

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Plasma membrane of HeLa cells labeled with Dil-N₃ and SiR-DBCO. The movie shows long time-lapse live-cell imaging of plasma membrane under an SP8 STED microscope. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 2

Description: Plasma membrane of HeLa cells labeled with Dil-TCO and CP580-Tz. The movie shows long time-lapse live-cell imaging of plasma membrane under an SP8 STED microscope. CP580-Tz photobleached quickly under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 3

Description: Plasma membrane of HeLa cells labeled with Dil-TCO and SiR700-Tz. The movie shows long time-lapse live-cell imaging of plasma membrane under an SP8 STED microscope. SiR700-Tz photobleached quickly under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 4

Description: Plasma membrane of HeLa cells labeled with Dil-TCO and Atto590-Tz. The movie shows long time-lapse live-cell imaging of plasma membrane under an SP8 STED microscope. Atto590-Tz showed severe cytotoxicity, as indicated by the cell bubbling under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 5

Description: HeLa cells stably expressing Smo-Halo labeled with SiR-CA. The movie shows long time-lapse live-cell imaging of plasma membrane under an SP8 STED microscope. SiR-CA photobleached quickly under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 6

Description: Plasma membrane of HeLa cells labeled with Dil-TCO and Yale595-Tz. The movie shows long time-lapse live-cell imaging of plasma membrane under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 7

Description: PM and ER of HeLa cells labeled with Dil-N₃ + Cer-TCO and Yale595-Tz + SiR-DBCO. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and endoplasmic reticulum (Green) under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm.

File Name: Supplementary Movie 8

Description: HeLa cells expressing Smo-Halo and Sec61b-SNAP labeled with Yale595-BG and SiR-CA. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and endoplasmic reticulum (Green) under an SP8 STED microscope. Both Yale595-BG and SiR-CA photobleached quickly under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm .

File Name: Supplementary Movie 9

Description: PM and mitochondria of HeLa cells labeled with Dil-N₃ + RhoB-TCO and Yale595-Tz + SiR-DBCO. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and mitochondria (Green) under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm .

File Name: Supplementary Movie 10

Description: PM and ER of HUVEC cells labeled with Dil-N₃ + Cer-TCO and Yale595-Tz + SiR-DBCO. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and endoplasmic reticulum (Green) under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. We observed persist interactions between the filipodia of one cell and the endoplasmic reticulum of another cell. Imaging was acquired at 2 seconds per frame. Scale bar: 2 μm .

File Name: Supplementary Movie 11

Description: PM and mitochondria of hippocampal neurons labeled with Dil-N₃ + RhoB-TCO and Yale595-Tz + SiR-DBCO. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and mitochondria (Green) under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. Imaging was acquired at 2 seconds per frame. Scale bar: 0.5 μm .

File Name: Supplementary Movie 12

Description: Additional example 1 showing long-term intercellular interaction of filopodia and ER in HUVEC. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and endoplasmic reticulum (Green) under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. We observed persist interactions between the filipodia of one cell and the endoplasmic reticulum of another cell. Imaging was acquired at 2 seconds per frame. Scale bar: 1 μm .

File Name: Supplementary Movie 13

Description: Additional example 2 showing long-term intercellular interaction of filopodia and ER in HUVEC. The movie shows long time-lapse live-cell imaging of plasma membrane (Red) and endoplasmic reticulum (Green) under an SP8 STED microscope. Minimal photobleaching was observed under the imaging conditions. We observed persist interactions between the filipodia of one cell and the endoplasmic reticulum of another cell. Imaging was acquired at 2 seconds per frame. Scale bar: 1 μm .