



PRINCIPE FELIPE  
CENTRO DE INVESTIGACION

## The Future of Biomedical Research Lecture Series

### Linking Fate to Division – The proteolytic control of cell fate by the anaphase-promoting complex/cyclosome ubiquitin ligase

Speaker: **Dr. Yuu Kimata**

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Date: **01/12/2017- 12:30h**

Place: Salón de Actos CIPF

**Abstract:** How is the proliferation of cells controlled in vivo and coordinated with the other cellular events required for development, such as differentiation, patterning, and morphogenesis? It has been known that the expression of some of the key cell cycle regulator genes is developmentally controlled. However, this transcriptional regulation alone does not sufficiently account for the tight coupling between cell division and differentiation recurrently observed during development. My laboratory addresses this fundamental question using the powerful model organism, the fruit fly *Drosophila melanogaster*.

In this talk, I will describe our recent discoveries on the novel molecular mechanisms whereby one of the master cell cycle regulators, the anaphase promoting complex or cyclosome (APC/C), couples the fate determination process to the cell cycle. This multisubunit ubiquitin ligase regulates cellular differentiation alongside the cell cycle through proteolysis, utilising distinct molecular pathways depending upon the developmental contexts of the cell. I will discuss how the evolutionally conserved, cell cycle enzymes are exploited by metazoan cells to integrate the proliferation control into the developmental programme and how such regulations may be implicated in human pathologies.

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