**Title:** Supplementary Data 1.

**Description:** Primary antibody summary.

Title: Supplementary Movie 1.

**Description:** FITC-Dextran (green) perfusion of microvascular network in a skin-on-chip coated with human dermal microvascular endothelial cells.

**Title:** Supplementary Movie 2.

**Description:** FITC-Dextran (green) perfusion of microvascular network in a skin-on-chip constructed without human dermal microvascular endothelial cells.

**Title:** Supplementary Movie 3.

**Description:** Neutrophil trans-endothelium extravasation and migration in response to epidermal infection of HSV-1, as shown in Figure 4d.