Electronic Supplement

Amphiphilic block copolymers as flexible membrane materials generating structural and functional mimics of green bacterial antenna complexes

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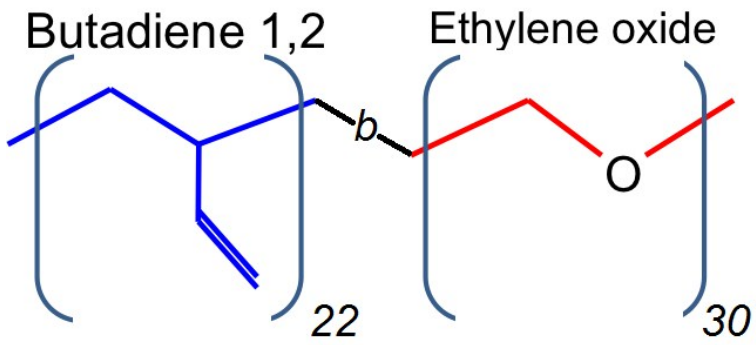

Figure S1: Structure and kDa of PEO-*b*-PBD polmer. MW: 1.2-b-1.3 kDa,

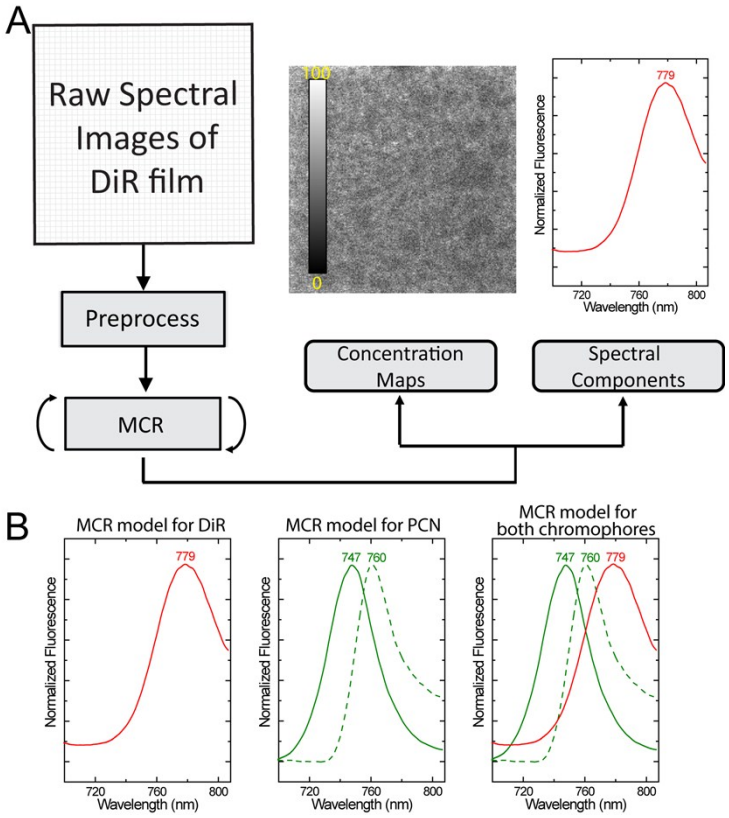

Figure S2. (A) General methodology for multivariate analysis of spectral images. By the MCR method, spectral images are deconvoluted into spectral components that add in a linear manner to recreate the original data. (B) MCR models for DiR-only (left) and nanocomposites-only (middle) images and the combination of the two models (right). The combined model was used to estimate the intensities of PCN and DiR emission in images containing both chromophores.

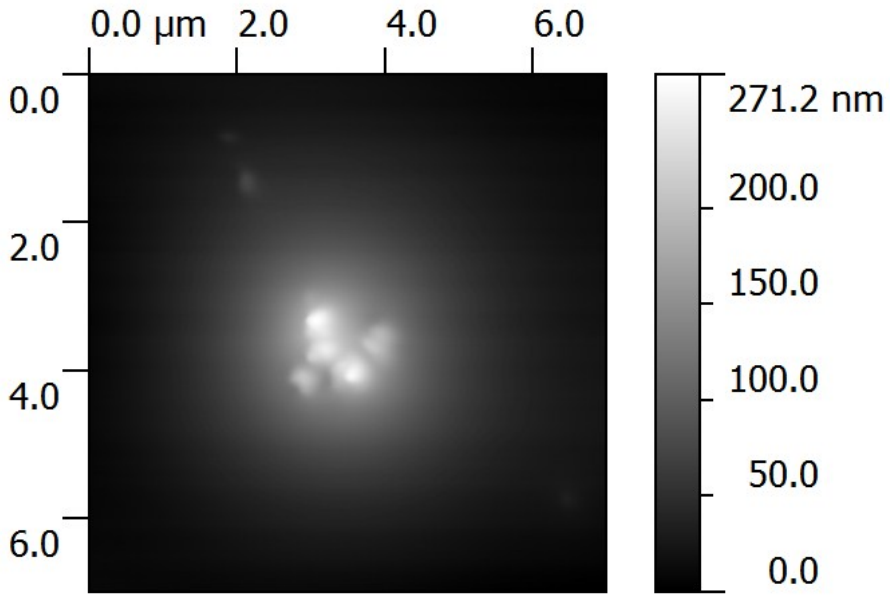

Figure S3. – Atomic force microscopy topograph of BChl *c* infused in the absence of polymer. The observed aggregates are large, polydisperse and lack any consistent morphology.

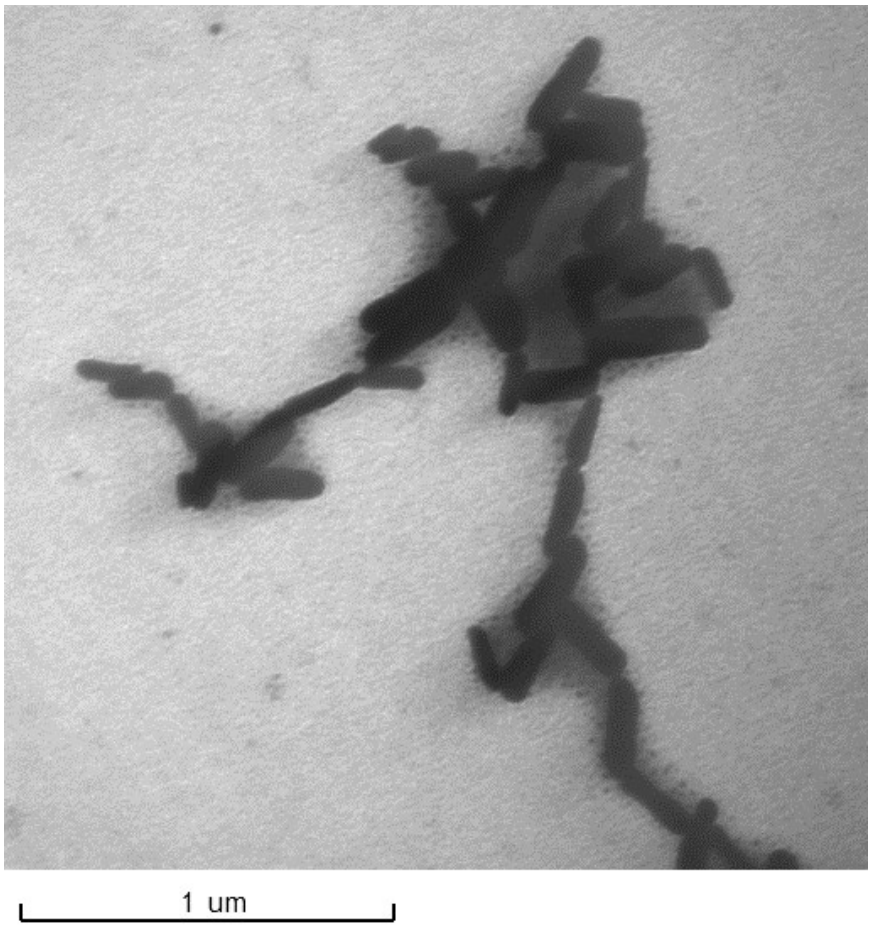

Figure S4. Representative transmission electron microscope image of PCNs. The microscope used for this analysis has a low accelerating voltage which increased electron scattering and thus the sample does not require staining. Note that a PEO-*b*-PBD film is observed around and between neighboring PCNs and likely results from drying the sample prior to imaging.

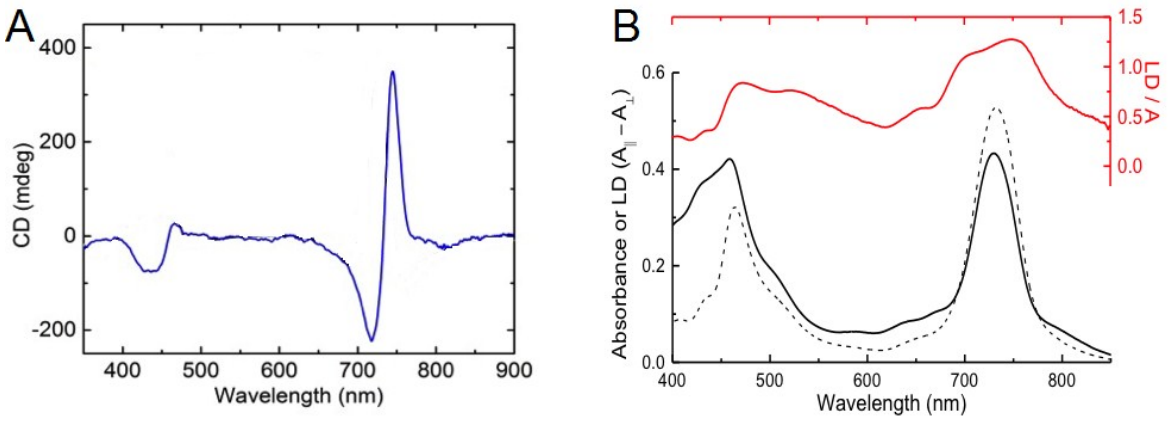

Figure S5. (A) CD spectra of PCN chlorosomes. (B) Isotropic absorbance (black), linear dichroism (dashed) and reduced (LD/A) (red), for PCN containing BChl *c*, BChl *a* and β-carotene.

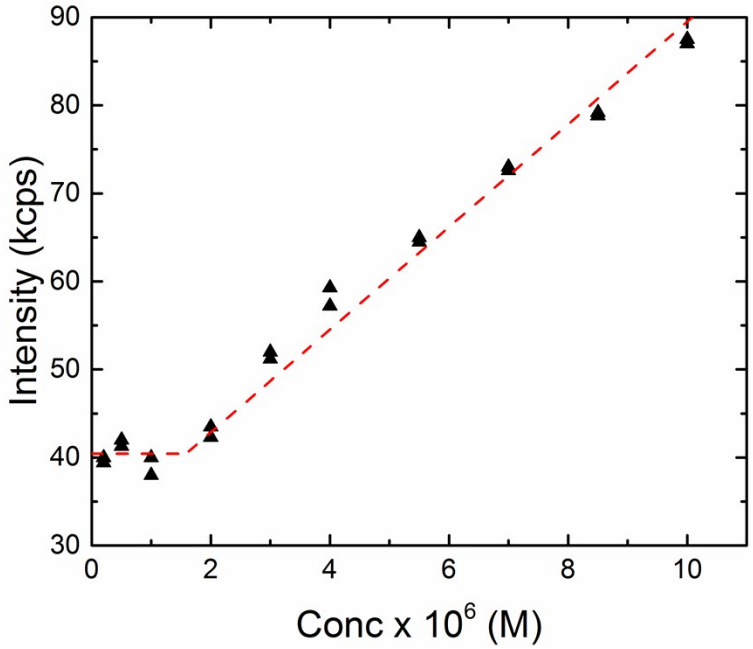

Figure S6. Scatter intensity as a function of PEO-*b*-PBD concentration. The intersection of the two dashed red lines indicates the critical micelle concentration and is approximately 1.5 μM.

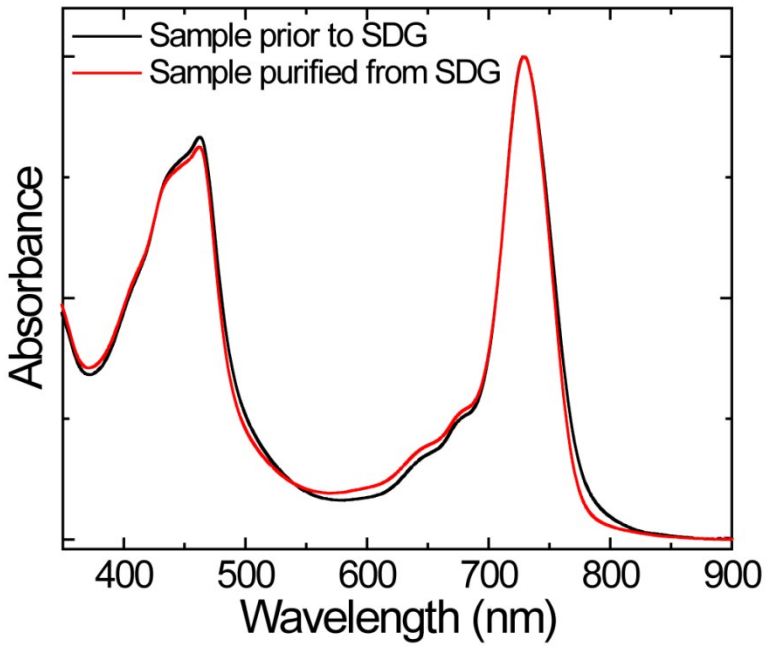

Figure S7. Absorbance spectrum of 30 uM BChl *c* coassembled with 1.5 uM PEO-*b*-PBD through buffer infusion prior to (black) and after (red) purification on a sucrose density gradient (SDG). The essentially superimposable absorbance profiles for the traces indicate a constant electronic structure before and after gradient purification.

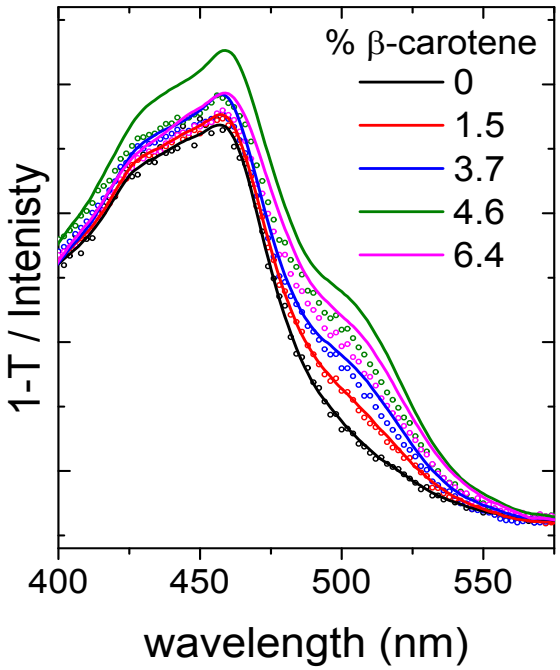
% β-carotene
0
1.5
3.7
4.6
6.4
1-T / Intenisty
400
450
500
550
wavelength (nm)

Figure S8 – Fig S3 – Comparison of 1 minus transmission (1-T) (solid lines) and fluorescence excitation spectra (open circles), detected at 760 nm

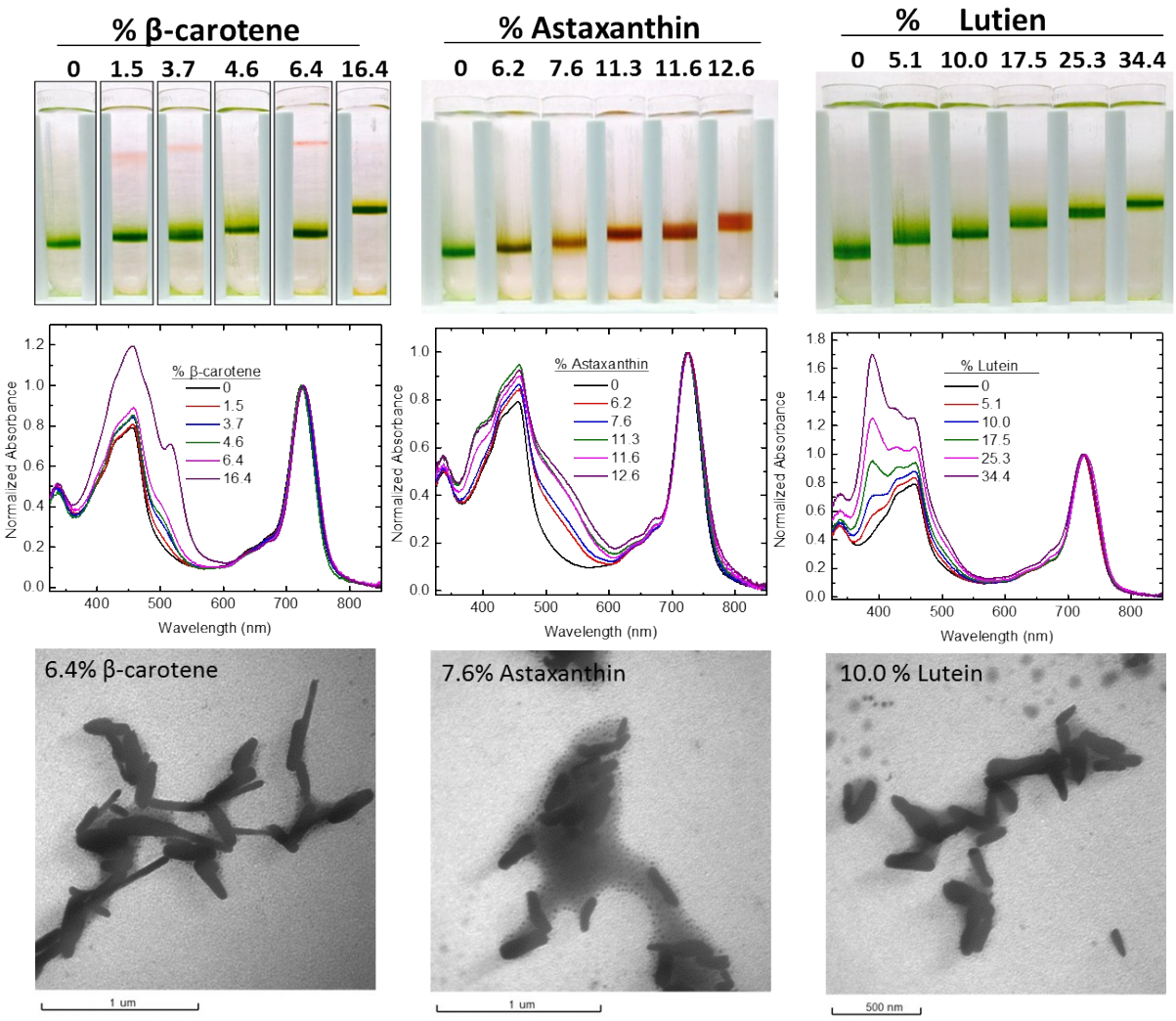

Figure S9. Isolation and absorbance of PCNs containing various amounts of carotenoids. Top row - sucrose density gradients (10-30%) of samples with increasing amounts of the indicated carotenoids and values given are mol% carotenoid per mol BChl *c*. MIddle row - Absorbance spectra of gradient fractions with carotenoid content indicated. Bottom row - LVEM image of PCNs containing the indicated carotenoid.