



Fig. S2. Effect of mast cell-deficiency on interleukin (IL)-31-induced scratching in mice. (A) The typical examples of distribution of IL-31 receptor A (IL-31RA) and mouse mast cell protease-7 (mMCP-7) in the mouse skin. IL-31RA [green: 1st antibody, rabbit-anti-IL-31RA (Santa Cruz Biotechnology Inc., Santa Cruz, CA, USA)]; 2nd antibody, Alexa Fluor 488-conjugated anti-rabbit-IgG (Life Technologies, Carlsbad, CA, USA) and mMCP-7 [red, a marker of mast cells: 1st antibody, goat-anti-mMCP-7 (R&D Systems Inc., Minneapolis, MN, USA)]; 2nd antibody, tetramethylrhodamine isothiocyanate (TRITC)-conjugated anti-goat-immunoglobulin G (Thermo Fisher Scientific, Carlsbad, CA, USA) were immunostained in the rostral back skin of ICR mice. Arrowheads indicate mMCP-7-positive mast cells. Scale bar = 50 μ m. (B) Effect of mast cell-deficiency on IL-31-induced scratching in male mast cell deficient WBB6F1/kit-kitw/kit-v/Slc mice [Mast cells (-)] and in male normal littermates (WBB6F1/kitSlc) [Mast cells (+)]. These mice (8 weeks old) were purchase from Japan SLC (Shizuoka, Japan). IL-31 (100 ng/site) or the vehicle (VH) was injected intradermally. Data are presented as mean and standard error of the mean (SEM) ($n=8$). * $p < 0.05$ compared with that of VH (Holm-Šidák test).