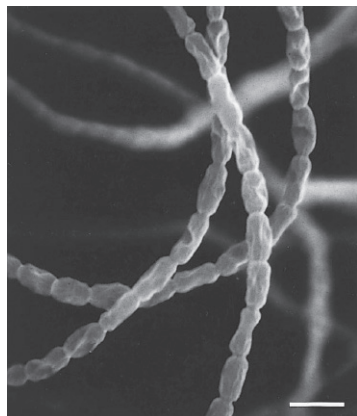


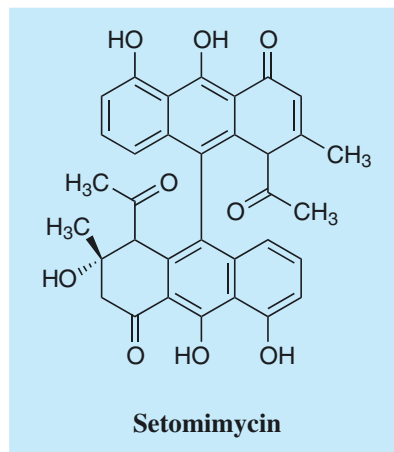
# Setomimycin

## 1. Discovery, producing organism and structures<sup>1,2)</sup>

Setomimycin was isolated from the culture broth of *Streptomyces pseudovenezuelae* strain AM-2947 and recognized as a new antibiotic with both antimicrobial and antitumor activity. The structure was elucidated by NMR analysis and biosynthetic studies<sup>2)</sup>.



*Streptomyces pseudovenezuelae* AM-2947



## 2. Physical data<sup>1)</sup>

Reddish orange powder. C<sub>34</sub>H<sub>28</sub>O<sub>9</sub>; mol wt 580.17. Sol. in MeOH, EtOH, acetone, CHCl<sub>3</sub>, benzene. Insol. in petroleum ether, hexane.

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

### 1) Antimicrobial activity

Test organism	MIC (μg/ml)*
<i>Staphylococcus aureus</i> FDA209P	3.1
<i>Bacillus subtilis</i> PCI219	3.1
<i>B. cereus</i> T	3.1
<i>Micrococcus luteus</i> PCI1001	1.6
<i>Mycobacterium smegmatis</i> ATCC 607	1.6
<i>Nocardia asteroides</i> KB 49	>100
<i>Escherichia coli</i> NIHJ	>100
<i>Pseudomonas aeruginosa</i> P-3	>100
<i>Candida albicans</i>	>100
<i>Aspergillus niger</i>	>100

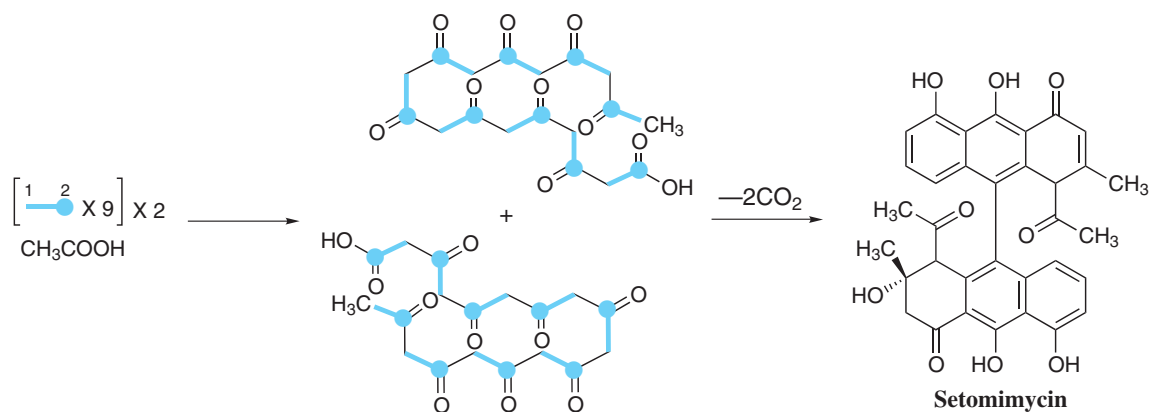
\* Nutrient agar for bacteria (37°C, 1 day) and potato-glucose agar for fungi (27°C, 2 days).

### 2) Antitumor activity

Setomimycin exhibits antitumor activity against a Sarcoma 180 solid tumor on ddY mice. Only one i.p. injection of 200 mg/kg after tumor transplantation reduced the size of tumor with a T/C value of 0.43 on day 7.

#### 4. Biosynthesis<sup>2)</sup>

The biosynthetic study was carried out using  $[1-^{13}\text{C}]$ - and  $[1,2-^{13}\text{C}_2]$  sodium acetate precursors. The labeling pattern was determined by the  $^{13}\text{C}$ - $^{13}\text{C}$  coupling constants with the aid of  $^{13}\text{C}\{^{13}\text{C}\}$  homonuclear decoupling experiments, concluding that homodimers of nonaketides *via* decarboxylation at each C-terminal connected in a “body-to-body” fashion forming the carbon skeleton.



#### 5. References

- [146] S. Ōmura *et al.*, *J. Antibiot.* **31**, 1091-1098 (1978)
- [202] K. Kakinuma *et al.*, *J. Am. Chem. Soc.* **102**, 7493-7498 (1980)