

**Fig. S1. Preincubation of PIP2 with anti-PIP2 antibody neutralizes the inhibitory effect of antibody in Pol I transcription.**

Run-off transcription reaction showed that PIP2 blocked the inhibitory effect of anti-PIP2 antibody (clone 2C11, Abcam, Cambridge, UK; 0.8  $\mu$ g) in transcription in a dose-dependent manner. (Lane 1: control transcription reaction; lane 2: transcription reaction in the presence of anti-PIP2 antibody; lane 3 and 4: transcription reaction in the presence of anti-PIP2 antibody with the addition of 50 ng and 100 ng PIP2, respectively).

**Fig. S2. Ponceau staining of blotted proteins from in vitro pull-down wherein recombinant Wt and Mut PLC $\delta$ 1PH domains were incubated with nuclear lysates.**

**Fig. S3. Ponceau staining of blotted proteins from in vitro pull-down performed by incubation of nuclear lysate with control agarose beads or PIP2-coupled agarose beads.**

**Fig. S4. Ponceau staining of blotted proteins from in vitro pull-down performed by incubation of nucleolar lysate with control agarose beads or PIP2-coupled agarose beads.**

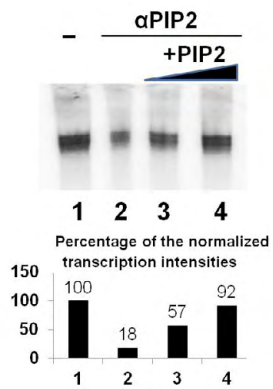
**Fig. S5. Control experiment showing the specificity of the antibodies used.** Specific signals were diminished after blocking the primary antibodies with excess amount of relevant proteins or lipids. When primary antibodies were omitted, secondary antibodies did not produce any visible signal. Scale bar: 5  $\mu$ m.

**Fig. S6-1,2,3. Ponceau staining of blotted proteins from in vitro pull-down experiments performed by incubation of control agarose beads or PIP2-coupled agarose beads with purified UBF, Fib and Imp 5 proteins, respectively.**

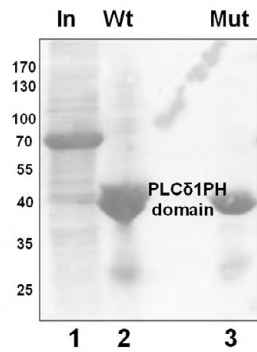
**Fig. S7. Gel shift assay in which aggregates formed after fibrillar addition can be seen in the wells.** This aggregation leads to an apparent loss of radioactivity in the corresponding gel lanes.

## Supplementary Figures

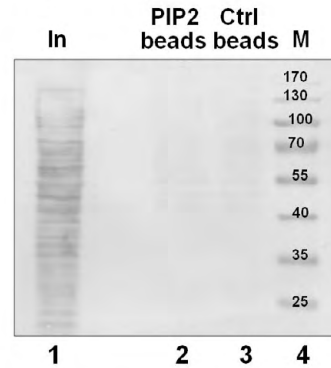
**Fig. S1**



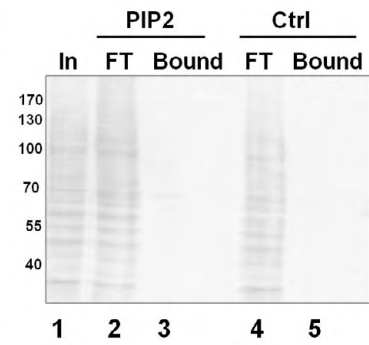
**Fig. S2**



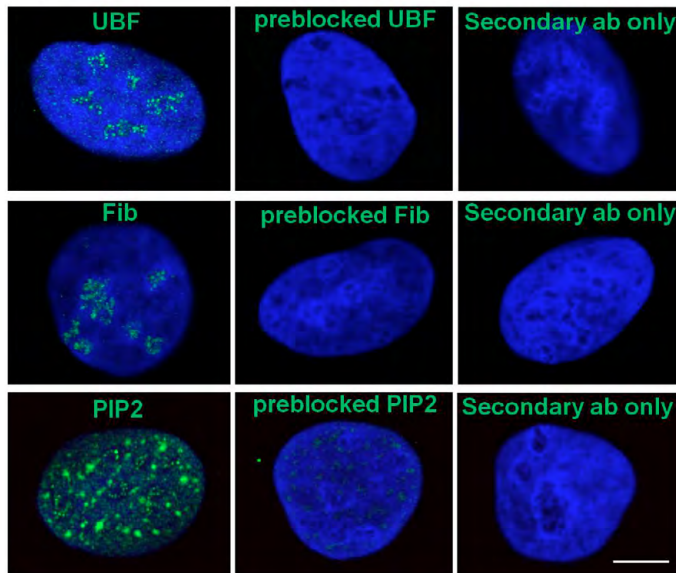
**Fig. S3**



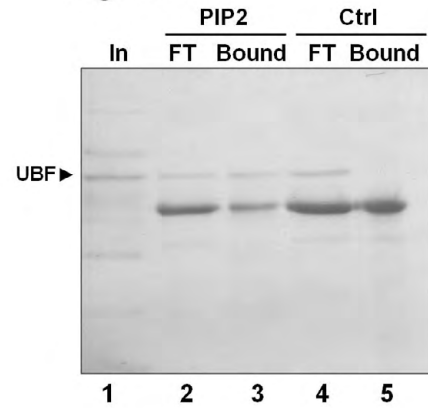
**Fig. S4**



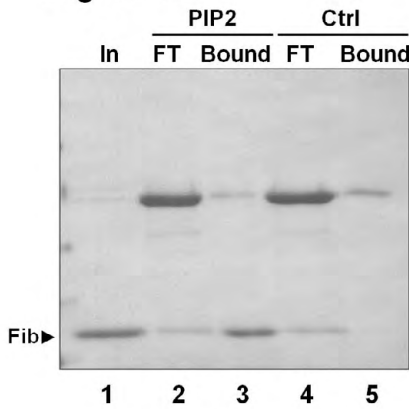
**Fig. S5**



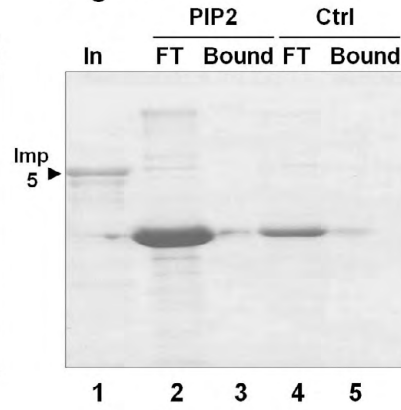
**Fig. S6-1**



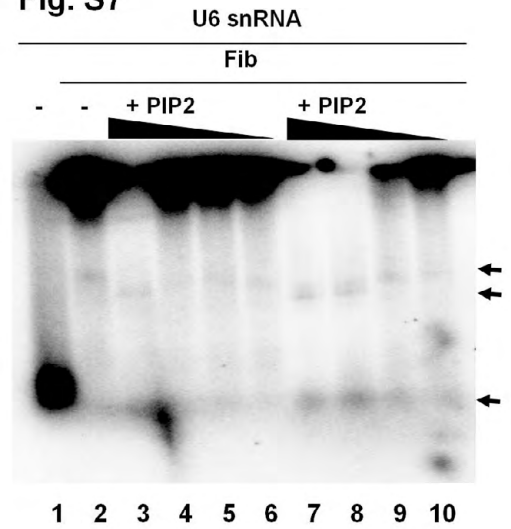
**Fig. S6-2**

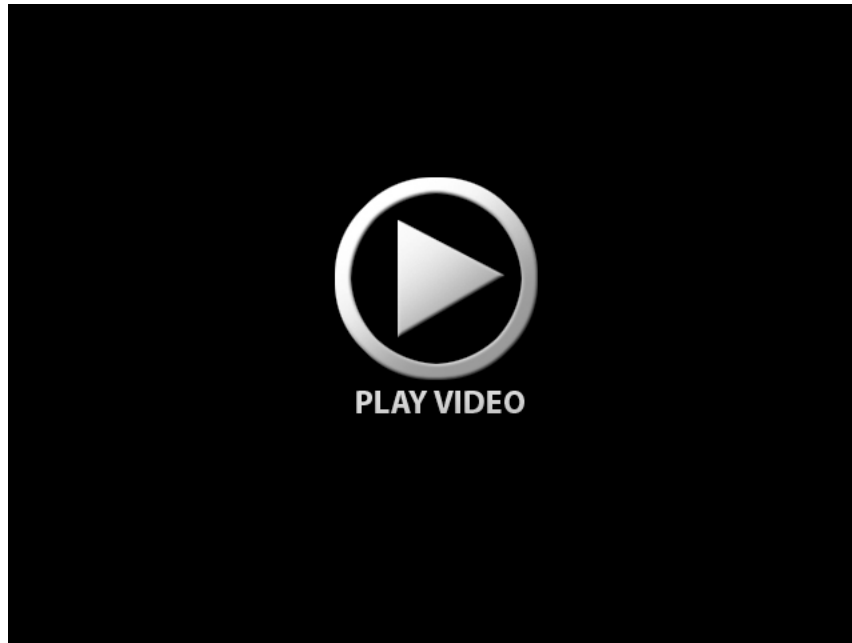


**Fig. S6-3**



**Fig. S7**





**Movie 1. PIP2 localization in nucleolus by 3D electron tomography.** Ultrastructural architecture of PIP2-clusters in nucleolar subcompartments by TECNAI G2 20 LaB6 tomography. PIP2 is localized using pre-embedding procedure with 0.8 nm immunogold particles pseudocoloured in green. Fibrillar center is pseudocoloured in yellow, dense fibrillar component is pseudocoloured in orange.