SEX-DEPENDENT EFFECTS OF JUVENILE AND ADULT STRESS ON LPA 1 RECEPTOR EXPRESSION AND DEPRESSION-LIKE BEHAVIORS IN MICE

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BACKGROUND

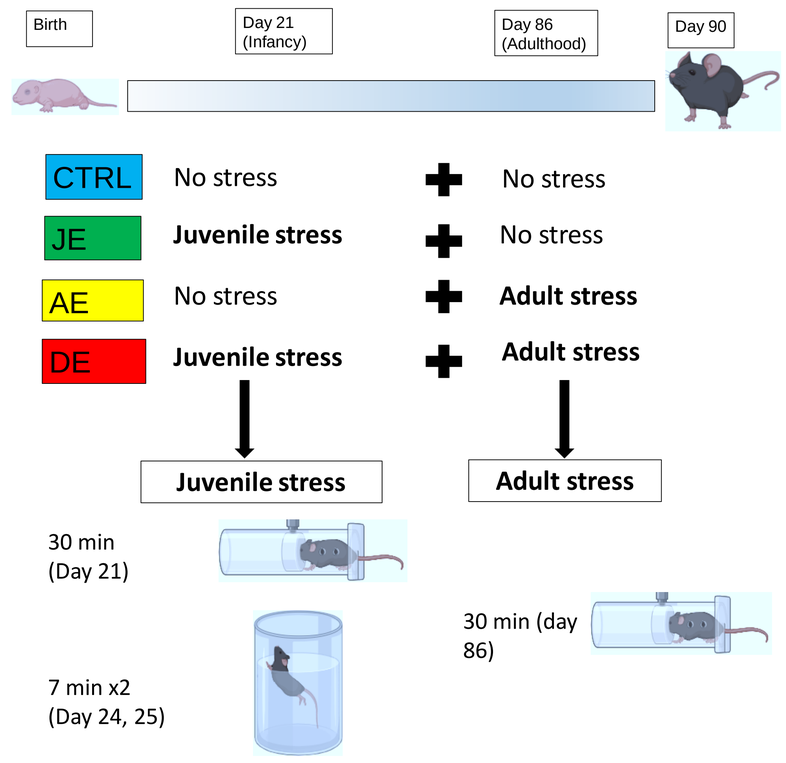
Juvenile stress impacts brain development and increases the risk of stress-induced depression, often through inflammation-related mechanisms. Despite known sex differences, research remains scarce. Lysophosphatidic acid receptor 1 (LPA1) expression may be involved in early-life stress-induced depression via neuroinflammatory mechanisms.

MAIN OBJECTIVE

To investigate how stress across developmental stages affects depression-like behaviors and LPA1 receptor expression, and whether these changes are interrelated.

METHODS

N=72 of C56BL/6J mice were employed for the study (8 males and 10 females per experimental group):



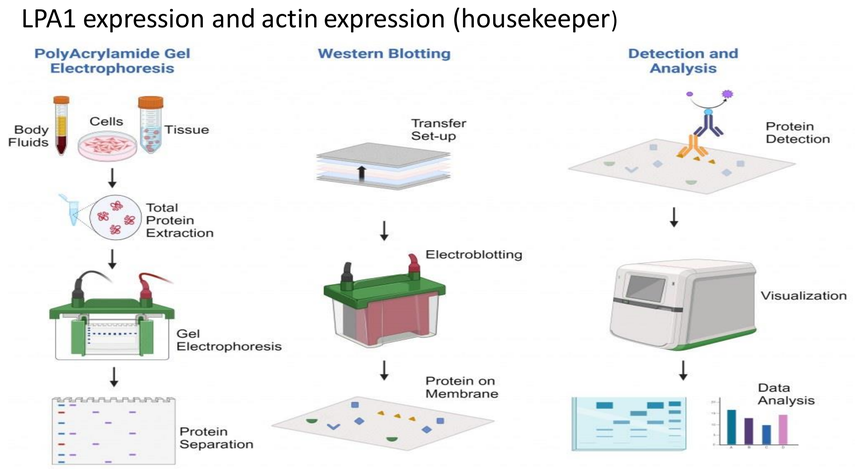
1. TAIL SUSPENSION TEST (5 MINUTES)

Used to assess copying mechanisms when facing an unscapable stress

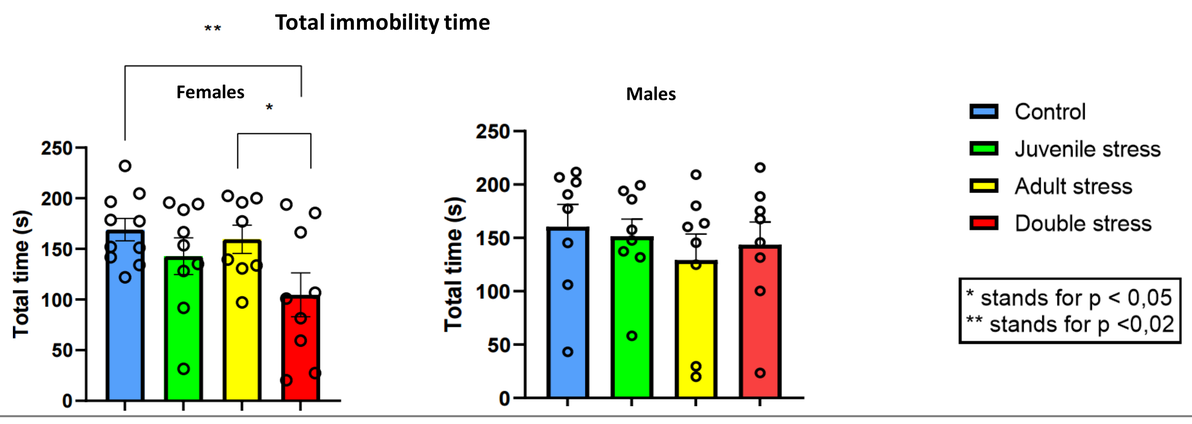
Behavioral measures: total inmobility time, total struggle time, latency to first immobility episode (<2 seconds) and total

2. WESTERN BLOTTING

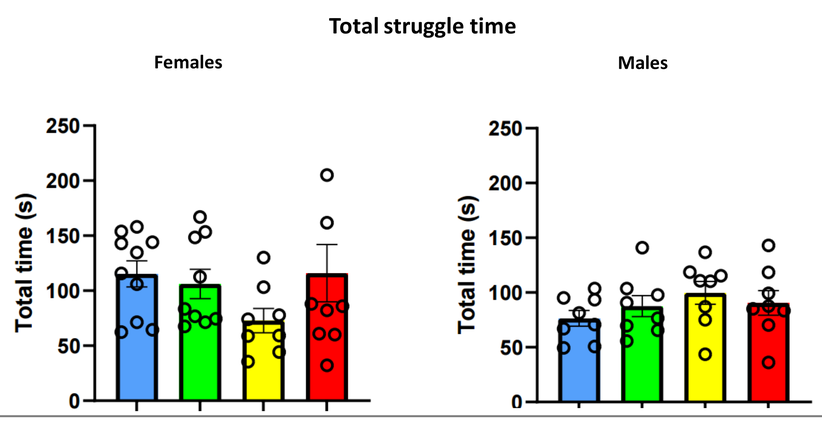
LPA1 expression and actin expression (housekeeper)



1. Juvenile + Adult reduces immobility time only in females



2. Stress did not affect on total struggle time in either females or males



3. Juvenile + adult stress increased the latency to the first immobility episode in females

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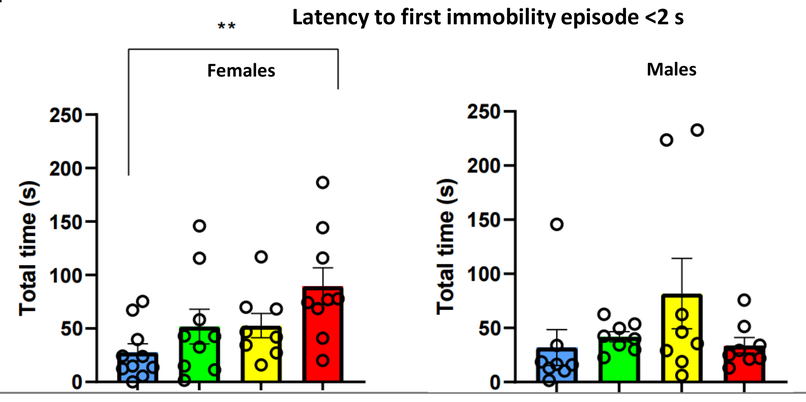
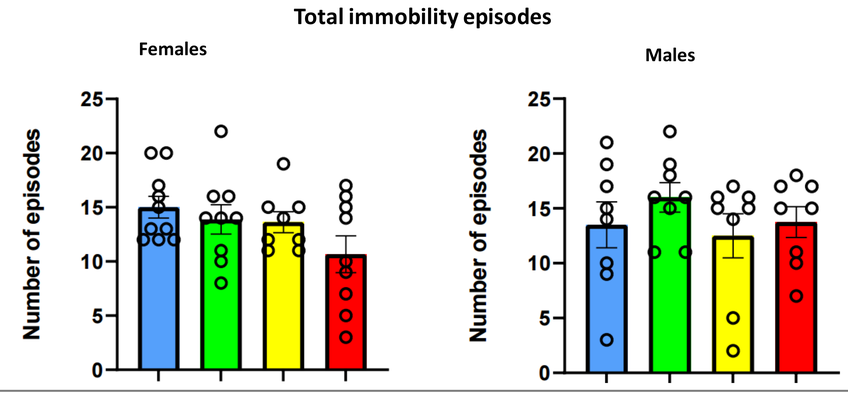
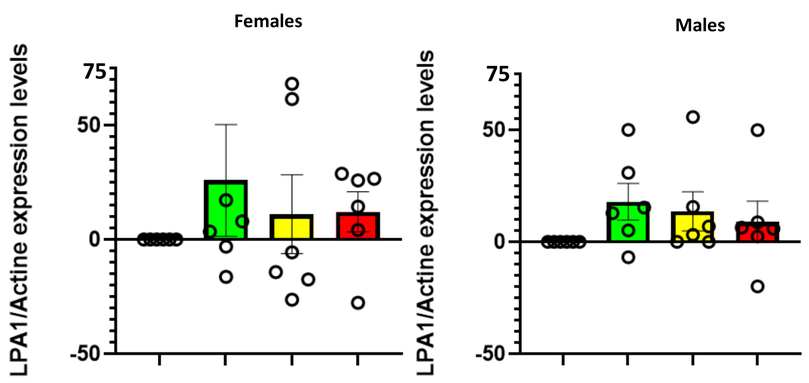


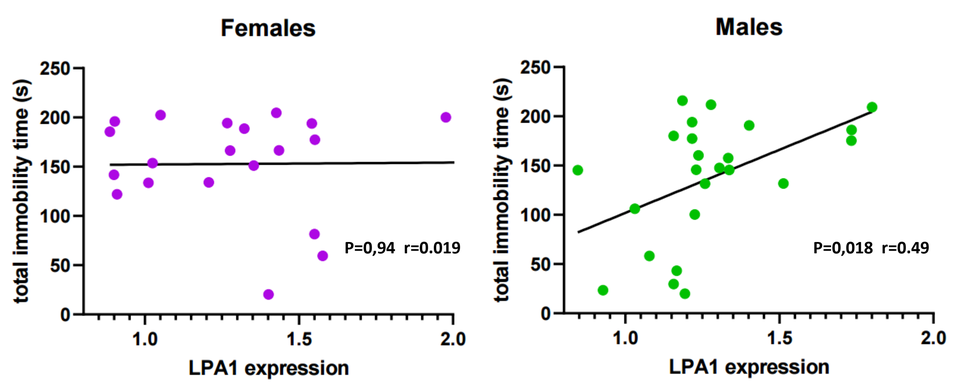
4. Stress did not affect total immobility episodes in either females or males



5. Stress increases LPA1 expression in both females and males compared to controls



6. There is a positive correlation between immobility time and LPA1 expression in males



CONCLUSION

Stress alters coping strategies in females; however, contrary to our expectations, it leads to decreased immobility and a longer latency to the first episode of immobility. Stress increased LPA1 expression in both sexes, with a greater, but non-significant, increase in females. In males, expression levels correlated with TST immobility, suggesting a sex-dependent role as a biomarker.

ACKNOLEDGEMENTS

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