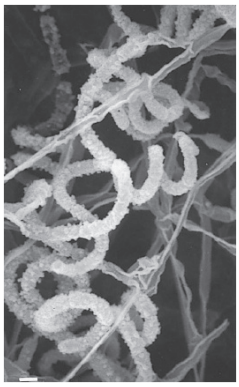
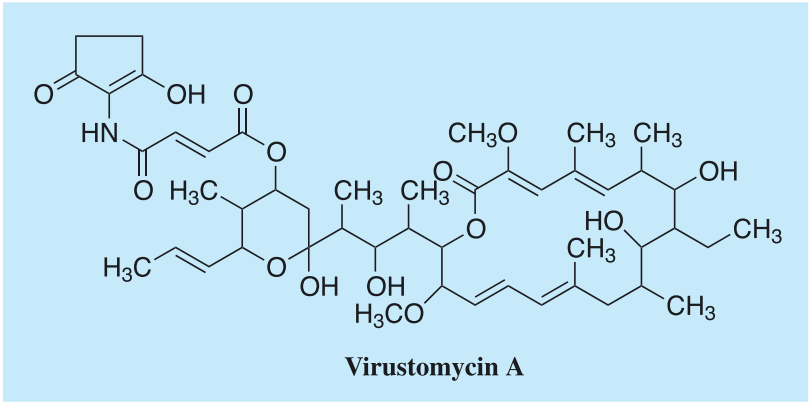
Virustomycin A ©

1. Discovery, producing organism[1] and structure[2]

Virustomycin A was isolated from the culture broth of the actinomycete strain AM-2604 and recognized by the plaque reduction method as an antiviral substance.



Streptomyces sp. AM-2604



Virustomycin A

2. Physical data[1,3]

Lipophilic pale-yellow needles. $C_{48}H_{71}NO_{14}$; mol wt 885.49. Sol. in $CHCl_3$, EtOAc, acetone. Slightly sol. in MeOH, EtOH. Insol. in H_2O, hexane.

3. Biological activity[1,2,4]

1) Virustomycin A diminished 50% of plaque formed by both RNA and DNA viruses at a very low concentration (3 ng/ml). The MIC of virustomycin A against *Trichomonas foetus* is 1.6 μg/ml.[1, 2]

2) Anti-trypanosomal activity[4]

Virustmycin showed anti-trypanosomal activity against *Trypanosoma b. brusei* GUTat 3.1 strain with IC_{50} of 0.45 ng/ml.

4. Mode of action[3]

Virustomycin A is believed to interfere with the formation of a phosphate donor(s), which is required for the organism nucleotide (UMP, UDP and UTP) formation.

Precursor	Virustomycin A added (μg/ml)	Nucleotide formed (% of control)					
		Uracil	Uridine	UMP	UDP	UTP*	Total nucleotide
[^{3}H]Uridine	0	100 (704cpm)	100 (1,175)	100 (3,365)	100 (5,789)	100 (6,589)	100 (15,743)
	0.1	103	90	30	48	35	38
	1.0	57	64	23	19	27	23
[^{3}H]Uracil	0	100 (3,050)	100 (13)	100 (2,625)	100 (5,168)	100 (8,505)	100 (16,298)
	0.1	83	72	63	53	60	58
	1.0	91	79	48	42	53	48

*Contains UDP-sugars

5. References

1. [255] S. Ōmura *et al*., *J*. *Antibiot*. **35**, 1632-1637 (1982)
2. [278] S. Ōmura *et al*., *J*. *Antibiot*. **36**, 1783-1786 (1983)
3. [276] S. Ōmura *et al*., *J*. *Antibiot*. **36**, 1755-1761 (1983)
4. [993] K. Otoguro *et al*., *J*. *Antibiot*. **61**, 372-378 (2008)