

- **PSY-01-003-IP**

### **Interaural time difference coding in mammals: a revision of the Jeffress-model**

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Interaural time differences (ITDs) are the main cue for localizing low frequency sounds. They are initially encoded in the medial superior olive (MSO). Jeffress (1948) proposed the idea that ITDs are encoded by an arrangement of coincidence detector neurons that receive excitatory inputs from both ears via systematically arranged delay-lines, creating a topographic map of azimuthal space. However, our in-vivo-recordings from the gerbil MSO show that ITD sensitivity is not solely based on coincidence detection of excitatory inputs but relies on well-timed inhibition. Moreover, they indicate that, in the mammalian auditory system, ITDs are not represented in a topographic manner