Figure 1 AST significantly alleviates LPS-induced ALI in vivo.

Fig.1(A): Molecular formula of AST

Fig.1(B): A flowchart for the treatments of mice.

Fig.1(C): The raw data of Fig.1(C) is detailed in excel (lung injury score).

Fig.1(D): The raw data of Fig.1(D) is detailed in excel (Wet Dry Weight Ratio).

Fig.1(E): Hematoxylin and eosin (HE) and Masson staining images of the lung tissues.
Masson staining images of the lung tissues.
Fig. 1(F): The raw data of Fig. 1(F) is detailed in excel (Elisa, IL-1β).

Fig. 1(G): The raw data of Fig. 1(G) is detailed in excel (Elisa, IL-6).

Fig. 1(H): The raw data of Fig. 1(H) is detailed in excel (Elisa, TNF-α).
Figure 2 AST reduced oxidative stress during LPS-induced ALI.

**Fig. 2(A):** The raw data of Fig. 2(A) is detailed in excel (Serum GSH).

**Fig. 2(B):** The raw data of Fig. 2(B) is detailed in excel (Tissue GSH).

**Fig. 2(C):** The raw data of Fig. 2(C) is detailed in excel (Serum MDA).

**Fig. 2(D):** The raw data of Fig. 2(D) is detailed in excel (Tissue MDA).

**Fig. 2(E):** DHE fluorescence images of the mice lung tissues.
Figure 3 AST inhibits LPS-induced ALI and ferroptosis in vivo.

Fig.3(A-C): Molecular docking of AST and Gpx4.

Fig.3(A): 

Fig.3(B):
Fig. 3(C):

Western blots for GPX4 in mice lung tissues.

Fig. 3(D):
GPX4
18kDa

GAPDH
30kDa

18kDa

30kDa
**Fig.3(E):** The raw data of Fig.3(E) is detailed in excel (Relative protein expression, mouse- GPX4/GAPDH).

**Fig.3(F):** The raw data of Fig.3(F) is detailed in excel (Serum iron).

**Fig.3(G):** The raw data of Fig.3(G) is detailed in excel (Tissue iron).

**Fig.3(H):** Immunohistochemistry scores for GPX4 in mice lung tissues.

**Fig.3(I):** Immunohistochemistry staining for GPX4 in mice lung tissues.
Fig. 3(J): The TEM images of mice

- **Control**
- **LPS**
- **Fer-1+LPS**
- **AST(1μM)+LPS**
- **AST(10μM)+LPS**
Figure 4 AST reduced LPS-induced lipid peroxidation and ferroptosis in MLE-12 cells.

**Fig.4(A):** The raw data of Fig.4(A) is detailed in excel (Cell viability).

**Fig.4(B):** The raw data of Fig.4(B) is detailed in excel (Cell MDA).

**Fig.4(C):** The raw data of Fig.4(C) is detailed in excel (Cell GSH).

**Fig.4(D):** Staining of Mito Tracker
Fig. 4(E): Representative images of fluorescence probe for ROS in MLE-12 cells

Fer-1+LPS

AST(1μM)+LPS

AST(10μM)+LPS

Control

AST(10μM)
Fig. 4(F): The raw data of Fig. 4(F) is detailed in excel (Relative mRNA expression of GPX4).

Fig. 4(G): The protein level of GPX4 in MLE-12 cells
**Fig.4(H)**: The raw data of Fig.4(H) is detailed in excel (Relative protein expression, Cell- GPX4/GAPDH).
**Fig.4(I):** The TEM images of Cell

Figure 4 AST suppressed ferroptosis in MLE-12 cells via inhibiting ferritinophagy.

**Fig.5(A):** The protein level of Ferritin in MLE-12 cells and the raw data of Fig.5(A) is detailed in excel (Relative protein expression, Ferritin/GAPDH).
**Fig.5(B):** The protein level of NCOA4 in MLE-12 cells and the raw data of Fig.5(B) is detailed in excel (Relative protein expression, NCOA4 β-Actin)

We used an object to block part of the image since the background of the membrane is a bit dirty, which influences how NCOA4 forms.
**Fig. 5(C):** The protein level of Beclin1 in MLE-12 cells and the raw data of Fig. 5(C) is detailed in excel (Relative protein expression, Beclin-1/GAPDH)
**Fig. 5(D):** The protein level of LC3 in MLE-12 cells and the raw data of Fig. 5(D) is detailed in excel (Relative protein expression, LC3B/GAPDH).