

Accepted Manuscript

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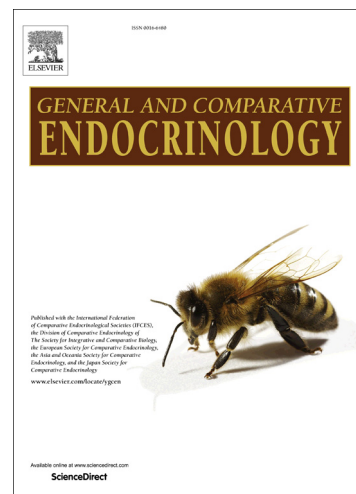
PII: S0016-6480(18)30160-6
DOI: <https://doi.org/10.1016/j.ygcen.2018.05.022>
Reference: YGCEN 12948

To appear in: *General and Comparative Endocrinology*

Received Date: 16 March 2018
Revised Date: 28 April 2018
Accepted Date: 17 May 2018

Please cite this article as: Xian, Y., Zhao, X., Wang, C., Kang, C., Ding, L., Zhu, W., Hang, S., Phenylalanine and Tryptophan stimulate gastrin and somatostatin secretion and H^+-K^+ -ATPase activity in pigs through calcium-sensing receptor, *General and Comparative Endocrinology* (2018), doi: <https://doi.org/10.1016/j.ygcen.2018.05.022>

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Phenylalanine and Tryptophan stimulate gastrin and somatostatin secretion and H^+K^+ -ATPase activity in pigs through calcium-sensing receptor

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Abstract

In rodents and humans, aromatic amino acids increase gut hormone secretion and H^+K^+ -ATPase activity by modulating calcium-sensing receptor (CaSR). However, the role of CaSR and its related signaling molecules in amino acid-induced gut hormone secretion in swine has not been investigated. Here, we examined whether a CaSR-dependent pathway modulated gastrin and somatostatin (SS) secretion and H^+K^+ -ATPase activity in pigs. Perfusion of pig stomach tissues in the presence of extracellular 80 mM L-phenylalanine (Phe) or 20 mM L-tryptophan (Trp) and a CaSR agonist cinacalcet triggered gastrin and SS secretion and H^+K^+ -ATPase activity ($P < 0.05$) and increased *CaSR* expression ($P < 0.05$). This effect of Phe and Trp was dependent on Ca^{2+} ($P < 0.05$) and was abolished after treatment with NPS 2143, an inhibitor of CaSR, and 2-aminoethyl diphenyl borinate, an inhibitor of CaSR

¹ enteroendocrine cells: specialized cells of the gastrointestinal tract and pancreas with endocrine function.

² Phospholipase C: a class of membrane-associated enzymes that cleave phospholipids just before the phosphate group.

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