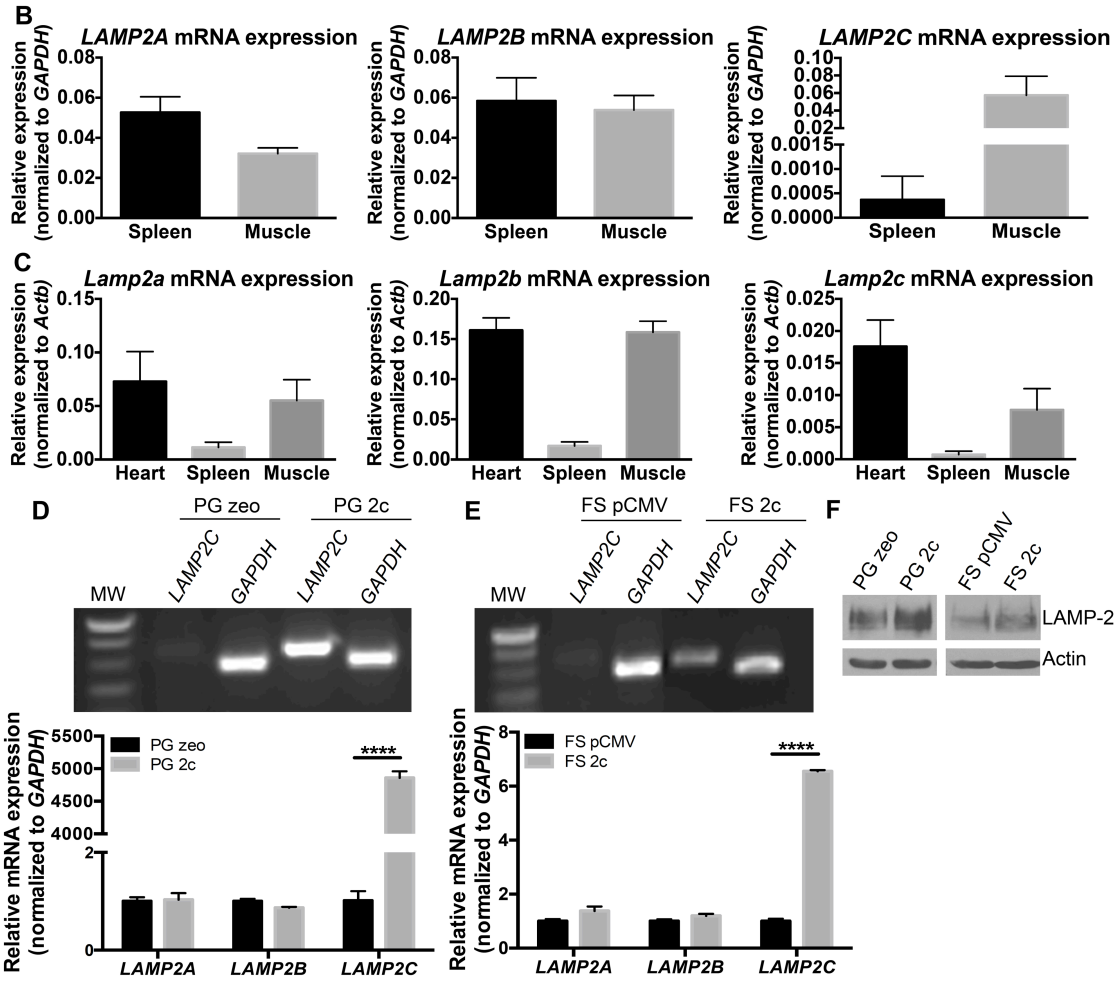
Supplemental Figure 1

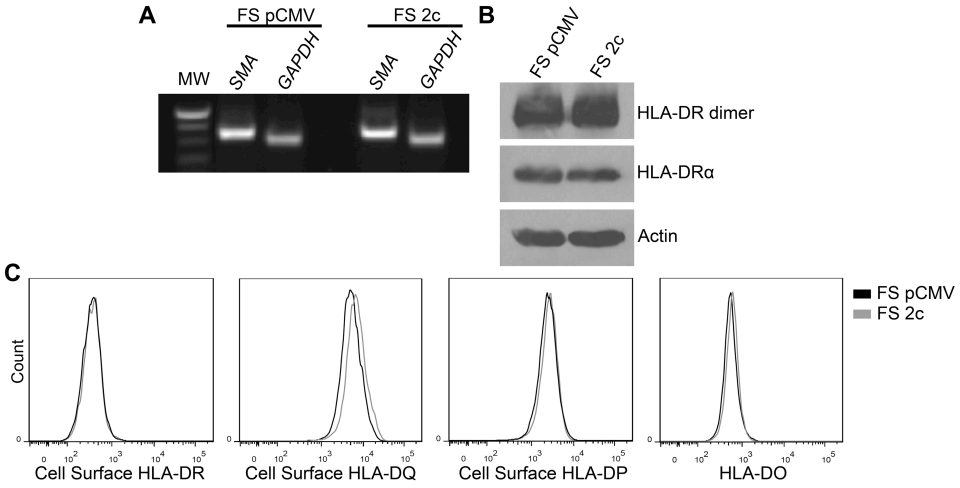
A

Human qPCR primers and probe sequence		Mouse qPCR primers and probe sequences	
Target	**Sequence 5' – 3'**	**Target**	**Sequence 5' – 3'**
LAMP2A	Forward: AACTTCCTTGTGCCCATAGC	*Lamp2a*	Forward: TGCAGTGCAGATGAAGACAA
	Reverse: AGCATGATGGTGCTTGAGAC		Reverse: TATCCAGTATGATGGCGCTT
	FAM-probe: CTCCTGCCAAGGCAGCTCCC		FAM-probe: TCCCACCGCTATGGGCACAA
LAMP2B	Forward: AGAGTGTTCGCTGGATGATG	*Lamp2b*	Forward: AGTGTTCGCTGGATGATGAC
	Reverse: TGCCAATTACGTAAGCAATCA		Reverse: GCATAGGTCTTTCTTCTGCCA
	FAM-probe: TCAAGCCTGAAAGACCAGCACCA		FAM-probe: TCAAGCCTGAAAGACCAGCACCA
LAMP2C	Forward: AAGGGTTCAGCCTTTCAATG	*Lamp2c*	Forward: ATGTGCTGCTGACTCTGACC
	Reverse: ACAATTATAAGGAAGCCCAAGG		Reverse: TTTCCGTCTTCCAATCATGTA
	FAM-probe: CCACACCCACTGCAACAGGAATAAGA		FAM-probe: AAGCCCAAGGCCACACCCAC



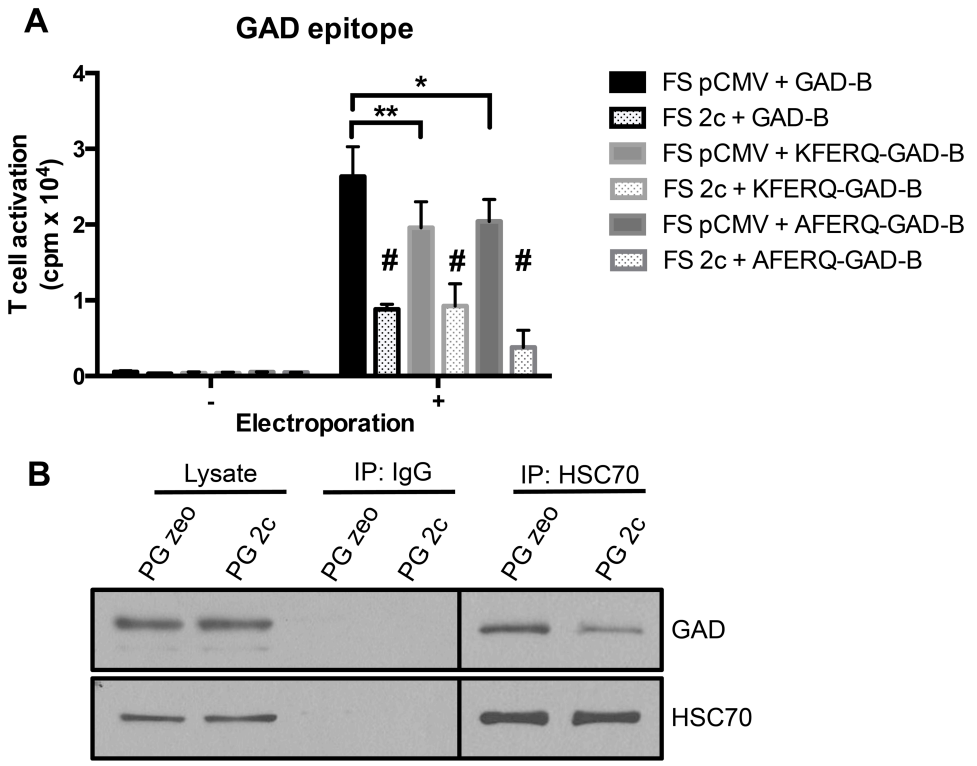
Supplemental Figure 1. LAMP-2 expression in human or mouse tissues and cells. (**A**) TaqMan primers and probes designed for detection of human or mouse isoforms. (**B**) Gene expression of *LAMP2* isoforms in human spleen and muscle. mRNA levels were normalized to *GAPDH* expression. (**C**) Gene expression of *Lamp2* isoforms in tissues from DBA/2J mice. mRNA levels were normalized to *Actb* expression. (**D** and **E**) RT-PCR analysis for *LAMP2C* in PriessGAD or FrevSMA cells transfected with a plasmid encoding for *LAMP2C*. mRNA levels of *LAMP2A*, *LAMP2B*, and *LAMP2C* in these cells were analyzed by qPCR and normalized to *GAPDH* expression. (**F**) Lysates from B-LCL transfected with *LAMP2C* were prepared and their proteins were resolved by SDS-PAGE and immunoblotted with antibodies to detect LAMP-2 and actin. (B and C) Mean ± SD, n ≥ 3. (D and E) Data were analyzed by two-way ANOVA. ****$p < 0.0001$ (mean ± SD, n = 3).

Supplemental Figure 2



Supplemental Figure 2. Analysis of CMA and MHCII pathway components in FS B cells with and without ectopic LAMP-2C expression. (**A**) RT-PCR was performed to detect mRNA levels of *SMA* and *GAPDH* in FS pCMV and FS 2c. (**B**) Cell lysates from FS pCMV and FS 2c B cells were prepared and their proteins were resolved by SDS-PAGE and immunoblotted with Abs to detect the HLA-DR dimer, HLA-DR α chain, and actin. (**C**) FS pCMV and FS 2c cells were incubated with Abs to detect cell surface expression of HLA-DR, HLA-DQ, or HLA-DP and total cellular levels of HLA-DO. (Representative of n = 3).

Supplemental Figure 3



Supplemental Figure 3. Alterations in the CMA pathway in cells with increased LAMP-2C expression. (**A**) Peptide translocation and presentation dependent on CMA were reduced in FS B cells with ectopic LAMP-2C expression. FS pCMV and FS 2c B cells were incubated with 20 μM $GAD_{273-285}$-biotin, followed by electroporation to deliver this peptide to the cytoplasm. Control cells were not subjected to electroporation. Cells were acid-stripped and washed extensively to remove extracellular peptide. After culturing cells for 16 h, APCs were incubated with GAD specific T cells and MHCII-T cell activation was measured at an APC:T cell ratio of 0.5:1. To examine if peptide modification with a strong motif for CMA (KFERQ) could overcome the inhibitory effects of LAMP-2C, presentation of the peptide KFERQ-$GAD_{273-285}$-biotin was compared with a control peptide, AFERQ-$GAD_{273-285}$-biotin using the conditions above. Data were analyzed by two-way ANOVA. *$p < 0.05$ and **$p < 0.01$ for FS pCMV + GAD-B vs FS pCMV + KFERQ-GAD-B or FS pCMV + AFERQ-GAD-B. #$p < 0.0001$, FS pCMV vs FS 2c for each peptide (Representative of n = 2). (**B**) Analysis of HSC70 association with CMA substrate GAD in B cells with and without ectopic LAMP-2C expression. Proteins immunoprecipitated (IP) with an isotype control Ab (IgG) or an Ab specific for HSC70 were resolved by SDS-PAGE and immunoblotted to detect associated GAD or HSC70. As a control, cell lysates were also analyzed and immunoblotted to detect GAD or HSC70 (Representative of n = 3).