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2. Title
   Pathophysiological Significance of Nicotinic Acetylcholine Receptors on the Intestinal Mucosal Wound Repair

3. Period
   2023-2025

4. Summary

   In chronic inflammatory conditions such as inflammatory bowel disease, insufficient mucosal healing is thought to lead to a vicious cycle of recurrent relapse. In this study, we aimed to elucidate the pathophysiological significance of nicotinic acetylcholine receptors (nAChRs) in the process of intestinal mucosal healing.

   The mucosal healing process was analyzed using a dextran sulfate sodium-induced colitis model. During the recovery phase following colitis, the expression of *Chrn9* and *Chrn10* in colonic tissues were increased compared with those under normal conditions, whereas the expression of *Chrn7* decreased. To further examine the functional role of nAChRs, we established an *in vivo* colonic mucosal wound healing model and *in vitro* wound healing model using a human colonic epithelial cell line, and evaluated the effects of nicotine. As a result, nicotine treatment did not exert a significant effect on wound healing in either model.

   In summary, although dynamic changes in the expression of nAChR subtypes were observed during the healing phase following colitis, these findings suggest that activation of nAChRs by nicotine does not directly contribute to wound healing in physically injured colonic mucosa.