
The 174th iCeMS SEMINAR

Fri 12 Sep 2014
14:00-15:00

**The DAF-16/Foxo somatic longevity pathway
promotes germ cell immortality
in the absence of Piwi/piRNAs**

Lecturer: **Prof Shawn Ahmed**
Department of Genetics, University of North Carolina

Venue: 2nd Floor Seminar Room (#A207)
iCeMS Main Building (#77), Kyoto University

The Piwi/piRNA pathway promotes silencing of transposons and other heterochromatic segments of the genome in the germline. We found that mutants deficient for the *C. elegans* Piwi orthologue PRG-1 become sterile after growth for many generations, suggesting transmission of a 'heritable stress' that could be relevant to senescence or aging. Brief periods of starvation extended the transgenerational lifespan of prg-1 mutants due to transient activation of the DAF-16/Foxo stress response and longevity transcription factor. Constitutive activation of DAF-16/Foxo via reduced daf-2 insulin/IGF-1 signaling restored germ cell immortality to Piwi/piRNA mutants by activating a cell-non-autonomous small RNA silencing cascade. These results are relevant to a form of 'heritable stress' that can become severe enough to trigger sterility, and that could promote somatic aging in mammals by limiting the proliferative capacity of somatic cells.

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