

## Publication

### $\beta$ -Amyloid protein amplifies calcium signalling in central neurons from the adult mouse

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The role of beta-amyloid in Alzheimer's disease and its cellular mechanism of action are still unclear. Based on observations that beta-amyloid influences neuronal calcium homeostasis we investigated the effect of the peptide on K(+)-induced enhancement of free intracellular calcium in dissociated neurons from adult mice. Preincubation with beta-amyloid fragment 25-35 at concentrations  $\geq 0.05$   $\mu\text{mol/l}$  resulted in marked amplification of the K(+)-induced  $\text{Ca}^{2+}$  response. This effect was also observed with fragment 1-40, whereas fragment 1-28 or 12-28 did not affect the  $\text{Ca}^{2+}$  response. This preparation therefore presents a valuable model to investigate the action of beta-amyloid ex vivo in individual animals. Our findings suggest a small but consisting destabilizing effect of beta-amyloid on neuronal  $\text{Ca}^{2+}$  homeostasis resulting in chronically increased neuronal vulnerability.

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