

Galanin(1-15) and escitalopram combination in rats reduces alcohol consumption in the ethanol self-administration test and improves escitalopram effects in the forced swimming test.

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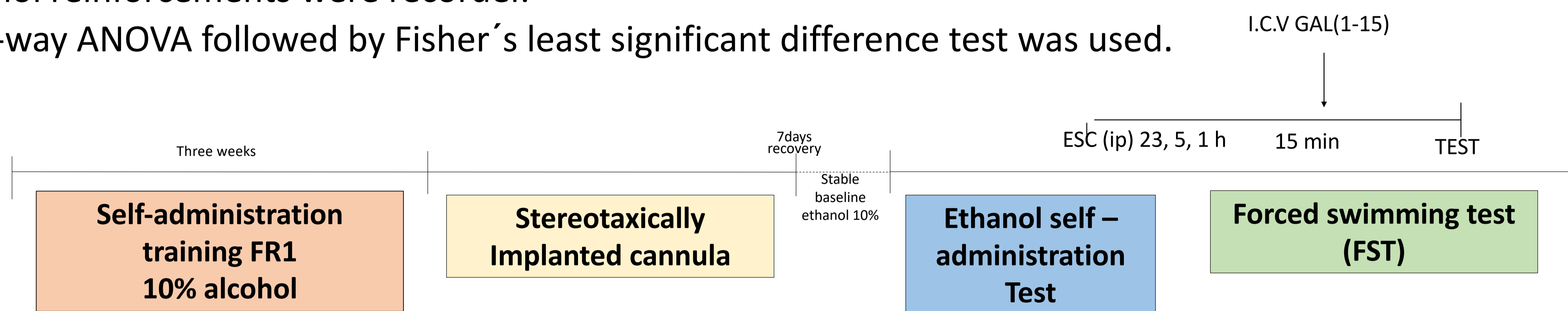
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INTRODUCTION

Recently, we have described that Galanin(1-15)[GAL(1-15)] enhanced Escitalopram(ESC) effectiveness in depression symptoms. Moreover GAL(1-15) induced a substantial reduction in voluntary alcohol consumption. In order to investigate the role of GAL(1-15) and ESC in anhedonic behaviour we have analyzed this combination in the saccharine self-administration test. In addition, to investigate the effect of GAL(1-15) on ESC-activity in depression-alcoholism comorbidity, we used the ethanol self-administration test and the forced swimming test (FST) in rats, after a chronic alcohol consumption.

MATERIAL AND METHODS

- **Male Sprague Dawley rats** were stereotaxically implanted with a unilateral chronic cannula into the lateral cerebral ventricle according to the atlas of Paxinos and Watson.
- **Saccharin self-administration.** Groups of rats received three times intraperitoneal injections of ESC (2.5mg/Kg) 23, 5 and 1h before the test and one icv injection of GAL(1-15) (1nmol) 15 minutes before the test.
- **Ethanol self-administration and FST.** Rats were trained to self-administer ethanol 10%. Groups of rats received three times intraperitoneal injections of ESC (2.5mg/Kg or 7.5mg/Kg) 23, 5 and 1h before the test and one icv injection of GAL(1-15) (0.3nmol or 1nmol) 15 minutes before the test. In the FST, two swimming sessions will be conducted: a 15min pretest followed 24 h later by a 5 min test.
- During the **30 min test sessions**, the responses on the active lever, inactive lever and number of saccharin or alcohol reinforcements were recorder.
- One-way ANOVA followed by Fisher's least significant difference test was used.



CONCLUSIONS

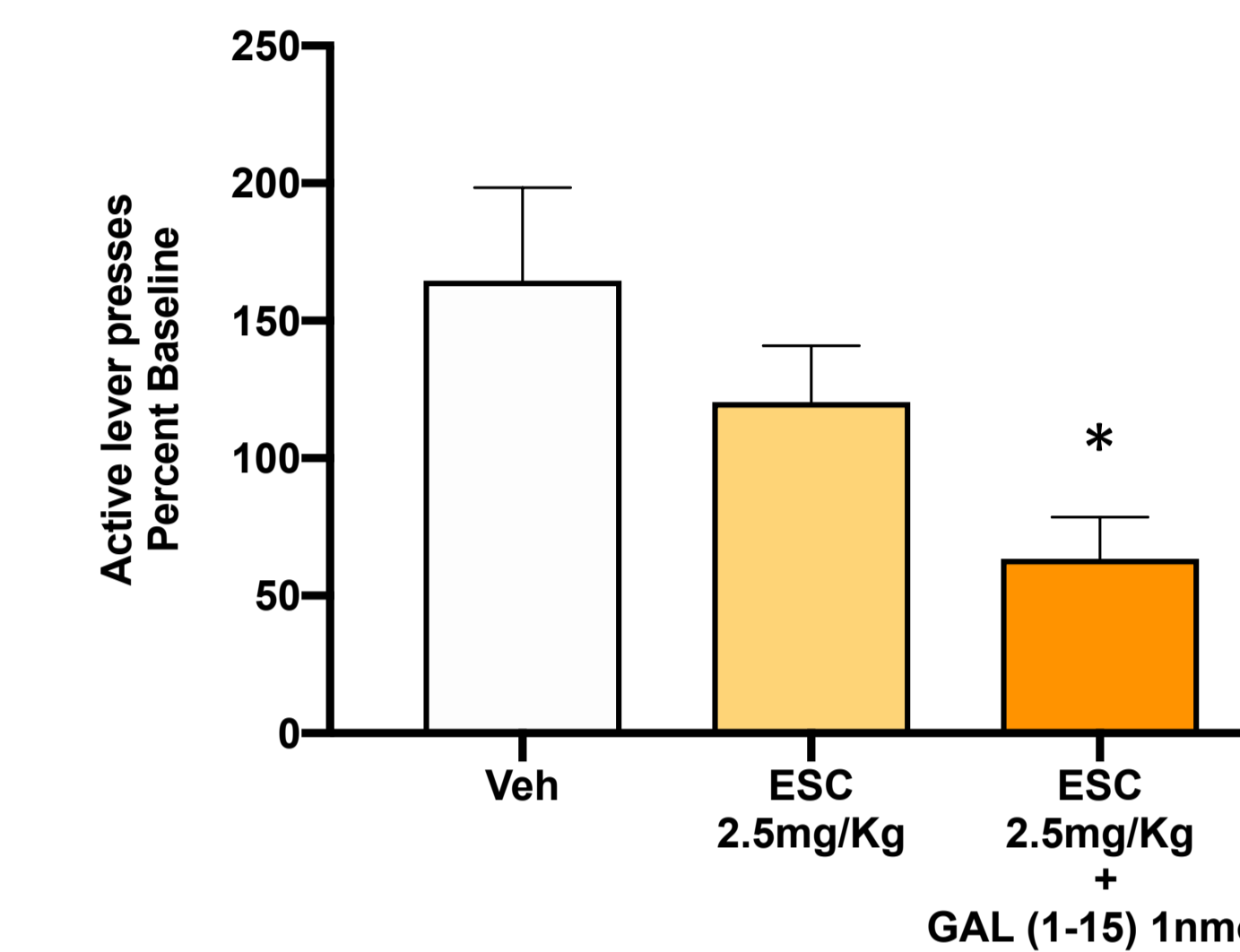
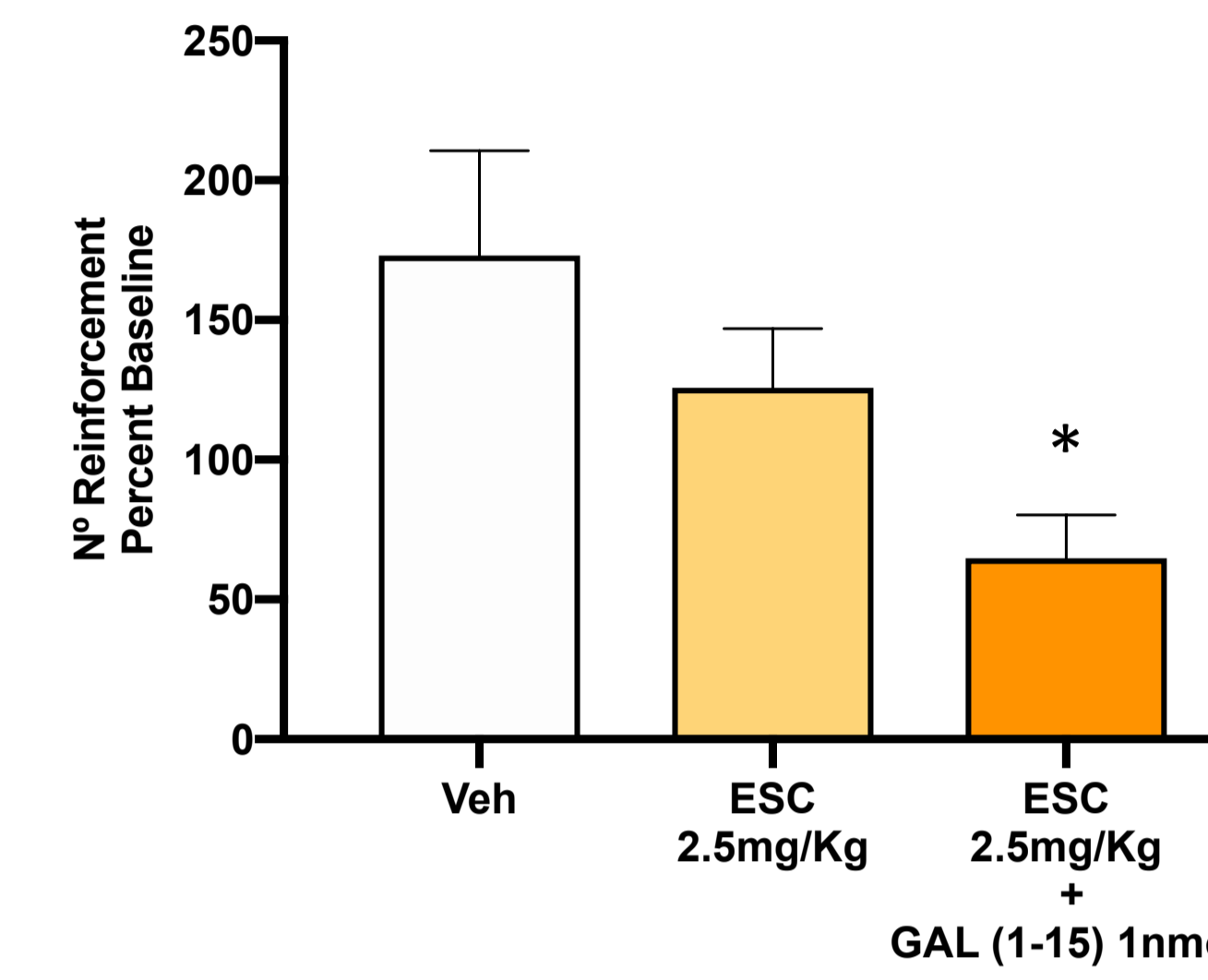
- ▶ Our results indicate a potent effect of the combination GAL(1-15) with ESC in reducing the reward-seeking motivated by alcohol with a significant reduction of depressive adverse effects in rats
- ▶ The results open up the possibility to use GAL(1-15) in combination with Escitalopram as a novel strategy in AUD comorbidity with depression.



The Combination of Galanin (1-15) and Escitalopram in Rats Suggests a New Strategy for Alcohol Use Disorder Comorbidity with Depression. Biomedicine. 2022 Feb 9;10(2):412. doi: 10.3390/biomedicine10020412.

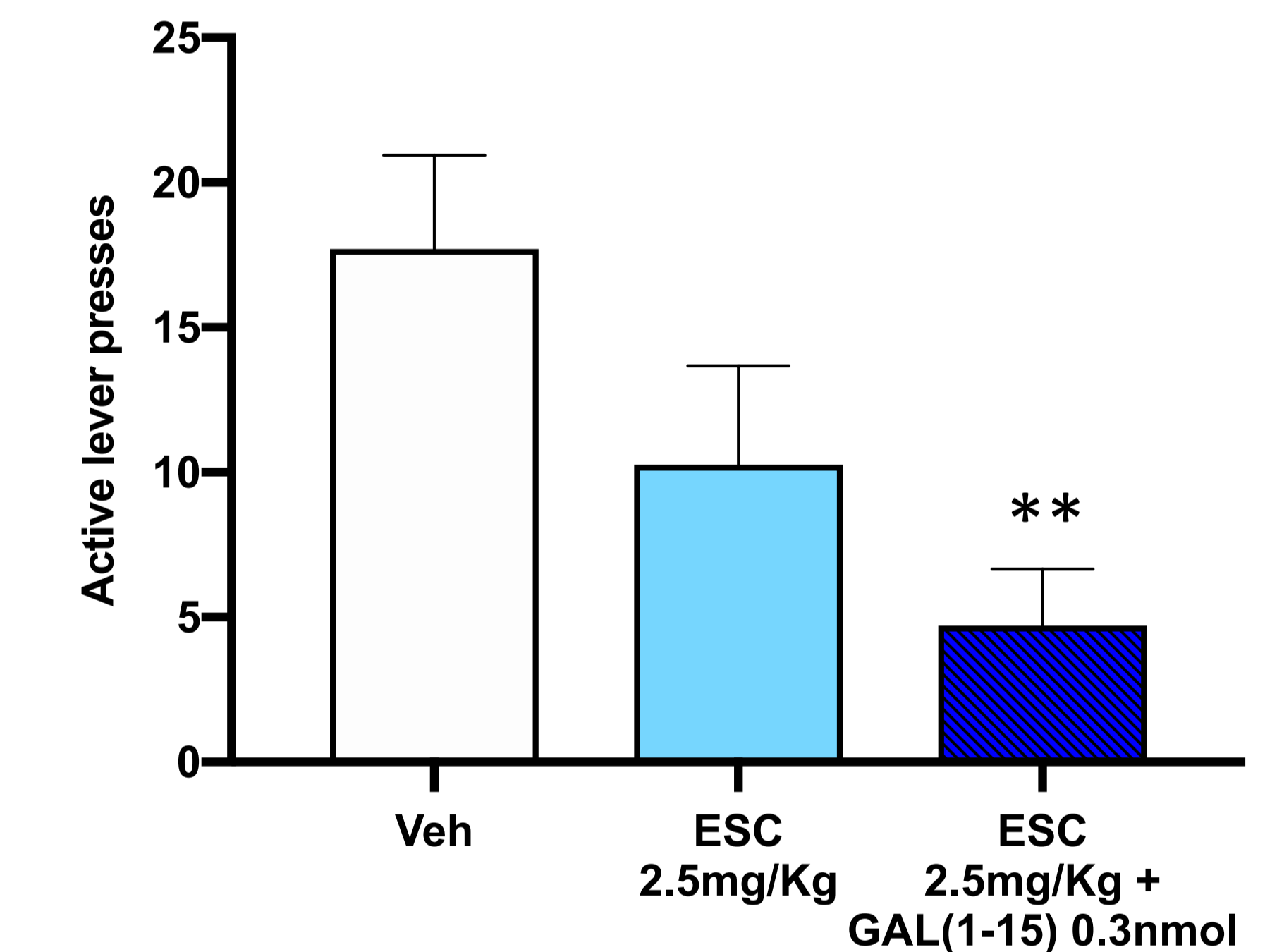
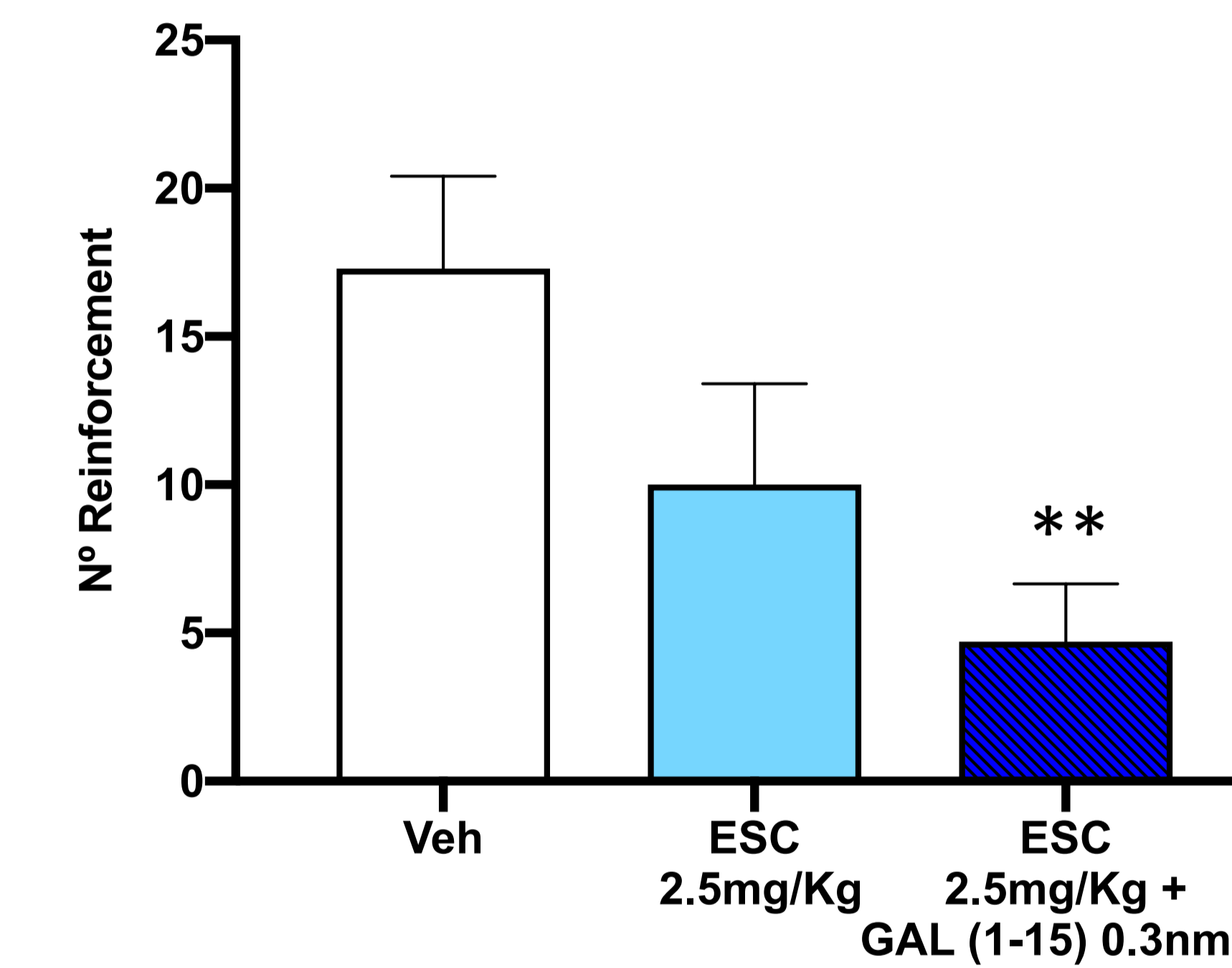
RESULTS

Saccharin Self-administration Test



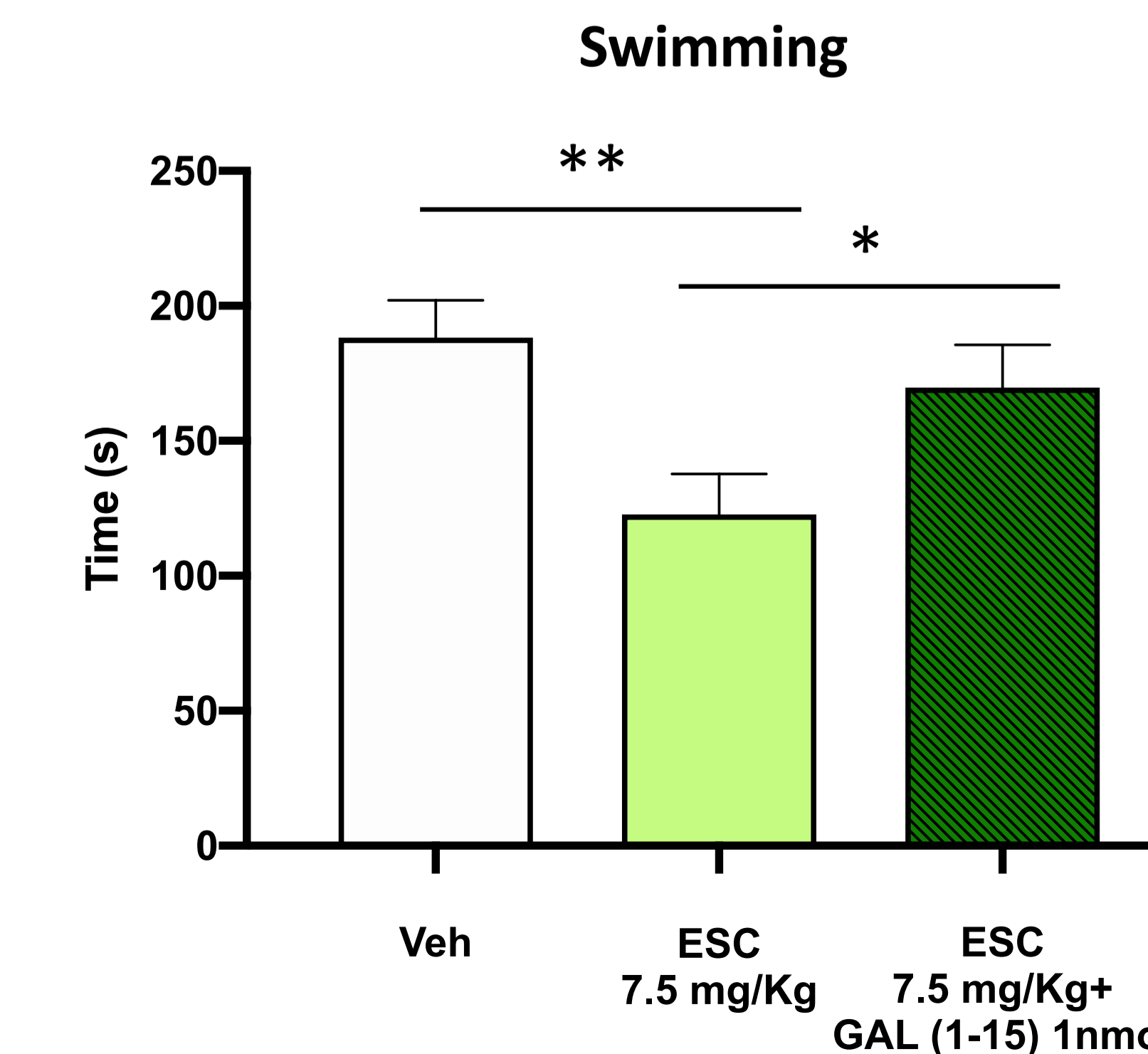
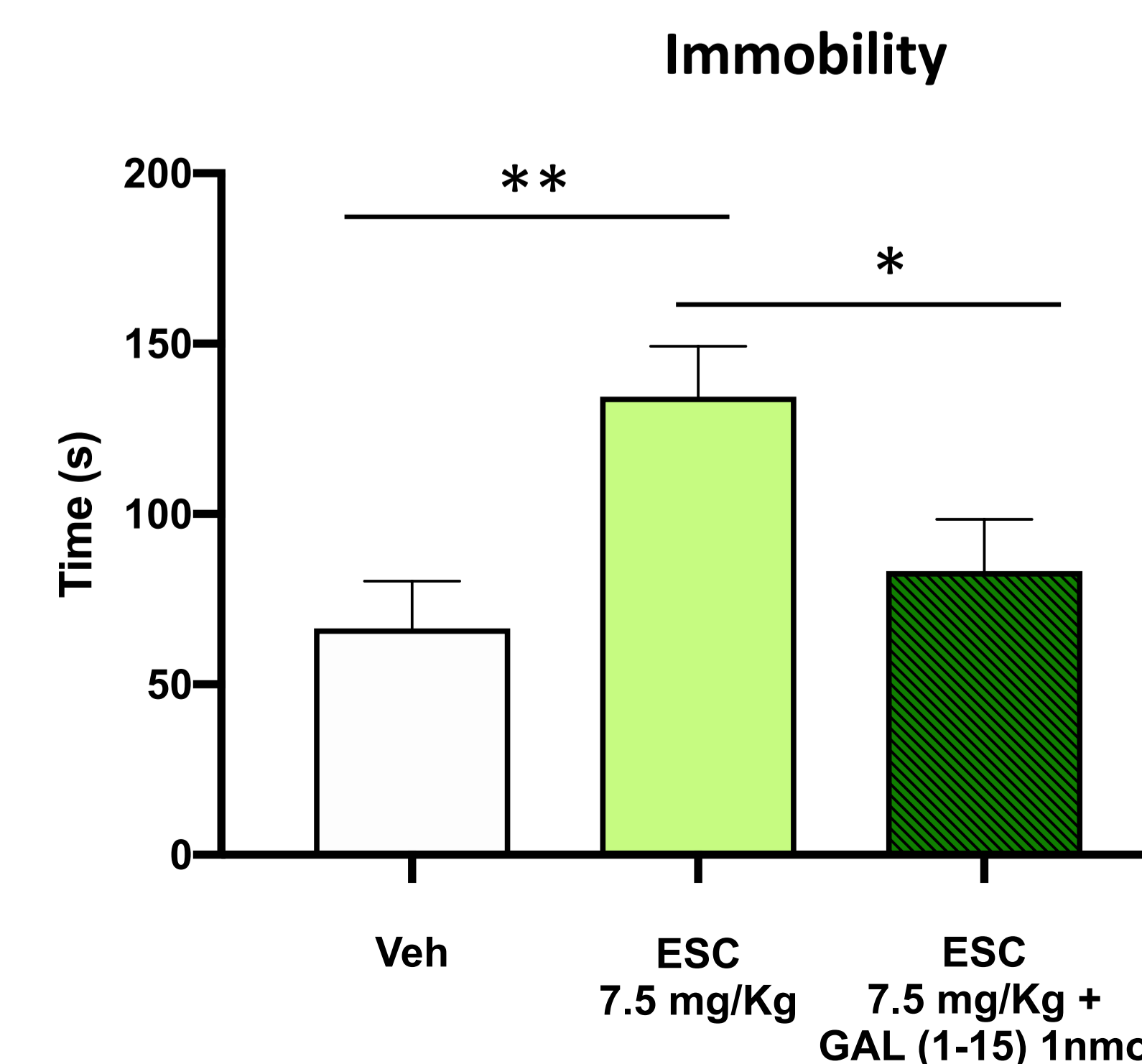
GAL(1-15)(1nmol) and ESC (2.5mg/Kg) induced a strong reduction in the number of reinforcements of saccharine (p<0.05) and in the number of active lever presses (p<0.05).

Ethanol Self-administration Test



GAL(1-15)(0.3nmol) enhanced the reduction of alcohol intake mediated by ESC (2.5mg/Kg). GAL(1-15) in combination with ESC decreased the number of alcohol reinforcements (p<0.01) and the number of active levers pressed (p<0.01) by around 50%.

Forced Swimming Test



GAL(1-15) reversed adverse ESC-mediated effects. The coadministration of GAL(1-15)(1nmol) and ESC (7.5mg/Kg) showed a significant decrease in immobility (p<0.05) and an increase in swimming (p<0.05) compared with ESC group.