POSTER PRESENTATION

## A289 Noradrenergic system influences spatial decision-making tasks depending on the ambiguity

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Electrophysiological and computational studies have suggested that noradrenaline (NA) system originating form locus coeruleus (LC) is crucial for an optimal decision-making which needs to assess and comprehend the utility of options. According to adaptive gain theory, higher discharge activity of LC-noradrenaline (NA) neurons enhance exploration state to assess the utility, and the exploration state is more required in higher ambiguity in which subjects have to grasp the utility to make advantageous choice. However, few study empirically examine effects of direct activation of the NA system on decision-making under ambiguity, or demands of exploration. Therefore, we examined the effects of NA activation in T-maze decision-making tasks with different ambiguity. An advantage arm is 4 pellets at 33% in higher ambiguity condition or is 6 pellets at 33% in lower ambiguity condition, contrasting to disadvantage option (1 pellet at 100%). NA release was activated with the alpha2 receptor antagonist, idazoxan (2mg/kg i.p.). The results showed that idazoxan injection increased advantage arm choice in higher ambiguity condition, and contrastingly decreased advantage arm choice in lower ambiguity condition. These data suggest that appropriate activity of NA system is required for optimal decision-making through regulation of the exploration state.

**Session Details**

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