1. **Video 1 -**

Piranhalysis after macropinosome formation. (right) Time-lapse video of a macrophage stimulated with M-CSF after preloading endolysosomes with TRDx (inverted contrast, right). (left ) Phase contrast. (middle) Phase contrast with blue overlay of TRDx fluorescence. TRDx-labeled tubular and vesicular endolysosomes surrounded macropinosomes immediately after macropinosome closure and repeatedly contacted and separated from it as the organelle shrank. Frame intervals = 20 s (data of Fig. 7 A).

1. **Video 2 -**

Fusion of macropinosomes and tubular endolysosomes. Time-lapse video of a macrophage stimulated with M-CSF and LY after preloading endolysosomes with TRDx. (top) Phase contrast. (second Panel) LY fluorescence (inverted contrast). (third panel) TRDx fluorescence (inverted contrast). (bottom) LY/TRDx ratio image. LY-labeled macropinosomes are bright and TRDx-labeled endolysosomes are black. Macropinosomes were wrapped by tubular endolysosomes before disappearing into the endolysosomal compartment. A large macropinosome was wrapped by tubular endolysosomes, exchanged dyes, and then was resorbed into the tubular endolysosomal network. Frame intervals = 20 s (data of Fig. 7 B).

1. **Video 3 -**

Fusion of macropinosomes and tubular endolysosomes. (bottom and top right) Time-lapse video of macrophage stimulated with M-CSF and LY (bottom right, inverted contrast) after preloading endolysosomes with TRDx (top right, inverted contrast). (top left) Phase contrast. (top middle) Phase contrast with blue overlay of TRDx fluorescence. (bottom middle) LY/TRDx fluorescence ratio image. Bright spots indicate LY-labeled macropinosomes. Black indicates relative distribution of TRDx-labeled endolysosomes. (bottom left) Phase contrast with blue overlay indicating TRDx fluorescence and red overlay indicating LY fluorescence. Macropinosomes were wrapped by tubular endolysosomes before disappearing into the endolysosomal compartment. Frame intervals = 20 s.

1. **Video 4 -**

Solute size–dependent delivery of dye from endolysosomes into macropinosomes. (bottom and top right) A macrophage stimulated with M-CSF after preloading endolysosomes with LY (bottom right, inverted contrast) and TRDx (top right, inverted contrast). (top left) Phase contrast. (top middle) Phase contrast with blue overlay of TRDx fluorescence. (bottom middle) LY/TRDx fluorescence ratio image. Bright spots indicate compartments with elevated concentrations of LY, relative to TRDx. (bottom left) Phase contrast with blue overlay indicating TRDx fluorescence and red overlay indicating increased LY/TRDx ratio. Macropinosomes labeled transiently with LY before shrinking and merging with the endolysosomes. Frame intervals = 20 s (data of Fig. 7 C).

1. **Video 5 -**

Solute size–dependent delivery of dye from endolysosomes into macropinosomes. (bottom and top right) Time-lapse video of macrophage stimulated with M-CSF after preloading endolysosomes with LY (bottom right) and TRDx (top right). (top left) Phase contrast. (top middle) Phase contrast with blue overlay of TRDx fluorescence. (bottom middle) LY/TRDx fluorescence ratio image. Bright spots indicate compartments with elevated concentrations of LY, relative to TRDx. (bottom left) Phase contrast with blue overlay indicating TRDx fluorescence and red overlay indicating increased concentrations of LY. LY entered macropinosomes from endolysosomes earlier than did TRDx. Frame intervals = 20 s.