

Metabolic changes induced by chronic psychogenic stress in mice

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Introduction:

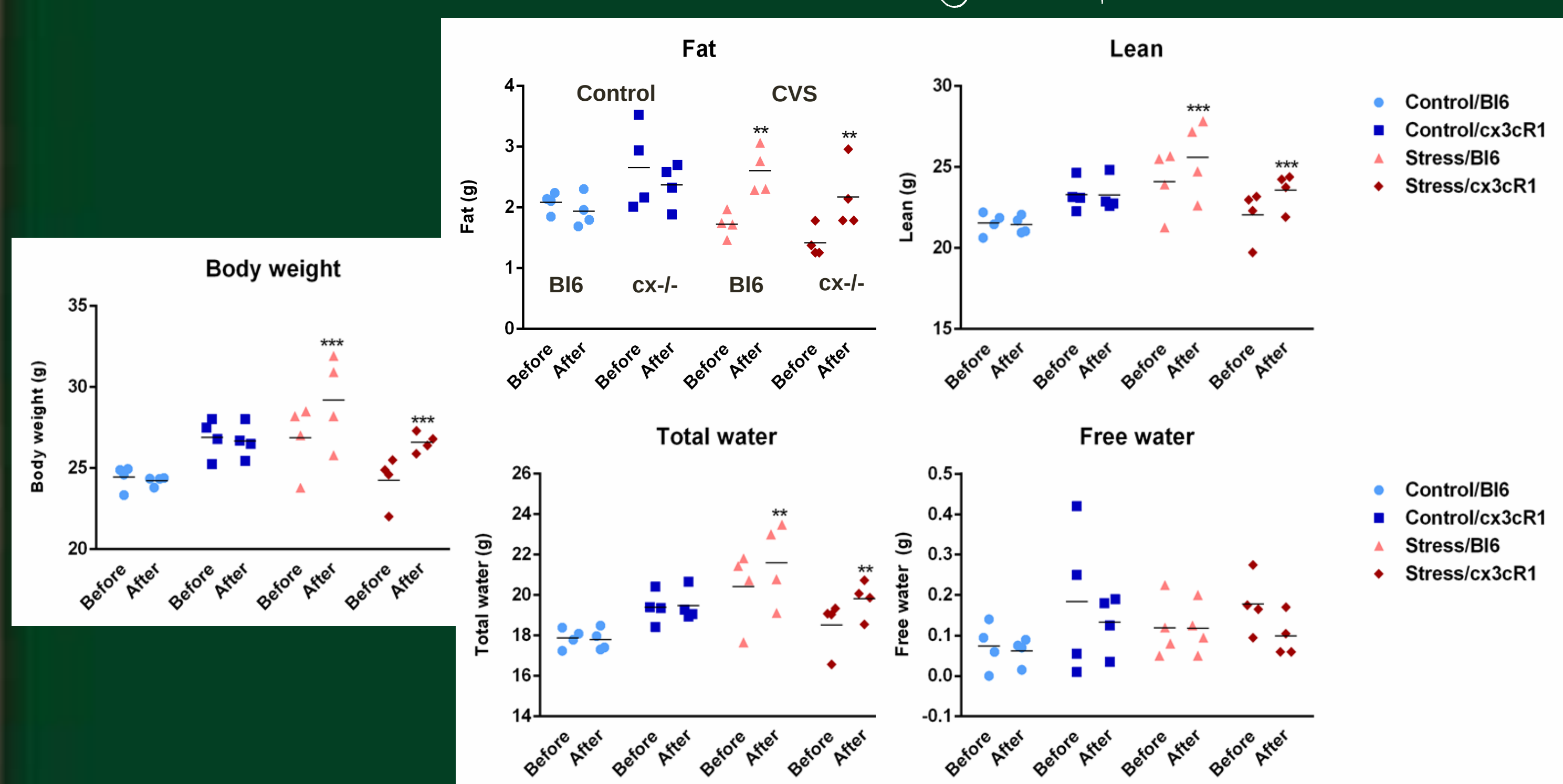
- Coping with stress is metabolically demanding.
- Respiratory Exchange Ratio (RER) is the ratio of CO₂ produced to O₂ consumed while food is being metabolized. High RER (RER=1) indicates mainly carbohydrate- and low (RER=0,7) indicates mainly fat metabolism.
- Nucleus arcuatus is an important regulatory site to control food intake and energy expenditure.
- Microglia plays an essential role in the CNS under chronic stress, and also has impacts on metabolic changes.

Materials and methods:

- Cx3CR1 (GFP/GFP) knock in mice, C57Bl6 genetic background
- Different mild psychological stressors CVS
- EchoMRI & Phenomaster (TSE)
- Corticosterone measurement by RIA
- Iba1, GFAP double immunostaining
- Statistics: two way ANOVA and multiple t-test by Prism 6, n=4/group

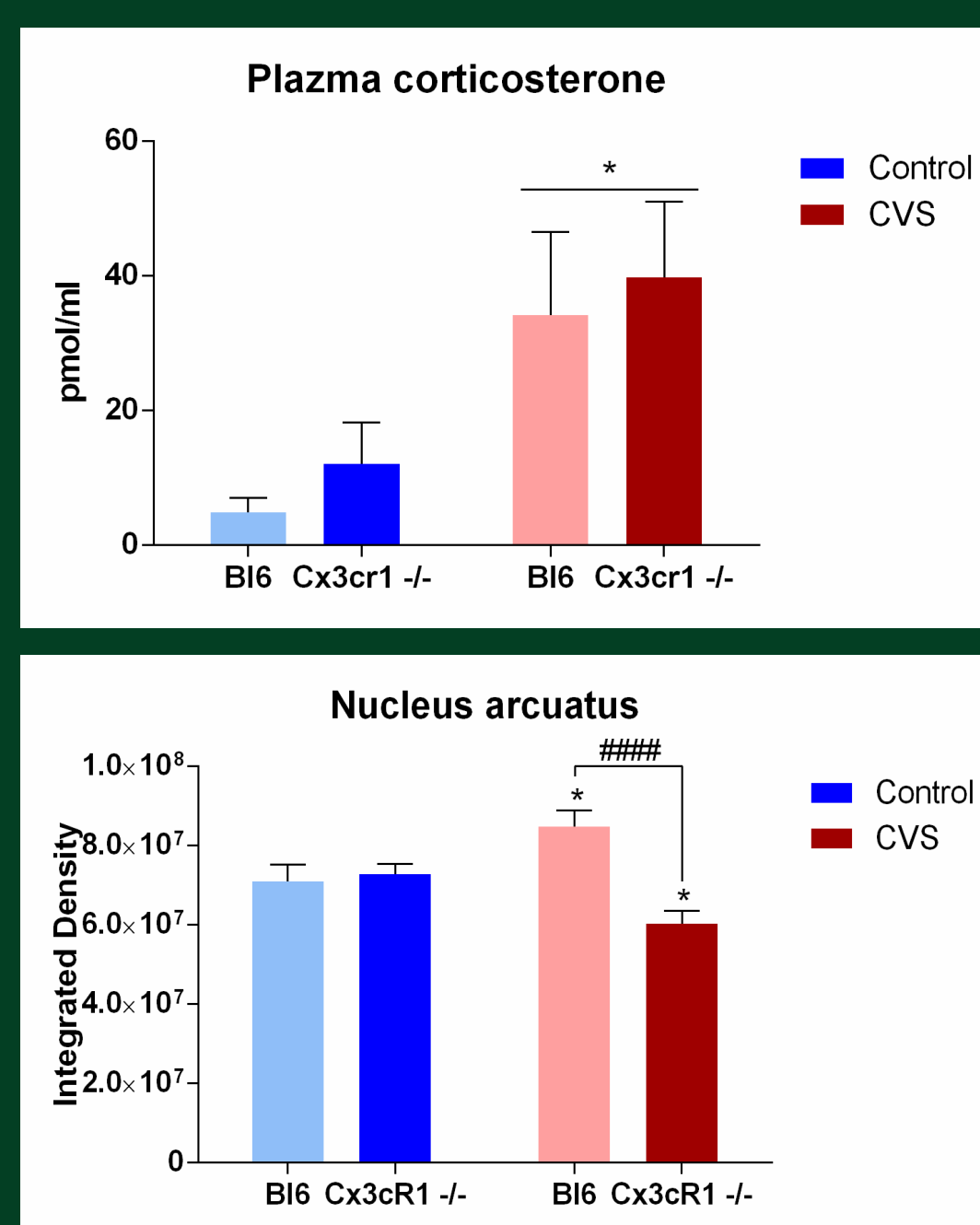
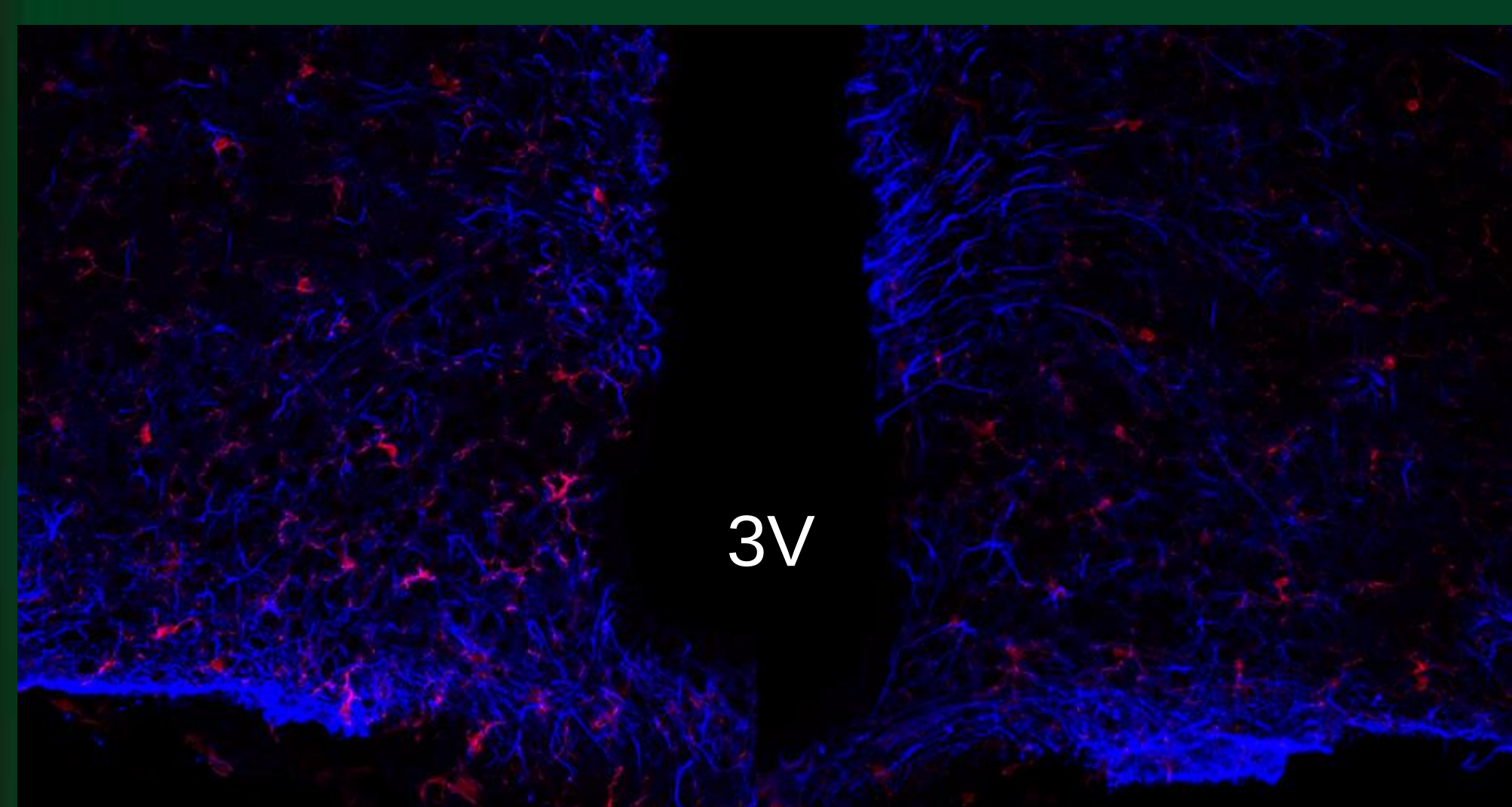
Results:

Body composition:

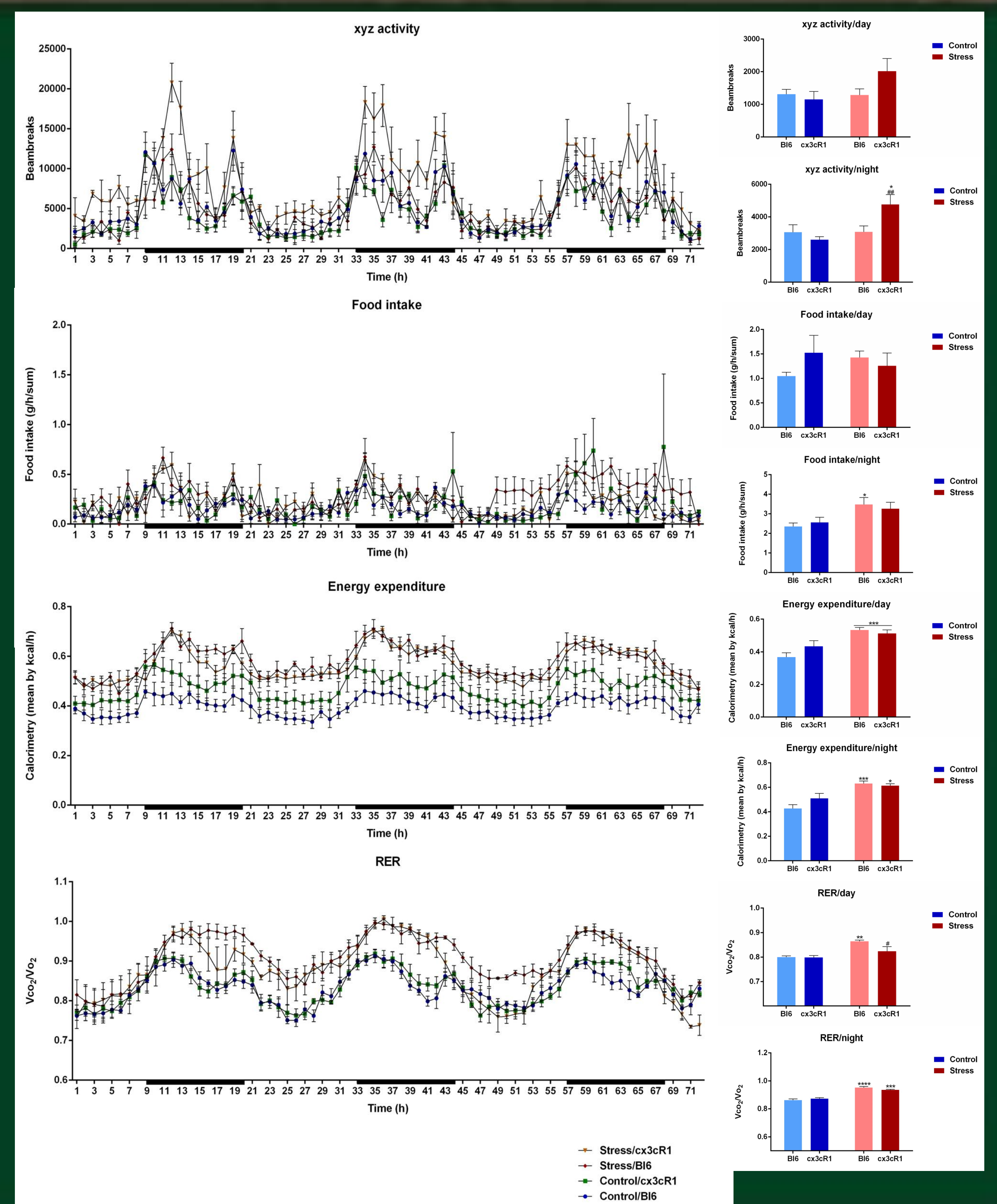


Bl6/stress

Bl6/control



*significance of stress treatment
#significance of genotype



Conclusions:

Chronic stress affects body weight gain, body composition and metabolic parameters. Stress-induced changes in locomotion and RER were different in mice with impaired fractalkine signaling compared to wild type. Chronic stress resulted in microglia activation in the arcuate nucleus, which was not seen in CX3CR1 -/- mice