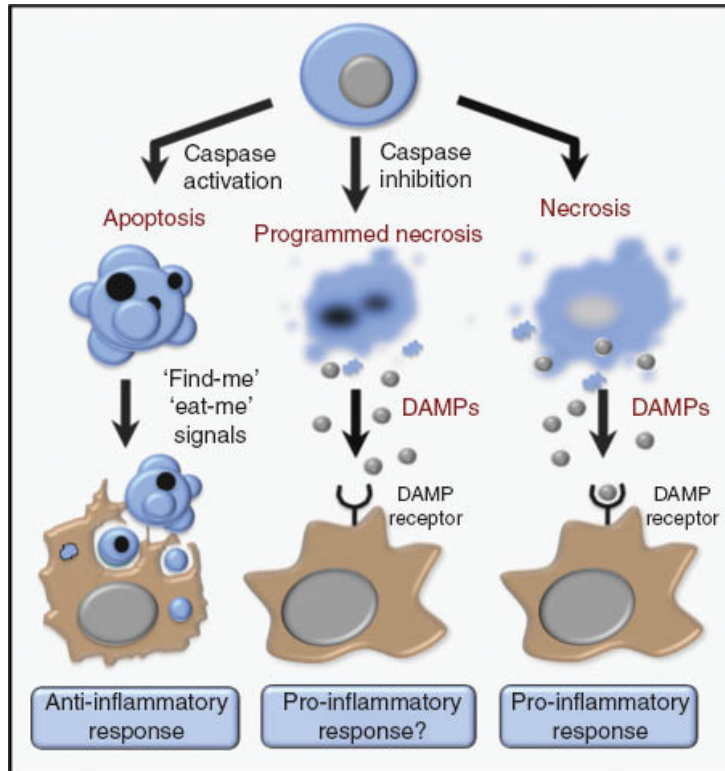


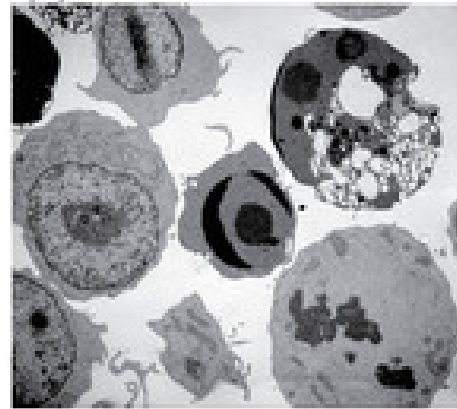
Necrostatin-1 protects against oleic acid-induced acute respiratory distress syndrome in rats

Long Pana, Dun-Chen Yao et al.

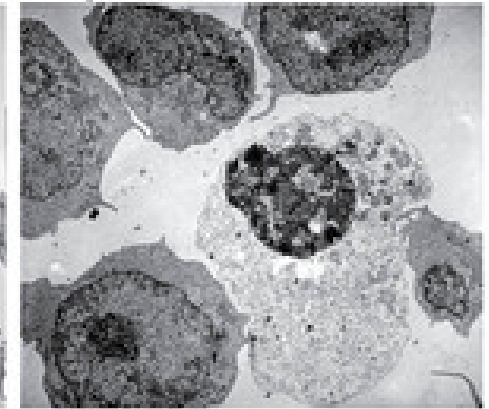
Necroptosis



Apoptosis



Necroptosis



Nature Reviews | [Molecular Cell Biology](#)

Necroptosis

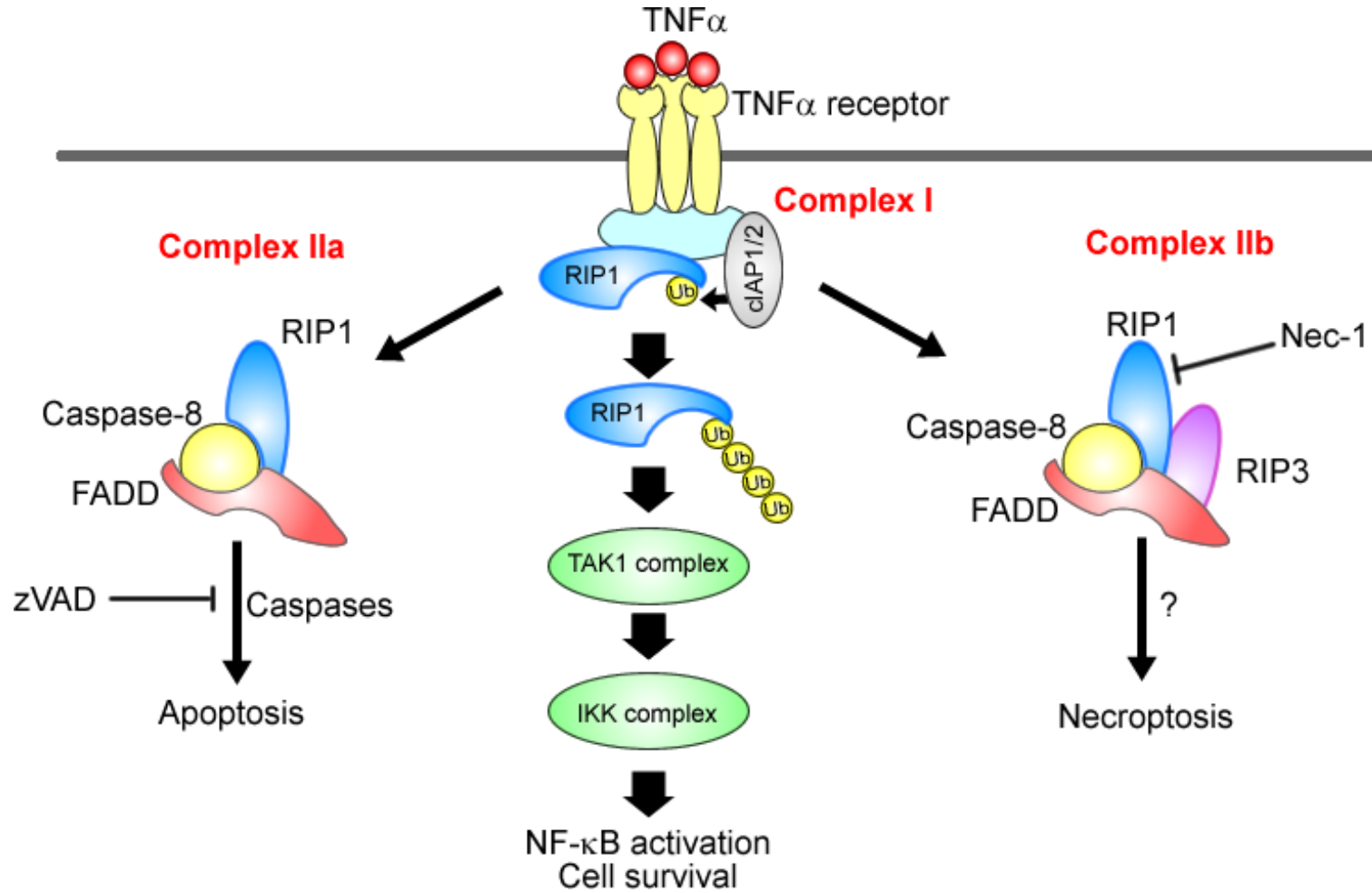
Apoptosis

- Pyknosis
- Karyorrhexis
- Membrane blebbing
- Apoptotic bodies

Necroptosis

- Translucent cytoplasm
- Organelle swelling
- Membrane permeabilization
- Oncosis

Necroptosis



Materials and Methods

Alveolar arterial oxygen tension difference

Oxygenation index ($\text{PaO}_2 / \text{FiO}_2$)

Lung wet dry ratio

Measurement of BALF

- Differential count of leukocytes
- TNF-alpha in supernatant
- Total protein in supernatant

Acute respiratory distress syndrome (ARDS)

4 diagnostic criteria:

- Rapid onset
- Bilateral infiltration
- Absence of left ventricular deficiency or hydrostatic edema
- Decreased oxygenation
 - Mild: $\text{PaO}_2/\text{FiO}_2 \leq 300$ mm Hg
 - Moderate: $\text{PaO}_2/\text{FiO}_2 \leq 200$ mm Hg
 - Severe: $\text{PaO}_2/\text{FiO}_2 \leq 100$ mm Hg

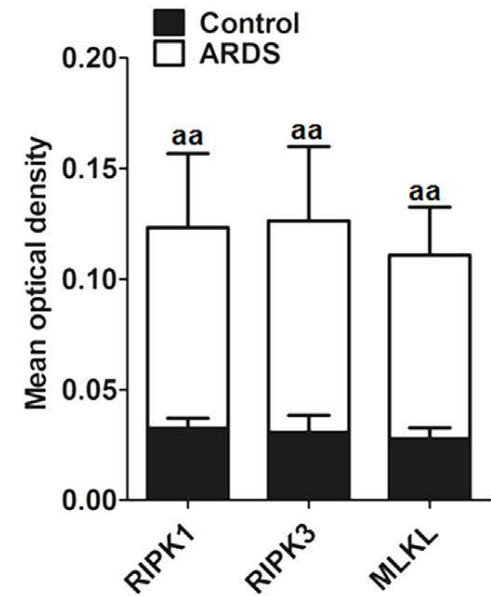
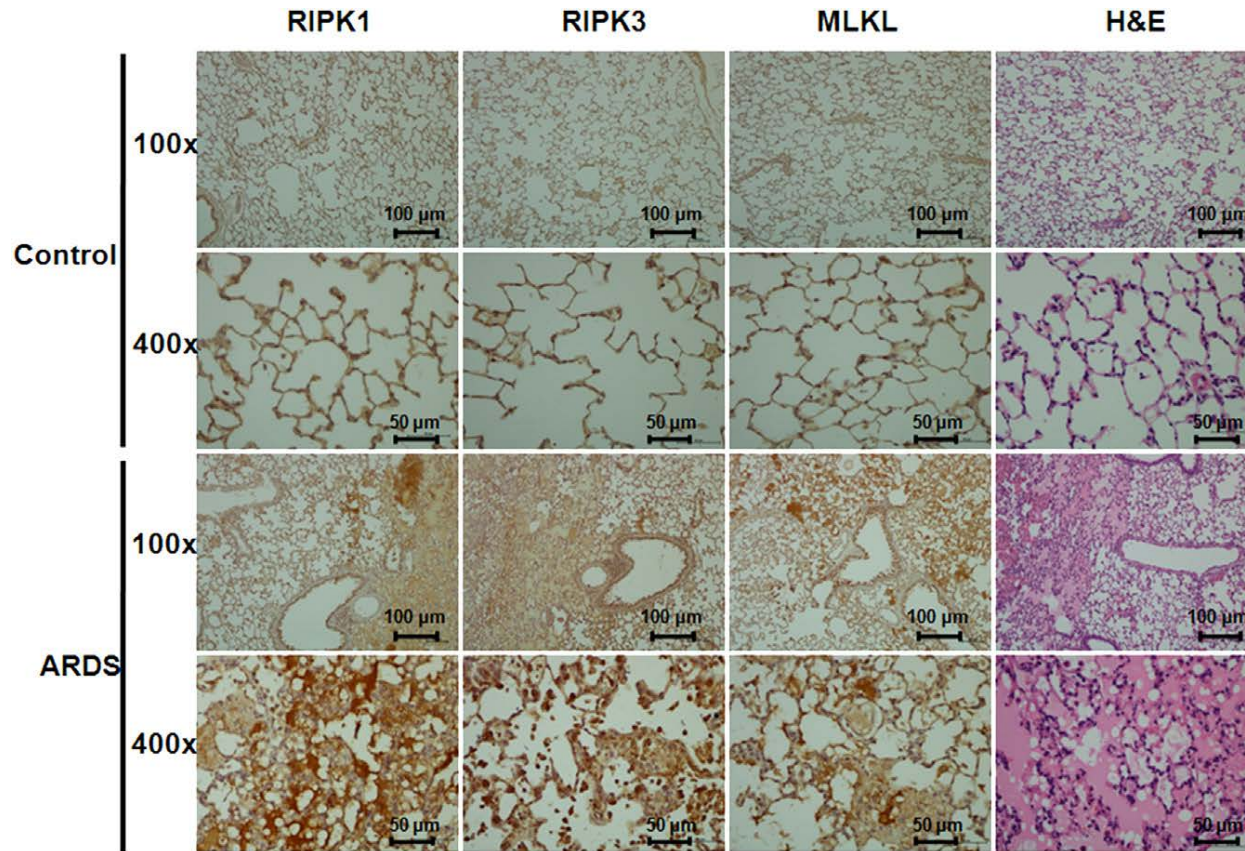
Materials and Methods

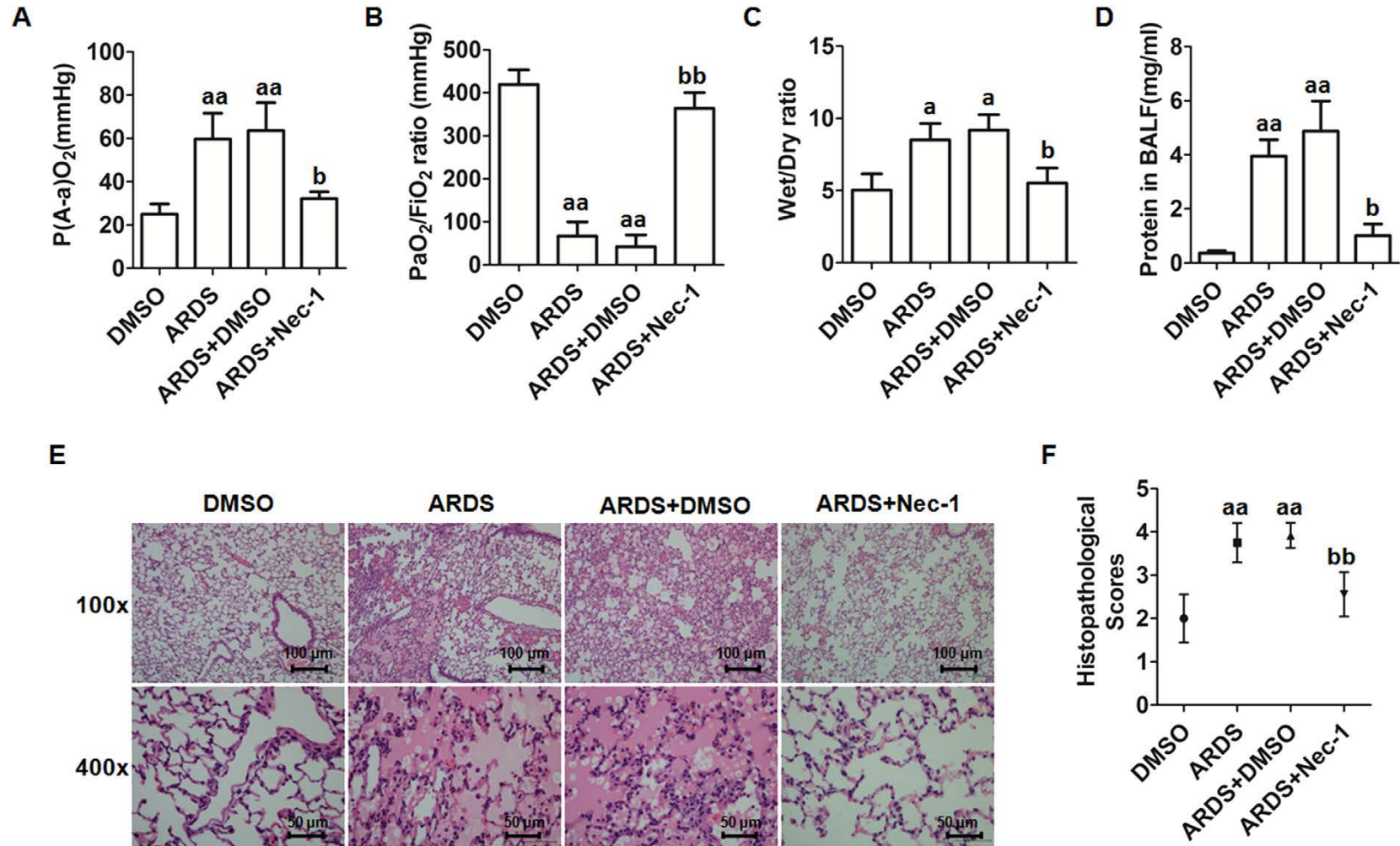
6-8 weeks old Sprague Dawley rats

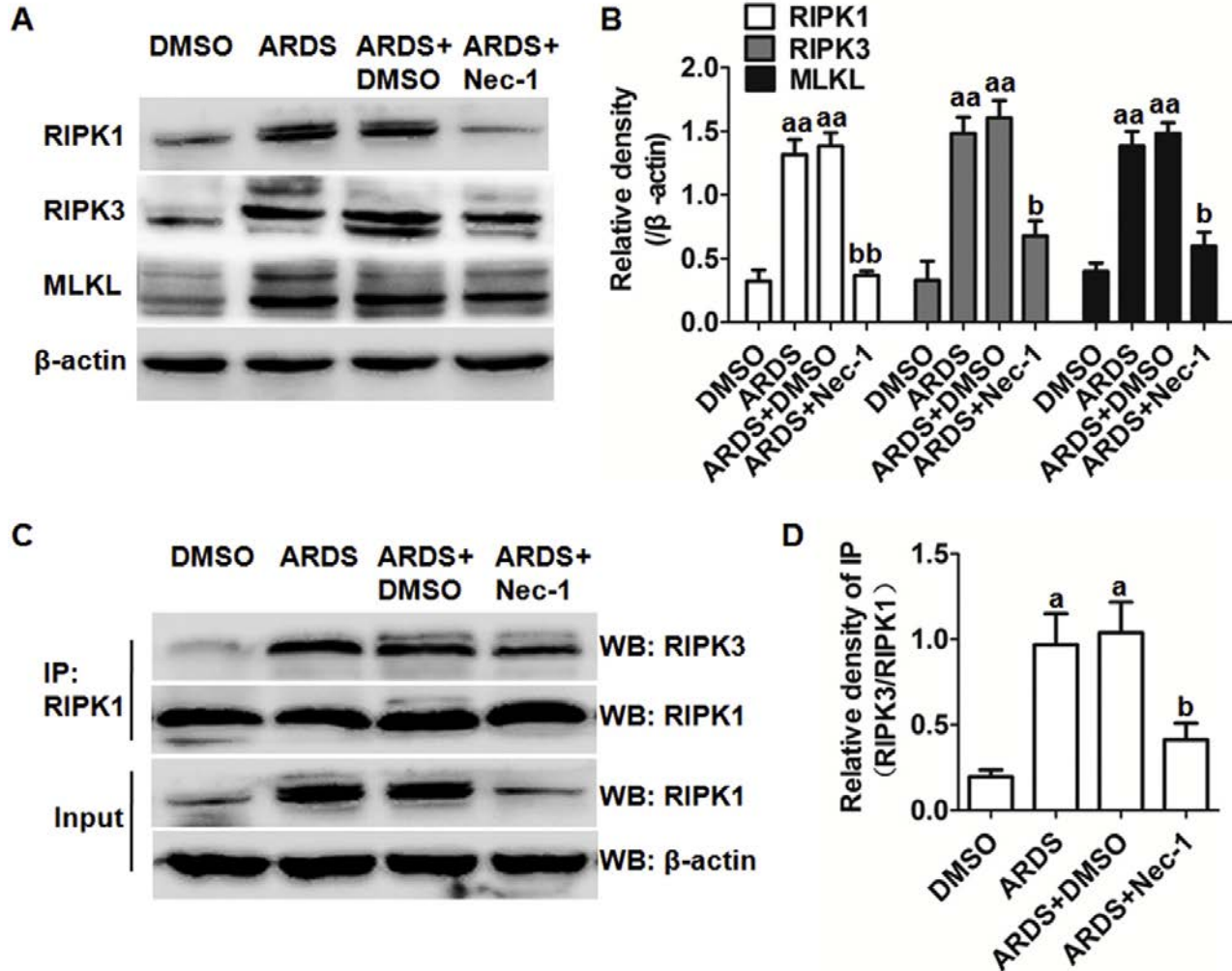
Four groups:

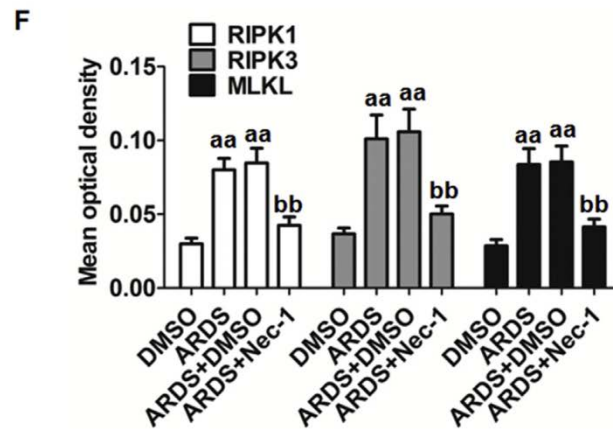
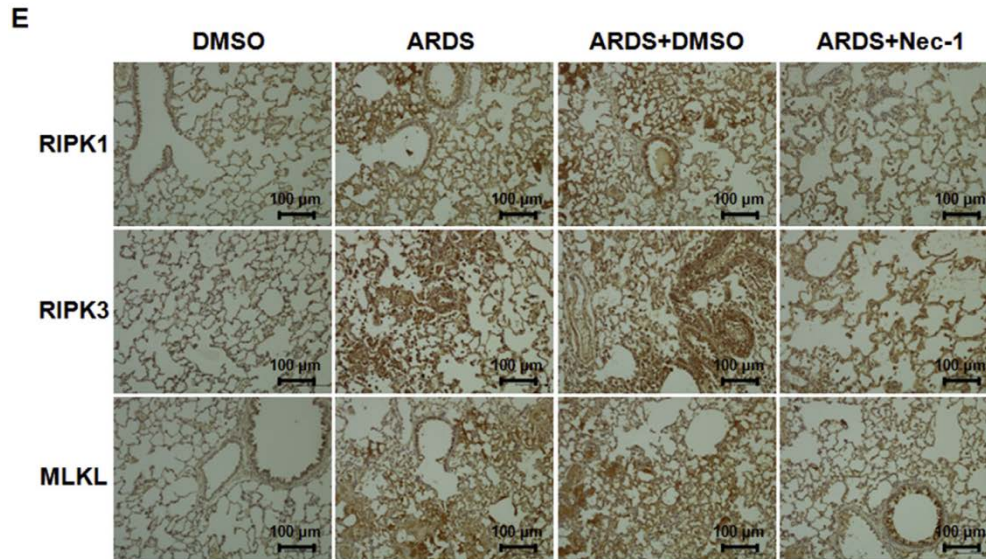
- Dimethyl sulfoxide injection (DMSO)
- Oleic acid (ARDS group)
- ARDS + DMSO group
- Necrostatin-1 group (Nec-1 + ARDS)

Sacrificed 4h after administration

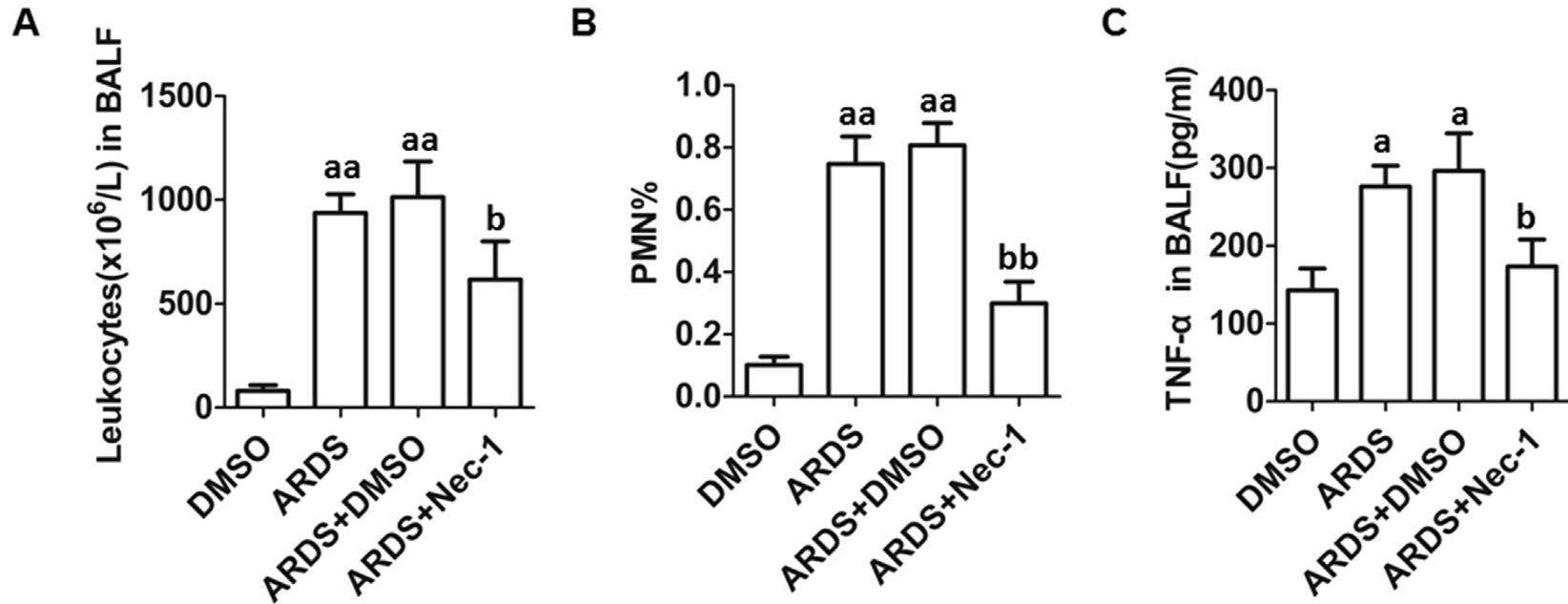








Bronchoalveolar lavage



Conclusion

RIPK1/RIPK3 induces necrotic cell death in ARDS

Inhibition of necroptosis prevented oleic acid induced ARDS

Necrostatin-1 was effective in amelioration of lung injury in ARDS

Thank you for your attention!