1. **No.**

   FP01912215

2. **Title**

   Elucidation of the Role of the Bed Nucleus of the Stria Terminalis in Induction of Pleasant/Unpleasant Emotions by Nicotine Intake/Withdrawal.

3. **Period**

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4. **Summary**

   Recent studies have revealed that neurotransmission in the bed nucleus of the stria terminalis (BNST) is involved in the generation of unpleasant emotions in alcohol withdrawal. Furthermore, our previous studies have shown that neurotransmission in the BNST is involved in pain-induced unpleasant emotions. In this study, as the first step to elucidate the role of the BNST in unpleasant emotions induced by nicotine withdrawal, we examined neural activity changes in the BNST during nicotine withdrawal. In this study, we investigated the changes in neural activity in the BNST during nicotine withdrawal by immunostaining for the neural activity marker c-Fos and measuring noradrenaline release by in vivo microdialysis. The number of c-Fos-positive cells increased in the dorsal part of the BNST in the nicotine withdrawal group. However, the increase in c-Fos-positive cells was also observed in the control group, suggesting that the increase in c-Fos-positive cells was due to the effect of mecamylamine alone, but no due to nicotine withdrawal. In vivo microdialysis showed that nicotine withdrawal increased noradrenaline release in the BNST. This study demonstrated that nicotine withdrawal enhanced noradrenergic neurotransmission in the BNST. In the future study, behavioral analyses using conditioning place aversion tests should be conducted to determine whether this enhanced noradrenergic neurotransmission is involved in the induction of unpleasant emotions by nicotine withdrawal..