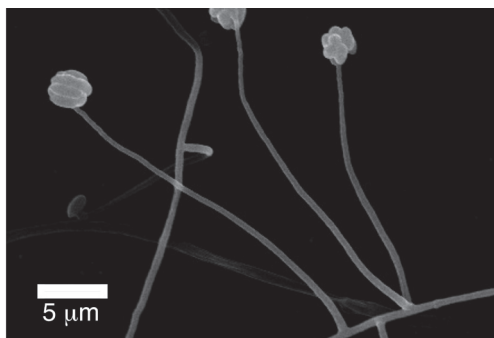


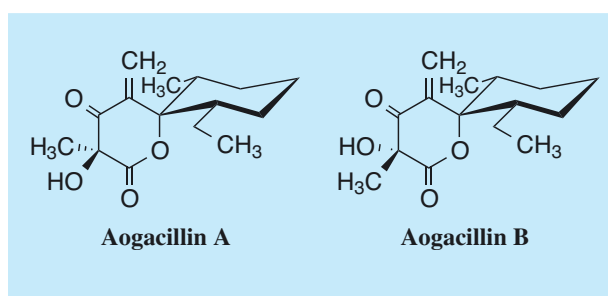
# Aogacillin

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

Aogacillins A and B were discovered in a culture broth of a fungal strain, *Simplicillium cylindrosporum* FKI-5985, and found to be circumventors of arbekacin resistance in MRSA. They have novel skeletons, consisting of a  $\beta$ -keto- $\gamma$ -methyliden- $\delta$ -lactone ring connected to a 2-ethyl-6-methylcyclohexane ring by spiro conjugation.



*Simplicillium cylindrosporum* FKI-5985



## 2. Physical data (Aogacillin A)

Yellow syrup. C<sub>15</sub>H<sub>22</sub>O<sub>4</sub>; mol wt 266.33. Sol. in MeOH, CHCl<sub>3</sub>, Insol. in EtOAc, CH<sub>3</sub>CN.

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

1) Circumvention activity of arbekacin resistance in MRSA

Aogacillins A and B only showed an effect on arbekacin-resistant MRSA in the agar diffusion method when the media contained arbekacin. Of the two, aogacillin A displayed potent circumvention activity even at 0.03  $\mu$ g/disc.

Compound	Amount $\mu$ g/disc	Inhibition zone (mm)	
		Arbekacin (-)	Arbekacin (+)
Aogacillin A	0.03	–	10.2
Aogacillin B	0.1	–	11.6

2) Aogacillins A and B markedly reduced the MIC value of arbekacin against the MRSA, from 256  $\mu$ g/ml to 8  $\mu$ g/ml (32-fold).

## 4. References

- [1158] K. Takata *et al.*, *Org. Lett.* **15**, 4678-4681 (2013)
- [ ] K. Nonaka *et al.*, *Mycoscience* **54**, 42-53 (2013)