Electronic Supplementary Material (ESI) for Soft Matter.

Supplementary Figures

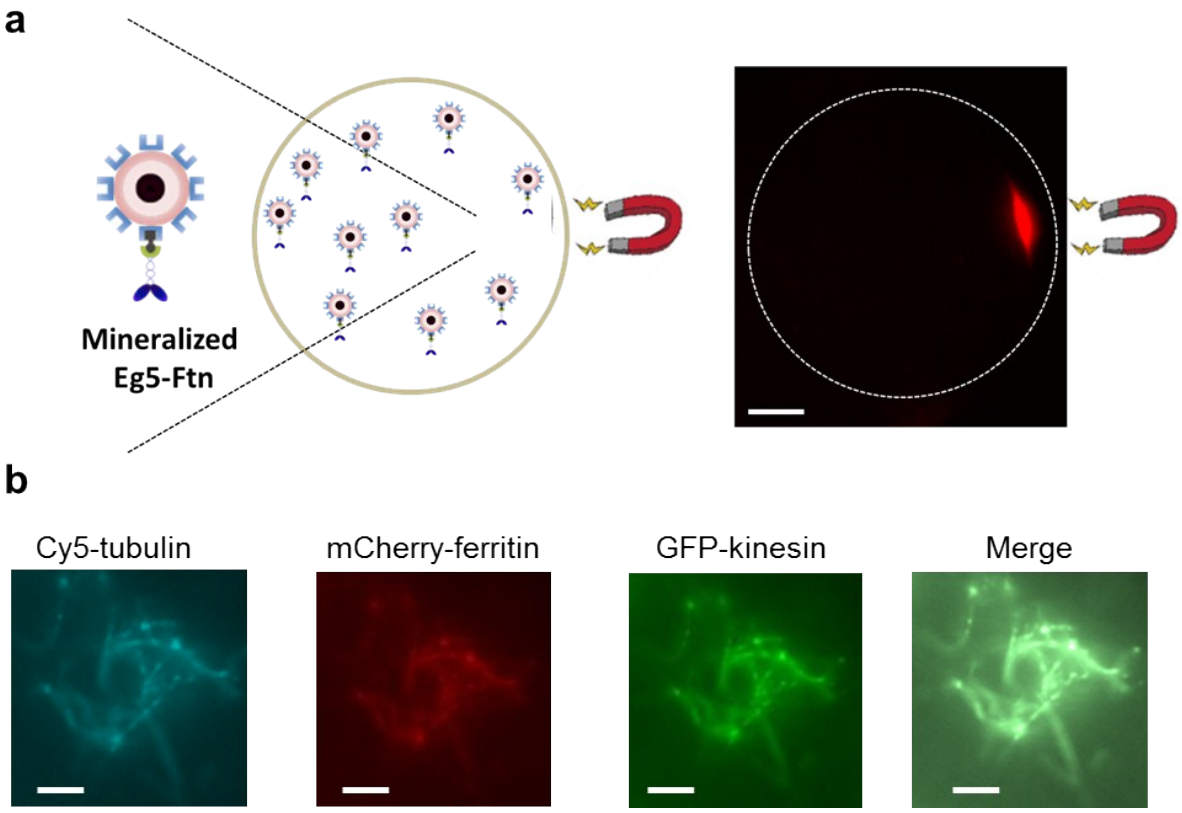

Figure S1 (a) Magnetic manipulation of Eg5-Ftn complexes. The Eg5-Ftns were labelled with mCherry. Magnetic forces were induced by a permanent magnet to attract of Eg5-Ftn complexes. Scale bar = 10 µm. (b) Fluorescence microscopy showing the colocalization of Eg5-Ftn complexes with microtubules: Ratio 1:2 for FKBP-mCherry-ferritin and Eg5-Kinesin-eGFP-FRB. Scale bar = 2 µm.

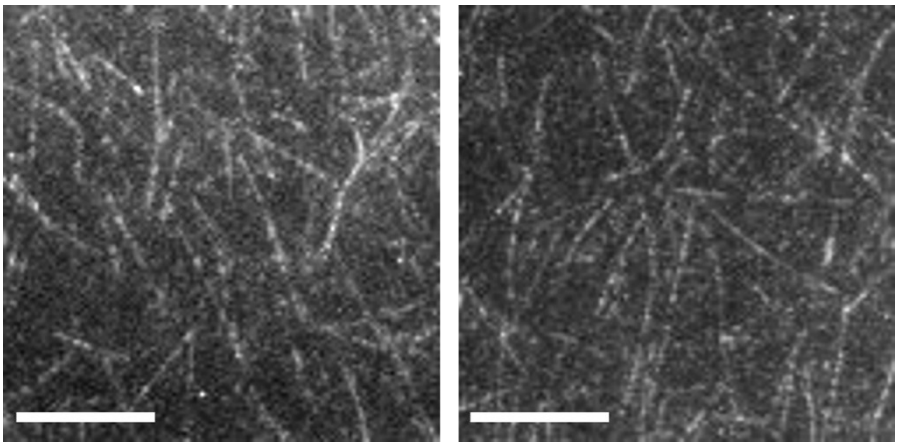

Figure S2 Observations by fluorescence microscopy of microtubule fibers before with (left panel) and after (right panel) being functionalized with Eg5-Ftn. Scale bar = 5 µm.

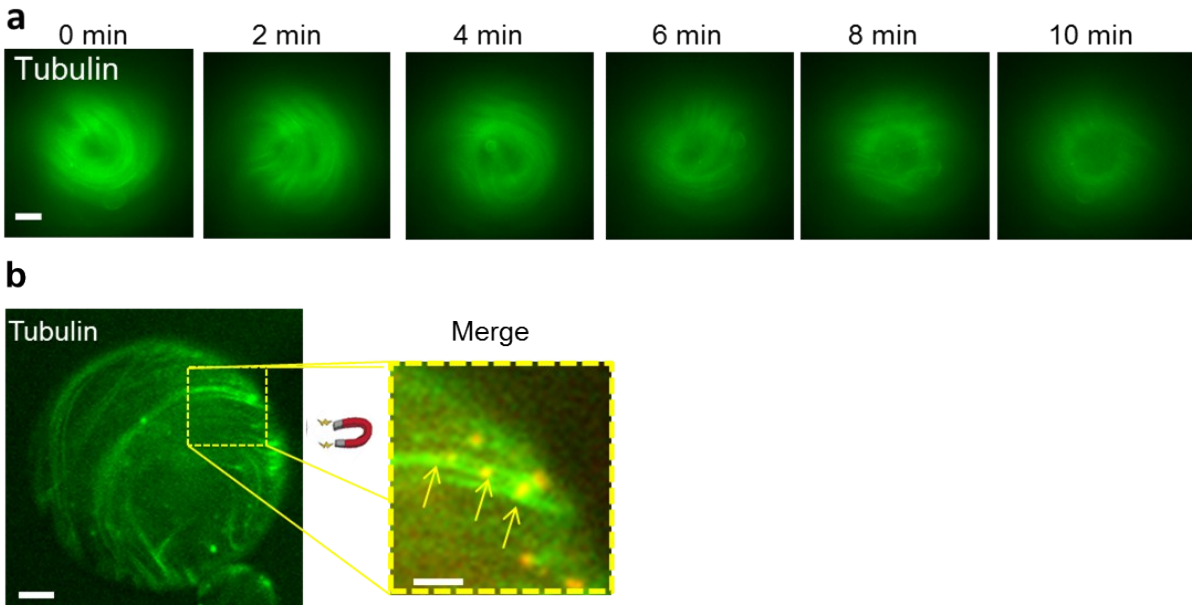

Figure S3 (a) Time-lapse fluorescence microscopy of active microtubule gel encapsulated within a droplet, illustrating the dynamic behavior of the microtubule networks. The concentration of Kin-cluster is 250 nM. Scale bar = 20 µm. (b) Colocalization of Eg5-Ftn (labelled with mCherry) with microtubules (labelled with Cy5-tubulin) upon magnetic field actuation. Scale bar = 10 µm and 2 µm in the zoom.

Supplementary video S1: Magnetic attraction of Eg5-Ftn upon magnetic field application, corresponding to Figure S1a. Droplet size is 60 μm and the video was recorded at 1s intervals for 4 min.

Supplementary video S2: Time-lapse of the dynamic of confined active microtubule gel, corresponding to Figure S2a. Droplet size is 100 μm and the video was recorded at 5s intervals for 10 min.

Supplementary video S3: Time-lapse of the dynamic of confined active microtubule gel functionalized with magnetic Eg5-Ftn complexes, corresponding to Figure 4b. Droplet size is 75 μm and the video was recorded at 5s intervals for 5 min.

Supplementary video S4: Time-lapse of the dynamic of confined active microtubule gel functionalized with magnetic Eg5-Ftn upon magnetic field actuation, corresponding to Figure 4c (+B). Droplet size is 60 μm and the video was recorded at 10s intervals for 15 min.

Supplementary video S5: Time-lapse of the dynamic of confined active microtubule gel functionalized with magnetic Eg5-Ftn in absence of magnetic field (-B), corresponding to Figure 4c. Droplet size is 60 μm and the video was recorded at 10s intervals for 15 min.