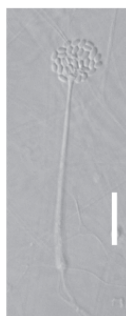


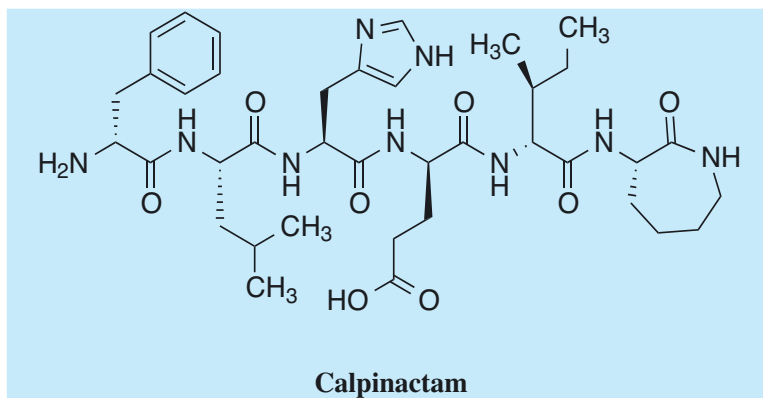
Calpinactam

1. Discovery, producing organism and structure¹⁻³⁾

Calpinactam was isolated from a culture broth of a fungal strain *Mortierella alpina* FKI-4905 and shown to be selective antimycobacterial agents. Calpinactam is a unique linear hexapeptide with a caprolactam ring at its C-terminal. Total synthesis of calpinactam was also achieved by Nagai *et al.*³⁾(See Appendix I).



Mortierella alpina FKI-4905
Bar: 10 μm



2. Physical data¹⁾

White powder. C₃₈H₅₇N₉O₈; mol wt 767.91. Sol. in DMSO, MeOH.

3. Biological Activity¹⁾

1) Antimycobacterial activity¹⁾

Calpinactam exhibits the growth of *Mycobacterium tuberculosis* with an MIC of 12.5 μg/ml in liquid microdilution method. Calpinactam also exhibits selective activity against *Mycobacterium smegmatis*.

2) Antimicrobial activity¹⁾

Calpinactam exhibited no bioactivity against organisms tested.

Test organism	Inhibition zone (mm) at 5 μg/6 mmdisk	
	Calpinactam	Isoniazid
<i>Staphylococcus aureus</i> ATCC6538P	–	–
<i>Bacillus subtilis</i> ATCC6633	–	–
<i>Micrococcus luteus</i> ATCC9341	–	–
<i>Mycobacterium smegmatis</i> ATCC607	22	31
<i>Esherichia coli</i> NIHJ	–	–
<i>Pseudomonas aeruginosa</i> IFO3080	–	–
<i>Xanthomonas campestris</i> KB88	–	–
<i>Acholeplasma laidlawii</i> KB174	–	–
<i>Pyricularia oryzae</i> KB180	–	–
<i>Aspergillus niger</i> ATCC9642	–	–
<i>Mucor racemosus</i> IFO4581	–	–
<i>Candida albicans</i> ATCC645648	–	–
<i>Saccharomyces cerevisiae</i> KF26	–	–

4. References

- [1057] N. Koyama *et al.*, *Org. Lett.* **12**, 432-435 (2010)
- [1062] N. Koyama *et al.*, *J. Antibiot.* **63**, 183-186 (2010)
- K. Nagai *et al.*, *Bioorg. Med. Chem. Lett.* **22**, 7739-7741 (2012)