Supplementary Material (ESI) for *Soft Matter*

SUPPORTING INFORMATION

SI 1: Emulsion of hen egg white not wedged between two glass microscope slides.

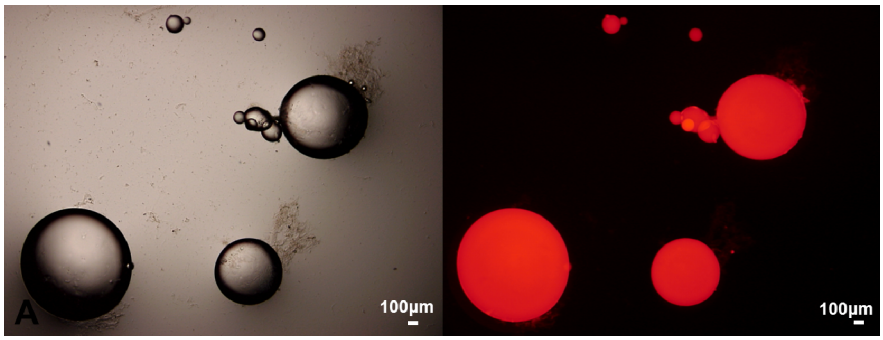

Figure SI 1: (Fluorescence-) Microscopy images of a 1 wt% (dry weight) egg white solution in PBS pH 7.4 which was not subjected to an ultrasound treatment and not placed between two microscope slides. It shows that initially there are droplets but that these are big and easily destroyed as shown in Figure 2A. The oil-phase contains the fluorescent dye Nile Red.

SI 2: Overview fluorescent microscope images of the structures analyzed for determining the size distribution of the hen egg white protein capsules.

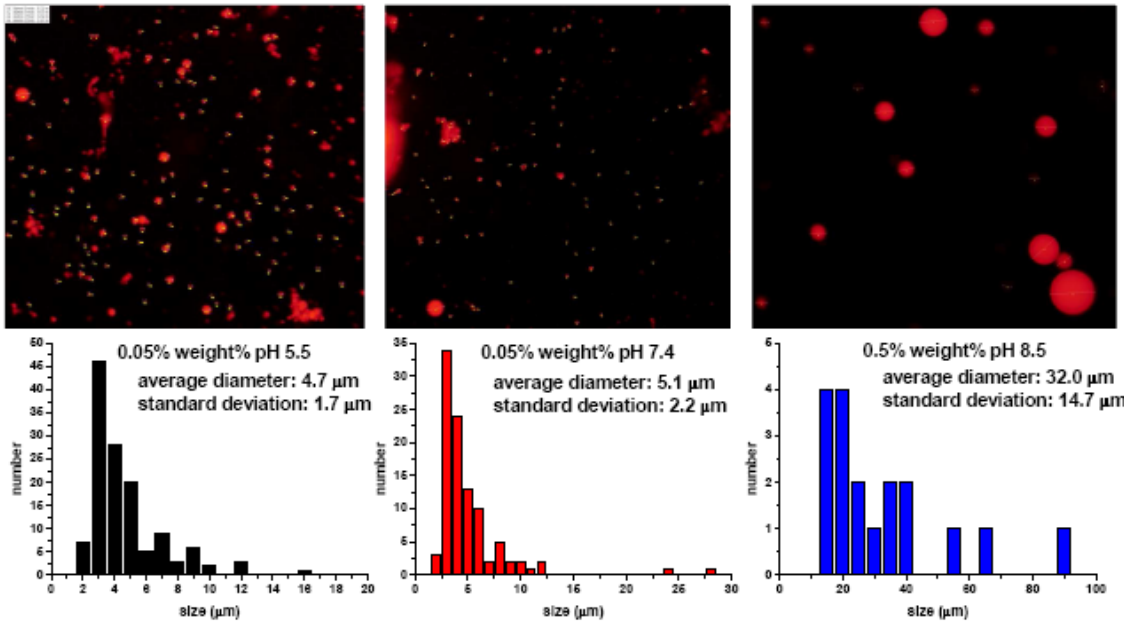

Figure SI 2: Size distribution of the capsules, obtained from representative images shown above, at different pH with 0.05 wt% of hen egg white for pH 5.5 and 7.4 and 0.5 wt% for pH 8.5. (The higher concentration was needed to form capsules sufficiently stable for subsequent analysis.) At high pH the capsules are large and only a small number wasis found. At pH 5.5 the capsules were slightly smaller than at pH 7.4 but both are significantly smaller and more abundantly present than when pH 8.5 was used.

SI 3: (Fluorescence) Microscope images and size distribution histograms of emulsion templated capsule formation with different sonication times.

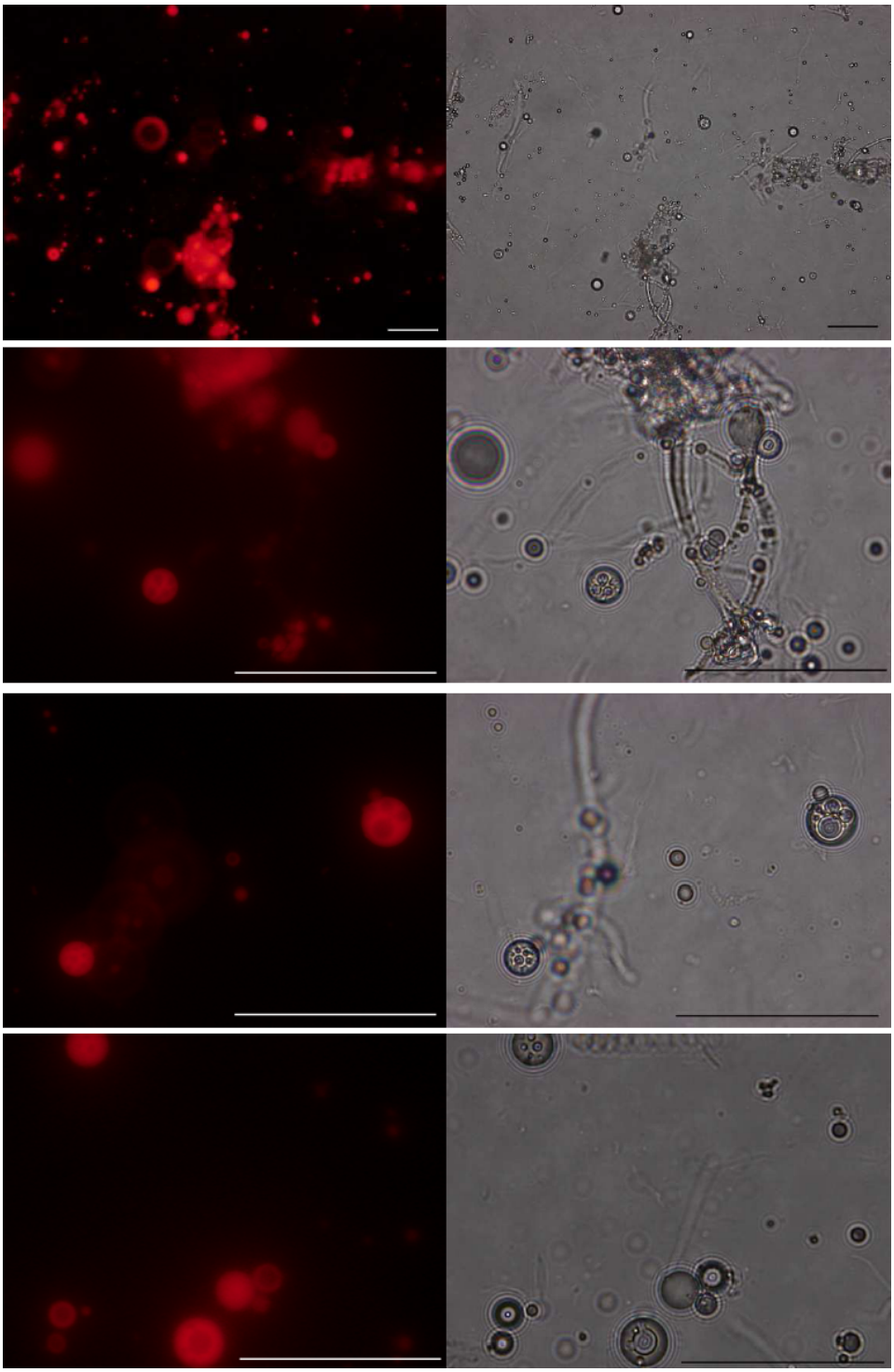

Figure SI 3A: (Fluorescence-) Microscopy images of a 0.5 wt% (dry weight) egg white solution in PBS pH 5.5 subjected to 1 minute of ultrasound treatment. It shows multi-core capsules, single core capsules and capsules with any addition aqueous core. Scale bar represents 100 µm.

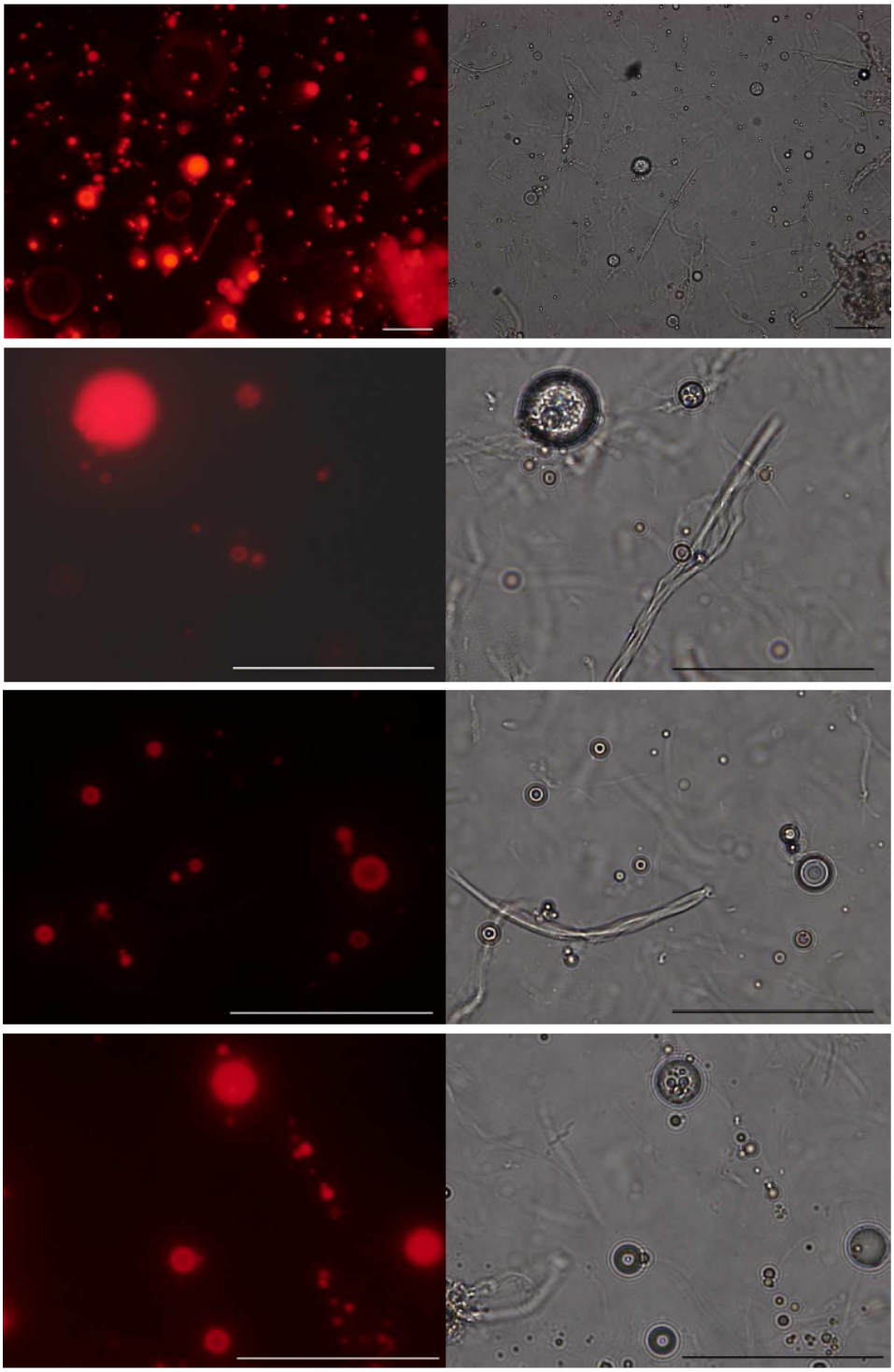

Figure SI 3B: (Fluorescence-) Microscopy images of a 0.5 wt% (dry weight) egg white solution in PBS pH 5.5 subjected to 5 minutes of ultrasound treatment. It shows multi-core capsules, single core capsules and capsules with any addition aqueous core. Scale bar represents 100 µm.

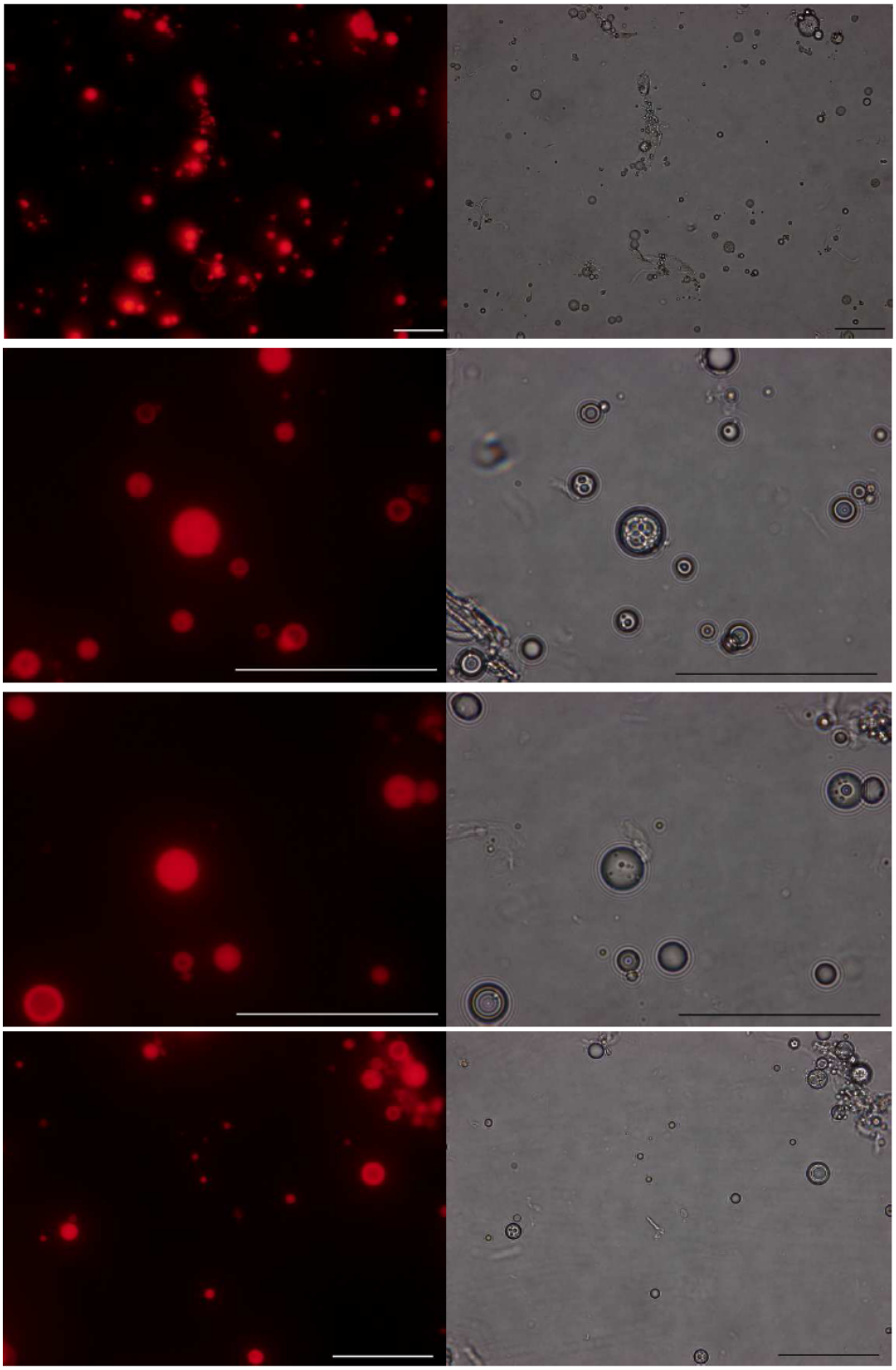

Figure SI 3C: (Fluorescence-) Microscopy images of a 0.5 wt% (dry weight) egg white solution in PBS pH 5.5 subjected to 20 minutes of ultrasound treatment. It shows multi-core capsules, single core capsules and capsules with any addition aqueous core. Scale bar represents 100 µm.

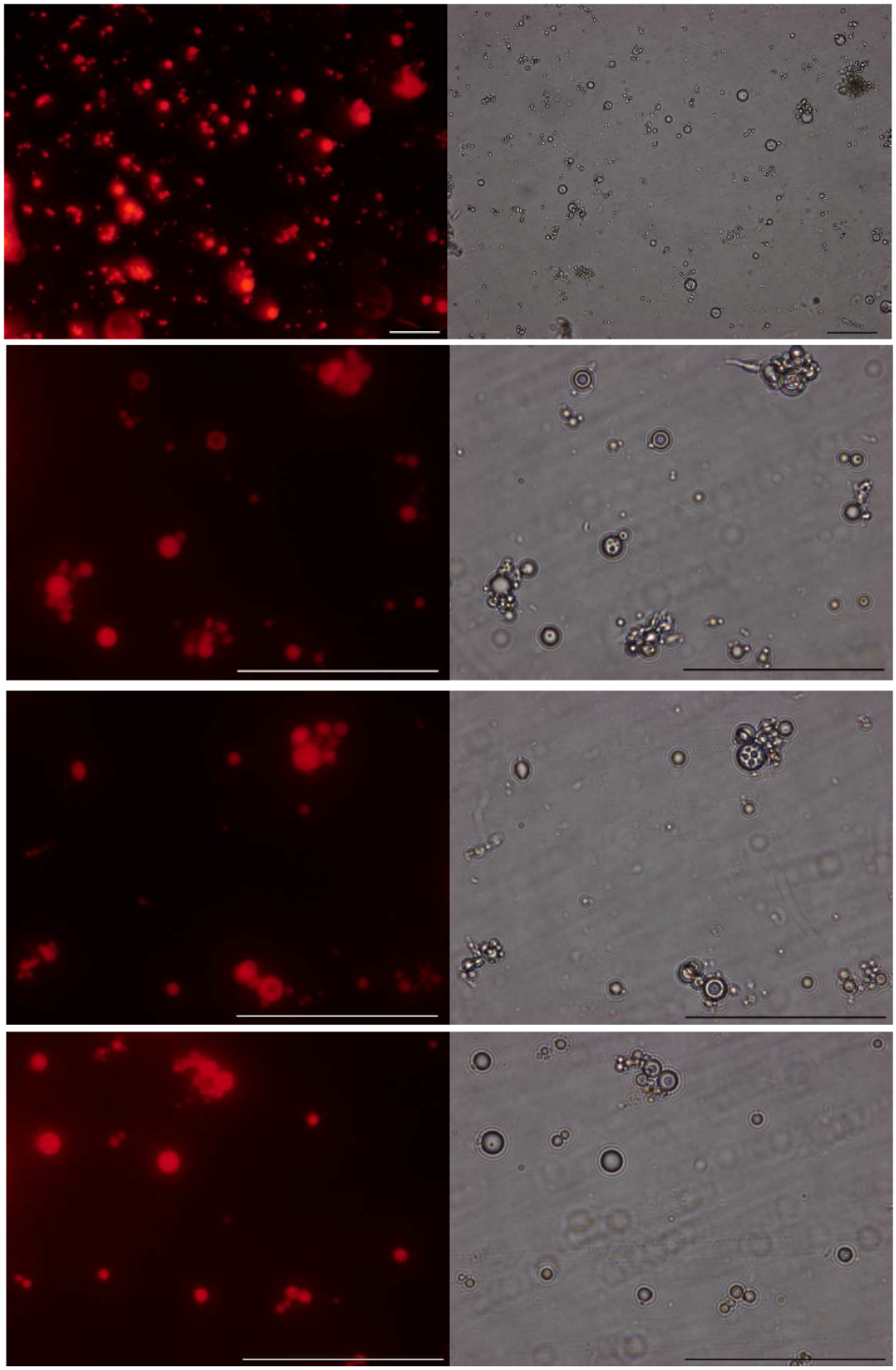

Figure SI 3D: (Fluorescence-) Microscopy images of a 0.5 wt% (dry weight) egg white solution in PBS pH 5.5 subjected to 60 minutes of ultrasound treatment. It shows multi-core capsules, single core capsules and capsules with any addition aqueous core. Scale bar represents 100 µm.

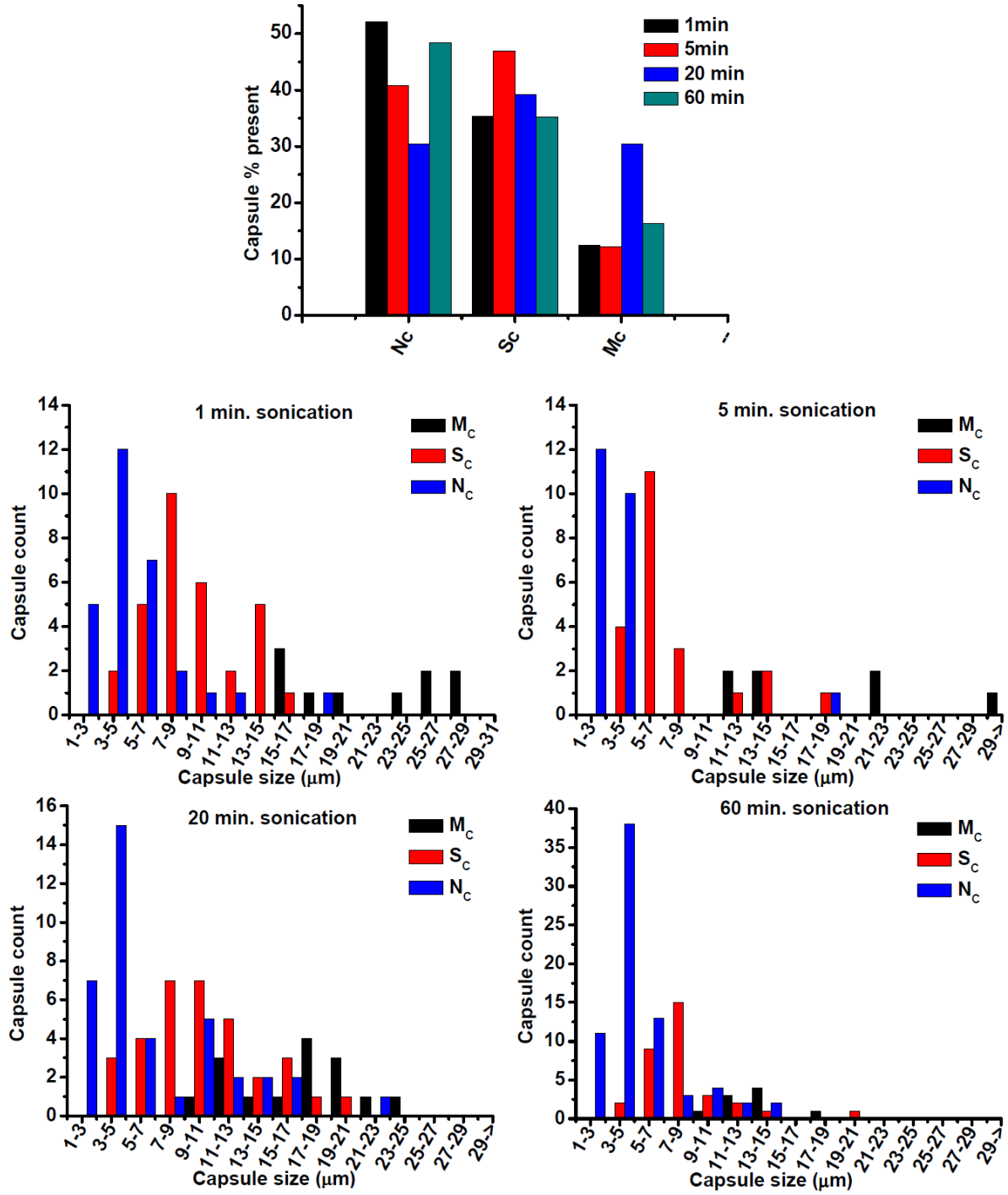

Figure SI 3E: Relative occurence of the multi-core capsule (M_C), single core capsule (S_C) and no aqueous core capsules (N_C) with different sonication times and the corresponding size distribution.

SI 4: (Fluorescence) Microscope images and size distribution histograms of emulsion templated capsule formation with egg white collected from a brown hen egg.

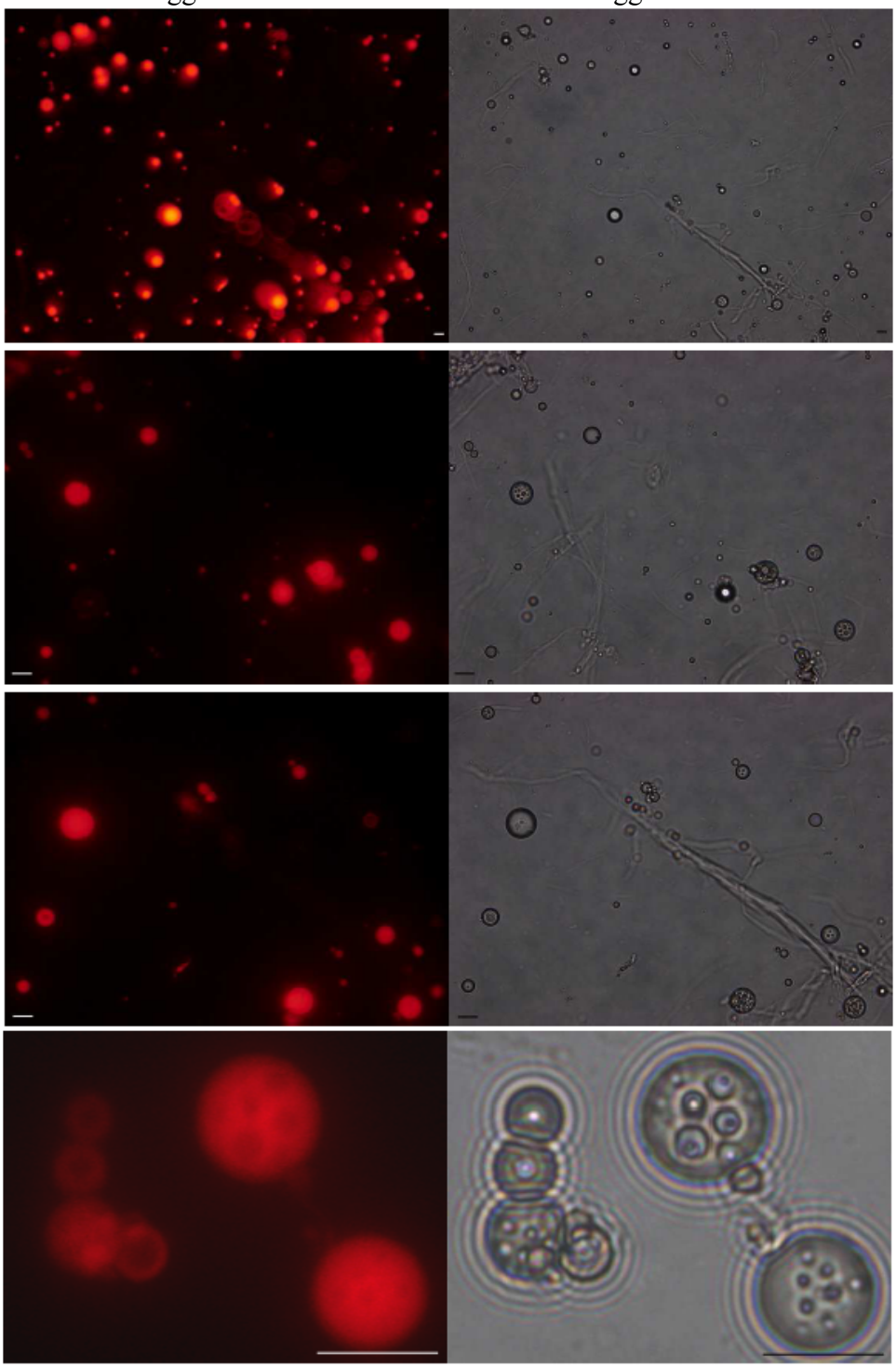

Figure SI 4A: (Fluorescence-) Microscopy images of a 0.5 wt% (dry weight) egg white (collected from a brown egg) solution in PBS pH 5.5 subjected to 5 minutes of ultrasound treatment. It shows multi-core capsules, single core capsules and capsules with any addition aqueous core. Scale bar represents 20 µm.

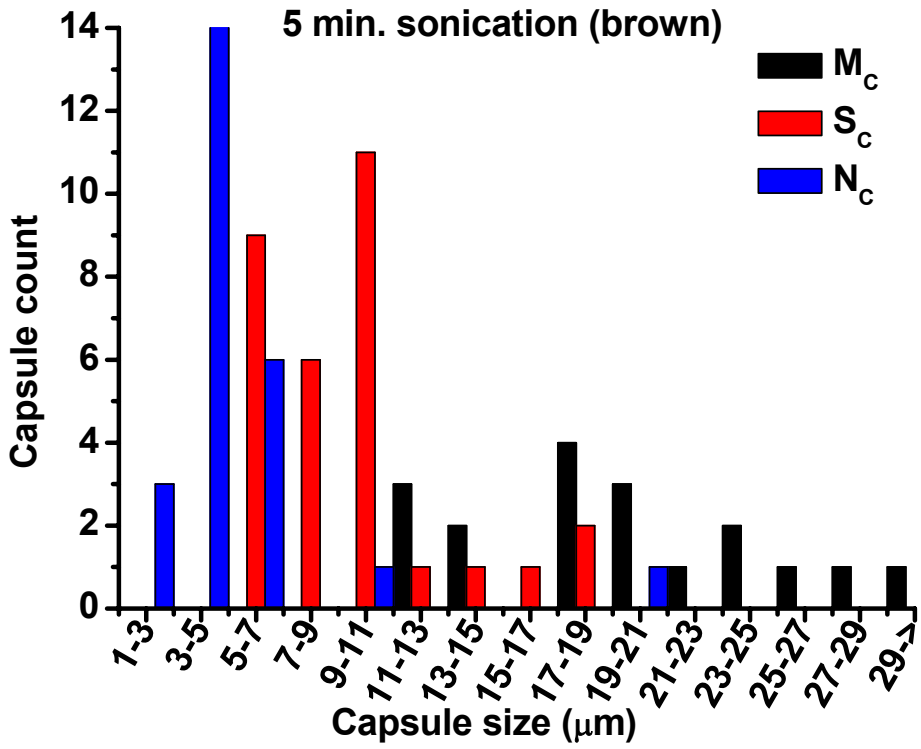

Figure SI 4B: Size distribution of the multi-core capsule (M_C), single core capsule (S_C) and no aqueous core capsules (N_C) with egg white collected from a brown hen egg, corresponding to amongst others, images of SI 4A.

SI 5: Enlarged plot of the Interfacial tension of pure buffers of different pH against benzotrifluoride and an enlargement of the absolute difference in interfacial tension (Δ_{IFT}).

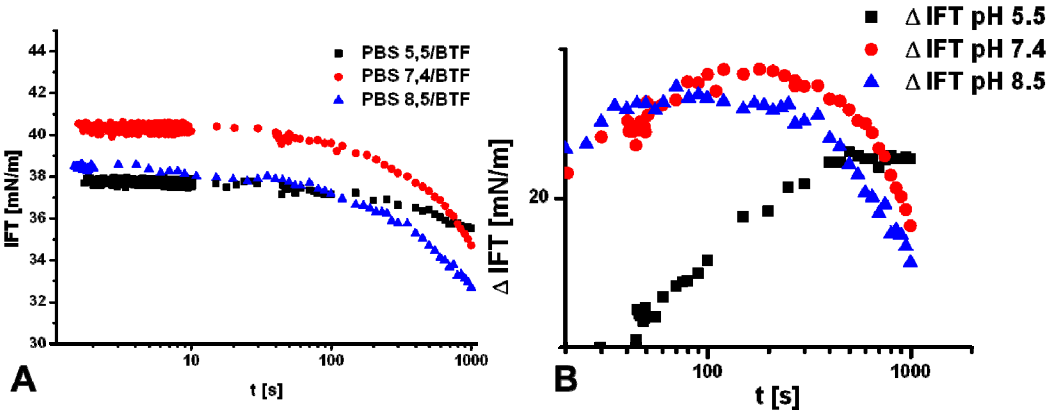

*Figure SI 5: **A)** Dynamic interfacial surface tension measurements of PBS with different pH against benzotrifluoride. It shows that there is a decline in the IFT over time depicting a stabilizing effect which is stronger for neutral and alkaline pH than for acidic conditions. **B)** shows an enlargement of the absolute interfacial tension for which the stabilizing effect of pure buffer is compensated for. A competitive behavior between two stabilizing forces is observed for pH 7.4 and 8.5, which first shows a fast and high stabilization while after an initial period, the system becomes less stable. For pH 5.5, this behavior is not observed and an initial increase in absolute stabilization is observed which stabilizes after 400s.*

SI 6: Overview optical microscope image of the structures analyzed by SFM.

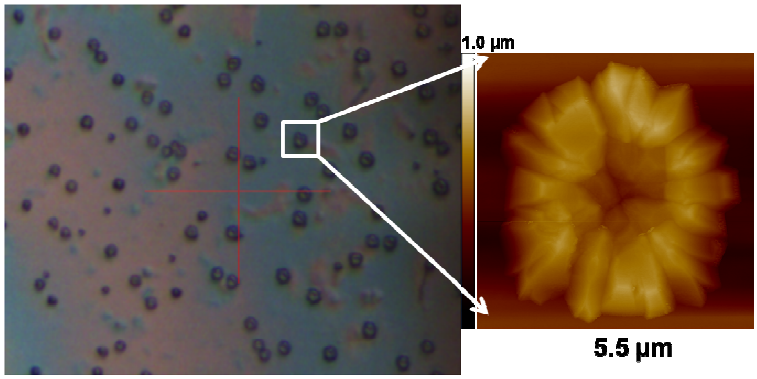

Figure SI 6: Overview optical microscope image of the dried capsule structures analyzed by Scanning Force Microscopy.