Prof.
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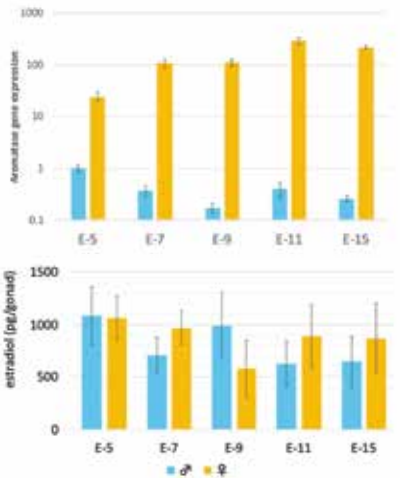
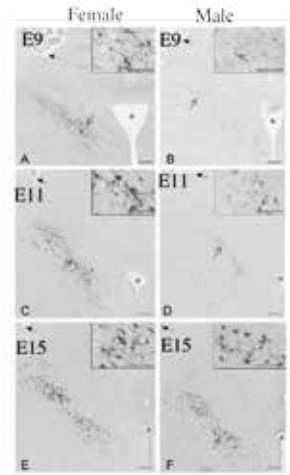
Study on sexual differentiation of birds

The sex of animals, including birds, is determined by genes. However, gonads and sexual differentiation of the brain are influenced by hormones and are determined. The mechanism of sex differentiation in birds differs in many respects because the sex chromosomes are ZW, unlike the XY type in mammals, and the details are still unknown in many respects. In the gonads, the gene expression of the enzyme that synthesizes estradiol (aromatase) is overwhelmingly higher in females than in males, but there is almost no difference in estradiol content between males and females. In addition, especially for sexual differentiation in the brain, aromatase gene expression may be higher in females than in males, and it is possible that sexual differentiation is self-sustaining.



Gonadal aromatase gene expression in quail embryos (left) and gonad estradiol content (right).



Expression of aromatase gene in the cerebral hypothalamus of quail embryos.