UC RIVERSIDE
School of Medicine
DIVISION OF BIOMEDICAL SCIENCES

The Graduate Program in Biomedical Sciences is proud to announce the

Ph.D. Dissertation Defense of

PEDRO VILLA

Biomedical Sciences Ph.D. Candidate in the Coss Lab

Dr. Djurdjica Coss, Chairperson

Genetic and Environmental Causes of Infertility

Infertility, affecting 1 in 8 couples globally, is influenced by various factors such as delayed motherhood, poor dietary habits, genetic disorders, environmental endocrine disruptors, and obesity. Reproduction, orchestrated by gonadotropin-releasing hormone (GnRH) neurons from the hypothalamus, involves the pulsatile secretion of luteinizing hormone (LH) and follicle-stimulating hormone (FSH) from the pituitary, stimulating steroidogenesis and gametogenesis in the gonads. GnRH neuron pulsatile secretion requires regulation by afferent neurons, primarily kisspeptin, and potentially GABAergic signals that activate GnRH neurons. Genetic factors, specifically mutations in the Fragile X messenger ribonucleoprotein 1 gene (FMR1), contribute to fertility issues, particularly premature ovarian failure (POF) in women under 40. Using the Fmr1KO mouse model, we determined elevated gonadotropin hormone levels, increased GABAergic innervation of GnRH neurons, and higher sympathetic innervation in the ovaries of Fmr1KO mice. Since GABA is excitatory to GnRH neurons this may contribute to an increase in LH pulse frequency. Ovariectomy experiments revealed that the hypothalamus drives high LH, while increased FSH, is dependent on the ovaries and possibly influenced by heightened innervation.

Tuesday, January 30th, 2024 at 9:00AM (PST)
School of Medicine Education Building II, Rm. 105 (1st floor)
Join via Zoom
https://ucr.zoom.us/j/95511161728?pwd=bk9aKy8yOHVTQlBMc3VqNDhza2wydz09