**Supplementary Figures**

**TITLE:** Proteomic analysis reveals a novel therapeutic strategy using Fludarabine for steroid-resistant asthma exacerbation

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**Short title:** Fludarabine inhibits asthma exacerbation

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**Supplementary Figure 1.****Effects of FLU infection and DEX on inflammatory cytokine expression in mice lungs with allergic asthma.** Cytokine production in lung tissues obtained from the same model as in Figure 1 was assessed on day 24 (5 days post infection). The mRNA levels of Th2 cytokines IL-4 (A), IL-5 (B), IL-13 (C), eotaxin-1 (D), eotaxin-2 (E); non-Th2 cytokines IFN-α (F), IFN-β (G), IFN-γ (H), TNF (I), IL-1β (J), were quantified by qPCR, the fold change was normalized to HPRT expression. Data are presented as mean ± SEM (n = 6-8 mice/group) and are representative of three independent experiments. \*Designates significant differences from PBS-treated group (\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001). #Designates significant differences from DEX-treated groups (#p < 0.05, ##p < 0.01).+Designates significant differences compared to OVA/FLU treated groups (++p < 0.01, +++p < 0.001).

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**Supplementary Figure 2.****Whole blot presentation of STAT1 and phospho-STAT1 (P-STAT1) expression.** (A)20 µg of lung proteins from each group as the same conditions in Figure 5 and (B) 20 µg of lung proteins from each group as the same conditions in Figure 6 were loaded on different stain-free gels and transferred to PVDF membranes after separation. Anti-STAT1 Ab and anti-phospho-STAT1 (Tyr701) Ab were firstly stained and visualized, then the blots were stripped to re-incubate with β-actin (42 kDa) as a loading control. Arrows indicated at 91 and 84 kDa were the two isoforms of STAT1 (Stat1α, Stat1β) and phospho-STAT1 (p-Stat1α and p-Stat1β).

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**Supplementary Figure 3. Effects of Fludarabine and its combination with DEX on inflammatory cytokines expression in mice lungs with FLU-induced asthma exacerbation.** Cytokine production in lung tissues obtained from same model in Figure 5 was assessed on day 24 (5 days post infection). The mRNA levels of Th2 cytokines IL-4 (A), IL-5 (B), IL-13 (C), eotaxin-1 (D), eotaxin-2 (E); non-Th2 cytokines IFN-α (F), IFN-β (G), IFN-γ (H), TNF (I), and IL-1β (J), were quantified by qPCR, the fold change was normalized to HPRT expression. Data are presented as mean ± SEM (n = 6-8 mice/group) and are representative of three independent experiments. Results are representative of three independent experiments. #Designates significant differences between Flud-treated and isotype-treated groups (#p < 0.05, ##p < 0.01, ###p < 0.001).