

**Publication****Acute stress induced modifications of calcium signaling in learned help-  
less rats****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 107231**Author(s)** Velbinger, K; De Vry, J; Jentsch, K; Eckert, A; Henn, F; Müller, W E**Author(s) at UniBasel** [Eckert, Anne](#) ;**Year** 2000**Title** Acute stress induced modifications of calcium signaling in learned helpless rats**Journal** Pharmacopsychiatry**Volume** 33**Number** 4**Pages / Article-Number** 132-7

Previous reports have demonstrated reduced elevations of free intracellular calcium concentration in blood cells of depressed patients after various stimuli. Therefore, a disturbance of intracellular calcium ( $\text{Ca}^{2+}$ ) homeostasis has been postulated to be involved in the pathophysiology of mood disorders. It was the aim of the present study to investigate whether  $\text{Ca}^{2+}$  signaling was affected in spleen T-lymphocytes of rats submitted to a learned helplessness paradigm, an animal model of depression with a high level of construct, face and predictive validity. In addition, we tested for effects of acute stress on the  $\text{Ca}^{2+}$  signaling in helpless rats, as compared to non-stressed rats. It was found that mitogen-induced  $\text{Ca}^{2+}$  signaling only tended to be reduced in helpless rats. However, when helpless rats were submitted to acute immobilization stress,  $\text{Ca}^{2+}$  signaling appeared to be significantly blunted, whereas the same stressor did not affect  $\text{Ca}^{2+}$  signaling in the non-helpless control rats. These acute stress-induced differences in  $\text{Ca}^{2+}$  signaling were not paralleled by a differential increase in plasma corticosterone. It is hypothesized that blunted  $\text{Ca}^{2+}$  signaling, as assessed in spleen T-lymphocytes of helpless rats, may be a correlate of the increased vulnerability of helpless rats to acute stressors.

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