Isoflurane immediately prior to mechanical ventilation attenuates physiologic injury and alveolar capillary permeability in a two hit model of lung injury. C57BL/6 mice were exposed to 10 mg of nebulized endotoxin and allowed to recover. The following day mice were treated with 1.4% isoflurane (n=5) or control gas (n=4) 1 hr prior to mechanical ventilation (15 mL/kg, 2 hrs). Isoflurane treatment significantly attenuated the increase in lung stiffness (A) and pulmonary capillary permeability (B) seen following the combination of lipopolysaccharide and mechanical ventilation. (*p<0.05 vs control by Mann-Whitney test)