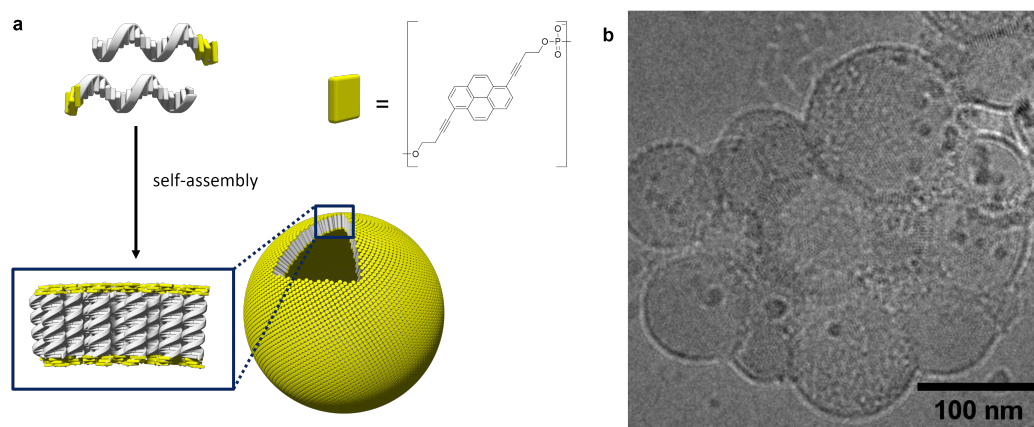


## Supramolecular Assembly of Pyrene-DNA Conjugates into Columnar Vesicles

J. Thiede<sup>1</sup>, I. Iacovache<sup>2</sup>, S. Rothenbühler<sup>1</sup>, S. M. Langenegger<sup>1</sup>, B. Zuber<sup>2</sup>, R. Häner<sup>1\*</sup>

<sup>1</sup>Department of Chemistry, Biochemistry, and Pharmaceutical Sciences, University of Bern, Freiestrasse 3, 3012 Bern, Switzerland, <sup>2</sup>Institute of Anatomy, University of Bern, Baltzerstrasse 2, 3012 Bern, Switzerland

The arrangement of structural subunits plays a crucial role in the shape of both natural and artificial supramolecular assemblies. In DNA nanotechnology, the well-defined DNA framework is utilized to achieve the spatial organization of functional groups.<sup>[1]</sup> In previous work DNA was modified with phenanthrene sticky ends forming vesicular supramolecular assemblies with light-harvesting properties<sup>[2]</sup> and *E*-tetraphenylethylenes modifications forming aggregation-induced emission active assemblies.<sup>[3-4]</sup> In this work, we modified two complementary DNA strands with 1,6-dialkynyl-pyrenes at the 3'-end (Figure 1a). Cryo-EM were performed after self-assembly revealing columnar vesicles (Figure 1b). In addition, the self-assembly was analyzed and discussed with fluorescence spectroscopy, UV-vis spectroscopy, and AFM.



**Figure 1** (a) Schematic representation of the self-assembled vesicles formed from 1,6-dialkynyl-pyrene-modified single strands and chemical structure of the pyrene-modification. (b) Cryo-EM image of vesicular assemblies.

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