Supplemental Information for manuscript:

Self-assembly mechanisms of the silk protein sericin on two-dimensional surfaces

Nicholas E. Kurland §, Joydip Kundu ¶, Shilpa Pal, Subhas C. Kundu ¶, Vamsi K. Yadavalli §,*

¶ – Department of Biotechnology
Indian Institute of Technology, Kharagpur 721302, India
§ – Department of Chemical and Life Science Engineering
Virginia Commonwealth University, Richmond VA 23284, USA
* - Corresponding author: Phone: 1-804-828-0587 Fax: 1-804-828-3846
Email: vyadavalli@vcu.edu (Vamsi K. Yadavalli)
**Gel electrophoresis:**

Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) was used to determine species molecular weight. Along with 10 µL of SeeBlue protein standard, 10 µL mixtures of 5 µg of sericin, mixed with 5 µL 2x Novex Tricine SDS sample buffer (Invitrogen, Carlsbad, CA) were loaded into wells of a 5% stacking gel cast on top of a 8% polyacrylamide gel. The gel was run at 150 V for approximately 90 minutes and stained with MagicBlue rapid protein stain.

![Gel electrophoresis result](image)

**Figure S1:** SDS PAGE (8%) gel pictures of 0.1% sericin solutions isolated from cocoons of different species: M- Molecular weight marker, 1- *B. mori* sericin, 2- *A. mylitta* sericin, 3- *A. assamensis* sericin.
**Dynamic Light Scattering (DLS) Data:**

Particle size distribution and zeta potentials for the sericin samples were obtained using a Malvern Zetasizer Nano ZS90 (Malvern Instruments Ltd., Worcestershire, UK), at 20.0°C over 100 scans.

![Figure S2: Particle size data for sericin from the different species as determined by DLS. (A) B. mori. (B) Wako sericin (B. mori commercial source). (C) A. mylitta. (D) A. assamensis.](image)
High resolution images of self-assembly of *B. mori*:

![Figure S3](image1)

**Figure S3:** (A) Low- and (B) high-magnification SEM images of *B. mori* DLA architecture.

High resolution images of self-assembly of *Anthereae mylitta*:

![Figure S4](image2)

**Figure S4:** (A) Low- and (B) high-magnification SEM images of *A. mylitta* DLA architecture.
High resolution images of self-assembly of *A. assamensis*:

Figure S5: High-resolution optical micrograph of *A. assamensis*, showing single aggregates.

Figure S6: AFM images of (A) radially-branched features observed in Figure S5, and (B) aggregates observed at the contact line of the solvent-Si interface.
**Figure S7:** (A) Low- and (B) high-magnification SEM of *A. assamensis*, with nanorods visible at branch tips in (B).

**Figure S8:** Circular Dichroism (CD) to estimate secondary structure of the protein samples investigated. (A) Bombyx Mori (B)
<table>
<thead>
<tr>
<th>Sericin Sample</th>
<th>α Helix (%)</th>
<th>β Sheet (%)</th>
<th>β Turn (%)</th>
<th>Random Coil (%)</th>
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<td>32.4</td>
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<td>23.6</td>
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<td>A. assamensis</td>
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</tbody>
</table>

**Table S1:** Tabulated results from DichroWeb’s SELCON3 secondary structure analysis at 178-260 nm.