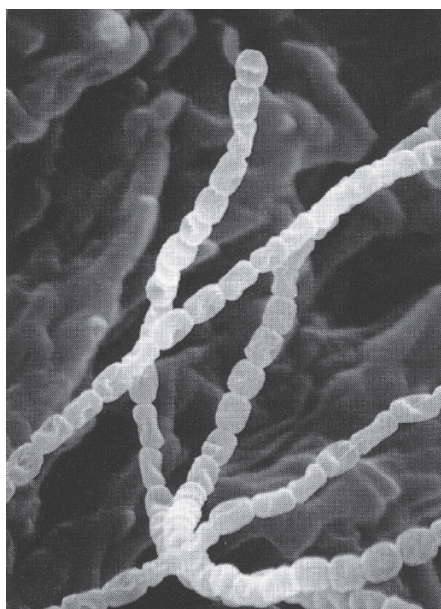


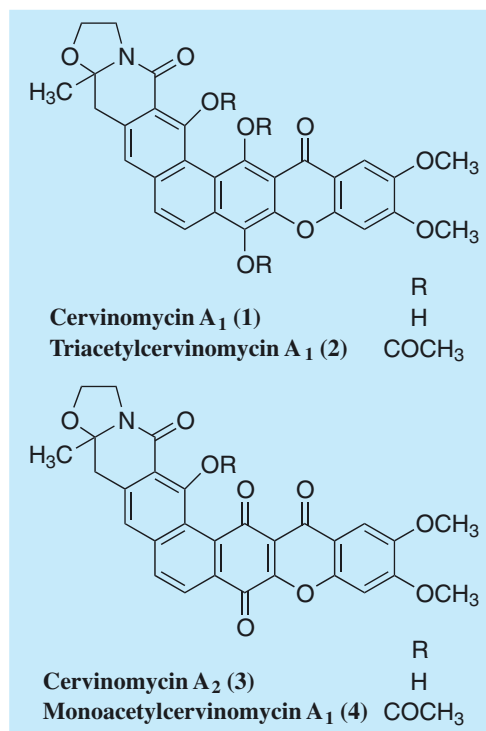
# Cervinomycin

## 1. Discovery, producing organism and structures<sup>1-3)</sup>

Cervinomycins A<sub>1</sub> and A<sub>2</sub> were isolated from the culture broth of the actinomycete strain AM-5344<sup>T</sup> while screening for antimycoplasmal antibiotics. They were found to be active against anaerobic bacteria at low concentrations. The total synthesis of cervinomycins A<sub>1</sub> and A<sub>2</sub> has been reported by several groups (See Appendix-I).



*Streptomyces cervinus* AM-5344<sup>T</sup>



## 2. Physical data (Cervinomycin A<sub>1</sub>)

Yellow powder. C<sub>29</sub>H<sub>23</sub>NO<sub>9</sub>; mol wt 529.51. Sol. in DMSO, MeOH, CHCl<sub>3</sub>, benzene. Insol. in H<sub>2</sub>O, hexane.

## 3. Biological activity<sup>1,4)</sup>

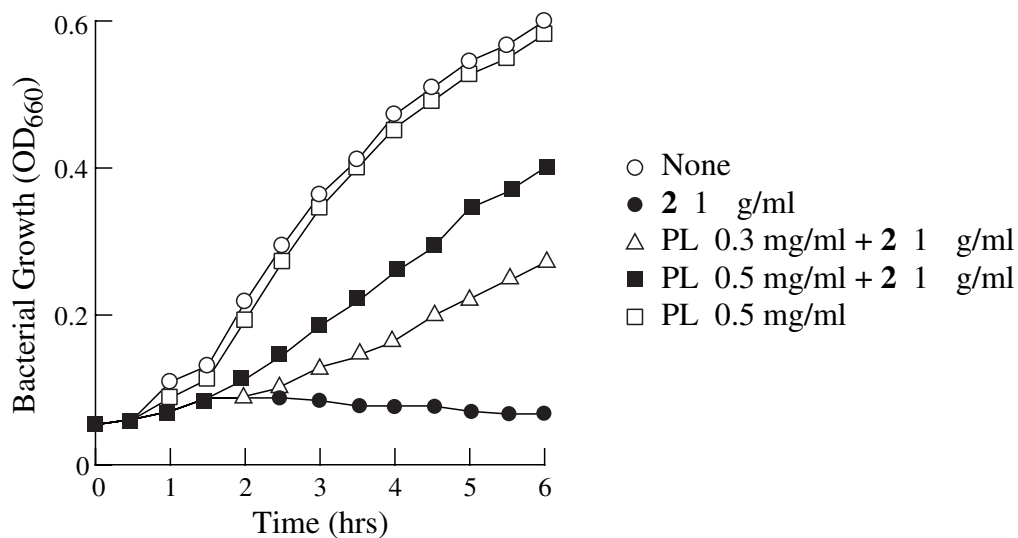
Antimicrobial activity

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 action<sup>5)</sup>

Triacetylcervinomycin A<sub>1</sub> (**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

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