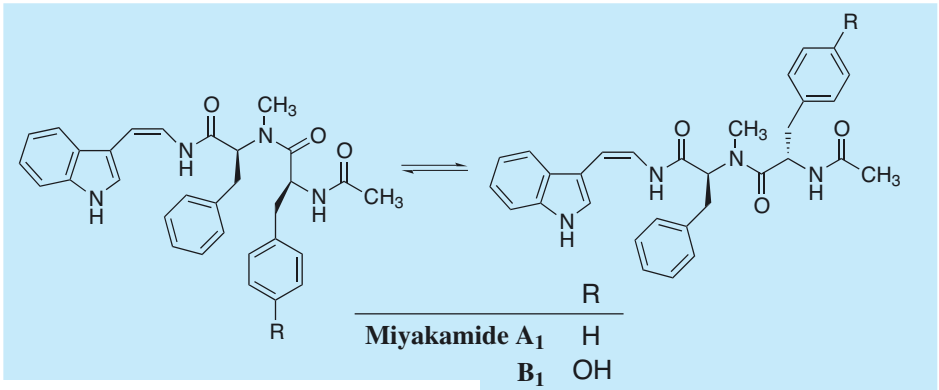
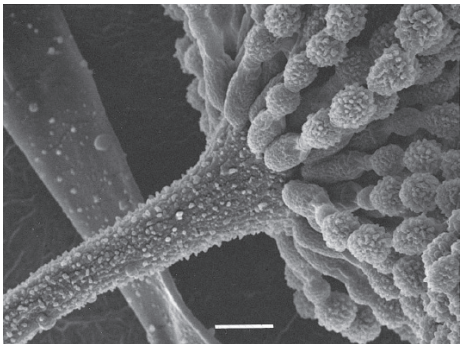
# Miyakamide

## 1. Discovery, producing organism and structures[1)]

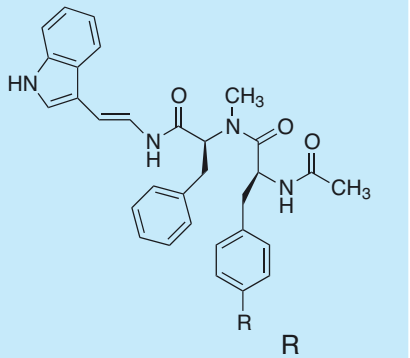
Miyakamides were isolated from the culture broth of *Aspergillus flavus* var. *columnaris* FKI-0739 as antibiotics active against brine shrimp, *Artemia salina*. The structure of miyakamide $A_1$ is *N*-acetyl-L-phenylalanyl-*N*-methyl-L-phenylalanyl-(α*Z*)-α,β-didehydrotryptamine, and miyakamide $A_2$ is an *E* isomer of $A_1$ at didehydrotryptamine. Miyakamides $A_1$ and $B_1$ existed as conformers in solvent. This isomerism was associated with the *cis-trans* rotation of the amide bond between two amino acids.



| | R |
|---|---|
| **Miyakamide $A_1$** | H |
| **$B_1$** | OH |



*Aspergillus flavus* var. *columnaris* FKI-0739
Bar: 5 μm



| | R |
|---|---|
| **Miyakamide $A_2$** | H |
| **$B_2$** | OH |

## 2. Physical data (Miyakamide $A_1$)

Pale yellow powder. $C_{31}H_{32}N_4O_3$; mol wt 508.63. Sol. in DMSO, MeOH, acetone, $CHCl_3$. Insol. in $H_2O$, hexane.

## 3. Biological activity[1)]

1) Growth inhibition against *Artemia salina* and cytotoxicity against P388 cells

| | Miyakamide | | | |
|---|---|---|---|---|
| | $A_1$ | $A_2$ | $B_1$ | $B_2$ |
| *Artemia salina* (MIC μg/ml) | 5 | 5 | 20 | 20 |
| P388 cells ($IC_{50}$ μg/ml) | 10.5 | 12.2 | 8.8 | 7.6 |

2) Other biological activity

Miyakamides $A_1$ and $A_2$ showed weak antimicrobial activity (MIC 100 μg/ml) against *Xanthomonas campestris* pv. *oryzae*. Miyakamides $B_1$ and $B_2$ did not show antimicrobial activity. Miyakamides did not alter growth of the free-living nematode *Caenorhabditis elegans* at 100 μg/ml.

## 4. Reference

1. [817] K. Shiomi *et al.*, *J. Antibiot.* **55**, 952-961 (2002)