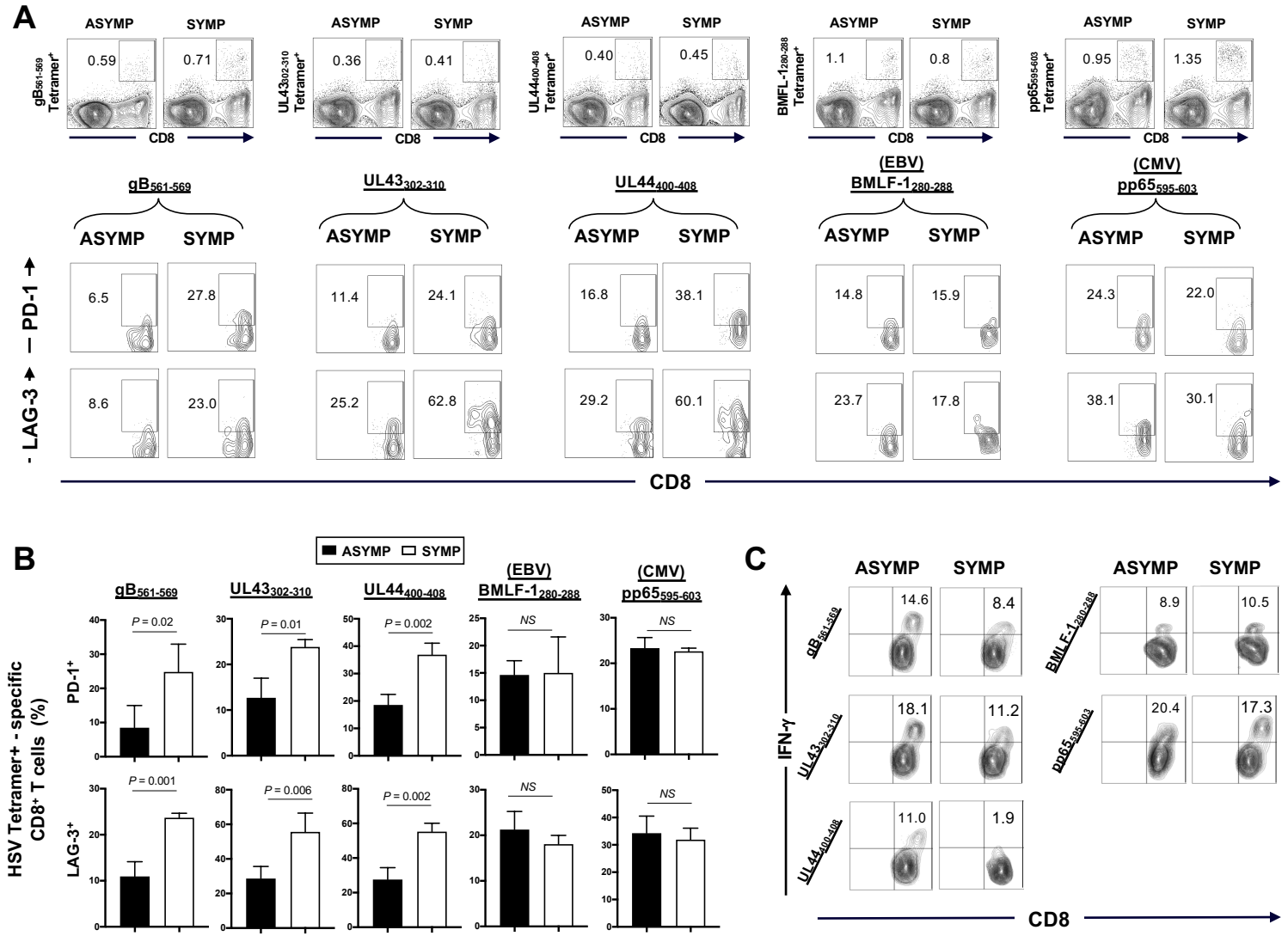

Figure S2: ***Cell surface expression of exhaustion receptors by various HSV-specific CD8⁺ T cells from symptomatic vs. asymptomatic individuals.***

The experimental design is similar to that in Fig. 2A with a focus on $CD8^+$ T cells specific to three different epitopes derived from HSV-1 envelope and tegument proteins ($gB_{561-567}$, $UL43_{302-310}$ or $UL44_{400-408}$). (**A**) PBMCs from 10 SYMP and 10 ASYMP individuals were stained for CD3/CD8 followed by tetramers specific for either $gB_{561-567}$, $UL43_{302-310}$ or $UL44_{400-408}$ epitopes and LAG-3/PD-1 exhaustion markers. In parallel, CD8+ T cells specific to control epitopes were stained for CD3/CD8 followed by tetramers specific for either EBV ($BMLF\text{-}1_{280-288}$) or CMV ($pp65_{595-603}$). Representative dot plots represent the exhaustion status of the five epitope-specific $CD8^+$ T cells from the same ASYMP/SYMP subjects. (**B**) Average frequencies of HSV-1-specific $CD8^+$ T cells ($gB_{561-567}$, $UL43_{302-310}$ or $UL44_{400-408}$) and EBV or CMV-specific $CD8^+$ T cells expressing PD-1 and LAG-3 receptors, detected from SYMP vs. ASYMP individuals. (**C**) Representative FACS plots of functional HSV-1 $gB_{561-567}$-, $UL43_{302-310}$- and $UL44_{400-408}$-specific CD8+ T or EBV- and CMV- specific $CD8^+$ T cells expressing IFN-g in SYMP vs. ASYMP individuals. Data are expressed as means +/- the standard deviations (SD). The indicated *P* values were determined using unpaired *t* test.

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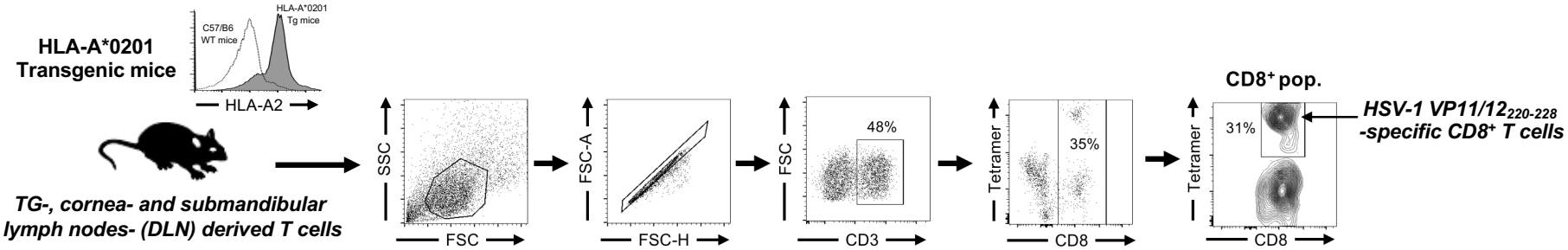

Figure S3: ***HLA*02:01 expression and gating strategies applied to HLA transgenic-derived HSV-1 VP11/12$_{220-228}$-specific CD8$^+$ T cells*****:** HLA typing: HLA-A*02:01 Transgenic mice were screened by flow cytometry to include only mice that express high level of HLA-A2 molecules. Gating strategy used for sorting and analysis of HSV-1 VP11/12$_{220-228}$-specific CD8$^+$ T cells in DLN of HLA-A*02:01 Transgenic mice is shown.