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Presentation Abstract

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Presentation Title:	Characterization of acid-sensing ion channels in the mouse amygdala
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Торіс:	++B.04.a. Sodium channels
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Abstract:	Acid-sensing ion channels (ASICs), a member of the degenerin/epithelial sodium channel superfamily, are abundantly expressed in the amygdala. Ample evidence suggests that ASICs in the amygdala are critical for fear learning and memory. For instance, ASIC1a knockout mice display reduced conditioned fear, whereas overexpression of ASIC1a channels in the amygdala restored function of ASIC1a knockout mice. The amygdala is

composed of several subnuclei that can be classified into two groups, cortex- and striatum-like structures. Each subnucleus comprises heterogeneous populations of neurons. Despite the importance of ASIC in amygdala circuitry, the expression pattern and properties of ASIC in distinct types of amygdala neurons remain largely unknown. Here, we measured ASIC current density and kinetics in the different types of amygdala neurons. Our results showed that except fast-spiking interneurons, ASICs are highly expressed in glutamatergic principal neurons and GABAergic interneurons in the cortex-like structure (i.e. basal and lateral nuclei). By contrast, in the striatum-like structure (i.e. lateral and medial nuclei of central amygdala and intercalated nuclei), ASICs are preferentially expressed in low-threshold spiking neurons compared to other types of GABAergic neurons. Although ASICs are differentially expressed in the amygdala, ASIC current kinetics in different types of neurons is quite similar. This results suggest that ASIC expression may render amygdala neurons differential roles in fear circuitry. Disclosures: P. Chiang: None. C. Lien: None. Keyword (s): Amygdala Acid-sensing ion channels FEAR

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