

Supplementary Video 1: Raw, unprocessed single molecule localizations corresponding to 60 seconds of the sf-tPAINT platelet experiment data. A small region of this data is displayed in **Fig. 1c-e**. Note that the colormap in this video is scaled to enable visualization of the single molecule localizations. The bright objects are tetraspek beads, which served as fiducial markers for drift correction. The video playback speed is real time (5 Hz).

Supplementary Video 2: Raw, unprocessed single molecule localizations corresponding to 60 seconds of the accumulated-tPAINT platelet experiment data. A small region of this data is displayed in **Fig. 3b-f**. Note that the colormap in this video is scaled to enable visualization of the single molecule localizations. The bright objects are tetraspek beads, which served as fiducial markers for drift correction. The video playback speed is real time (5 Hz).