

Electronic Supplementary Information

Relationship between π -A isotherms and single microgel/microgel array structures revealed via the direct visualization of microgels at the air/water interface

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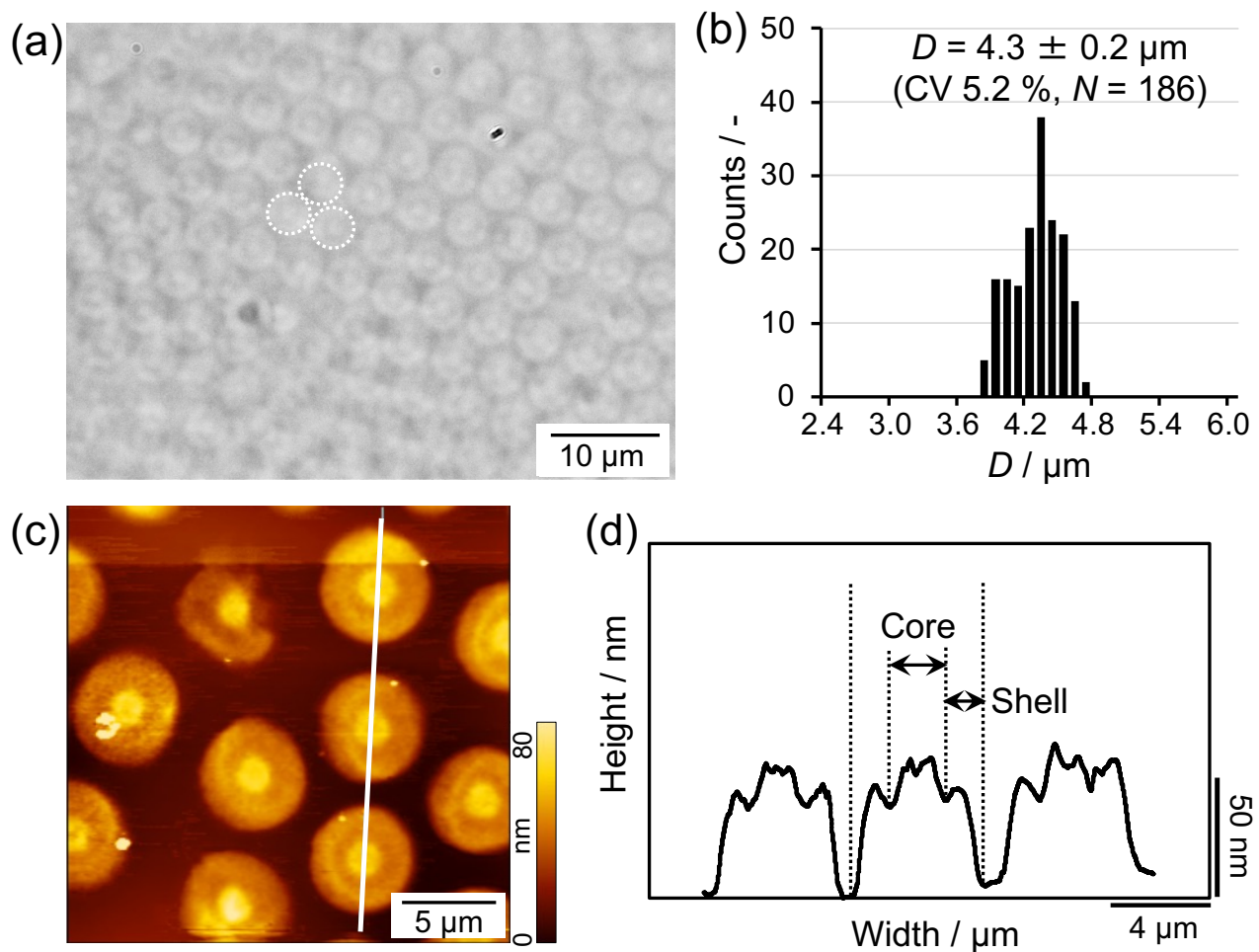


Fig. S1 (a) Optical-microscopy image and (b) size distribution histogram of the labeled micron-sized microgels in a packed state at C^* and $\phi_{\text{eff}} = 1$. (c) AFM height image and (d) cross-sectional profile (constructed from the white line in the height image) of the labeled micron-sized microgels on a glass substrate after transfer from the air/water interface.

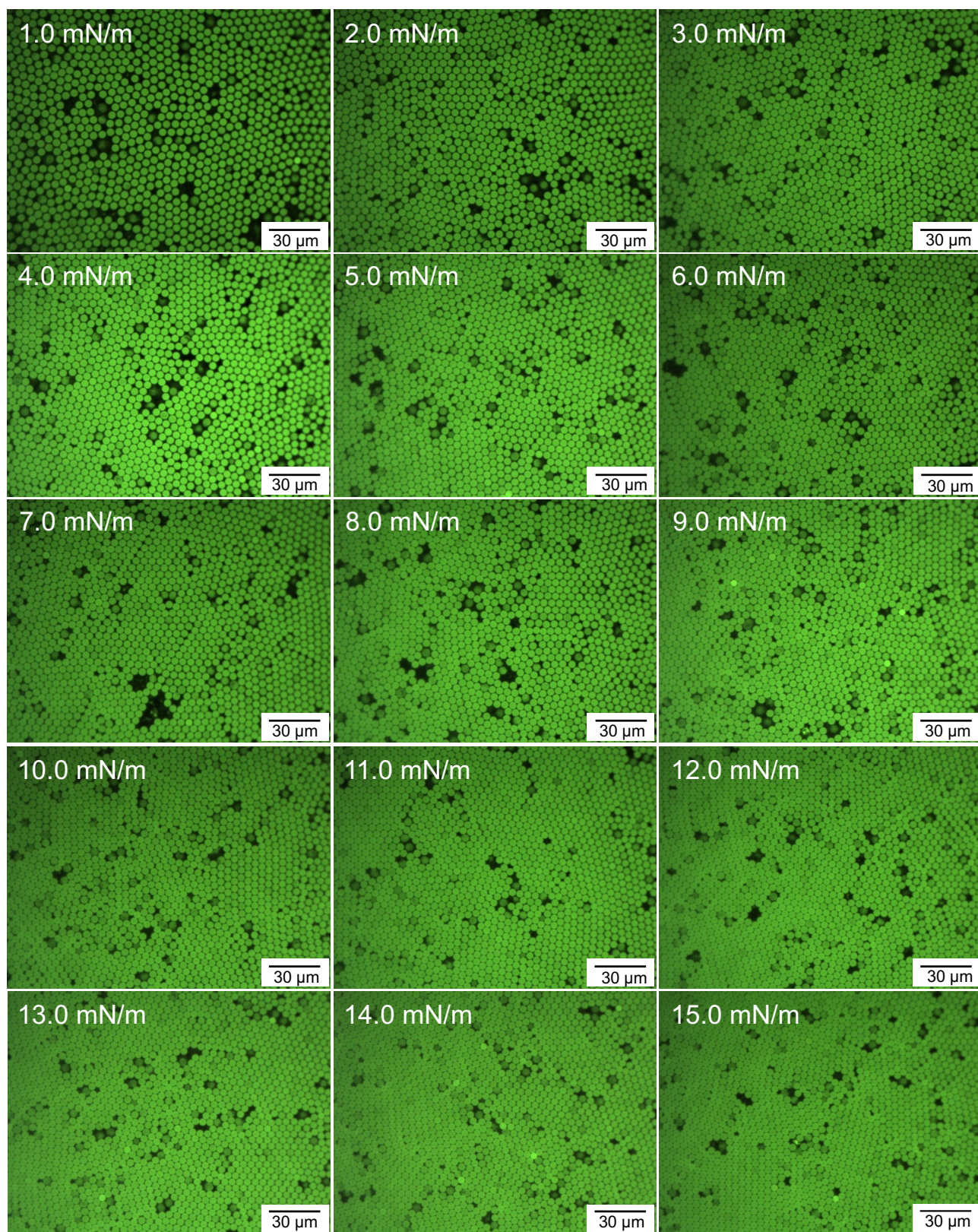


Fig. S2 (continues) Representative fluorescence-microscopy images (medium-magnification lens) of the microgel arrays at the air/water interface at each surface pressure value, π , when 4.8 mg of microgel was added to the interface.

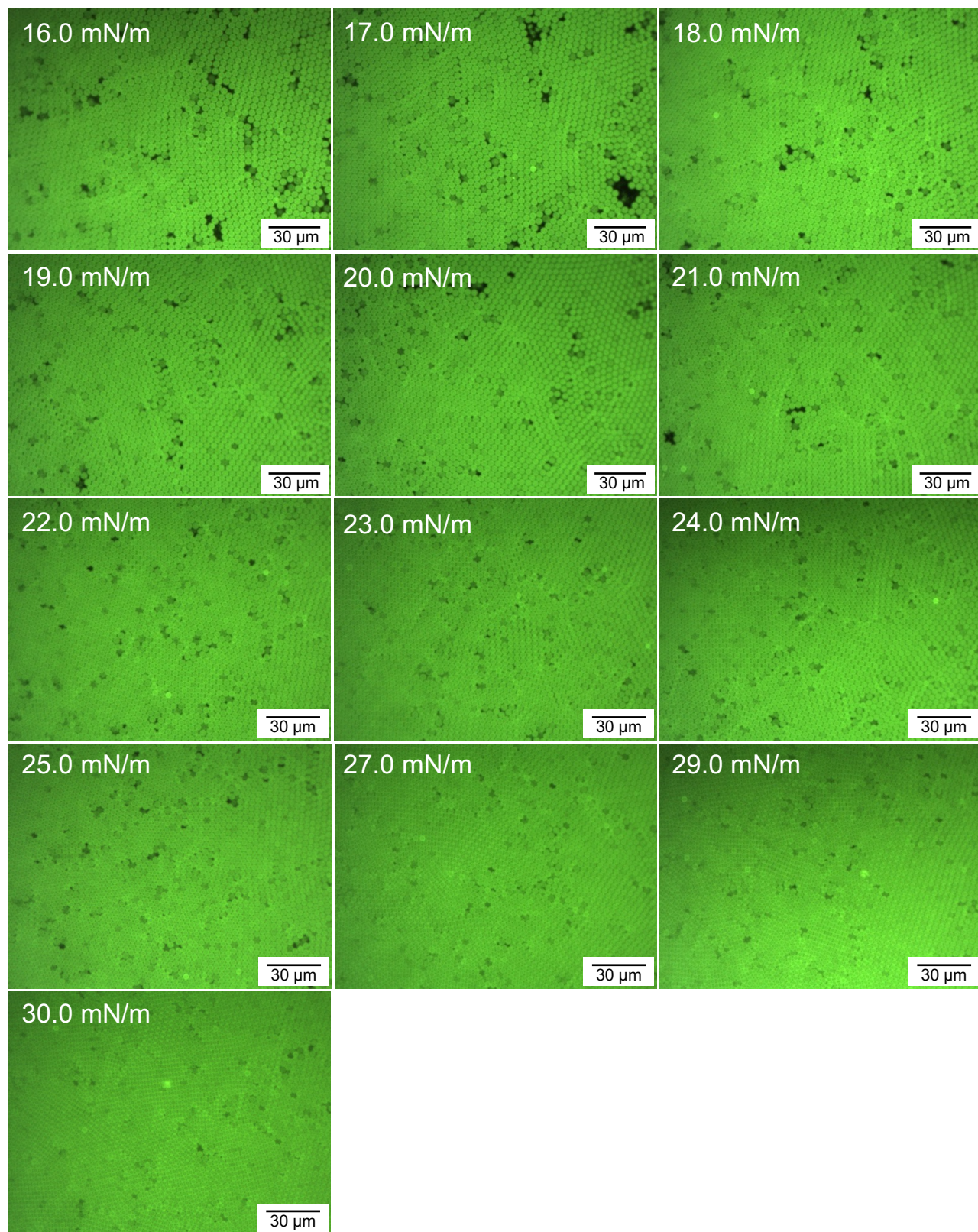


Fig. S2 (continued) Representative fluorescence-microscopy images (medium-magnification lens) of the microgel arrays at the air/water interface at each surface pressure value, π , when 4.8 mg of the microgels was added to the interface.

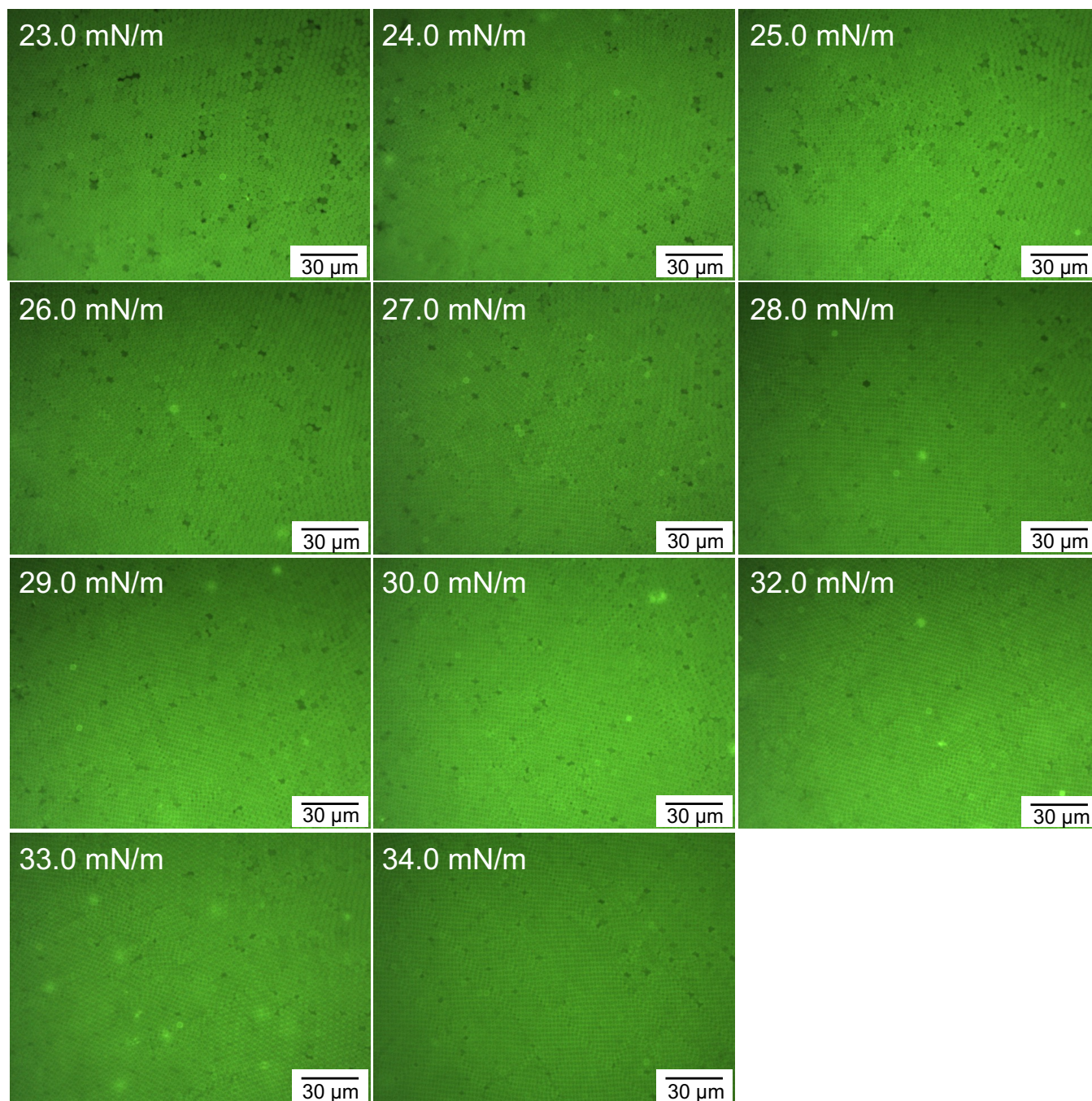


Fig. S3 Representative fluorescence-microscopy images (medium-magnification lens) of the microgel arrays at the air/water interface at each surface pressure value, π , when 9.6 mg of the microgels was added to the interface.

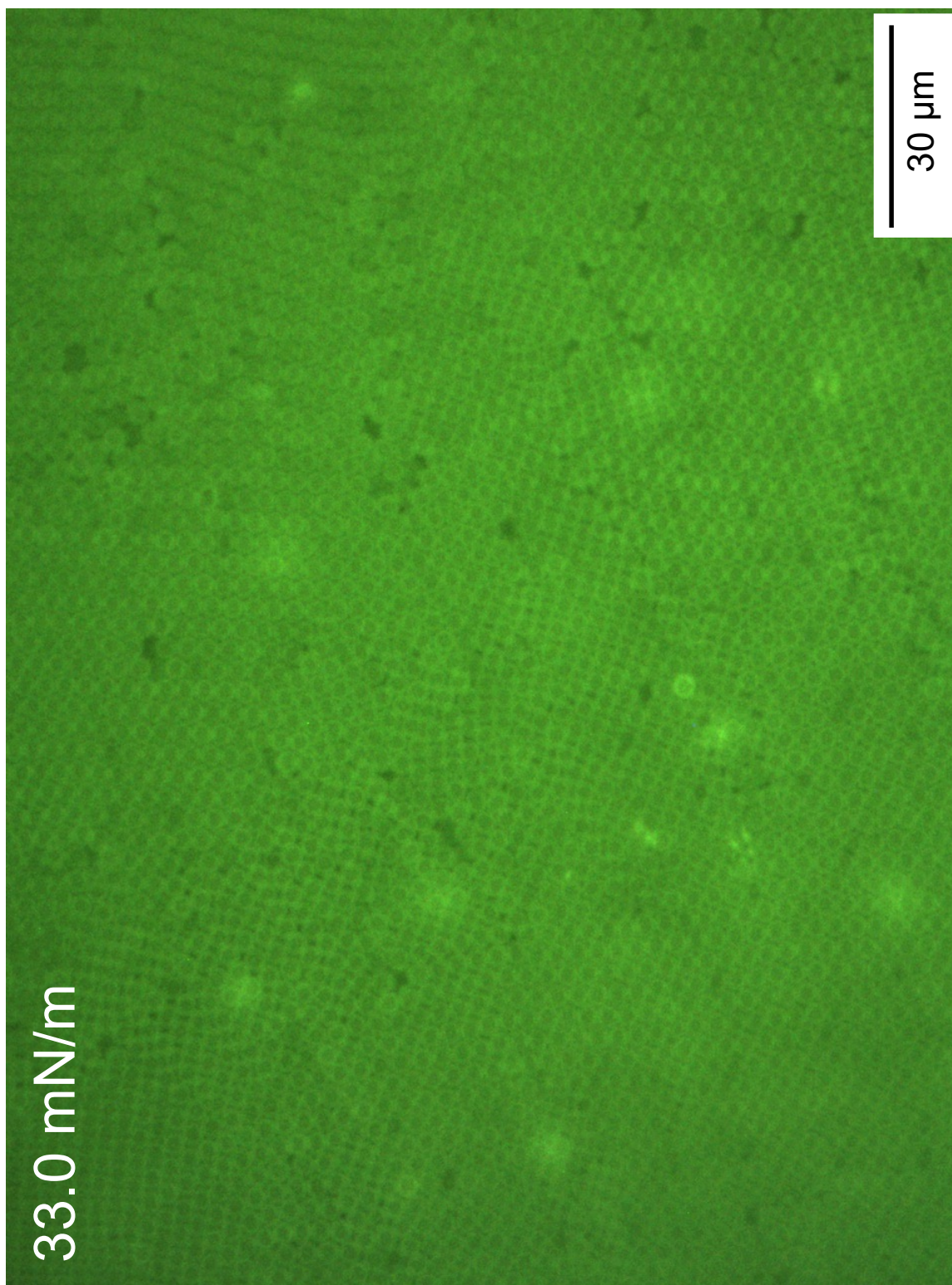


Fig. S4 Fluorescence-microscopy image (medium-magnification lens) of the microgel arrays at the air/water interface at $\pi = 33.0$ mN/m. This image is shown in Fig. S3. This enlarged view shows that the individual microgels are discernible.

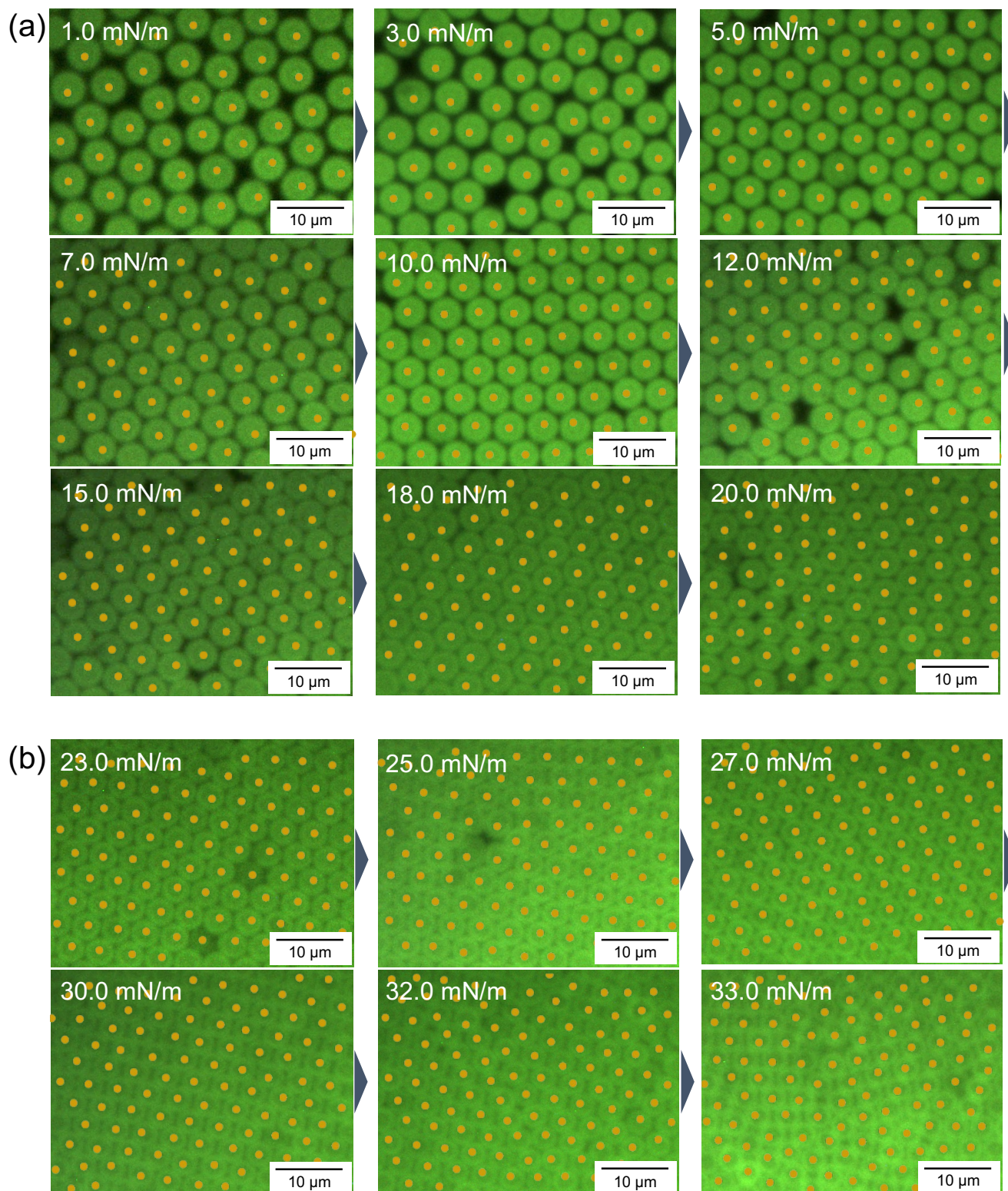


Fig. S5 The fluorescence-microscopy images of the microgel array at the air/water interface at each surface pressure when (a) 4.8 mg and (b) 9.6 mg microgels were added at the interface as shown in Fig.5. Yellow plots in each image indicate the position of microgels.

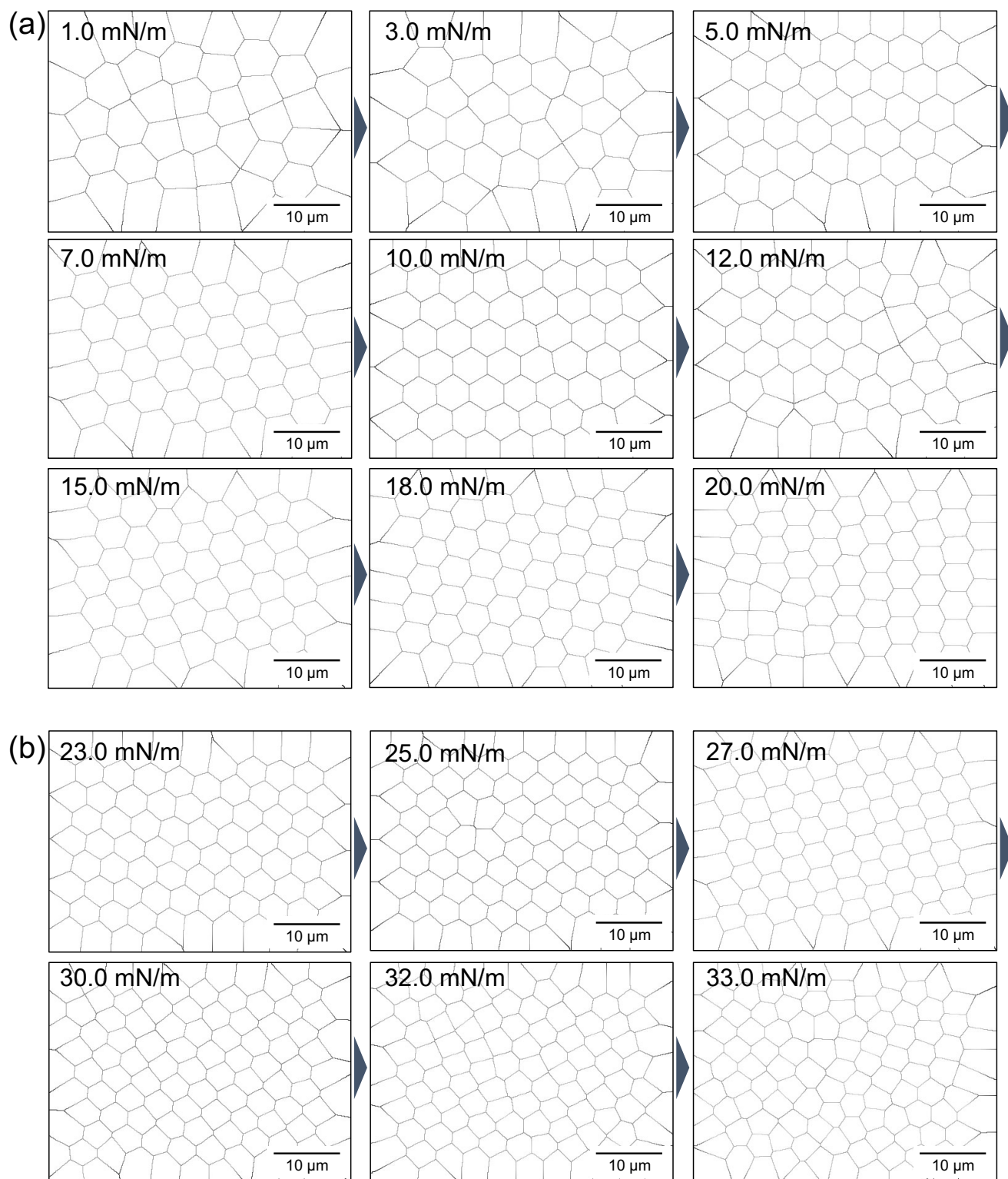


Fig. S6 Corresponding Voronoi tessellation images, which were analyzed using ImageJ software. These images are based on fluorescence-microscopy images of the microgel array at the air/water interface during compression, with (a) 4.8 mg and (b) 9.6 mg of microgels added, as shown in Fig. 5 and Fig. S5.

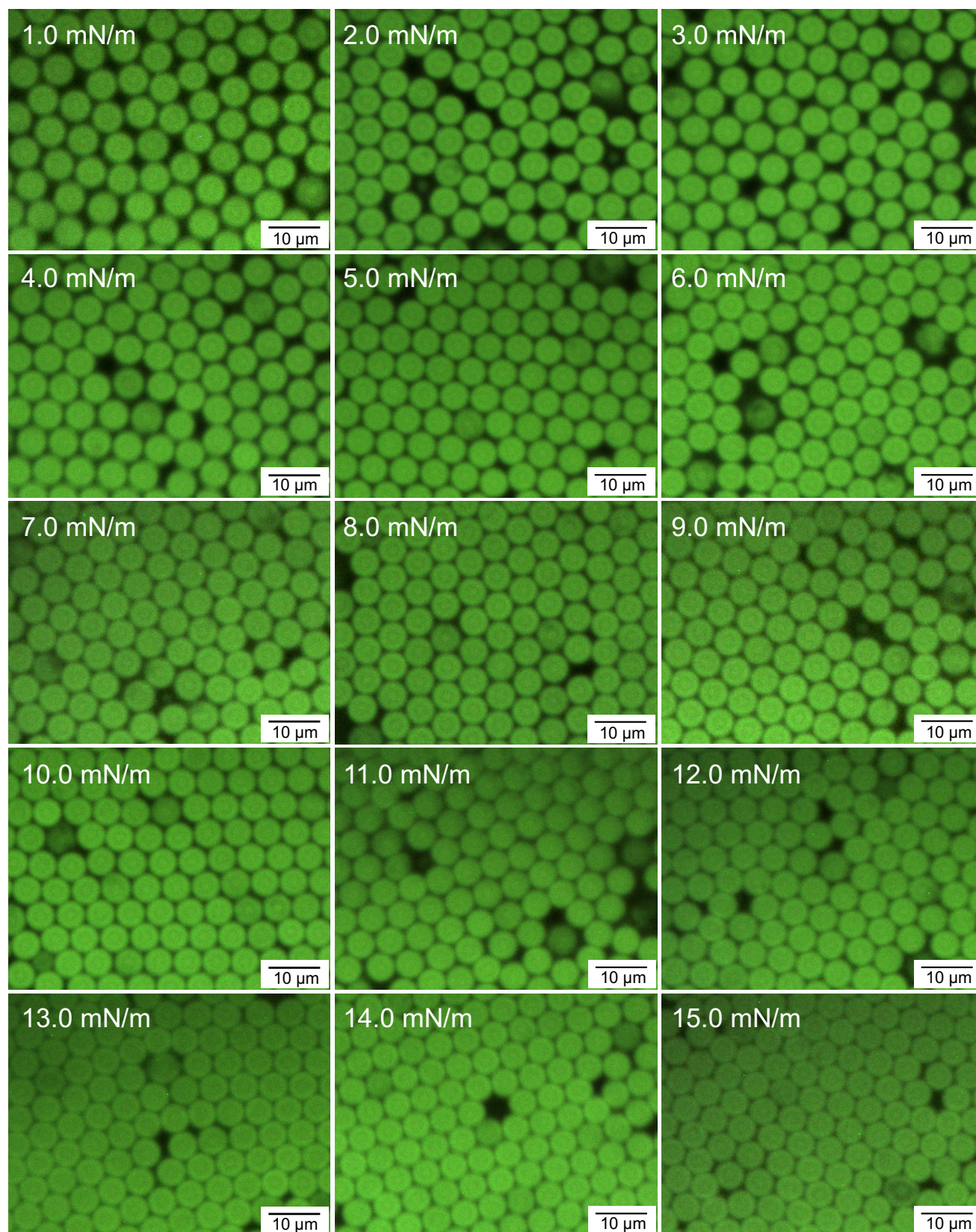


Fig. S7 (continues) Representative fluorescence-microscopy images (high-magnification lens) of the microgels, whose total amount was 4.8 mg, at the air/water interface during compression.

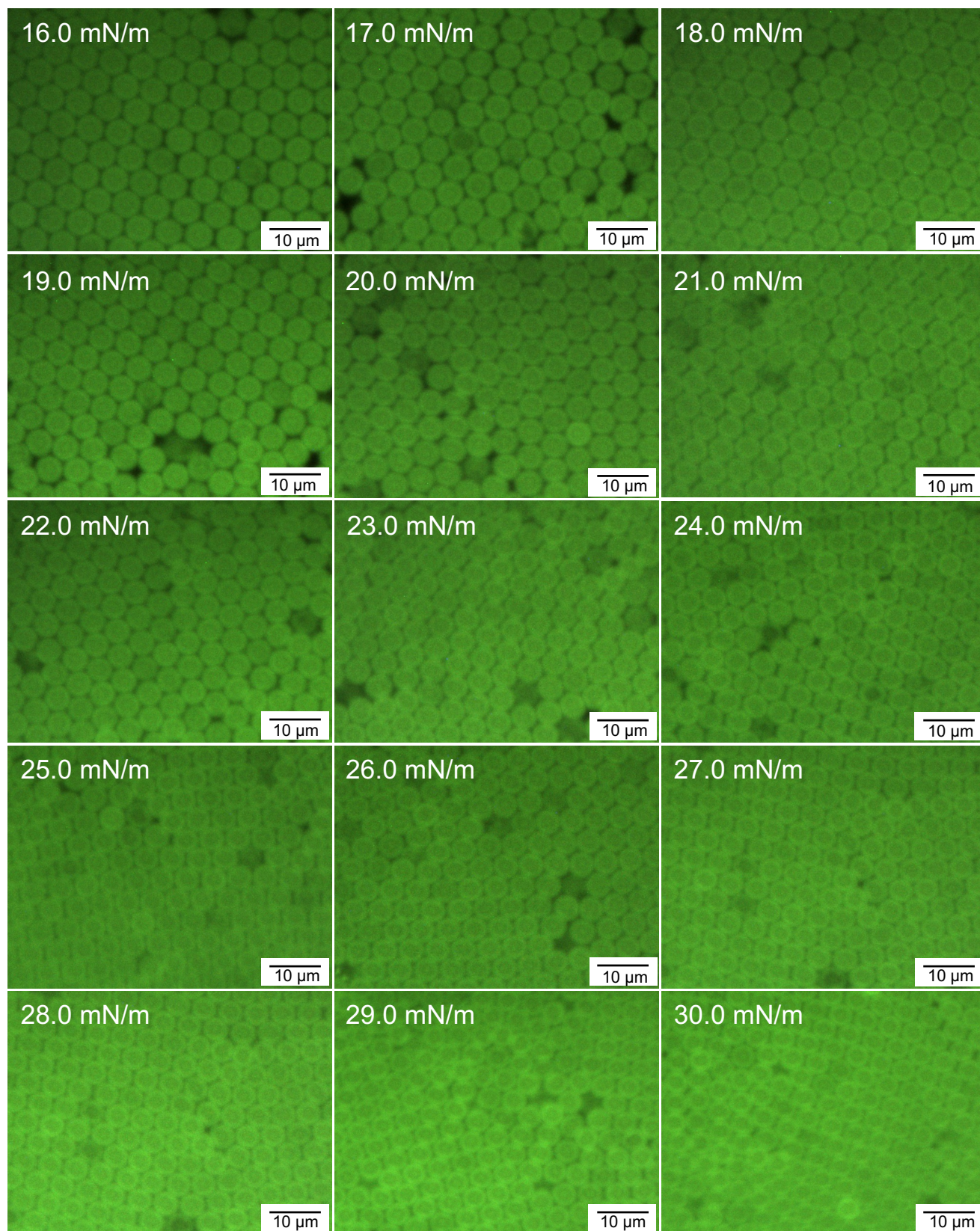


Fig. S7 (continued) Representative fluorescence-microscopy images (high-magnification lens) of the microgels, whose total amount was 4.8 mg, at the air/water interface during compression.

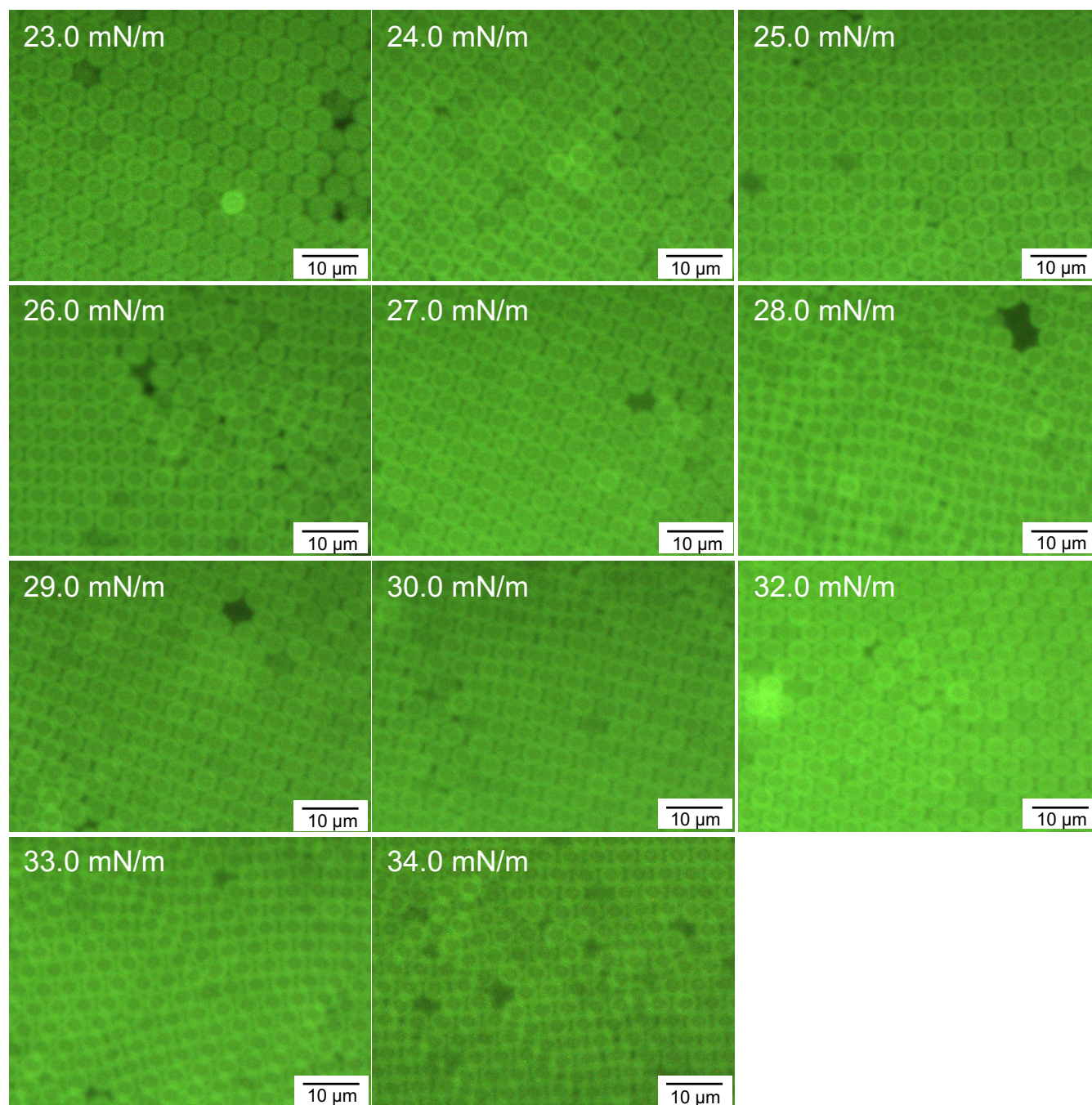


Fig. S8 Representative fluorescence-microscopy images (high-magnification lens) of the microgels, whose total amount was 9.6 mg, at the air/water interface during compression.

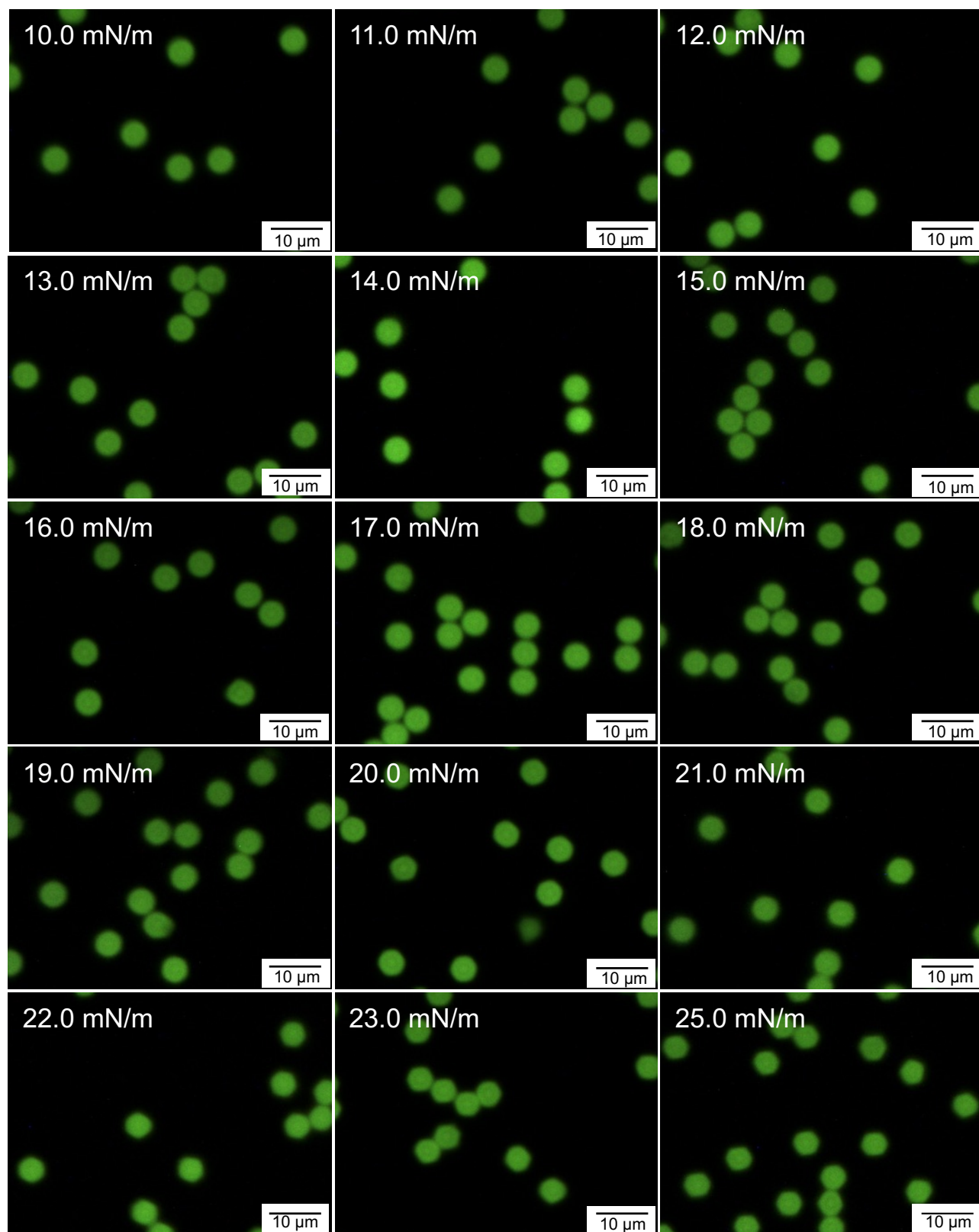


Fig. S9 (continues) Representative fluorescence-microscopy images (high-magnification lens) of the mixture of labeled and non-labeled microgels, containing 4.8 mg in total, at the air/water interface during compression.

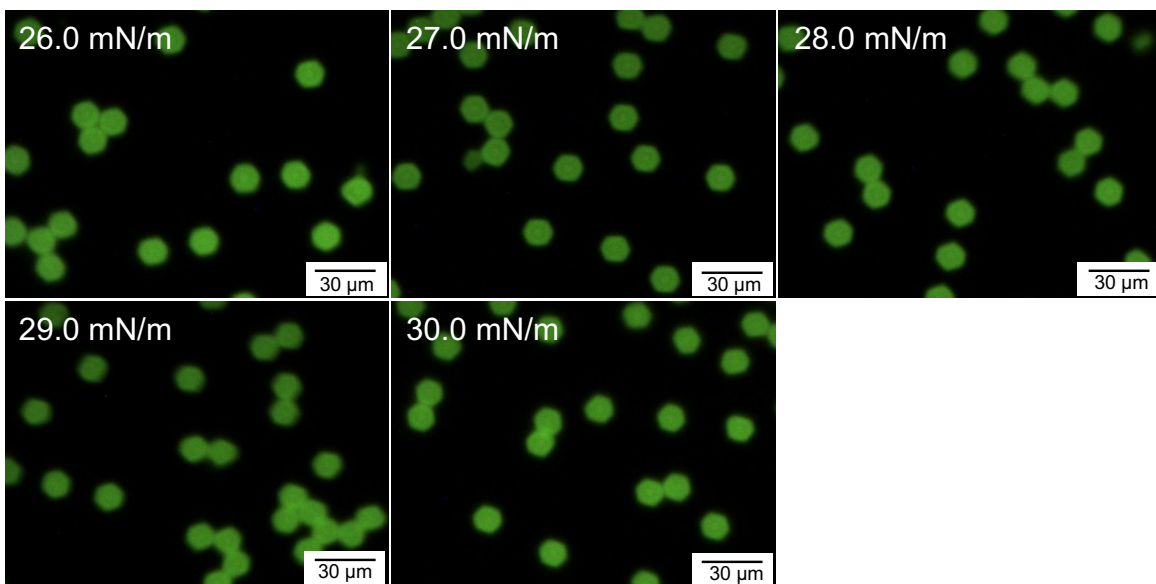


Fig. S9 (continued) Representative fluorescence-microscopy images (high-magnification lens) of the mixture of labeled and non-labeled microgels, containing 4.8 mg in total, at the air/water interface during compression.

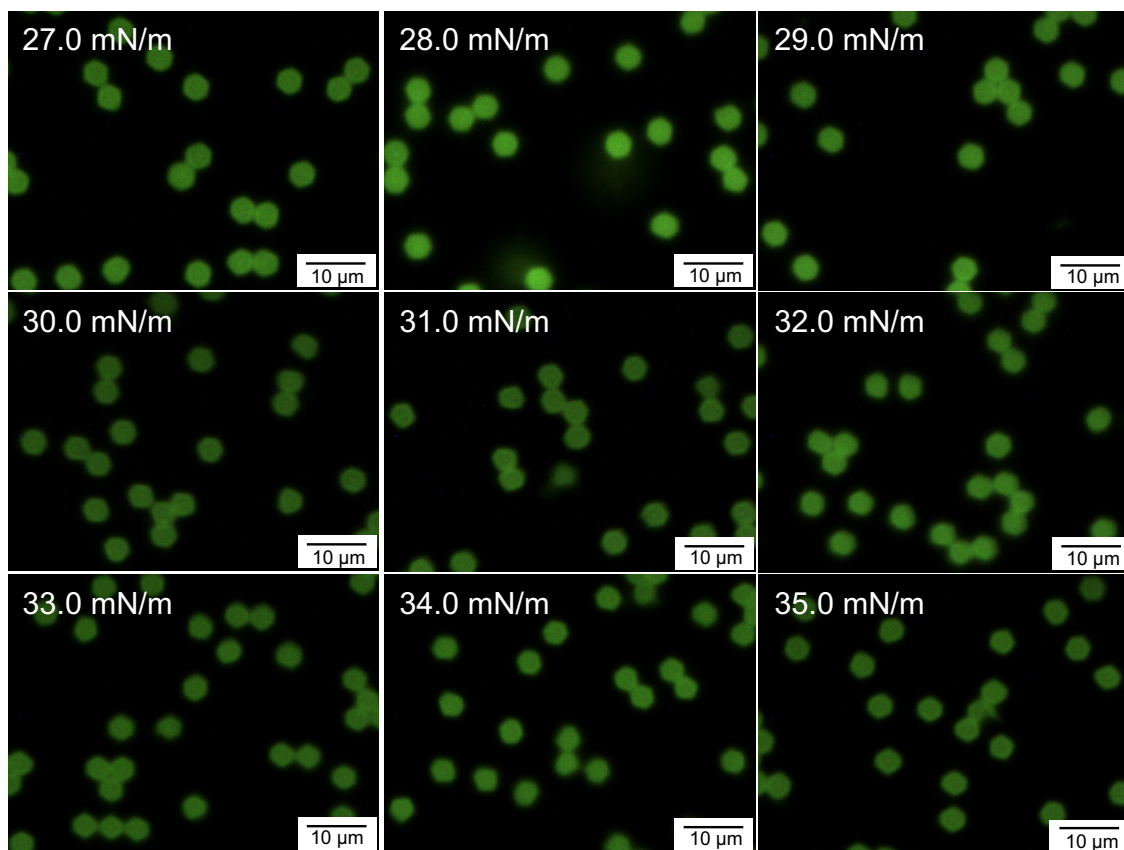


Fig. S10 Representative fluorescence-microscopy images (high-magnification lens) of the mixture of labeled and non-labeled microgels, containing 9.6 mg in total, at the air/water interface during compression.

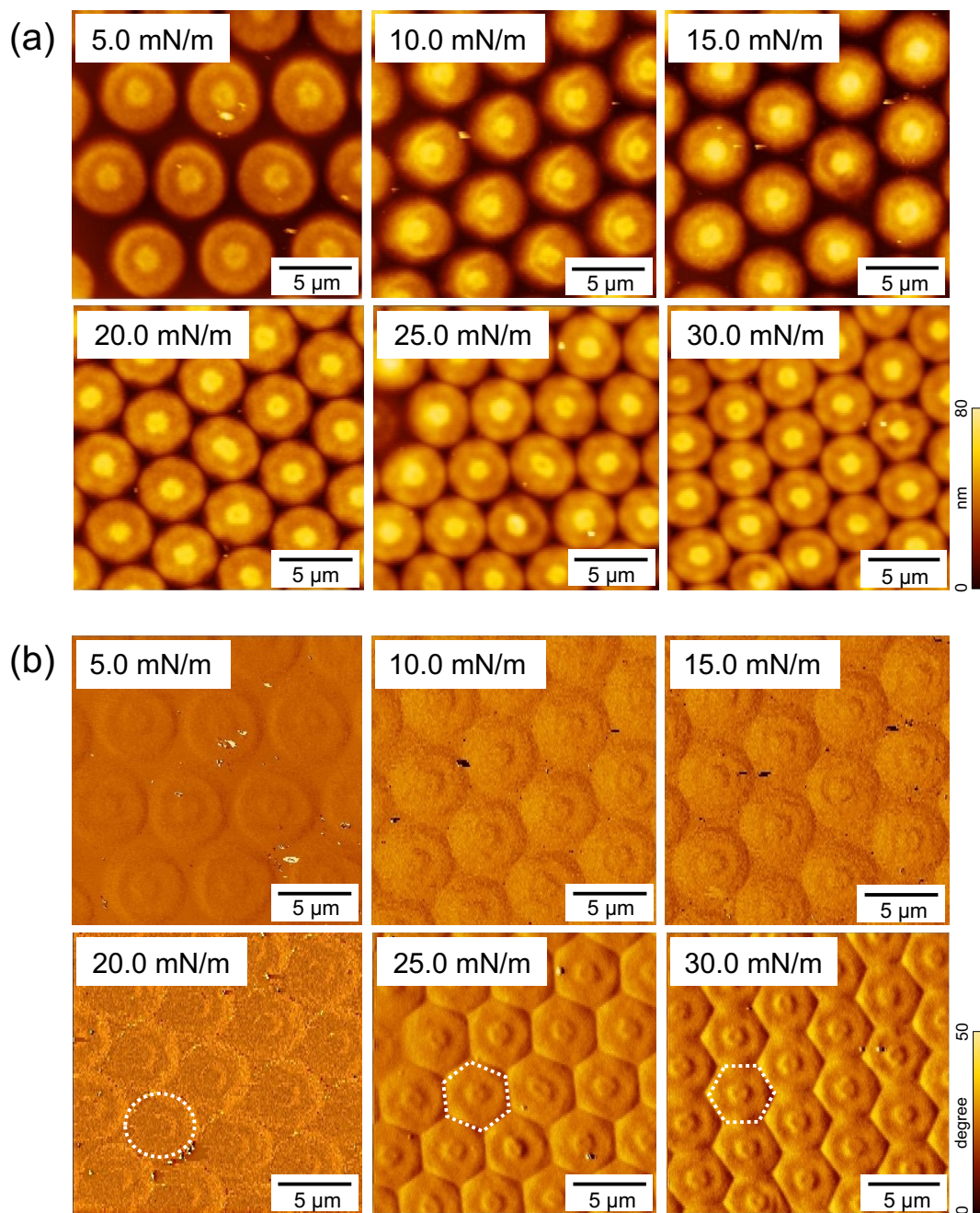


Fig. S11 (a) AFM height images and (b) phase images of the microgels following transfer onto solid substrates taken at 5 mN/m, 10 mN/m, 15 mN/m, 20 mN/m, 25 mN/m and 30 mN/m. The white lines indicate the shape of the microgels.

Movie S1 The array structures of the microgels at the air/water interface before compression.