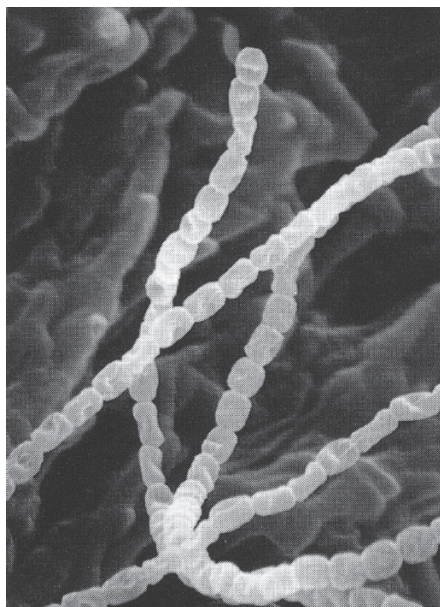


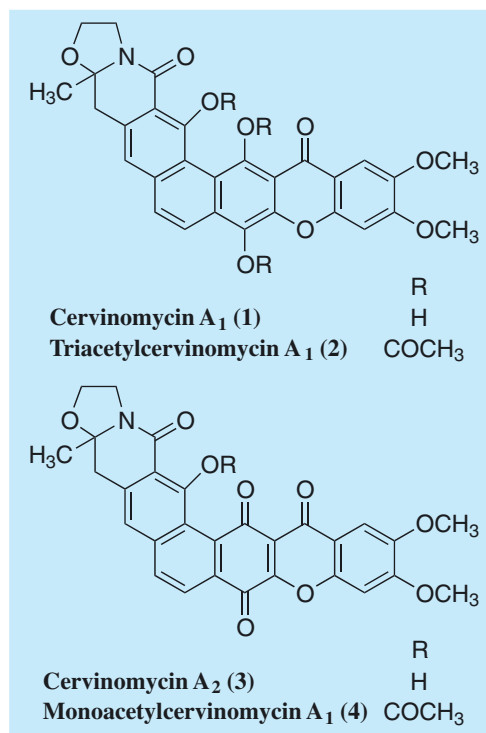
Cervinomycin

1. Discovery, producing organism and structures¹⁻³⁾

Cervinomycins A₁ and A₂ were isolated from the culture broth of the actinomycete strain AM-5344^T while screening for antimycoplasmal antibiotics. They were found to be active against anaerobic bacteria at low concentrations. The total synthesis of cervinomycins A₁ and A₂ has been reported by several groups (See Appendix-I).



Streptomyces cervinus AM-5344^T



2. Physical data (Cervinomycin A₁)

Yellow powder. C₂₉H₂₃NO₉; mol wt 529.51. Sol. in DMSO, MeOH, CHCl₃, benzene. Insol. in H₂O, hexane.

3. Biological activity^{1,4)}

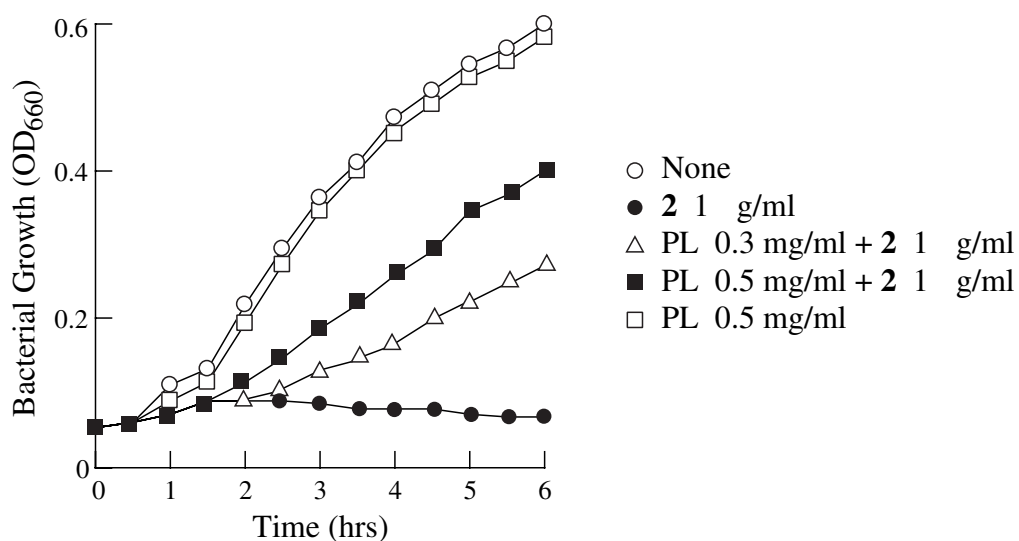
Antimicrobial activity

Test organism	Medium	MIC (μg/ml)			
		1	2	3	4
<i>Staphylococcus aureus</i> ATCC 6538P	I	0.78	<0.025	1.56	0.05
<i>Bacillus subtilis</i> ATCC 6633	I	0.05	<0.025	0.2	0.05
<i>Micrococcus luteus</i> ATCC 9341	I	0.39	<0.025	1.56	<0.025
<i>Escherichia coli</i> NIHJ JC-2	I	>25	6.25	>25	>25
<i>Klebsiella pneumoniae</i> ATCC 10031	I	>25	>25	>25	>25
<i>Proteus vulgaris</i> IFO 3167	I	>25	>25	>25	>25
<i>Pseudomonas aeruginosa</i> IFO 3080	I	>25	>25	>25	>25
<i>Clostridium perfringens</i> ATCC 13124	II	0.05	0.025	0.1	0.1
<i>Eubacterium limosum</i> ATCC 8468	II	0.1	0.05	0.1	0.1
<i>Peptococcus prevotii</i> ATCC 9321	II	0.2	0.1	0.2	0.39
<i>Streptococcus mutans</i> RK-1	II	0.05	0.025	0.39	0.2
<i>Bacteroides fragilis</i> ATCC 23745	II	0.78	0.1	1.56	0.78
<i>Fusobacterium varium</i> ATCC 8501	II	>25	>25	>25	>25
<i>Veillonella alcalescens</i> ATCC 17745	II	>25	>25	>25	>25
<i>Mycoplasma gallisepticum</i> S-6	III	1.56	0.39	12.5	0.2
<i>Acholeplasma laidlawii</i> PG8	III	1.56	0.2	12.5	0.2

I; Heart infusion agar (37°C, 20 hrs): II; GAM agar (37°C, 48 hrs, under anaerobic conditions): III; PPLO agar (37°C, 7 days)

4. Mode of action⁵⁾

Triacetylcervinomycin A₁ (**2**) interacted with phospholipids in the cytoplasmic membrane and interfered with membrane transport.



Recovery by phospholipids (PL) from the growth inhibition of *S. aureus* by **2**

5. References

1. [241] S. Ōmura *et al.*, *J. Antibiot.* **35**, 645-652 (1982)
2. [350] S. Ōmura *et al.*, *J. Am. Chem. Soc.* **108**, 6088-6089 (1986)
3. [364] A. Nakagawa *et al.*, *J. Antibiot.* **40**, 301-308 (1987)
4. [357] A. Nakagawa *et al.*, *J. Antibiot.* **39**, 1636-1638 (1986)
5. [408] H. Tanaka *et al.*, *J. Antibiot.* **42**, 431-439 (1989)