Toward understanding germline development in the hydrozoan species, *Cladonema* pacificum

Mako Takahashi¹, Shumpei Morita¹ and Gaku Kumano^{1, 2}

- Asamushi Research Center for Marine Biology, Graduate School of Life Sciences, Tohoku University
- 2. WPI-AIMEC Marine Biology Integrative Analysis Unit, Tohoku University

Hydrozoans are known to possess pluripotent/multipotent stem cells called interstitial cells (i-cells). It has been reported that i-cells accumulate in the medusa tentacle branch buds of Cladonema pacificum and produces differentiated cells that constitute the tentacle branches (Hou et al., 2021). We found that i-cells are also present in the medusa manubrium. Considering that gametes are continuously produced in the manubrium, the manubrium i-cells are likely to differentiate into germline cells. However, mechanisms for germline differentiation from i-cells remain unclear. In this study, we identified when the manubrium starts producing female germline cells. We then found by *in situ* hybridization that Nanos2 was expressed both in the manubrium i-cells and growing oocytes, while Nanos1, Vasa1, Vasa2 and Piwi only in the oocytes. This expression profile contrasts with that of the accumulated i-cells in the tentacle bud. Thus, the manubrium and tentacle i-cells constitute heterogenous populations and might have distinct capabilities for cell differentiation. Cell tracking experiments of the manubrium i-cells and comprehensive transcriptomic analysis to identify factors responsible for germline differentiation are now underway. Our study could provide further insights into the mechanism of cell differentiation from the pluripotent/multipotent stem cells and the evolution of germline development across animals.

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