

## Description of Additional Supplementary Files

### File Name: Supplementary Movie 1

Description: Rme2::GFP dynamics during ovulation and early embryo development. Time lapse confocal imaging was used to examine Rme2::GFP dynamics during oocyte ovulation and early embryogenesis.

### File Name: Supplementary Movie 2

Description: GFP::Cav1 dynamics during ovulation and early embryo development. Time lapse confocal imaging was used to examine GFP::Cav1 and Histone H2B (mCherry::His58) dynamics during oocyte ovulation and early embryogenesis.

### File Name: Supplementary Movie 3

Description: GFP::Cav1 dynamics during ovulation and early embryo development following Vps32 depletion. Time lapse confocal imaging was used to examine GFP::Cav1 dynamics during oocyte ovulation and early embryogenesis in the absence of Vps32.

### File Name: Supplementary Movie 4

Description: Representative electron tomogram of wild type MVEs. High pressure frozen animals were processed for electron tomography to visualize newly formed MVEs within the one-cell stage embryo. Over 100 tomograms of wild type MVEs were collected. Bar, 100 nm.

### File Name: Supplementary Movie 5

Description: Representative electron tomogram of MVE compartments in a Tsg101 depleted one-cell stage embryo. Following depletion of Tsg101, animals were high pressure frozen and processed for electron tomography. At least 10 tomograms of MVEs in the one-cell stage embryo were collected. Bar, 100 nm.

### File Name: Supplementary Movie 6

Description: Representative electron tomogram of MVE compartments in a Vps20 depleted one-cell stage embryo. Following depletion of Vps20, animals were high pressure frozen and processed for electron tomography. 10 tomograms of MVEs in the one-cell stage embryo were collected. Bar, 100 nm.

### File Name: Supplementary Movie 7

Description: Representative electron tomogram of MVE compartments in a Vps32 depleted one-cell stage embryo. Following depletion of Vps32, animals were high pressure frozen and processed for electron tomography. At least 10 tomograms of MVEs in the one-cell stage embryo were collected. Bar, 100 nm.

### File Name: Supplementary Movie 8

Description: Representative electron tomogram of MVE compartments in a Ist1 depleted one-cell stage embryo. Following depletion of Ist1, animals were high pressure frozen and processed for electron tomography. 10 tomograms of MVEs in the one-cell stage embryo were collected. Bar, 100 nm.