dicating that it exists in the β-sheet structure in the solid state. Raman studies[2] of shorter oligomers in the presence of a significant fluorescent background also found that these existed in a β-sheet structure. In contrast, the spectrum of PLA-40 reveals that amide I has shifted considerably to lower frequency, indicating that PLA-40 contains a significant amount of α-helical structure. This becomes clear in the PLA-330 spectrum where amide I is found at 1655 cm^{-1} since it is known from X-ray measurements that polypeptides which exist in the α-helical conformation have amide I bands at this position. Confirmation of these results have been obtained in the far infrared region of the spectrum where low frequency motions characteristic of α-helical and β-sheet structure are found. As shown in Figure 4, strong bands at 440 and 240 cm^{-1} characteristic of β structure are found in PLA-10, whereas the spectrum of PLA-40 is dominated by features at 375, 335, and 120 cm^{-1} attributable to the α-helical conformation.[8]

Hence, it becomes clear that the secondary structure of oligopolypeptides depends on the sequence length. In relatively short lengths (5–10 units), a β-sheet structure is preferred. However, as the sequence length increases, there is a definite preference energetically for the conformation to adopt that of an α-helix. Certainly by the time the chain length has increased to 40 units, a significant amount of α-helical content is present.

Thus, it is apparent that the FT Raman technique can provide important structural information on biomolecules whose spectra were previously unattainable due to the presence of fluorescence. However, it also continues to show considerable promise for investigating biologically relevant materials which contain chromophores as an intrinsic part of their structure and hence degrade when exposed to visible light.

Registry No. Poly(L-alanine), 25191-17-7; poly(L-alanine), SRU, 25213-34-7.

References and Notes

(1) Koenig, J. L.; Sutton, P. L. *Biopolymers* **1969**, *8*, 167.
(2) Sutton, P.; Koenig, J. L. *Biopolymers* **1970**, *9*, 615.
(3) Hirschfeld, T.; Chase, D. B. *Appl. Spectrosc.* **1986**, *40*, 1079.
(4) Zimba, C. G.; Hallmark, V. M.; Swalen, J. D.; Rabolt, J. F. *Appl. Spectrosc.* **1987**, *41*, 721.
(5) Moller, K. D.; Rothschild, W. G. *Far Infrared Spectroscopy*; Wiley: New York, 1971.
(6) Williams, R. W.; McIntyre, J. O.; Gaber, B. P.; Fleischer, S. *J. Biol. Chem.* **1986**, *261*, 14520.
(7) Fanconi, B. *Biopolymers* **1971**, *12*, 2759.
(8) Shotts, J.; Sievers, A. J. *Biopolymers* **1974**, *13*, 2593.

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CORRECTION

Yoshiyuki Nishio and R. St. John Manley*: Cellulose/Poly(vinyl alcohol) Blends Prepared from Solutions in *N,N*-Dimethylacetamide–Lithium Chloride. Volume 21, Number 5, May 1988, p 1270.

The caption of Figure 1c should read: 70/30 cellulose/PVA.

Table I, as printed in the May, 1988, issue, contained errors in the heading of the columns. The correct version of the table is as follows:

Table I
Melting Temperature T_m, Crystallization Temperature T_c, Glass Transition Temperature T_g, Heat of Fusion ΔH_f, and Heat of Crystallization ΔH_c of Cellulose/PVA Blends, Measured by DSC

cellulose/PVA, w/w	1st heating		2nd heating			cooling	
	T_m, °C	ΔH_f, cal/g	T_g, °C	T_m, °C	ΔH_f, cal/g	T_c, °C	$-\Delta H_c$, cal/g
0/100	229.8	24.2	80	230.1	18.7	195.9	17.5
10/90	227.2	19.2 (21.3)[d]	82	226.8	14.7 (16.3)[d]	191.5	12.7 (14.1)[d]
20/80	226.6	16.1 (20.1)	83	224.5	12.4 (15.5)	182.8	10.9 (13.6)
30/70	223.5	11.4 (16.2)	85	220.3	9.4 (13.4)	174.1	7.7 (11.0)
40/60	222.5	7.6 (12.6)	87	212.9	6.2 (10.3)	164.3	4.6 (7.7)
50/50	217.7	4.8 (9.6)	90	205.6	4.0 (8.0)	158.4	2.6 (5.2)
60/40	211.5	3.0 (7.5)	~90[e]	197.0	2.0 (5.0)	143.7	NE
70/30	NE[b]	NE	ND	~189[e]	NE	NE	~0
80/20	NE	~0	ND	NE	~0	ND	
90/10	ND[c]		ND	ND		ND	
100/0	ND		ND	ND		ND	
70/30[a]	229.3	6.9 (23.0)	83	226.5	5.3 (17.7)	not tested	
80/20[a]	229.5	3.8 (19.0)	80	228.0	3.1 (15.5)	not tested	

[a] Mechanical mixture of both polymers as a fine powder. [b] NE = could not be estimated. [c] ND = not detected. [d] Based on weight of PVA. [e] Estimated with great uncertainty.