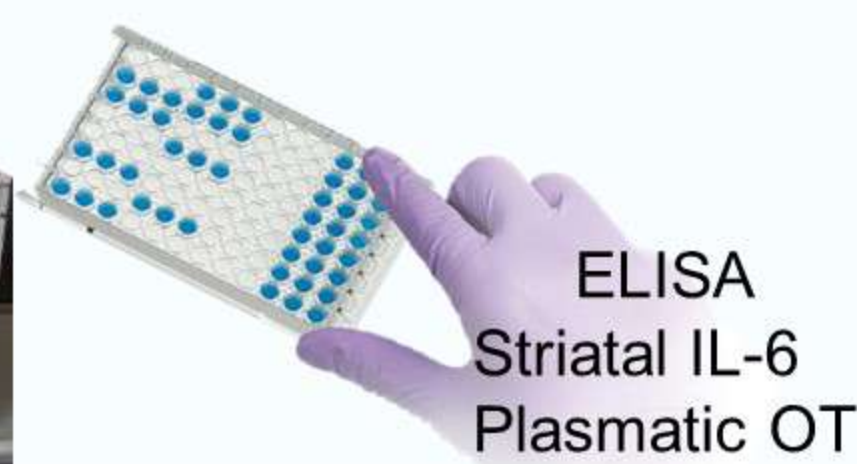


The anti-inflammatory properties of oxytocin may be mediating the protective effect of social enrichment against stress consequences

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INTRODUCTION. People currently experience highly stressful life styles, and the main source of this stress comes from social interactions. Clinical reports evidence that social stressors as bullying are linked with higher rates of drug abuse while positive social factors can also act as natural reinforcers that compete with drug reward having protective effect. In this study, we determine if the long-term negative consequences of social stress (social defeat, SD) in cocaine response can be reversed using different models of social enrichment as different social housing conditions (standard housing, male paired housing, female paired housing). Then we wanted to elucidate if this protective effect of social interventions is mediated by an increased release of oxytocin (OT) neuropeptide through anti-inflammatory mechanism.

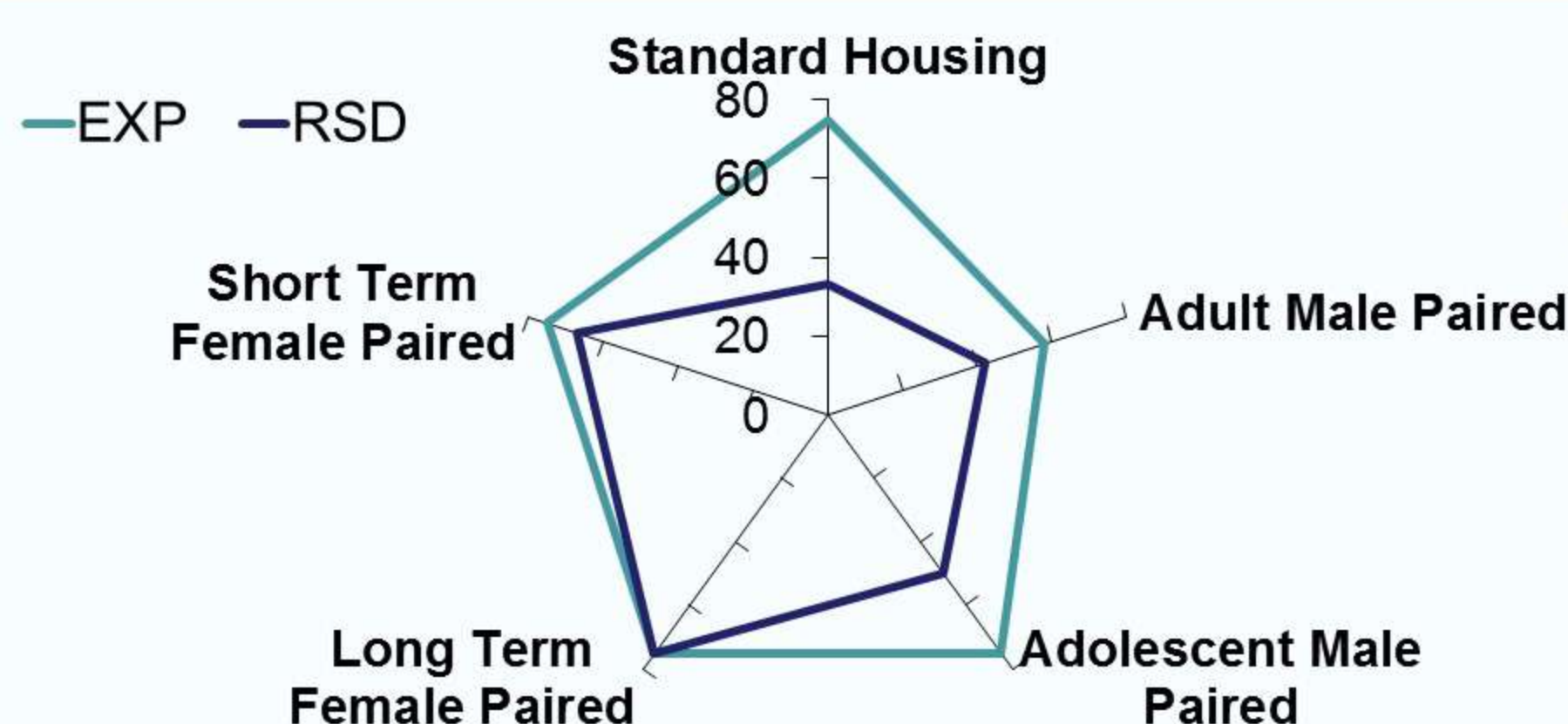
METHODS



PND	Arrival and acclimatisation to the facility	Social defeat / Exploration					CPP						
		1st	2nd	3rd	4th	3 weeks	EPM	Pre-C test	Conditioning (1 mg/kg cocaine)	Post-C test	Biological samples		
	21	42	47	50	53	56	59	62	76	77-78-79	80-81-82-83	84	>90

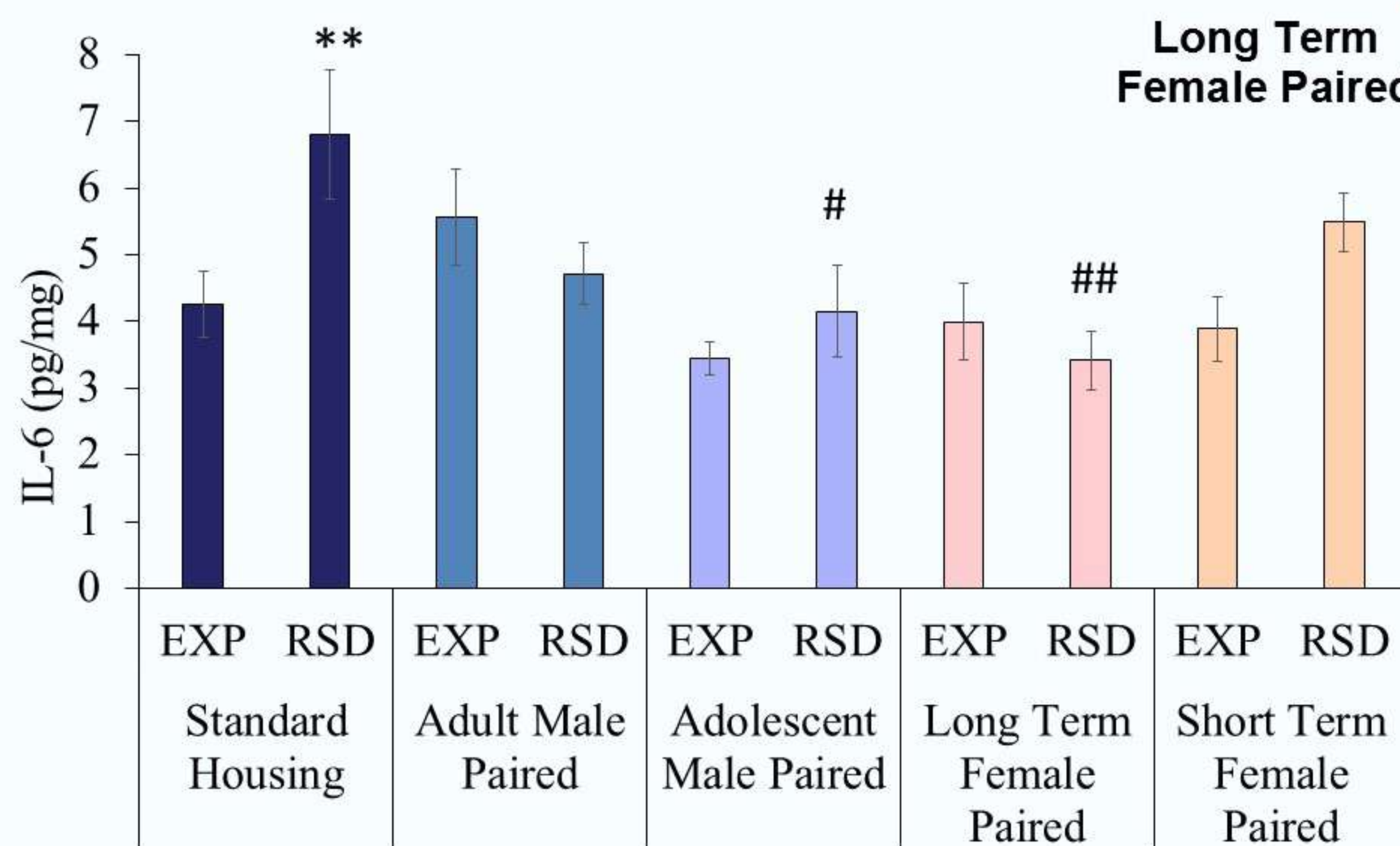
Standard Housing	Housing in groups of 5 males	
Adult male paired	Housing in pairs	
Adolescent male paired	Housing in pairs from the adolescence	
Long term female paired	Housing in groups of 5 males	Paired with ♀
Short term female paired	Housing in groups of 5 males	Paired ♀ Housing in groups of 5 males

RESULTS

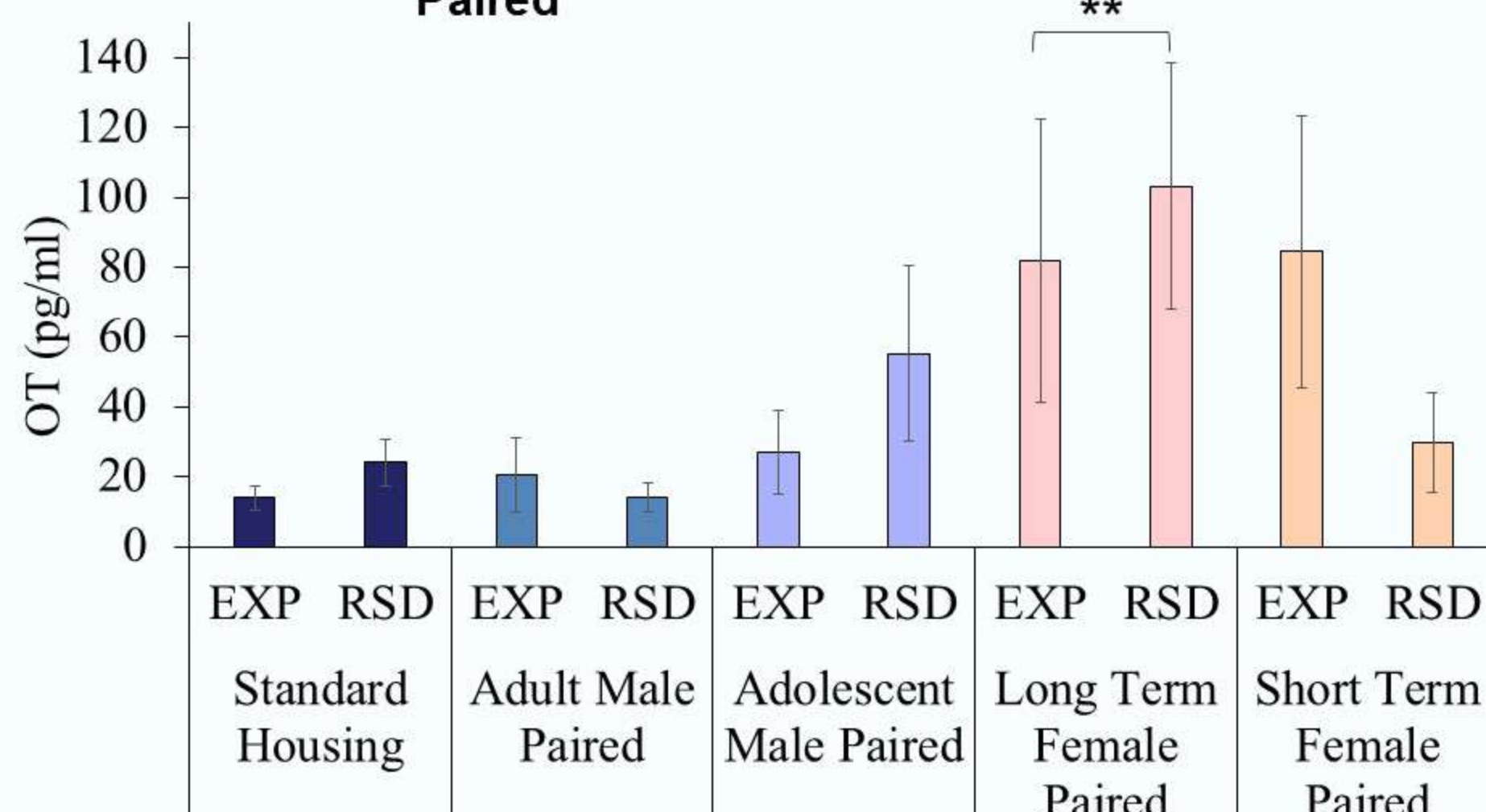


Proportion of resilient mice to the enhancement in the rewarding properties of cocaine induced by SD

IL-6 levels in the Striatum



Plasmatic OT levels



CONCLUSION. These results show how social environmental factors modulate individual drug response. On the one hand, social stress is a risk factor that triggers neuroinflammatory mechanisms that lead to an increased drug response. Positive social contact promotes oxytocin release that through its anti-inflammatory properties can buffer negative stress consequences. This work increases the understanding of the neurobiological mechanisms that underlie the effect of social factors on drug addiction.

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