

Contribution of the Research Using Zebrafish to Investigating Cardiogenesis and Heart Failure

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Zebrafish circulatory system develops quickly compared to mammals. Its rapid growth as well as transparency enables us to image cardiogenesis by marking cardiomyocyte precursor cells and their neighbouring cells using tissue- and/or organ-specific promoters. In addition, the easy manipulation of genes allows us to develop transgenic lines expressing signal-monitoring probes. Therefore, we are able to understand morphology and signaling simultaneously during cardiogenesis.

In this presentation, I will our recent work on the molecular mechanism by which left-right asymmetry of heart is determined by the formation of Kupffer's vesicle (corresponding to node of mammals). Moreover, I will explain how we have investigated the compensatory enlargement of heart to maintain output as a pump using a mutant fish.