

Stanford



Aaron Hsueh

Professor of Obstetrics and Gynecology (Reproductive and Stem Cell Biology)
Obstetrics & Gynecology - Reproductive Biology

Bio

ACADEMIC APPOINTMENTS

- Professor, Obstetrics & Gynecology - Reproductive Biology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

LINKS

- Hsueh Lab Home Page: <http://reprobio.stanford.edu/hsueh/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

We have been investigating the molecular and cellular mechanisms underlying the hormonal regulation of ovarian follicle growth and differentiation. By expressing recombinant FSH, LH and hCG and producing their mutants, we have designed long-acting agonists as well as deglycosylated antagonists of gonadotropins. We have also cloned human LH and FSH receptors and the expression of these proteins allows analysis of gonadotropin bioactivity in vitro. The extracellular ligand-binding domain of these receptors have been generated and found to be functional antagonists. Clinical syndromes of gain-of-function mutations for the LH receptor have been found in patients with familial male precocious puberty whereas loss-of-function mutations have been found to be the basis of Leydig cell hypoplasia. We are using bioinformatic tools and DNA microarray to analyze polypeptide hormones and their receptors in terms of ligand-receptor matching and paracrine interactions.

Publications

PUBLICATIONS

- **Fertility rescue and ovarian follicle growth promotion by bone marrow stem cell infusion** *FERTILITY AND STERILITY*
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- **Imaging the ovary** *REPRODUCTIVE BIOMEDICINE ONLINE*
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- **3D NIR-II Molecular Imaging Distinguishes Targeted Organs with High-Performance NIR-II Bioconjugates** *ADVANCED MATERIALS*
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2018; 115 (9): 2192–97
- **Gonadotropins and their receptors: co-evolution, genetic variants, receptor imaging, and functional antagonists.** *Biology of reproduction*
Hsueh, A. J., He, J.
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- **Live imaging of follicle stimulating hormone receptors in gonads and bones using near infrared II fluorophore** *CHEMICAL SCIENCE*
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- **CLARITY reveals dynamics of ovarian follicular architecture and vasculature in three-dimensions.** *Scientific reports*
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