

## Description of Additional Supplementary Files

**Supplementary Movie 1:** 3D reconstruction of Z-stack images from H3.1/3.2 and H3K9me3 staining in 4T1 sg-Ctrl cells.

**Supplementary Movie 2:** 3D reconstruction of Z-stack images from H3.1/3.2 and H3K9me3 staining in 4T1 *Nup210* KO cells.

**Supplementary Movie 3:** 3D reconstruction of Z-stack images from H3K27Ac (enhancer) and H3K4me3 (promoter) staining in 4T1 sg-Ctrl cells.

**Supplementary Movie 4:** 3D reconstruction of Z-stack images from H3K27Ac (enhancer) and H3K4me3 (promoter) staining in 4T1 *Nup210* KO cells.

**Supplementary Movie 5:** Live cell imaging of F-tractin (red) and MLC2 (Cyan) reporter in 6DT1 sh-Ctrl cells after treatment with Cytochalasin D.

**Supplementary Movie 6:** Live cell imaging of F-tractin (red) and MLC2 (Cyan) reporter in 6DT1 sh-*Nup210* cells after treatment with Cytochalasin D.

**Supplementary Movie 7:** Live cell tracking of cell migration (measured by Hoechst staining of nuclei) in 4T1 sg-Ctrl cells.

**Supplementary Movie 8:** Live cell tracking of cell migration (measured by Hoechst staining of nuclei) in 4T1 *Nup210* KO-N9 cells.

**Supplementary Movie 9:** Live cell tracking of cell migration (measured by Hoechst staining of nuclei) in 4T1 *Nup210* KO-N13 cells.

**Supplementary Movie 10:** 3D reconstruction of Z-stack images from Lamin B1 (red), Lamin A/C (green) and heterochromatin foci (DAPI, cyan) staining in 4T1 sg-Ctrl cells.

**Supplementary Movie 11:** 3D reconstruction of Z-stack images from Lamin B1 (red), Lamin A/C (green) and heterochromatin foci (DAPI, cyan) staining in 4T1 *Nup210* KO cells.