

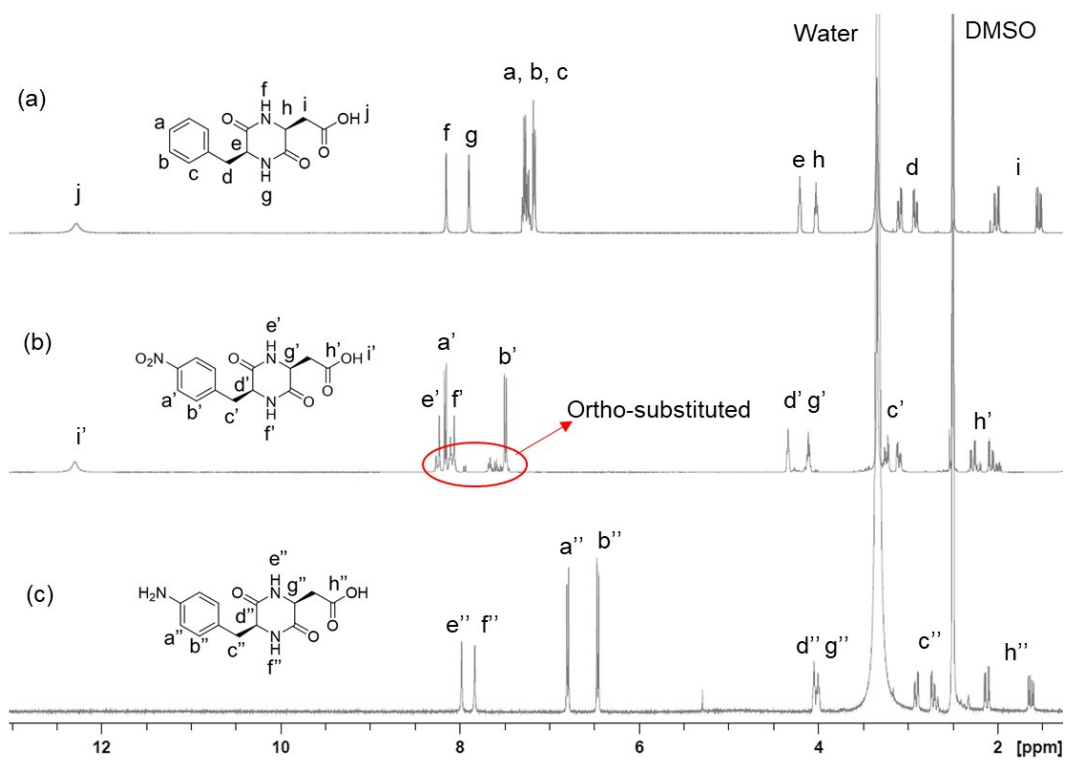
Supporting Information

# Synthesis and solvent-controlled self-assembly of diketopiperazine-based polyamides from aspartame

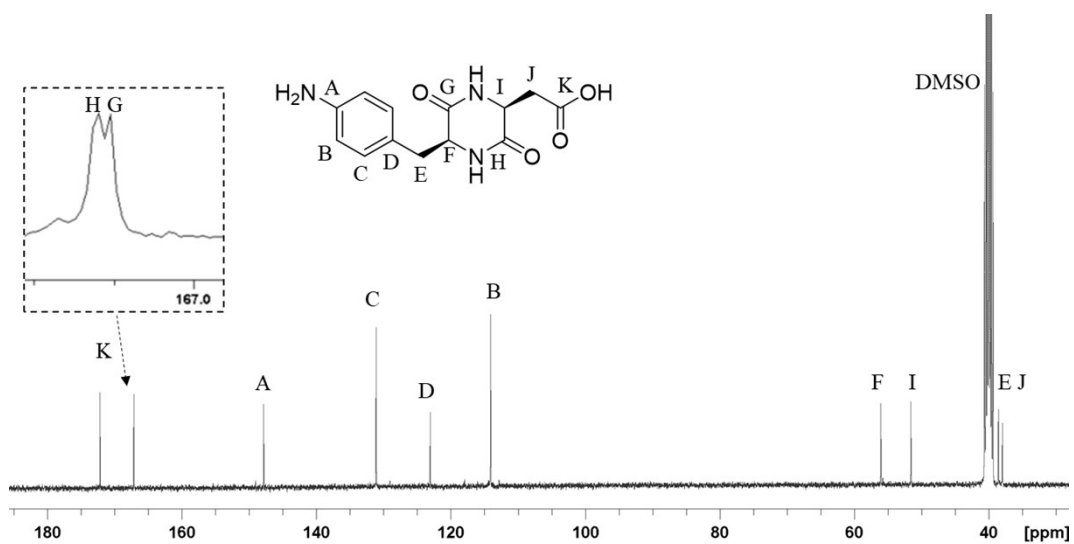
*Hongrong Yin<sup>‡</sup>, Kenji Takada<sup>‡</sup>, Amit Kumar<sup>‡</sup>, Thawinda Hirayama<sup>§</sup>, and Tatsuo  
Kaneko<sup>‡\*</sup>*

<sup>‡</sup> Energy and Environment Area, Japan Advanced Institute of Science and Technology,  
1-1 Asahidai, Nomi, Ishikawa 923-1292, Japan

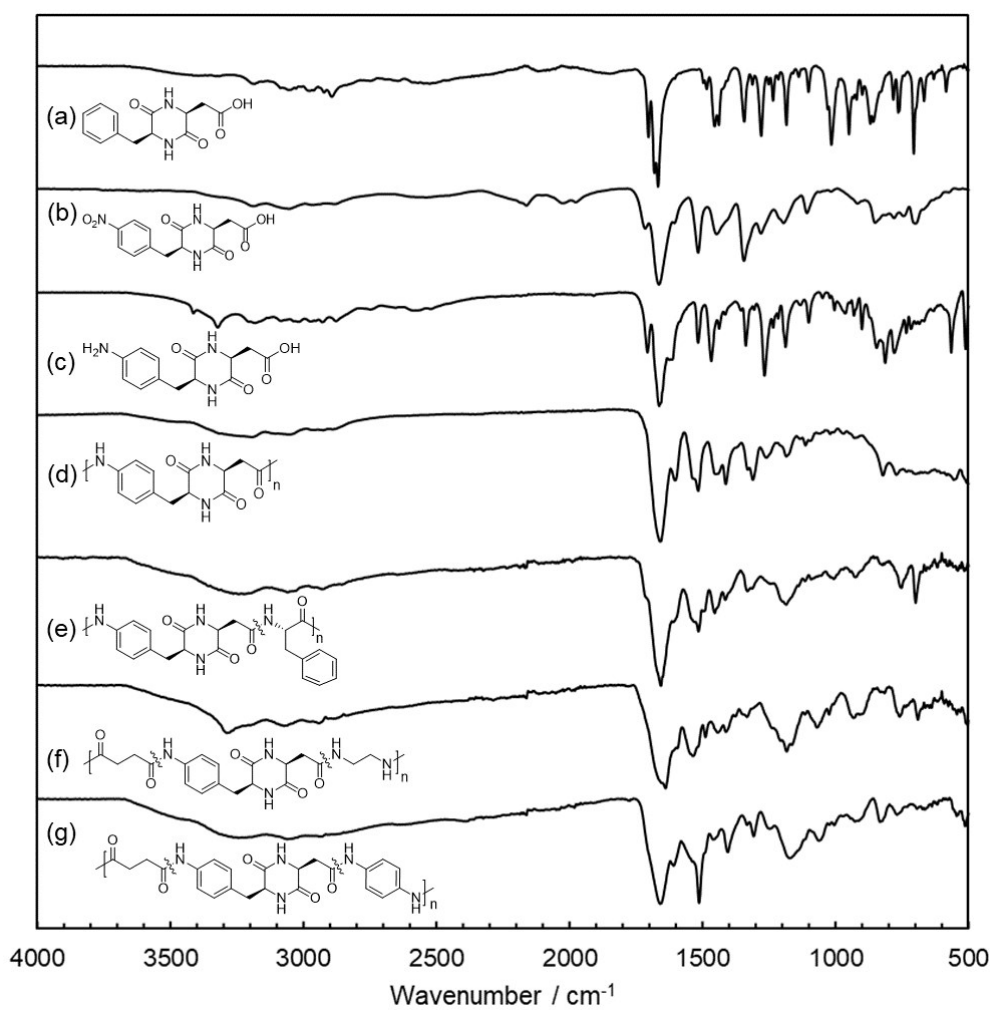
<sup>§</sup> Department of Chemistry, Faculty of Science, Chulalongkorn University,  
254 Phayathai Road, Pathumwan, Bangkok 10330, Thailand



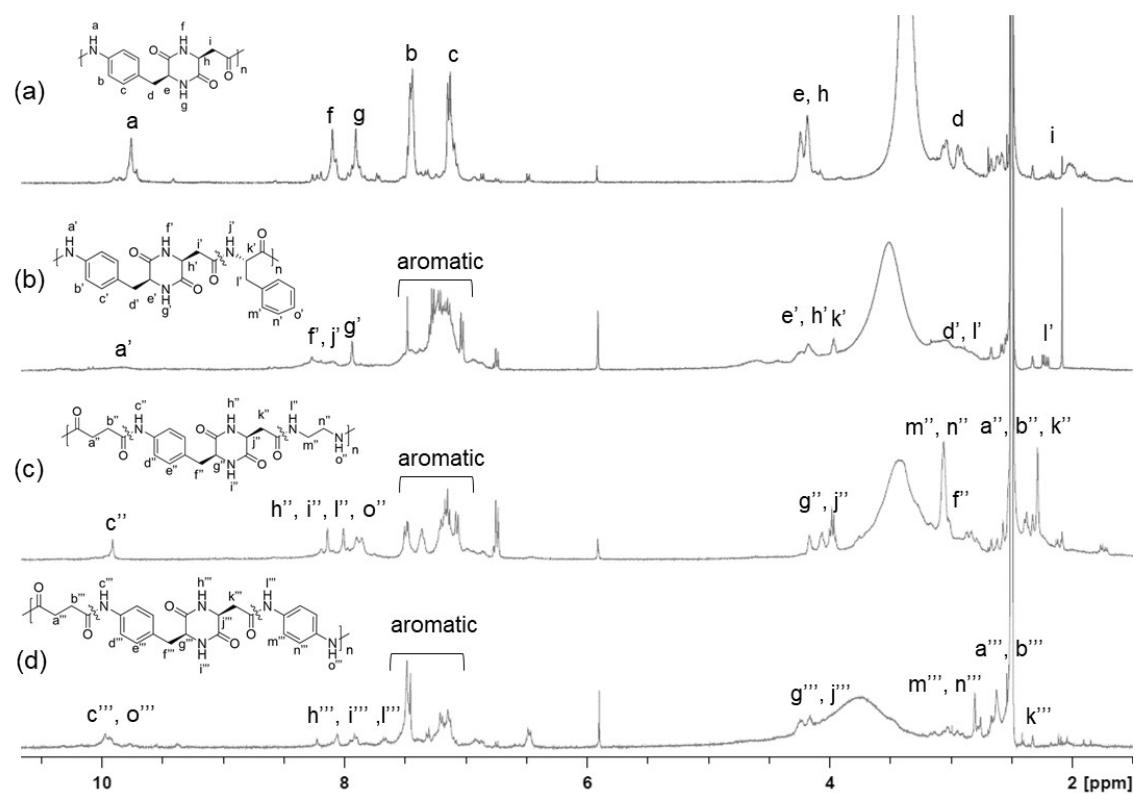
**Figure S1.**  $^1\text{H}$  NMR spectra of (a) APM-DKP, (b) NDKP, and (c) ADKP in  $\text{DMSO-}d_6$ .



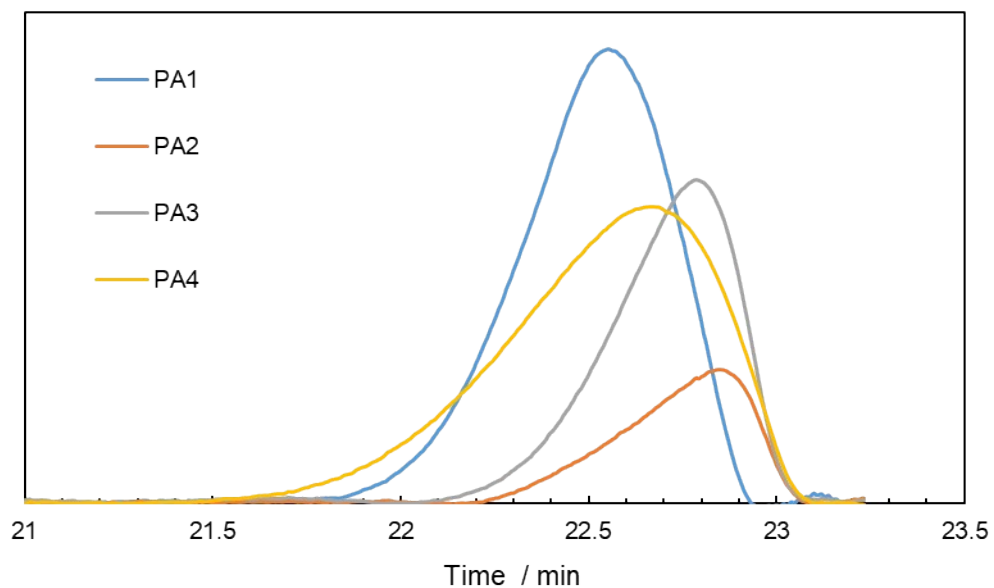
**Figure S2.**  $^{13}\text{C}$  NMR spectrum of ADKP.



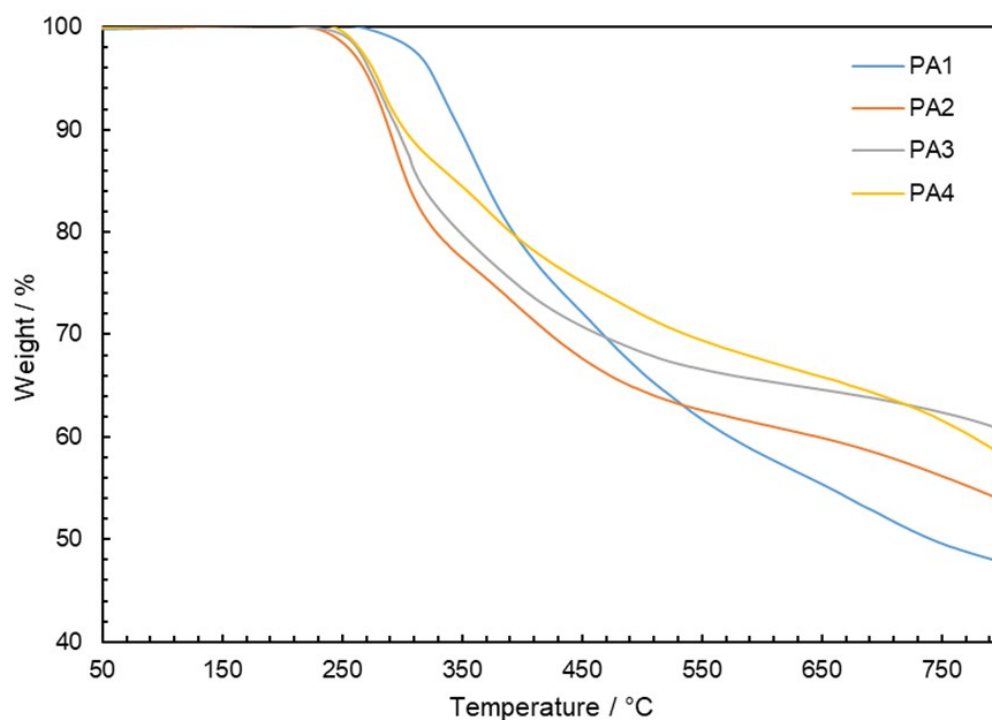
**Figure S3.** FT-IR spectra of (a) APM-DKP, (b) NDKP, (c) ADKP and (d) PA1, (e) PA2, (f) PA3, (g)PA4.



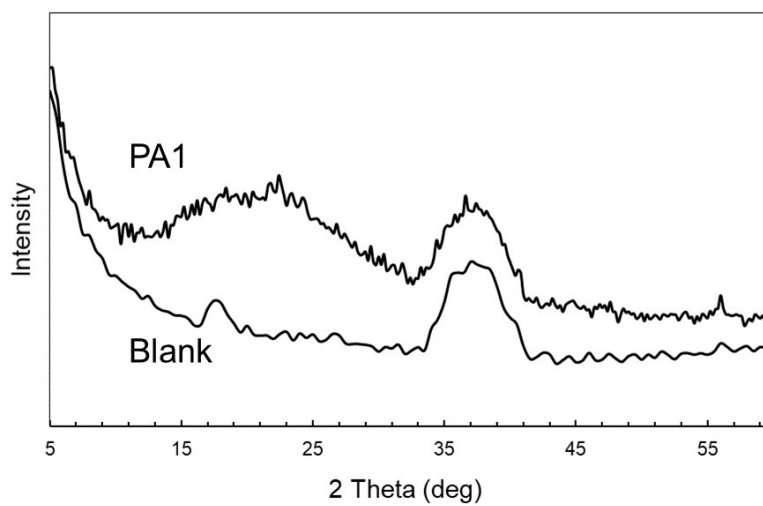
**Figure S4.**  $^1\text{H}$  NMR spectra of (a) PA1, (b) PA2, (c) PA3 and (d) PA4 in  $\text{DMSO-}d_6$



**Figure S5.** GPC traces of the obtained PA1-4 (solvent, 0.01 mol/L LiBr DMF; flow rate, 1.0 mL/min).



**Figure S6** TGA curves of PAs.



**Figure S7.** XRD spectrum of PA1 and substrate blank

	Water	Methanol	Ethanol	THF	Toluene	Ethyl acetate	Acetone	DMSO	DMF	DMAc	NMP	Con. H <sub>2</sub> SO <sub>4</sub>
PA1	-	±	-	-	-	-	-	+	+	+	+	+
PA2	-	±	-	-	-	-	-	+	+	+	+	+
PA3	-	±	-	-	-	-	-	+	+	+	+	+
PA4	-	±	-	-	-	-	-	+	+	+	+	+

**Table S1.** Solubility of PAs <sup>a</sup>

<sup>a</sup> Conditions; samples, 10 mg; solvent, 2 ml; temperature, r.t.; +, soluble; ±, partially soluble; -, insoluble.