早稲田大学 人間科学学術院 人間科学会 諸費用補助成果報告書(Web 公開用)

発表題目(※学会発表の場合のみ記載)	14 日間の暑熱暴露は温度受容 TRP チャネルの変化を介して、行動 生体温調整を変化させる
のみ記載、共同発表者の氏 名も記載すること)	増田雄太、坂井里帆、加藤一聖、永島計
発表者(※学会発表の場合	
発表学会・大会 または事業名・開催場所	第 44 回日本神経科学大会/CJK 第 1 回国際会議
発表年月 または事業開催年月	2021年 7月
所属・資格(※学生は課程・ 学年を記載。卒業生・修了生は 卒業・修了年月も記載)	博士後期課程4年
申請者(ふりがな)	増田雄太 (ますだゆうた)

発表の概要と成果(抄録を公開している URL がある場合、「概要・成果」を記載した上で、URL を末尾に記してください。また、抄録 PDF は別途ご提出ください。なお、抄録 PDF は Web 上には公開されません。)

Introduction. It is well known that heat acclimatization accompanies the reduction of heat sensation, which may influence behavioral responses to heat. However, the influence is not investigated well. Although invivo experiment showed that the expression of the TRPV1 channel decreased after heat stimulus, it remains unclear if such change is responsible for the change in heat sensation. We aimed to evaluate the behavioral response to heat in heat acclimated mice and tested the hypothesis that the expression of TRPV1 channels affects the behavioral response. Methods. Male C57BL/6 mice (n=22; age, 7 w) were divided into heat exposure and control groups (HE and CON groups, respectively). They have placed the intraabdominal temperature (Tabd) sensor and individually housed it for 2 w at 33°C and 25°C in the HE and CON groups, respectively. After the period, mice were assessed behavioral response with the cross-shaped system for 90 min, which consisted of five Peltier boards (10x10 cm) arranged in a cross. The temperature setting was that any one of the 4 boards located at the end of the cross was 32°C and the others 38°C. The board set at 32°C was randomly changed every 5 min. T_{abd} and the ratio to the total at which mice stayed on the 32°C board were assessed. Mice were killed by overdose anesthetics and the dorsal root ganglia (Th 5-12) was excised, and the protein expression of the TRPV1 and V4 were evaluated by immunohistochemistry and Western blotting. Results & Discussion. The ratio of 32°C selection was smaller in the HE than in the CON group (58 \pm 12 and 78 \pm 11%, respectively). T_{abd} in the HE group was lower than that in the CON group at 70-90min (37.1 \pm 0.1°C and 35.8 \pm 0.4°C, respectively). The expression of the TRPV1 was smaller in the HE than in the CON group, but there were no differences in that of the TRPV4. These results may suggest that heat acclimation changes behavioral thermoregulatory responses to heat. Moreover, decreased expression of the TRPV1 channels may be involved in the mechanism in a part.