

Stress-induced changes of cytoplasmic free calcium in lectin-simulated mouse T lymphocytes

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SUMMARY

Extreme environmental or homeostatic changes provoke an adaptive stress-response of the organism. In our present work we have investigated the effect of "overcrowd-stress" on the Concanavalin-A stimulated cytoplasmic free Ca concentration of mouse splenic T lymphocytes. Mice were kept under "normal" ($68 \text{ cm}^2/\text{animal}$) or "overcrowded" ($22 \text{ cm}^2/\text{animal}$) conditions for 10 days. No change was observed in resting Ca after overcrowd-stress. The lectin-induced rise in intracellular Ca level of splenic T lymphocytes, however, was three times higher ($p < 0.01$) in stressed mice compared to the control group.

INTRODUCTION

A significant rise in intracellular calcium concentration is one of the first signals of T lymphocyte activation [1,2]. Overcrowding and other forms of psychosocial stress were shown to modulate the immune response in mice and rats [3-6]. In our present study we have investigated the effect of "overcrowd-stress" on resting and stimulated cytoplasmic free Ca concentration of mouse splenic T lymphocytes.

MATERIALS AND METHODS

Reagents and cells

Concanavalin-A (type IV), digitonin, dimethyl-sulfoxide (DMSO), EGTA,