

# RIKEN SEMINAR

〈 4<sup>th</sup> Epigenetics Seminar Series 2014 〉

## Title

### **A small RNA mediated regulation of a stress-activated retrotransposon in *Arabidopsis***

Whether the environment has only a passive role in evolution by selecting the fittest or it may have an active role in generating genetic and epigenetic diversity for selection? To answer the question, I focused on a mobile element, transposon. Eukaryotic genomes consist to a significant extent of transposons that are suppressed by host epigenetic mechanisms. Although most transposons are silent in their hosts, certain genomic shocks, such as an environmental stress might trigger transposon activation. In plants, small interfering RNAs (siRNAs) are responsible for RNA-directed DNA methylation (RdDM) that suppresses transposon activities. Recent new findings reveal that siRNAs control not only transcriptional activation, but also suppress transgenerational transposition of a heat-activated transposon pointing to a crucial role of the siRNA pathway in restricting retrotransposition triggered by environmental stress. Further, since transposons can affect the regulation mechanisms of host gene, it is possible transposons have co-evolved as an important mechanism for plant development and adaptation.

## Speaker

**Dr. Hidetaka Ito**  
Faculty of Science, Hokkaido University

**Language : English**

**Date/Time : Tuesday, Nov. 18 / 16:00-17:00**

**Location : C212, Central Research Building, Yokohama Campus**

•Live telecast from Yokohama Main

<Wako: S310, Bioscience Bldg.><Kobe: E206, Bldg. D>

<Tsukuba: Moriwaki Hall>

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## Next

5<sup>th</sup> Seminar Series : Tuesday, Dec. 16

Dr. Tatsuo Fukagawa (National Institute of Genetics) Live telecast from Wako Main