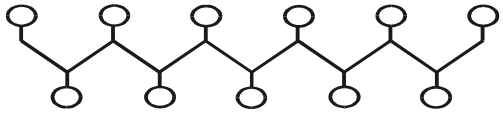
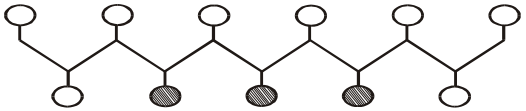
Supporting information for Aggeli *et al.* (2001) *Proc. Natl. Acad. Sci. USA* **98** (21), 11857–11862. (10.1073/pnas.191250198)

Table 1. Comparative molecular parameters and macroscopic properties of the aqueous solutions of the two *de novo* designed self-assembling β-tape-forming peptides P_{11}-I and P_{11}-II, shown schematically in a β-strand conformation.

	Peptide P_{11}-I 					
	β-Tapes	**Ribbons**	**Fibrils**	**β-Tapes**	**Ribbons**	**Fibrils**
c_{cr} / μM	8*	1,000*	c > 25,000*	< 90*	90*	700 ± 200*
ε_{trans}		6.5 ± 1.5			3 ± 1	
ε_{tape}	31.0 ± 1.5			24.5 ± 1.0		
ε_{ribbon}		$(3.5\pm1.5)10^{-3}$			0.6 ± 0.3	
ε_{fibril}			$< 10^{-3}$			$(2.0 \pm 0.3)10^{-4}$
Pitch h / nm	30 ± 15*	50 ± 20*			160 ± 40	160 ± 40*
Twist angle γ_θ/°	3*	3*		1	1	1*
Bend angle γ_v/°	3*	0*			0*	0*

$\tilde{l}$ **/** μm	< 0.3*	0.6 ± 0.2*		1.0 ± 0.3*	20–70*
L / μm **(** ***c*** **= 6 mM)**	10^{-1}	$10^{-1} – 10^{0}$	10^{-3}	10^{0}	10^{17}
Properties of aq. solution	Isotropic fluid (c < 13 mM) Nematic fluid / gel (c >13 mM)		Isotropic fluid (c < 0.9 mM) Nematic fluid ($c \approx$ 0.9 – 6 mM) Nematic gel (c > 6 mM)		

Open and filled circles represent polar and apolar amino-acid residues, respectively. The upper side of the β-strand is identical for both peptides. c_{cr} is the threshold concentration above which the corresponding type of self-assembling structure emerges in substantial quantities. For explanation of the various energetic parameters ε_j, see the text and Fig.1*A*. All values of ε_j are given in $k_B T$. The errors in the values of ε_j arise from the errors in the value of v_{tape}, and from the uncertainty of measurements of the real lengths of the polymers in solution at a given concentration. The values of ε_{trans} and ε_{tape} for both peptides, and ε_{ribbon} for P_{11}-II are received from the fits of the self-assembly curves (Figs. 2*c* in the text and 4*c* in supporting information), and the observed tape/ribbon lengths, with $v_{tape} \approx 5 \cdot 10^{-6}$ nm^3 (this value is estimated from the observed persistence lengths of the ribbons). ε_{fibril} is estimated from c_{cr}^{fibril} and ε_{ribbon} for P_{11}-I from the corresponding c_{cr}^{ribbon}. $\tilde{l}$, h, γ_v, and γ_θ are either directly measured from electron micrographs or calculated with the help of the model similar to Fig.1*B*. Elastic constants are estimated from the observed persistence lengths of ribbons and fibrils. The contour lengths L agree with both the data and the predictions of the theory (see *Theoretical Model* in the text). Directly measured constants are indicated with an asterisk.