CDB SEMINAR

Speaker: Shin-ichiro Nishimatsu

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Title: "BMP-3b and BMP-3 function as different dorsalizing factors in Xenopus embryos"

Date: **Friday, May 16**

Time: **4:00 P.M.～5:00 P.M.**

Place: **7th floor Conference Room, CDB**

Summary

Bone morphogenetic proteins-3b and 3 (BMP-3b and BMP-3) together constitute a unique subgroup within the BMP family. Although structurally similar, we found that BMP-3b and BMP-3 have different functions in Xenopus embryos. BMP-3b injected into Xenopus embryos triggered autonomous secondary head formation, whereas BMP-3 induced aberrant tail formation. At the molecular level, BMP-3b antagonized nodal-like proteins and ventralizing BMPs, whereas BMP-3 antagonized only the latter. These differences are due to divergent pro-domains. Less BMP-3b than BMP-3 precursor is proteolytically processed in embryos. BMP-3b protein associated with a monomeric form of Xnr1, a nodal-like protein, whereas BMP-3 did not. These molecular features are consistent with their expression profiles during Xenopus development. XBMP-3b is expressed in the prechordal plate, while xBMP-3 is expressed in the notochord. Using antisense morpholino oligos, we found that the depletion of both xBMP-3b and cerberus, a head inducer, caused headless Xenopus embryos, whereas the depletion of both xBMP-3 and cerberus affected the size of the somite. These results revealed that xBMP-3b and cerberus are essential for head formation regulated by the Spemann organizer, and that xBMP-3b and perhaps xBMP-3 are involved in the axial patterning of Xenopus embryos.

Host ： Kiyokazu Agata **Evolutionary Regeneration Biology , CDB**

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