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14:00-15:30, 7F Seminar Room, DB Building A

## Spatial patterns of Wnt proteins in embryonic tissues

### Summary

Molecular genetics have revealed that secreted signal proteins, including Wnt, BMP, and FGF, play roles in many aspects of embryogenesis and homeostasis. While it has been shown that these proteins act over a long distance from their source cells, evidence also suggests that they might act locally. However, it still remains to be seen how their actions are regulated in a spatio-temporal manner. To address this issue, we have extensively investigated the distribution and dynamics of Wnt proteins in embryos by using a combined approach, including immunohistochemistry, live-imaging, quantitative analysis, and protein chemistry. In this seminar, I will present some examples of our studies investigating the spatial distribution and/or dynamics of Wnt proteins in embryonic tissues. One of these is Wnt8 or Wnt3a, which is involved in patterning along the antero-posterior axis (1, 2) while another is Wnt11, which is involved in the convergence and extension movement during gastrulation. Since the spatial patterns of these Wnt proteins were found to be quite different, we are currently investigating the mechanisms underlying the distribution of these Wnt proteins in embryonic tissues.

### References

- 1) Mii, Y., Yamamoto, T., et al (2017) Roles of two types of heparan sulphate clusters in Wnt8 distribution and signalling in *Xenopus*. *Nature Commun.* 8, 1973.
- 2) Takada, R., Mii, Y., et al. (2018) Assembly of protein complexes restricts diffusion of Wnt3a proteins. *Commun. Biol.* 1, 165