







Suppl. Figure 1: Trachea, histologic scoring system for mucosal thickness and lymphocytic infiltrates. Shown are representative areas that reflect the different grades of mucosal thickness and lymphocytic infiltrates induced by IBV. Since these two parameters are closely linked they are depicted in one figure. (A) Histologic score 1: A single layer of ciliated, columnar epithelium covers the mucosal surface. The supporting interstitium contains few, minimally congested capillaries and sparse circulating tissue lymphocytes. (B) Histologic score 2: The mucosal epithelium is elevated by increased numbers of immunoreactive lymphocytes expanding the interstitium and mildly increasing the overall mucosal thickness. (C) Histologic score 3: Large numbers of immunoreactive lymphocytes expand the supporting interstitium, with a moderate increase in the overall mucosal thickness. (D): Histologic score 4: Small aggregates of amorphous cellular debris, many congested capillaries and large numbers of immunoreactive lymphocytes diffusely efface and markedly expand the interstitium. (E) Histologic score 5: Confluent aggregates of amorphous cellular debris, congested capillaries and extreme numbers of immunoreactive lymphocytes diffusely efface the interstitium, severely increasing the overall mucosal thickness. The HE slides are depicted at 400X magnification.

Suppl. Figure 2: Trachea, histologic scoring system for deciliation. Shown are representative areas that reflect the different grades of deciliation by IBV. (A) Histologic score 1: A single layer of ciliated, columnar epithelium covers the mucosal surface. All epithelial cells are uniformly ciliated. (B) Histologic score 2: Focal regions of the mucosal epithelium lacks cilia (deciliation). Remaining cilia are slightly blunted. (C) Histologic score 3: Extensive areas of the mucosal epithelium lack cilia, and the supporting epithelial cells are slightly condensed. (D): Histologic score 4: Cilia are rarely observed. Those present are markedly blunted and appear as a thin, granular layer on the apical surface of the epithelial cells. (E): Histologic score 5: Cilia are completely effaced and are not observed in the tissue section. The HE slides are depicted at 1000X magnification.

Suppl. Figure 3. Goblet cell score of the trachea. Shown are representative areas that reflect the different grades of goblet cell depletion by IBV. (A) Normal: score 1. Trachea, histologic grade normal. A single layer of ciliated, columnar epithelium covers the mucosal surface. The lamina propria contains large numbers of mucous glands. (B) Mild depletion: score 2. Trachea, histologic grade mild. The mucosal epithelium is elevated by increased numbers of immunoreactive lymphocytes expanding the interstitium with mild decrease of intraepithelial mucous glands. (C) Moderate depletion: score 3. Trachea, histologic grade moderate. The interstitium is expanded by numerous lymphocytes. There are moderate numbers of mucous glands. (D) Marked: score 4. Trachea, histologic grade moderate. The interstitium is expanded by numerous lymphocytes. There is marked loss of mucous glands. (E) Severe: score 5. Trachea, histologic grade severe. The interstitium is expanded by numerous lymphocytes. The goblet cells and mucous glands are absent. The HE slides are depicted at 100X magnification.