

Inhalation of 2, 4-Di-tert-butylphenol-Loaded Micelles Suppresses Respiratory Syncytial Virus Infection in Mice

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Abstract

Human respiratory syncytial virus (RSV) is a common cause of respiratory infections in infants, young children, and elderly people. However, there are no effective treatments or vaccines available in most countries. In this study, we explored the anti-RSV potential of 2, 4-Di-tert-butylphenol (2, 4-DTBP), a compound derived from *Houttuynia cordata* Thunb. To overcome the poor solubility of 2, 4-DTBP, we encapsulated it in polymeric micelles and delivered it by inhalation. We found that 2, 4-DTBP-loaded micelles inhibited RSV infection in vitro and improved survival, lung pathology, and viral clearance in RSV-infected mice. Our results suggest that 2, 4-DTBP-loaded micelles are a promising novel therapeutic agent for RSV infection and that micellar delivery can enhance the efficacy of lipophilic drugs.

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Figure 1.

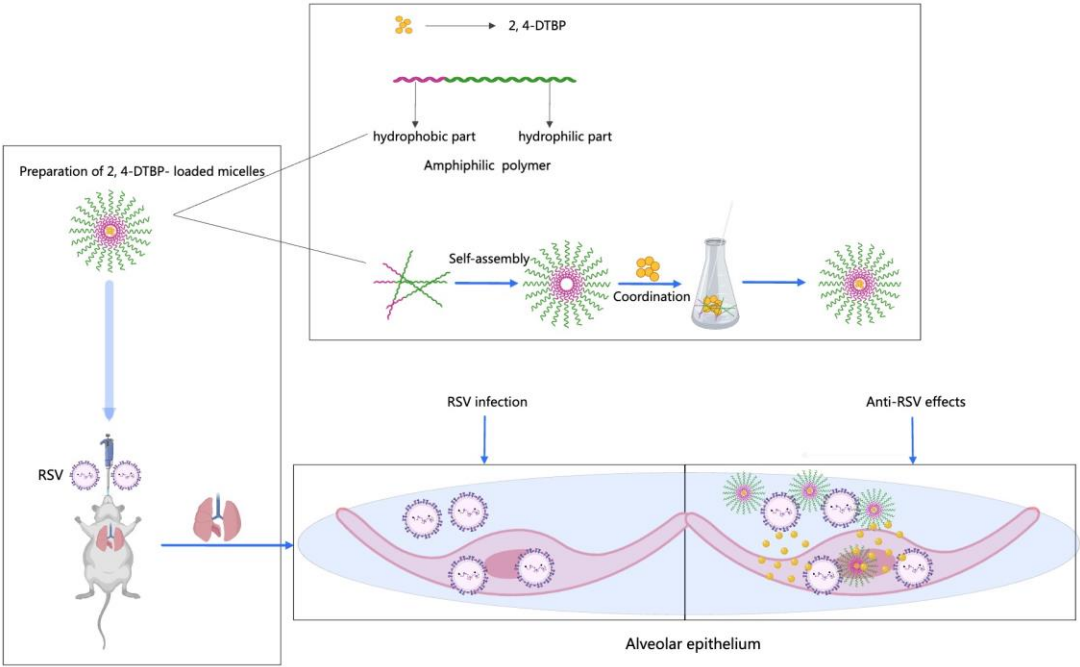


Figure 2.

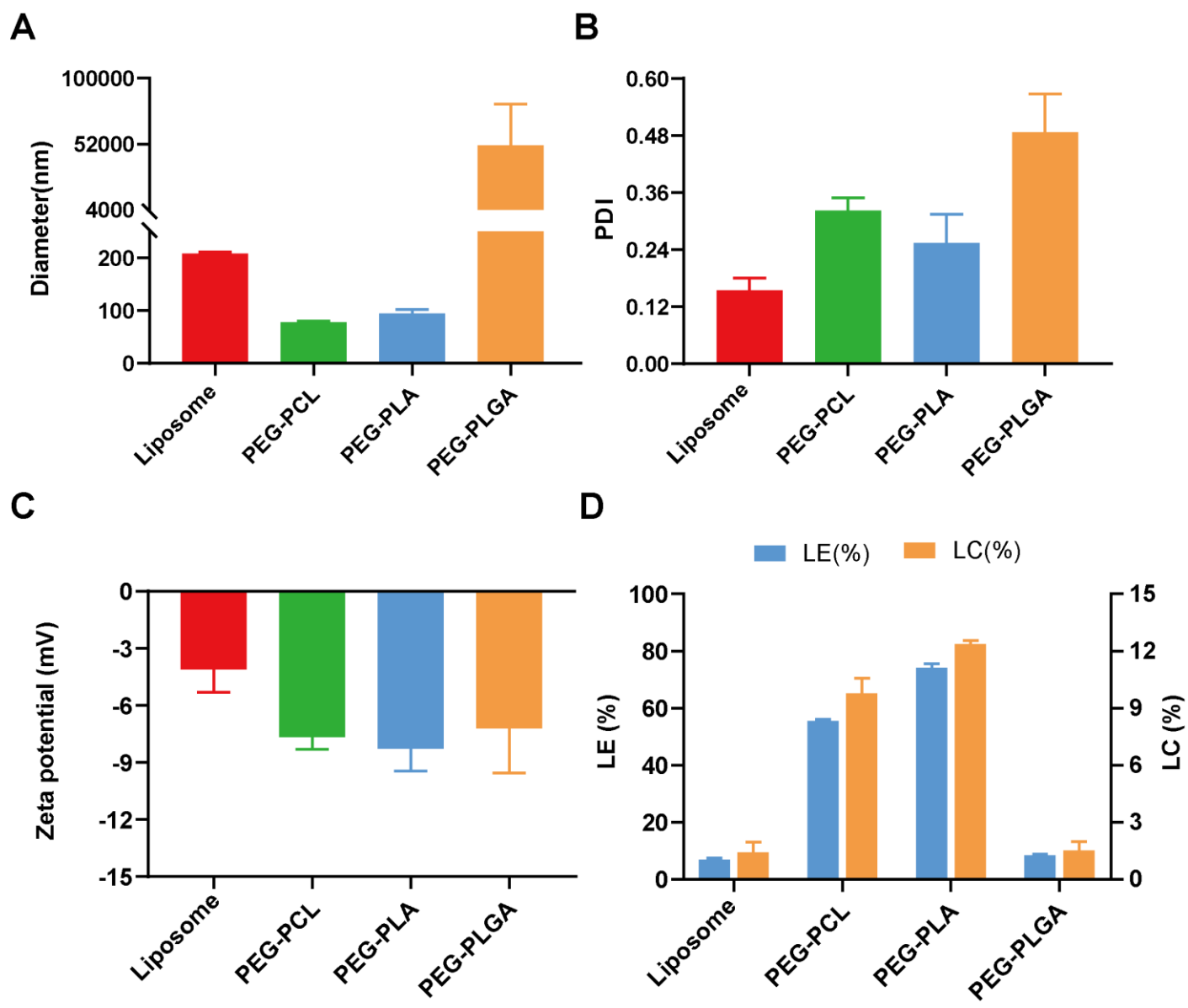
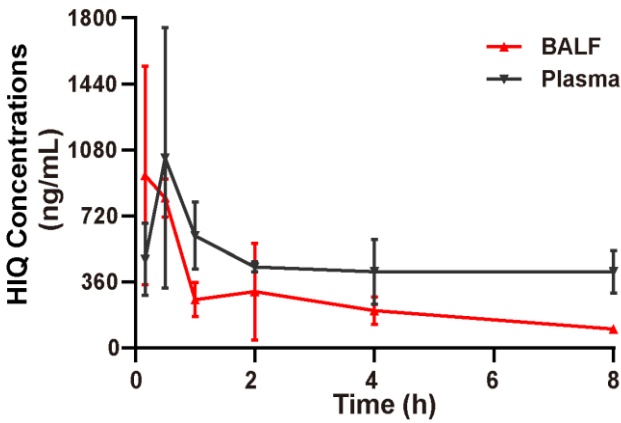


Figure 3.

A



B

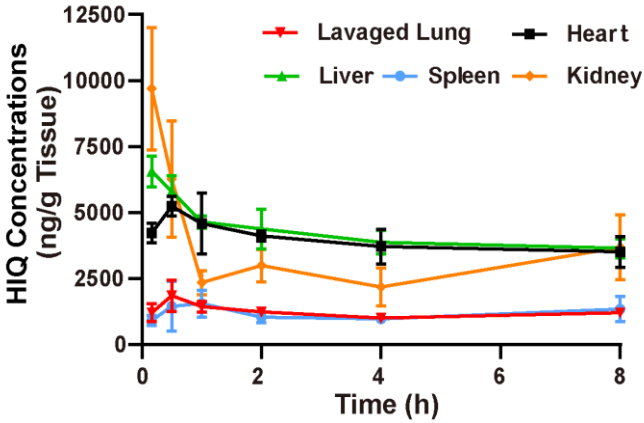


Figure 4.

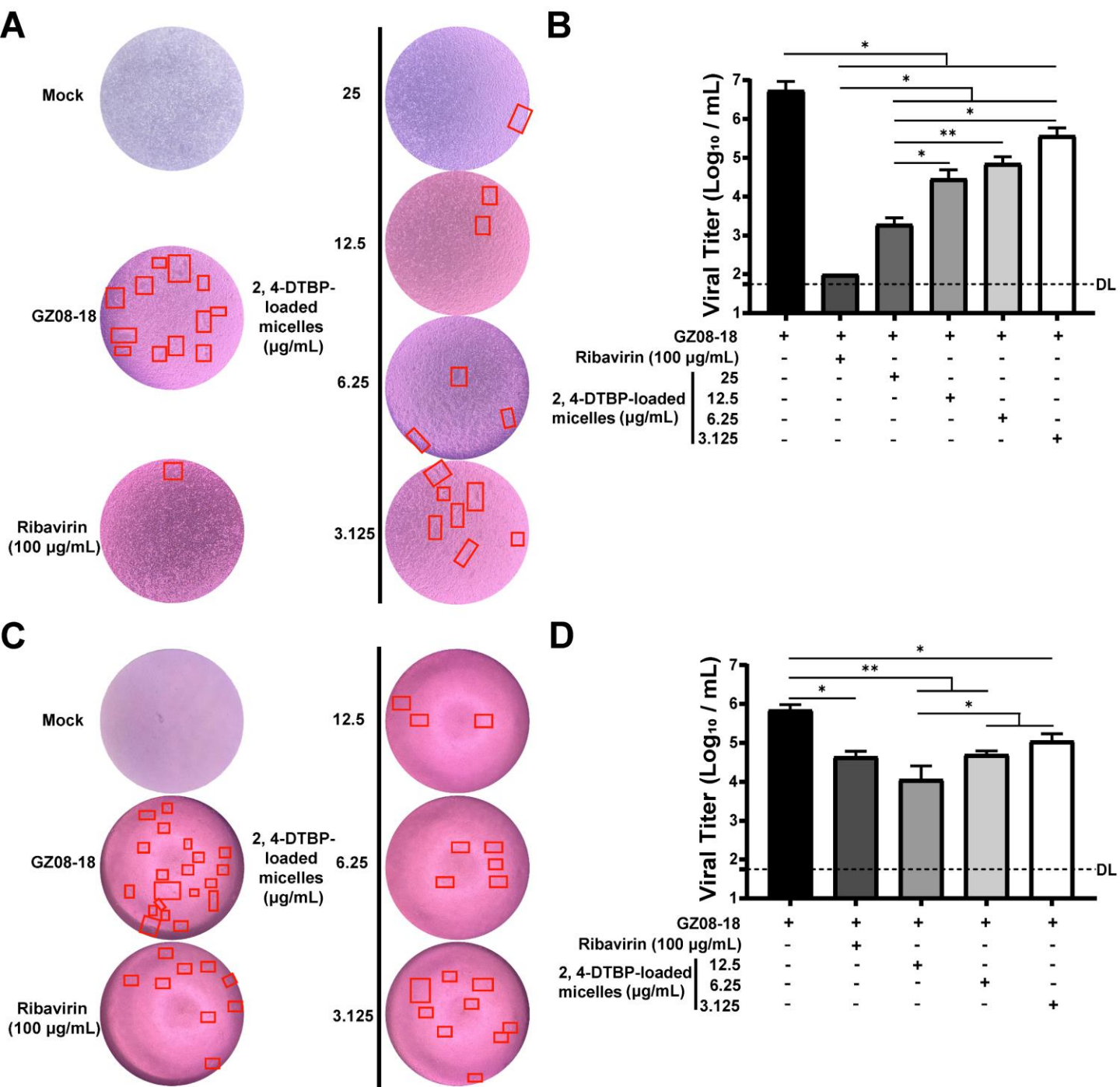


Figure 5.

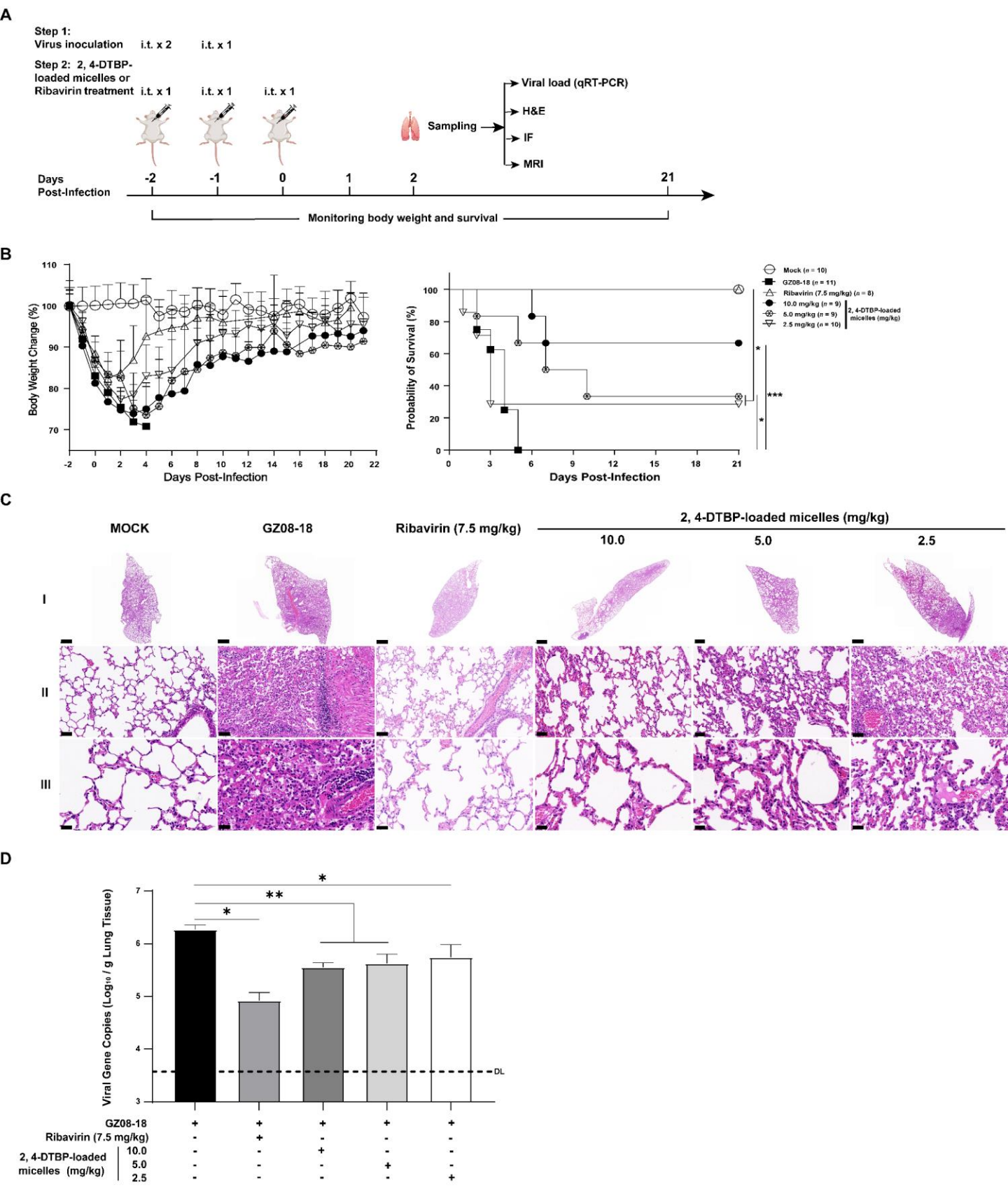


Figure 6.

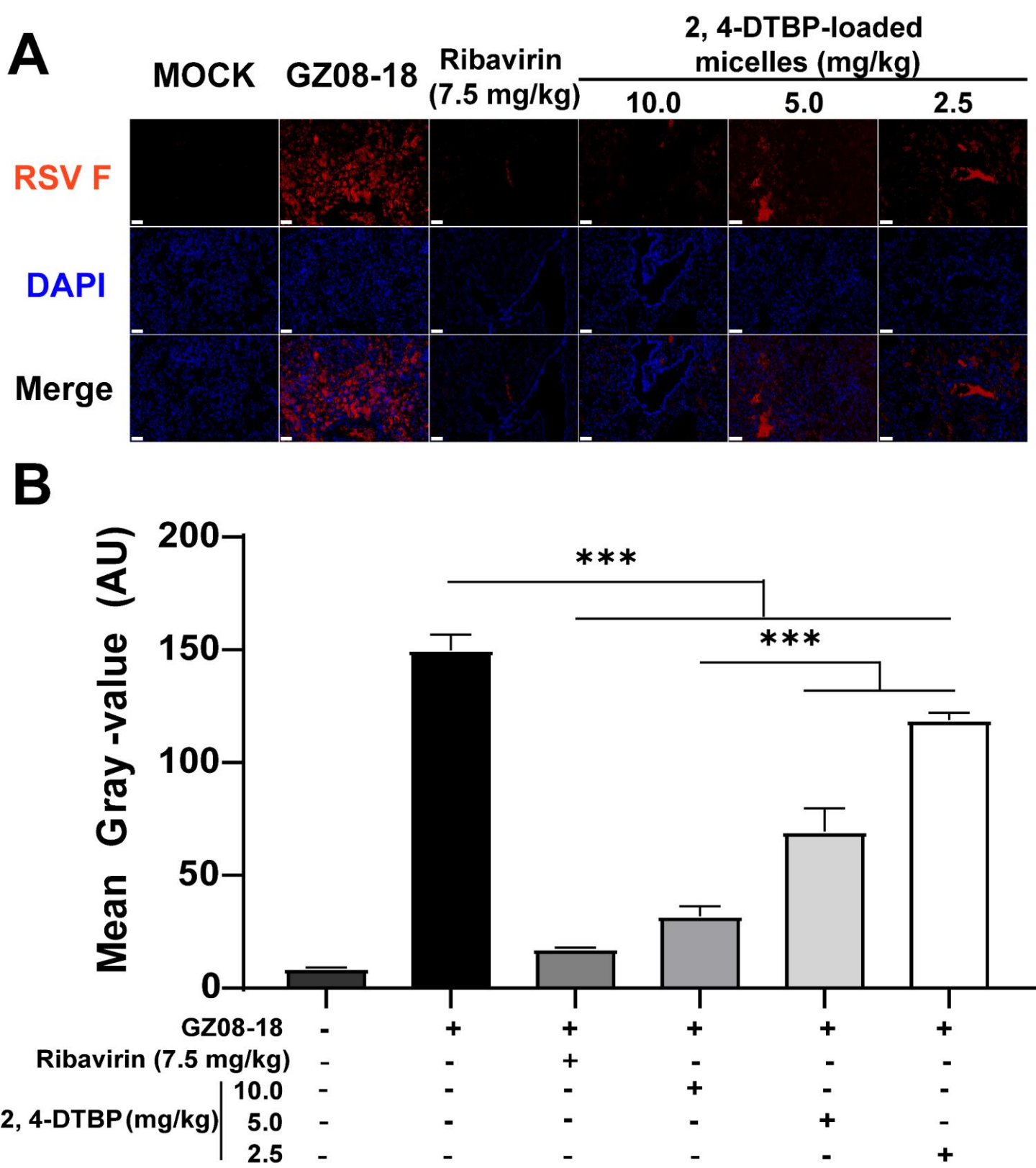


Figure 7.

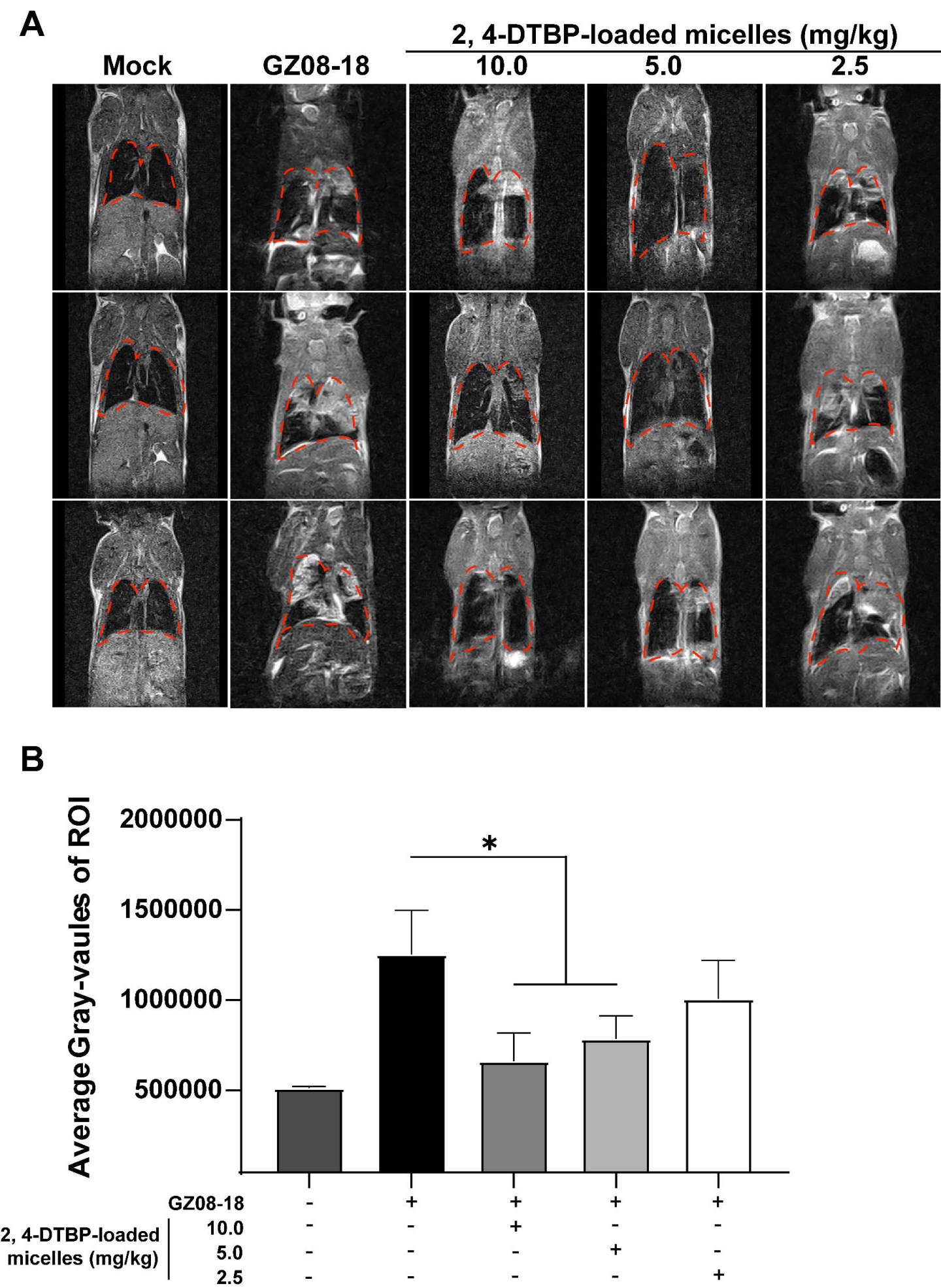


Figure 8.

