Isoflurane attenuates the reduction of zona occludens 1 following lipopolysaccharide/interferon gamma and cyclic stretch in vitro and does not affect baseline zona occludens levels in control cells. Mouse lung epithelial cells were grown to confluence prior to treatment with lipopolysaccharide (LPS) and interferon gamma (IFN-γ). Following LPS/IFN-γ treatment, cells were exposed to isoflurane (or control gas) 1 day prior to cyclic stretch (10% stretch, 2 hrs). cDNA was synthesized, and message levels were analyzed by qPCR after normalizing for the housekeeping gene 18S. Isoflurane treatment did not affect baseline levels of ZO-1 expression. The combination of LPS/IFN-γ and cyclic stretch (n=13 wells) decreased ZO-1 message levels compared to control cells (no LPS/IFN-γ and no stretch, n=8 wells). Isoflurane attenuated the decrease in ZO-1 levels following LPS/IFN-γ + stretch (n=15 wells).