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### Steroidogenic genes during early sex differentiation of gonads in *Xenopus laevis*

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The African clawed frog *Xenopus laevis* has a ZZ/ZW-type sex-determining system. We previously indicated that a W-linked gene *Dm-W* could direct female development as a sex-determining gene. However, the mechanisms during early sex differentiation remain unclear. Therefore we screened genes showing sexually dimorphic expression by microarray using the ZZ and ZW gonads at early sex differentiation in *X. laevis*. Several genes for TGF $\beta$  members and steroidogenic enzymes displayed sexual dimorphism on the array. Importantly, steroid 17 $\alpha$ -hydroxylase gene *Cyp17a1* and estrogen synthesizing enzyme (aromatase) gene *Cyp19a1* showed ZZ and ZW gonad-enriched expression just after sex determination, respectively. In both ZZ and ZW gonads at the stage, we discovered that *Cyp17a1* and/or *Cyp19a1* were expressed in very unique 'mass-in-line' structure; several masses sectioned by basement membranes in line along the anteroposterior axis of the gonads. In fact, ovarian cavities formed inside each mass consisting of *Cyp17a1*- and *Cyp19a1*-positive cells in the ZW ovaries during differentiation. However, the 'mass-in-line' structure disappeared in the ZZ testes during testicular development. These results suggested that the 'mass-in-line' structure in both ZZ and ZW gonads just after sex determination might be formed in advance for ovarian cavities followed by oocyte production in *X. laevis*.

#### Biography

Michihiko Ito has completed his PhD at the age of 28 years from Tokyo University and postdoctoral studies from Mitsubishi Kagaku Institute of Life Sciences. He is associate professor of Kitasato University. He has been studying metamorphosis as well as sex determination and differentiation mainly in the African clawed frog *Xenopus laevis*.

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