# Conformational study of gastrin releasing peptide by NMR and molecular modeling

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Gastrin releasing peptide (GRP), a 27-amino acid peptide, is homologous to the carboxyl terminus of bombesin which was isolated from the skin of the frog *Bombina bombina*. Bombesin and GRP have various biological functions including stimulation of smooth muscle contraction, amylase secretion, effects on temperature regulation, and stimulation of mitogenesis[1]. Especially, GRP selectively binds to the GRP receptor (GRPR). The GRPR belongs to bombesin receptor family that includes GRPR, NMBR, the amphibian BB4, and the orphan receptor, BRS-3. Although the bombesin receptor family shows high sequence homology, they have a significant selectivity for the bombesin peptide family members, but the reason for this selectivity is not known well. Recently, molecular modeling study for the GRPR was performed. In the study, the importance of K101, Q121, A198, P199, S293, R288, T297 in the GRPR for GRP selectivity was suggested. In order to understand the selectivity, we carried out the conformational study of GRP using NMR spectroscopy and molecular modeling.

## Reference

1. J. B. Kim, A. Johansson, S. Holmgren, J. M. Conlon. Gastrin-releasing peptides from Xenopus laevis: purification, characterization, and myotropic activity (2001). Am. J. Physiol. Regul. Integr. Comp. Physiol. 281(3), R902-8.