S30-4 **Endogenous concentration of organotin makes neurons vulnerable**

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Organotins such as tributyltin (TBT), endocrine-disrupting chemicals, have been used commercially as a heat stabilizer, agricultural pesticide and component of antifouling paints. Endogenous level of organotins is close to toxic concentration, and they are detected in human blood and in the brain of non-treated experimental animals at a few dozens nM. Though the neurotoxicity of organotins is reported as one of the toxicity, its mechanism remains unknown. We investigated the effect of long-term exposure to endogenous levels of TBT on neuronal glutamate receptors in cultured rat cortical neurons. TBT (20 nM) for 9 days (from day 2 to day 10 *in vitro*) decreased both GluR2 mRNA and protein. Because AMPA receptor lacking GluR2 exhibits Ca^{2+} permeability, we investigated whether Ca2+ influx or glutamate toxicity was affected. Indeed, glutamate-induced Ca^{2+} influx was increased in TBT-treated neurons. Consistent with this, neurons became more susceptible to glutamate toxicity as a result of long-term exposure to TBT. Thus, it is suggested that long-term exposure to endogenous levels of TBT induces a decrease of GluR2 protein, causing neurons become more susceptible to glutamate toxicity. The mechanism of GluR2 expression will also be discussed.