

Research in the Institutes

- as Women Scientist

Miho Izumikawa

JBIRC, AIST

The figures, photos and moving images with † marks attached belong to their copyright holders. Reusing or reproducing them is prohibited unless permission is obtained directly from such copyright holders.

# Career

2001 Ph.D. of science - The University of Tokyo, School of Science

2001 - 2005 research associate - University of Arizona, College of Pharmacy

2005 - 2007 research scientist - RIKEN Institute

2007 - current research scientist- National Institute of Advanced Industrial  
Science and Technology (AIST)

# Research field

organic chemistry

biochemistry, molecular biology, enzymology, biological chemistry

natural product

biosynthesis, isolation, structure determination

# Private

track and field - long distance

marathon

champion of 2001 Tucson marathon



# Research

## ¶ The University of Tokyo

Biosynthesis of polyether compounds

- Origin of oxygen atoms elucidated by CID-MS/MS

Cloning of biosynthetic genes for polyether compounds

## ¶ University of Arizona

Mechanistic and structural analysis of bacterial type III PKSs

Analysis of priming mechanism in enterocin biosynthesis

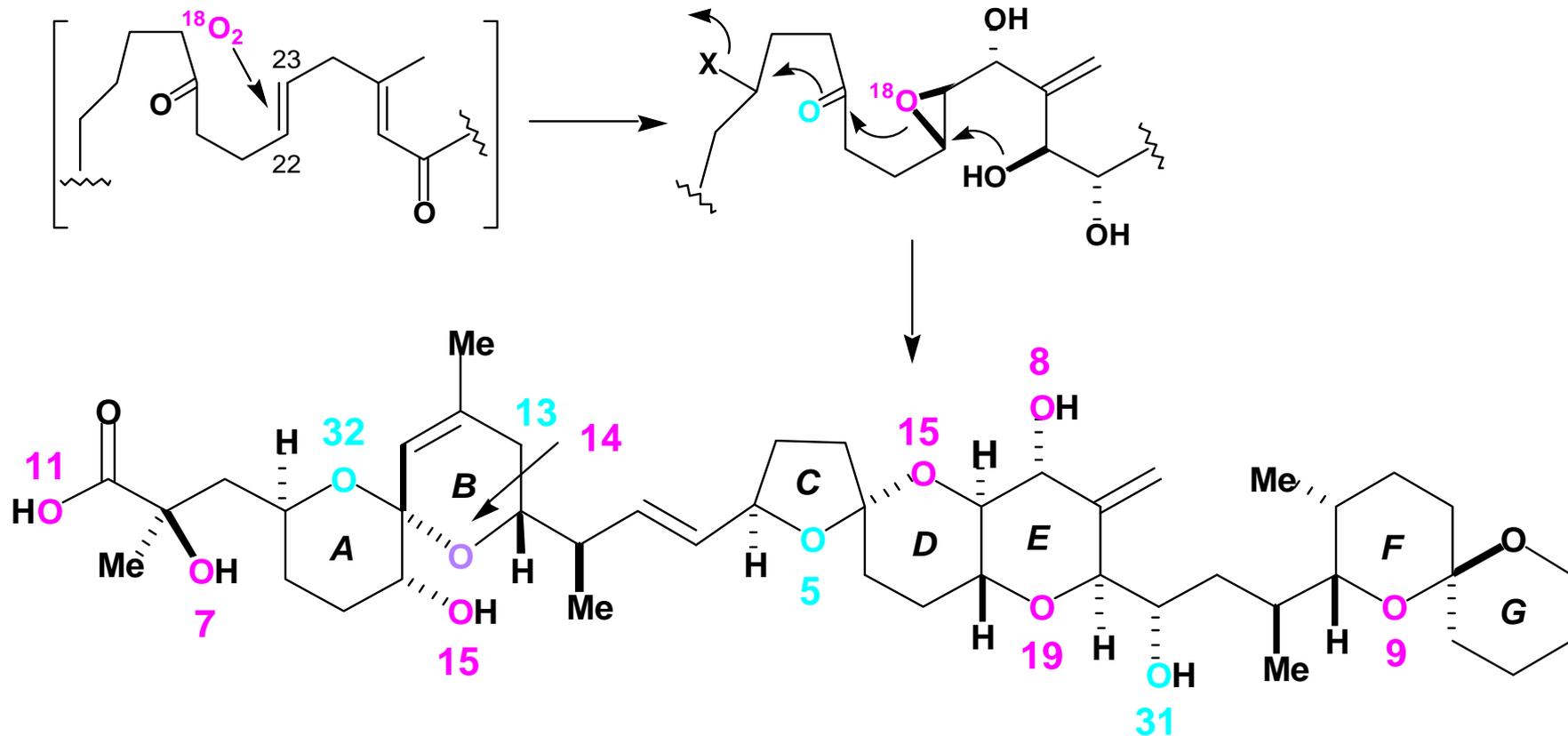
## ¶ RIKEN PSC

Metabolomic approach of plant cellular chemical biology by NMR spectroscopy

## ¶ JBIRC, AIST

Isolation and structure determination of novel natural products

# Labeling pattern of okadaic acid from $^{18}\text{O}_2$ and $[^{18}\text{O}_2]$ acetate



$\text{O}$  is from  $^{18}\text{O}_2$  and  $\text{O}$  is from  $[^{18}\text{O}_2]$  acetate. ✦

Figures on oxygen atoms denote incorporation ratios in % .

# Cloning of biosynthetic genes

## Constraction of genomic DNA library

- ↓ partial digestion of *S. albus* genomic DNA w
- ↓ ligation with pOJ 446 / *Hpa* I / SAP / *Bam* HI
- ↓ Gigapack III XL packaging
- ↓ transformation ( XL1-Blue MRF' host cells )
- ↓ spread on LB / geneticin plate
- ↓ transformants harboring cosmids  
total >  $3 \times 10^4$  clones

## Colony hybridization

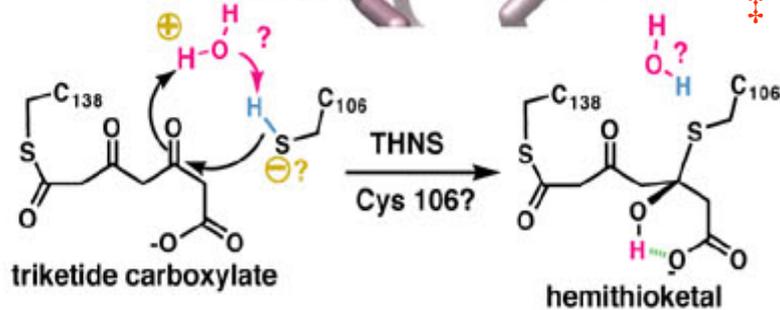
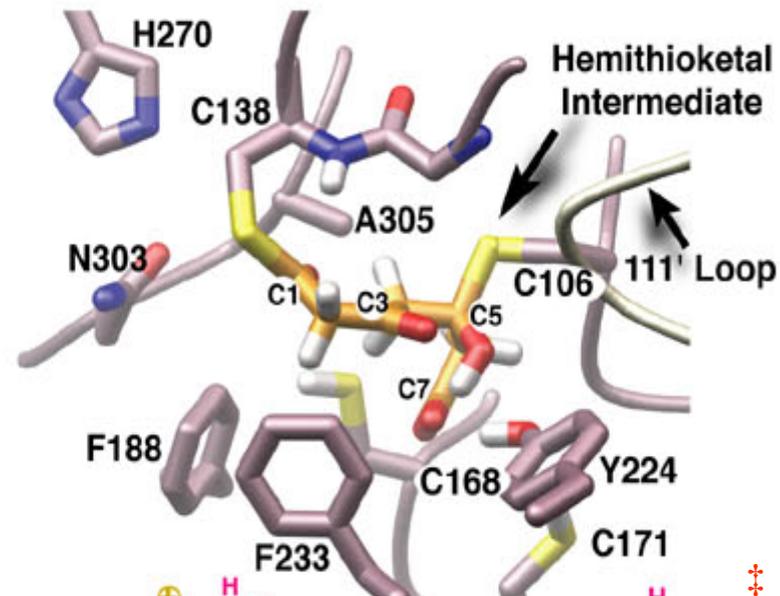
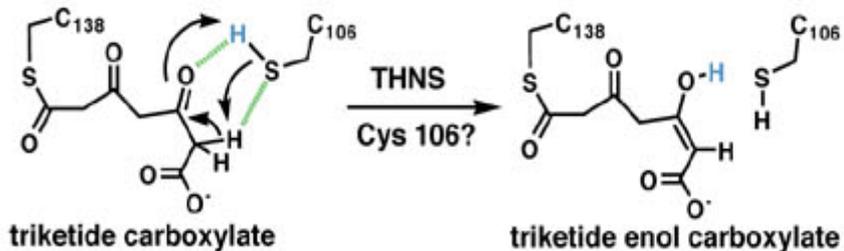
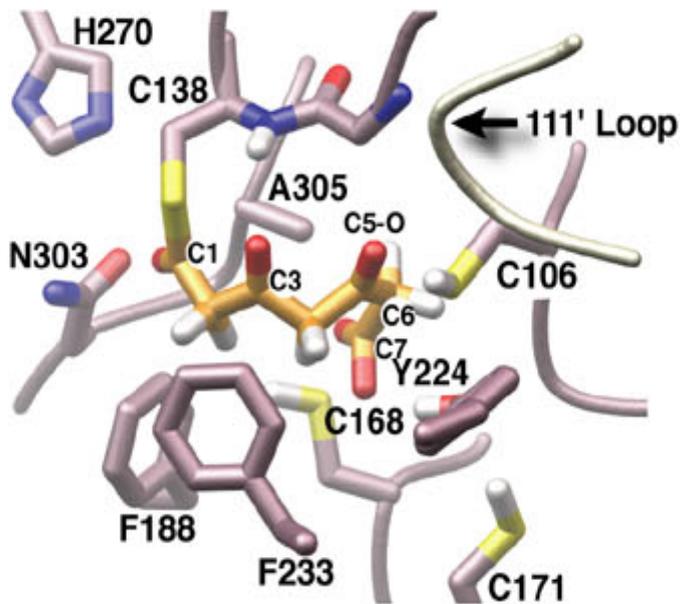
- ↓ colonies / plate transfer to Nytran
- ↓ hybridization  
probe : PCR fragment ( KS core region )
- ↓ color detection

著作権処理の都合により  
この場所に挿入されていた図  
を省略させていただきます

著作権処理の都合により、  
この場所に挿入されていた図を  
省略させていただきます



# Competing THNS mechanisms and role of C106



著作権処理の都合により、  
この場所に挿入されていた図を省略させて  
いただきます

著作権処理の都合により、  
この場所に挿入されていた図を省略させて  
いただきます

# Institutes

¶ systematic management

¶ clean and well-regulated laboratory

¶ huge budget

¶ expensive equipments, common staffs

¶ communication and collaboration with other fields

¶ technical support

¶ big project

¶ motivation, scientific interest

¶ skill up, step up

# Woman scientist

¶ career up

¶ supporting system

- house keeping, child and family care

- nursery, day care center

¶ community

- younger scientist

¶ flexible working time

# Summary

## ¶ Research in the institutes

- knowledge, techniques, experiences, and achievements

## ¶ As woman scientist

- career up
- scientific work and private life