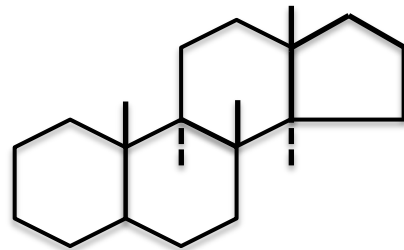


Basic Research Seminar



Function and Regulation of Steroid Hormone Synthesis

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Steroids are widely used in medicine and are notorious for their side effects. We aim to study novel functions of steroids in the body and their regulation, with an emphasis of steroid biosynthesis. The first step of steroid synthesis is the conversion of pregnenolone from cholesterol catalyzed by enzymes encoded by CYP11A. Pregnenolone is an important neurosteroid controlling memory, depression, and fear response. We have used both mice and zebrafish to study the functions and regulation of steroidogenic genes. Mice deficient of *Cyp11a1* expression die prenatally due to a defect in steroid synthesis and are prone to stress. Zebrafish deficient in *cyp11a1* synthesis had reduced pregnenolone production and a defect in embryonic cell migration. We showed that pregnenolone promoted cell migration by binding to and activating microtubule-binding protein CLIP-170 to stabilize microtubules. In addition to influencing reproduction and endocrine metabolism, we showed that zebrafish *cyp11a1* controls embryo morphogenesis. Their action mechanism during morphogenesis will bring novel insight about steroid actions. Zebrafish has been a popular model organism for genetic analysis; our studies have revealed novel roles of steroids, which may be a good drug candidate for the treatment of neurological diseases.

Date: Wednesday, November 2nd, 2016

Time: 18:00 – 19:00

Venue: Conference Room 2, 6th floor

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