



# CDB SEMINAR

## Yoshiko Kametani

Okazaki Institute for Integrative Bioscience,  
National Institutes of Natural Sciences

Friday, October 25, 2013  
16:00~17:00 A7F Seminar Room

### The molecular and cellular mechanisms of the vascular reconstruction during zebrafish fin regeneration

#### Summary

Zebrafish can regenerate many organs including the vascular system, yet the mechanisms underlying vascular regeneration are largely unknown. The zebrafish caudal fin ray has a central artery and 2 flanking veins. During fin regeneration, the artery and veins form a net-like vasculature called the vascular plexus, and this plexus undergoes remodeling to form a new artery and veins again. In this study, we revealed that the origin of the vascular plexus was the venous cells in the stump, as the arterial cells in it rarely contributed to the regeneration. We further showed that the vein-derived cells became arterial cells by Notch-dependent arterialization. Notch signaling was essential for the arterial fusion but not for the venous fusion, and it was also required for the initiation of arterial gene expression. Venous arterialization is recognized as an important process involved in regeneration and development, and our study illustrates the utility of the adult zebrafish as a new model system for studying the mechanism of it.

#### Host:

**Masatoshi Takeichi**  
Cell Adhesion and Tissue  
Patterning, CDB  
[takeichi@cdb.riken.jp](mailto:takeichi@cdb.riken.jp)  
Tel:078-306-3116  
(ext:1321)