

## **Description of Additional Supplementary Files**

### **File name: Supplementary Movie 1**

**Description:** (related to Figure 3) 3D model of a MVE in DMSO treated cells with intraluminal structure.

### **File name: Supplementary Movie 2**

**Description:** (related to Figure 3) 3D model of a MVE in ES2 treated cells with intraluminal structure.

### **File name: Supplementary Movie 3**

**Description:** (related to Figure 4). Time-lapse confocal imaging of moving GFP-Exo70<sup>+</sup> mScarlet-CD63<sup>+</sup> vesicles. Scale bar = 1  $\mu\text{m}$ .

### **File name: Supplementary Movie 4**

**Description:** (related to Figure 4). Observation of sfGFP-Exo70<sup>+</sup> RFP-CD63<sup>+</sup> vesicles near the plasma membrane by TIRFM. Scale bar = 1  $\mu\text{m}$ .

### **File name: Supplementary Movie 5**

**Description:** (related to Figure 6). Time-lapse confocal imaging of moving P4C<sup>+</sup> mScarlet-CD63<sup>+</sup> vesicles. Scale bar = 1  $\mu\text{m}$ .