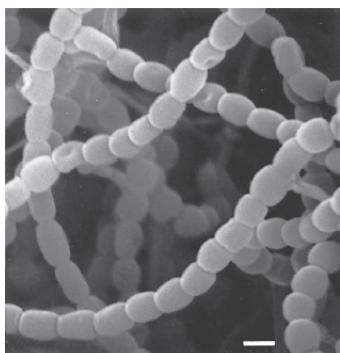


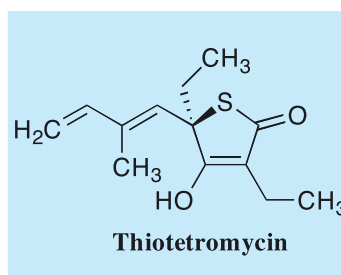
# Thiotetromycin

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

This compound was isolated from the culture broth of *Streptomyces* strain OM-674 while screening for antibiotics to combat anti-anaerobic bacteria. Thiotetromycin is an analog of thiolactomycin, which shows strong activity against *M. Tuberculosis* and is a potent FAS II inhibitor. The first total synthesis of (+)-Thiotetromycin was reported Brückner *et al.*<sup>3)</sup> (See Appendix1). The absolute stereochemistry of thiotetromycin was revealed by total synthesis.



*Streptomyces* sp. OM-674



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

C<sub>13</sub>H<sub>18</sub>O<sub>2</sub>S; mol wt 238.10. Sol. in MeOH, CHCl<sub>3</sub>, pyridine, EtOH.

## 3. Biological activity<sup>1,5,6)</sup>

### 1) Antimicrobial activity<sup>1)</sup>

Thiotetromycin exhibits selective activity against *Bacteroides fragilis*.

Test organism	MIC (μg/ml)
<i>Staphylococcus aureus</i> ATCC 6538P	100
<i>Bacillus subtilis</i> PCI 219	>100
<i>Mycobacterium smegmatis</i> ATCC 607	>100
<i>Salmonella typhimurium</i> 1	>100
<i>Eubacterium lentum</i> ATCC 2559	>100
<i>Bifidobacterium bifidum</i> ATCC 11146	>100
<i>Bacteroides fragilis</i> ATCC 23745	6.25
<i>Fusobacterium varium</i> ATCC 8501	>100

Bacteria: Sensitivity Disc Agar (Nissui); 37°C, 20 hrs.

### 2) Type II fatty acid synthase (FAS) inhibition<sup>1)</sup>

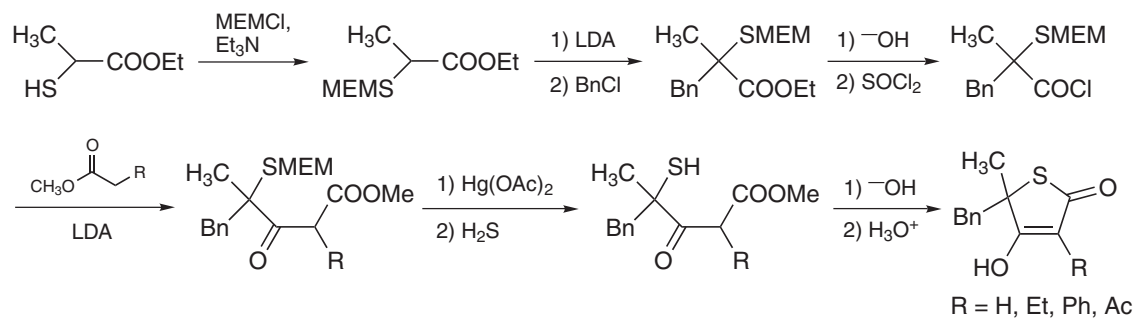
### 3) Anti-neuraminidase activity<sup>5)</sup>

Thiotetromycin showed anti-neuraminidase activity with IC<sub>50</sub> of 92 μM *in vitro*.

### 4) ATPase inhibitory activity<sup>6)</sup>

Thiotetromycin inhibited ATPase activity of troponin-tropomyosin-free myosin B.

#### 4. Synthesis of thiotetromycin analogs<sup>4)</sup>



#### 5. References

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