

Testosterone Deprivation Shapes Behavioral Responses to Intracerebroventricular Streptozotocin in Male Rats

Vidal Escobedo Ana Abril^{*1}, Peralta Facundo^{*1}, Diaz Baliero Julia Emilia Alejandra², Canale Dylan Simon¹, Juan Camila¹, Posada Juan Ignacio¹ and Reggiani Paula Cecilia^{1,2}. ^{*}AAVE and FP contributed equally to this work

1- Instituto de Investigaciones Bioquímicas de La Plata 'Prof. Dr. Rodolfo R. Brenner' (CONICET-UNLP). 2- Cátedra de Citología, Histología y Embriología, Facultad de Ciencias Médicas, UNLP

Testosterone deprivation reshapes the behavioral response to STZ-ICV, producing selective behavioral changes while preserving—and potentially enhancing—novel object recognition.

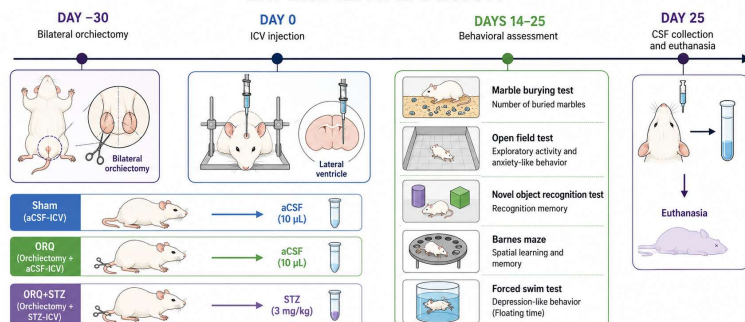
INTRODUCTION

Intracerebroventricular streptozotocin (STZ-icv) is a widely used model of neurodegeneration and cognitive impairment associated with hippocampal dysfunction. However, the influence of testosterone on the behavioral effects induced by STZ-icv remains unclear. Castrated male rats provide a useful model to evaluate the contribution of testosterone to STZ-induced alterations.

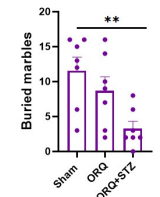
METHODS

Animals and Experimental Groups. Male *Sprague-Dawley* rats (3 months old) $n = 7$ animals/group: **Sham:** aCSF-icv, **ORQ:** Bilateral orchiectomy + aCSF-icv, **ORQ+STZ:** Bilateral orchiectomy + STZ-icv

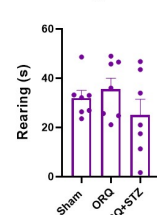
EXPERIMENTAL DESIGN



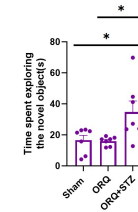
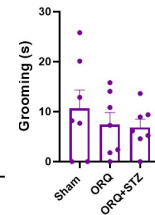
RESULTS



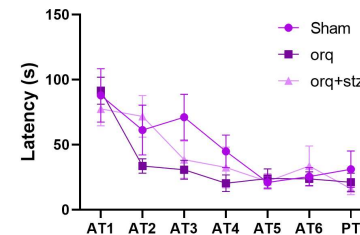
ORQ+STZ rats showed significantly fewer buried marbles compared with Sham animals ($p < 0.05$).



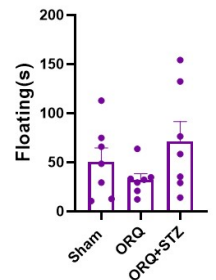
No significant effects of orchiectomy or STZ treatment.



ORQ+STZ rats spent significantly more time exploring the novel object than ORQ rats ($p < 0.05$).



No differences in latency or exploratory parameters. Spatial memory remained preserved.



ORQ+STZ rats exhibited higher floating behavior than ORQ rats; however, this difference did not reach statistical significance.

CONCLUSIONS

STZ-ICV administration in castrated male rats induced selective behavioral changes while preserving cognitive performance. The increased exploration of the novel object suggests that testosterone deprivation modifies the classical behavioral phenotype induced by STZ-ICV, highlighting hormonal status as an important determinant of vulnerability in experimental models of neurodegeneration.

CONTACT

avidalescobedo@med.unlp.edu.ar