

## DC セミナー

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題目： Germ cell and gonad development  
in zebrafish sex determination



Although zebrafish has been used extensively as a model organism in developmental biology and biomedical research, surprisingly, the genetic mechanisms of sex determination in zebrafish remain poorly understood. To help better understand the process of sex determination in zebrafish we took advantage of two mutants (*fancl* and *fancl1(brca2)*) that show altered mechanisms of sex determination: homozygous mutants develop exclusively as males. Our studies revealed that: 1) the mere presence of germ-cells is not sufficient to induce female fate, contrary to previous suggestions; 2) oocyte survival depends on Tp53-dependant germ-cell apoptosis, which can alter gonad fate as revealed by sex-reversed zebrafish Fanconi anemia mutants; 3) zebrafish *brca2* plays a role in oocyte nuclear-architecture, and zebrafish *brca2* mutations induce genome instability, infertility, and gonad tumors, similarly to humans. Therefore, our work has revealed the essential role of germ cell apoptosis and oocyte survival in zebrafish sex determination, and has helped to establish zebrafish Fanconi Anemia/Brca mutants as useful tools for the screening of small molecule libraries to identify compounds that can rescue the mutant phenotypes, which might be of therapeutic importance for Fanconi Anemia and cancer patients.



Male and female zebrafish

できるだけ簡単な英語で話していただきます。学部学生のみんなも是非来てください。

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