

Supplemental Figure Legends

Supplemental Figure 1: Bronchoalveolar Lavage Fluid Cell Features in Patients with Chronic Immune Checkpoint Inhibitor Pneumonitis

Before/after plots showing changes in lymphocyte, monocyte and neutrophil percentages in the bronchoalveolar lavage fluid (BALF) obtained from patients with chronic immune checkpoint inhibitor (ICI) pneumonitis before the index episode (Episode 1) and during re-emergence of pneumonitis during steroid taper (Episode 2). Bars show median % cells for each cell type.

Supplemental Figure 2. Chronic pneumonitis is associated with brisk lymphocytic inflammation, including highly proliferative PD-1+ CD8+ T cells. A representative case of chronic pneumonitis (Patient 5) with abundant lymphocytic inflammation is shown (H&E, top left, see also **Figure 3**). Profiling of the inflammatory microenvironment with multiplex immunofluorescence (top center) reveals a dramatic recruitment of PD-1+ lymphocytes (green, top right) and numerous CD8+ cytotoxic T cells (white, bottom left). Many of the PD-1+ and CD8+ lymphocytes are positive for the proliferation marker Ki67 (red, bottom center), including numerous PD1+ CD8+ T cells (bottom right, arrows highlight PD-1+ CD8+ Ki67+ cells). Original magnification 200x.

Supplemental Figure 3: Spaghetti Plots of Corticosteroid Use in Individual Patients with Chronic Immune Checkpoint Inhibitor Pneumonitis.

Spaghetti plots showing steroid dosing over time in each individual patient as well as regression line (with shaded 95% confidence intervals) showing change in steroid dose over time in 6 patients with chronic ICI-pneumonitis.