Total Synthesis of Cochleamycin A

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Supporting Information Part II - NMR Spectra

Tatsuta synthetic 1

Comparison of ^1H NMR Spectra of Cochleamycin A

Signal	Natural Sample (lit.) ¹	Tatsuta (lit.) ²	Roush
H1	4.88 (ddd, J = 7.5, 4.5, 2.4)	4.90 (dddd, J = 7.5, 4.5, 3.0, 1.0)	4.89 (ddd, J = 7.5, 4.5, 2.4)
H5	6.77 (d, J = 11.3)	6.79 (d, J = 11.5)	6.78 (d, J = 11.4)
H6	3.30 (ddd, J = 11.3, 5.6, 2.4)	3.34 (ddd, J = 11.5, 5.5, 2.5)	3.33 (ddd, J = 11.2, 5.6, 2.4)
H7	2.72 (dddd, J = 10.0, 7.0, 7.0, 2.4)	2.74 (dddd, J = 10.0, 7.0, 6.5, 2.5)	2.74 (app. q., J = 7.1)
H8	1.68 (overlap)	1.68 (ddd, J = 14.0, 9.5, 6.5)	1.68-1.74 (m)
	1.70 (overlap)	1.70 (ddd, J = 14.0, 10.0, 10.0)	1.68-1.74 (m)
H9	2.05 (overlap)	2.16 (dddq, J = 10.0, 9.5, 4.0, 6.5)	2.18-2.14 (m)
H10	4.94 (d, J = 3.8)	4.96 (dd, J = 4.0, 0.0)	4.95 (d, J = 3.9)
H11	2.84 (m)	2.83-2.87 (m)	2.85-2.86 (m)
H12	5.63 (ddd, J = 10.0, 3.0, 3.0)	5.70 (ddd, J = 10.0, 3.0, 3.0)	5.69 (dt, J = 10.3, 3.2)
H13	5.91 (ddd, J = 10.0, 2.4, 2.4)	5.91 (ddd, J = 10.0, 2.0, 2.0)	5.91 (d, J = 10.3)
H14	2.92 (m)	2.91-2.96 (m)	2.93 (br. s)
H15	1.69 (overlap)	1.71 (ddd, J = 17.0, 0.0, 0.0)	1.68-1.74 (m)
	1.97 (ddd, J = 16.8, 6.8, 6.8)	1.98 (ddd, J = 17.0, 7.0, 6.5)	1.98 (dt, J = 16.8, 6.8)
H16	3.62 (ddd, J = 16.8, 6.8, 2.4)	3.63 (dddd, J = 11.5, 6.5, 1.5, 0.0)	3.63 (dd, J = 11.2, 7.1)
H17	1.78 (ddd, J = 15.5, 2.4, 2.4)	1.78 (ddd, J = 15.0, 3.0, 1.5)	1.79 (br. d = 15.1)
	2.48 (ddd, J = 15.5, 11.8, 4.5)	2.50 (dddd, J = 15.0, 1.5, 4.5, 1.0)	2.50 (ddd, J = 15.9, 11.7, 4.9)
H18	2.66 (d, J = 19.0)	2.66 (dd, J = 19.0, 1.0)	2.66 (d, J = 18.8)
	3.11 (dd, J = 19.0, 7.5)	3.12 (ddd, J = 19.0, 7.5, 1.0)	3.12 (dd, J = 18.8, 7.3)
H20	0.92 (d, J = 7.0)	0.92 (d, J = 6.5)	0.92 (d, J = 6.8)
H22 (OAc)	2.08 (s)	2.08 (s)	2.08 (s)

Comparison of ^{13}C NMR Spectra of Cochleamycin A

Carbon	Natural Sample (lit.) ¹	Roush
1	72.8	72.7
3	165.7	165.6
4	136.1	136.1
5	154.0	156.6
6	40.6	40.7
7	35.6	35.6
8	34.9	34.9
9	35.5	35.5
10	82.2	82.1
11	42.5	42.5
12	128.6	128.6
13	128.6	128.4
14	34.5	34.9
15	41.1	41.2
16	66.5	66.7
17	45.6	45.7
18	41.1	41.2
19	194.2	194.2
20	13.9	14.0
21	170.9	170.8
22	21.1	21.2

¹Shindo, K.; Iijima, H.; Kawai, H. *J. Antibiot.* **1996**, *49*, 244-247.

²Tatsuta, K.; Narazaki, F.; Kashiki, N.; Yamamoto, J.; Nakano, S. *J. Antibiot.* **2003**, *56*, 584-590.