Supporting Information

Detergent-mediated formation of β-hematin:

Heme crystallization promoted by detergents implicates nanostructure formation for use as a biological mimic

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Supporting Information

SI 1: Kinetic curves of detergent-mediated β-hematin formation

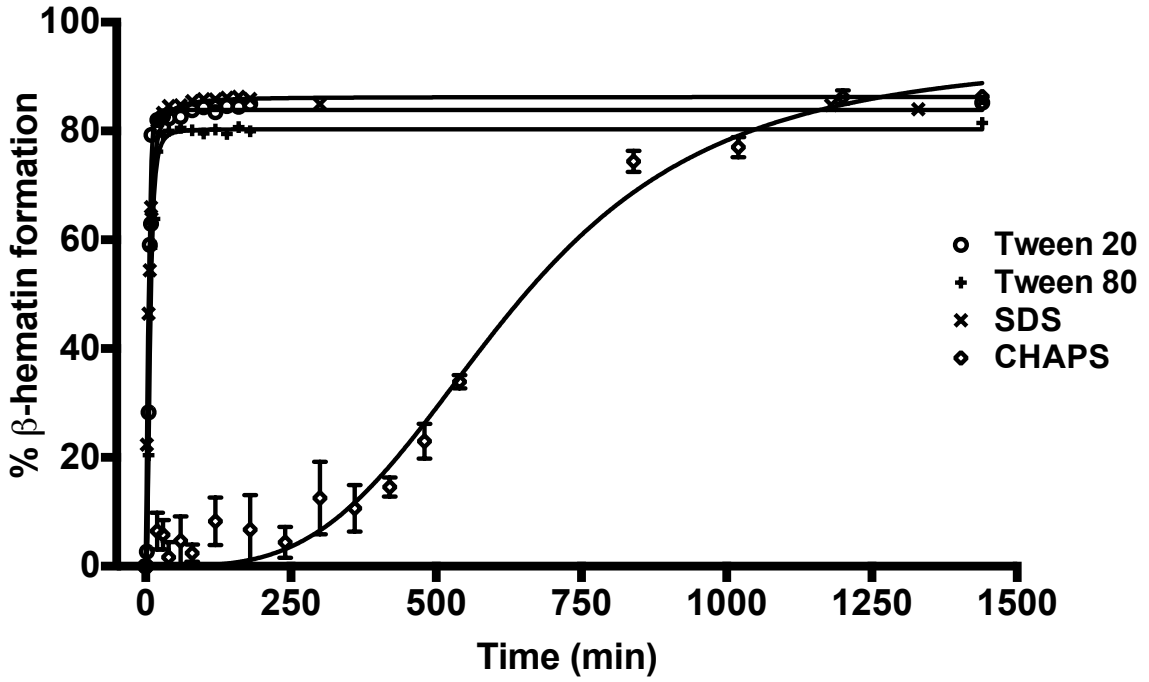

Figure SI1. The detergent-mediated $t_{1/2}$ of β-hematin formation calculated through the pyridine-ferrochrome method following incubation of a 50-μM heme solution with each detergent at 50 μM. Samples were incubated at 37°C, and pH 4.8 while shaking with triplicate aliquots removed at regular time intervals. The average half-lives with standard deviation were calculated using the sigmoidal dose-response (variable slope) analysis on GraphPad Prism v5.0.

SI 2: XRD patterns of β-hematin products formed by various detergents

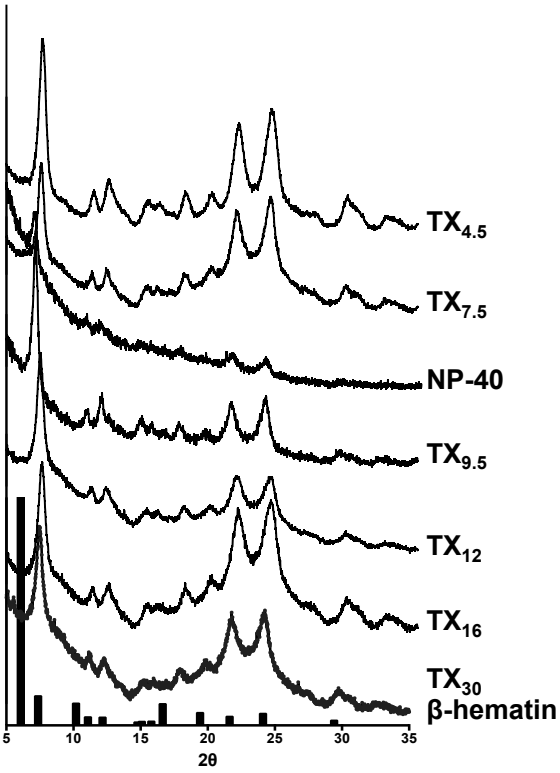

Figure SI2: XRD patterns of the β-hematin products obtained through incubation of heme with NP-40 and the Triton-X series of detergent mediators. The XRD pattern of β-hematin synthesized by the aqueous acid-catalyzed method by Slater et al. is shown in the black bars.[33]

SI3: TEM images of β-hematin products formed by various detergents

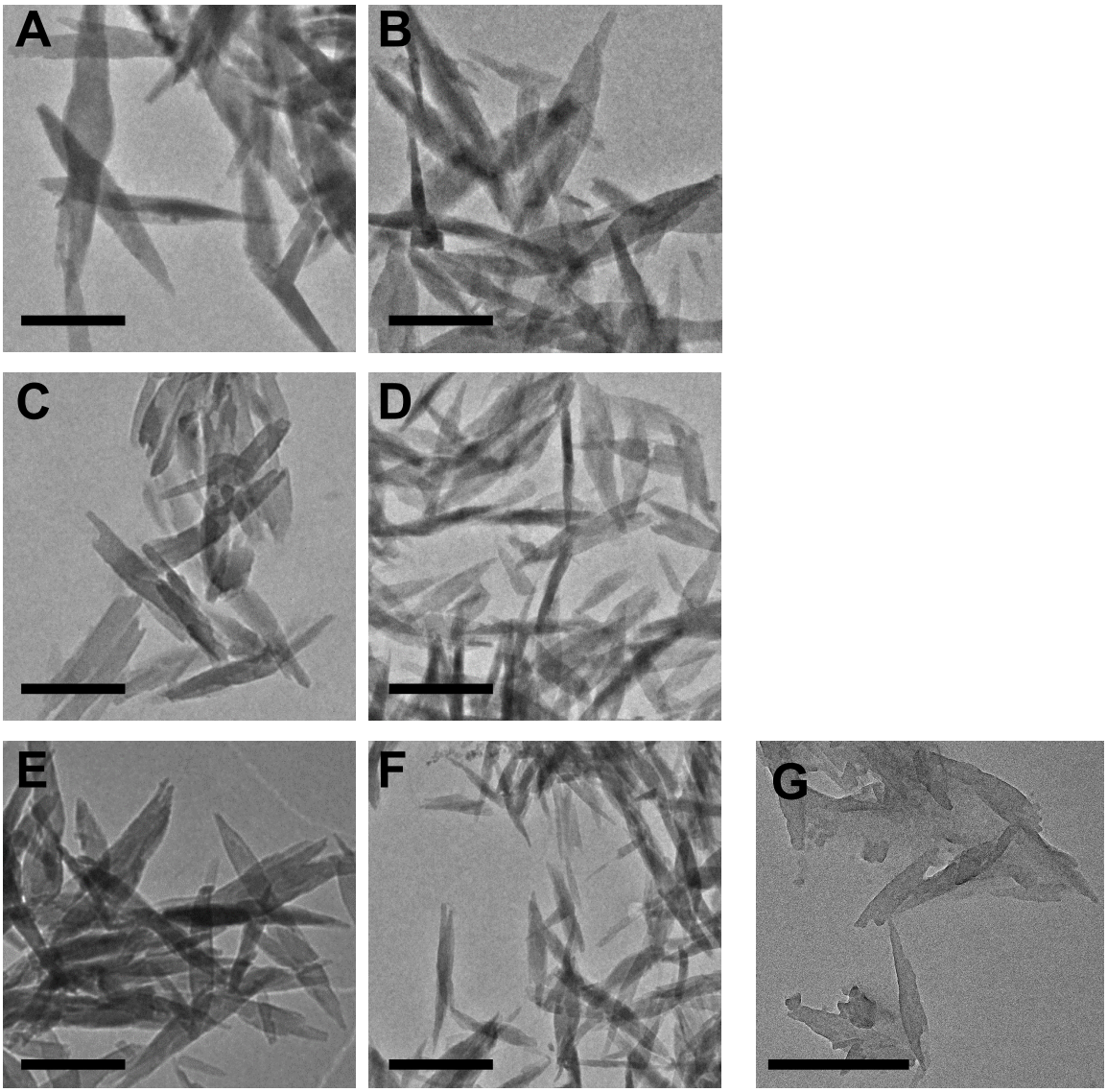

Figure SI3: The external morphology of product obtained from incubation of heme with (A) $TX_{4.5}$ (B) $TX_{7.5}$ (C) $TX_{9.5}$ (D) TX_{12} (E) TX_{16} (F) TX_{30} and (G) NP-40 at 37 ^{0}C and pH 4.8 reveal well-formed crystals that resemble hemozoin. Scale bar is 500 nm.

SI4: TEM images of NP-40 and Triton X-305 detergent aggregates

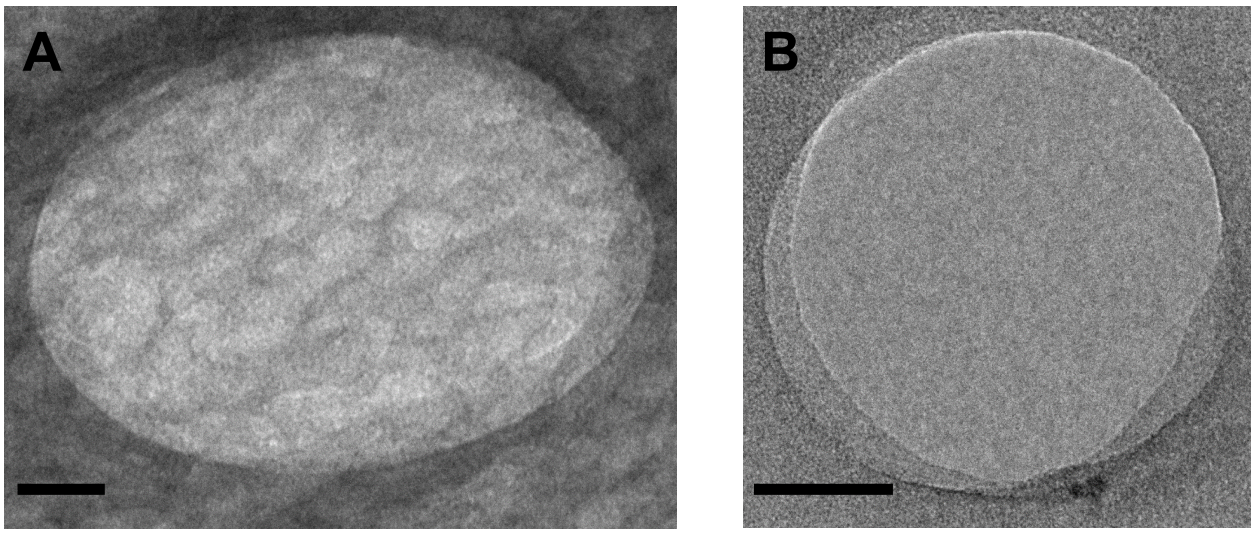

Figure SI4. TEM images of (A) NP-40 and (B) Triton X-305 detergent aggregate structures. Scale bars are 50 nm.

SI5: Avrami kinetics of β-formation by Triton X-45 and Triton X-305

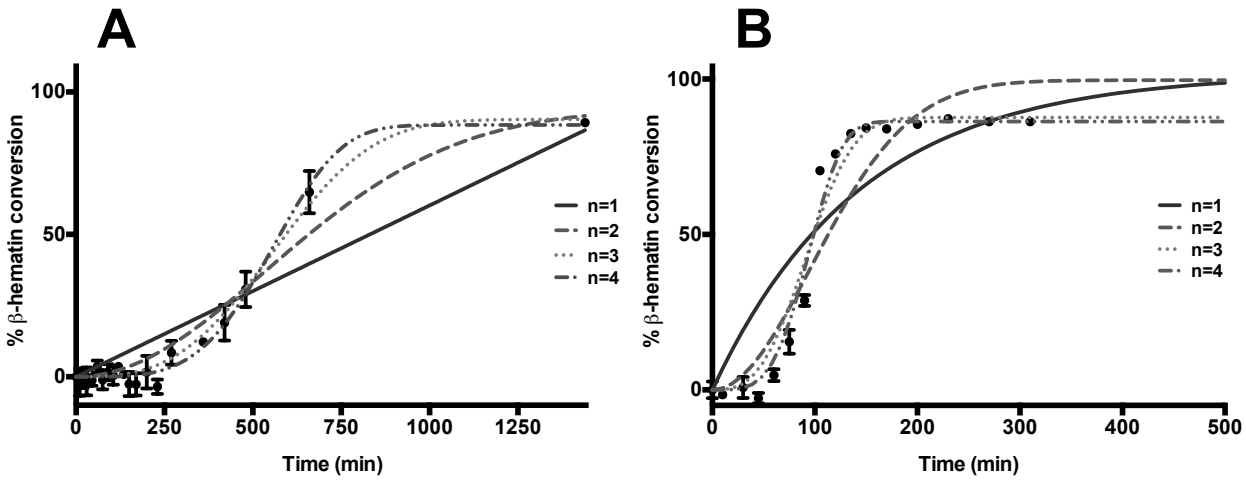

Figure SI5. The kinetics data were fit to the Avrami equation. β-hematin formation mediated by (A) $TX_{4.5}$ and (B) TX_{30} exhibited best fit to $n = 4$. n=1 ($r^2 = 0.85, 0.80$), n =2 ($r^2 = 0.95, 0.90$), n = 3 ($r^2 = 0.989, 0.97$) and $n = 4$ ($r^2 = 0.99, 0.99$) with r^2 listed for $TX_{4.5}$ and TX_{30}, respectively.