

Description of Additional Supplementary Files

File name: Supplementary Data 1

Description: Extensive structural analysis. a) Analysis of dimer, decamer and, when applicable, stack interfaces in *P. stuartii* Adc isolated and stacked decamers, *E. coli* Adc decamers and *E. coli* Ldcl stacked decamers. b) Extensive characterisation of charged residues at various packing interfaces for *P. stuartii* Adc, *E. coli* Adc and *E. coli* Ldcl. c) Changes in protein charge, free energy of folding and normalised free energy of folding as a function of pH.

File name: Supplementary Data 2

Description: Conservation of the stack forming residues in *P. stuartii* and *P. rettgeri*

File name: Supplementary Data 3

Description: Source data for Figure 1d

File name: Supplementary Data 4

Description: Source data for Figure 4