

P77.-SEX DIFFERENCES IN GABA-MEDIATED CALCIUM INFLUX IN HYPOTHALAMIC NEURONS

Franco Rafael Mir^{1,2}, Carlos Wilson³, María Julia Cambiasso^{4,5}

¹Cátedra de Fisiología Animal, FCEFyN. Universidad Nacional de Córdoba, ² Cátedra de Fisiología Animal, DACEFyN. Universidad Nacional de La Rioja, ³ Laboratorio de Neurobiología, Instituto de Investigación Médica Mercedes y Martín Ferreyra. INIMEC-CONICET-UNC, ⁴ Laboratorio de Neurofisiología, Instituto de Investigación Médica Mercedes y Martín Ferreyra. INIMEC-CONICET-UNC ⁵ Departamento de Biología Bucal, facultad de Odontología, UNC

Presenting author: **Franco Rafael Mir**, *francomir@hotmail.com*

GABAA receptor (GABAAR) activation exerts trophic actions in immature neurons through depolarization of resting membrane potential gating the opening of voltage-dependent calcium channels. Previous results from our lab have shown gender-biased GABAAR responses in cultured hypothalamic neurons. These differences were found before brain masculinisation by gonadal hormones. Considering these, in this work we evaluated the GABAAR-mediated Ca²⁺ entry in cultured neurons segregated by gonadal type. Hypothalamic cells were obtained from embryonic brains at E16 (both male and female), two days before the peak of testosterone production by the foetal testis, and cultured for 2 days. To measure calcium signals, neurons were loaded with the calcium indicator Cal-520, followed by a time-lapse recording on live cells using a spinning disk microscope. Our results show that there are more male than female neurons responding to GABAAR stimulation. Additionally, almost 50% of male neurons did not recover basal calcium level after stimulation, in contrast to only 20% observed in females. Moreover, although nifedipine blocks intracellular calcium entry equally, it was stronger in males. Together, these results highlight the influence of neural sex differences irrespectively of sexual hormone exposure.