

Supplementary Movie 1: Time-lapse imaging of RPE1 *TUBG1-mRuby2* (green pseudo-color) / *mNeonGreen-LMNB1* (red pseudo-color) cell undergoing mitosis. The imaged mitosis events show centrosome cohesion (green, -00:08 h:min) followed by centrosome separation (green, 00:00 h:min), nuclear envelope breakdown (red, 01:32 h:min) and nuclear envelope re-formation (red, 01:48 h:min). 4 min interval between frames.

Supplementary Movie 2: Time-lapse imaging of RPE1 Δ N-GCP6 clone #1, *TUBG1-mRuby2* (green pseudo-color) / *mNeonGreen-LMNB1* (red pseudo-color) cell undergoing mitosis. The imaged mitosis events show centrosome cohesion (green, -00:08 h:min) followed by centrosome separation (green, 00:00 h:min), nuclear envelope breakdown (red, 01:56 h:min) and nuclear envelope re-formation (red, 02:12 h:min). 4 min interval between frames.

Supplementary Movie 3: Time-lapse imaging of RPE1 Δ N-GCP6 clone #2, *TUBG1-mRuby2* (green pseudo-color) / *mNeonGreen-LMNB1* (red pseudo-color) cell undergoing mitosis. The imaged mitosis events show centrosome cohesion (green, -00:08 h:min) followed by centrosome separation (green, 00:00 h:min), nuclear envelope breakdown (red, 02:24 h:min) and nuclear envelope re-formation (red, 02:56 h:min). 4 min interval between frames.