Appetite suppressing peptide derived from milk protein

Prevents overeating by suppressing secretion of ghrelin, appetite-promoting endogenous hormone

◆ Background
Ghrelin is an endogenous peptide hormone secreted from stomach that promotes appetite. Levels of ghrelin in the blood rise when fasting and decrease after eating. Hence, a drug capable of controlling such ghrelin levels is sought in order to prevent obesity caused by overeating.

◆ Description
Researchers at Kyoto University have developed novel peptides derived from β-lactoglobulin with ghrelin suppressing activity.

- **Downregulated in-blood ghrelin level by oral administration to mouse**
- **Dose-dependent suppression of ghrelin secretion verified in vitro**
Effective ghrelin suppression with more than 0.01mM of the novel peptide
- **First-in-class food protein-derived peptide with ghrelin suppressing activity**
Low risk of side effect by using raw material derived from edible product
- **Drug substance obtainable by low-cost production**
β-lactoglobulin contained rich in milk can be used as a source for the peptides.

◆ Development Status
- Ghrelin level downregulation verified *in vivo* (mouse)
- Dose-dependent ghrelin suppression verified *in vitro*
- Ongoing research* on mechanism of action

*After analyzing cytoplasmic cAMP, the activation of forskolin’s adenylate cyclase was found to be suppressed effectively.

◆ Application
- Therapeutic peptide (Anti-obesity drug)
- Appetite-suppressing functional food

◆ Offer
- Patent license within the field of functional food

◆ Contact
Naoko Fujita
Licensing Associate
Kansai TLO Co., Ltd.
Mail: fujita@kansai-tlo.co.jp
Phone: +81-75-753-9150
Level 4, International Science Innovation Bldg, Kyoto University, Yoshidahonmachi, Sakyoku, Kyoto 606-8501, Japan

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**Fig. 1:** Ghrelin level suppression by oral administration to mouse

[p<0.05, mean ± s.e.m. (n=6). One-way ANOVA, Tukey-Kramer]

<table>
<thead>
<tr>
<th>Condition</th>
<th>Plasma acyl-ghrelin (ng/ml)</th>
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<tbody>
<tr>
<td>Control</td>
<td>1000</td>
</tr>
<tr>
<td>Fasting 0.3mg/kg</td>
<td>900</td>
</tr>
<tr>
<td>Fasting 1mg/kg</td>
<td>500</td>
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</tbody>
</table>

- Fasting
- Sample (p.o.)
- Measurement of plasma ghrelin
- -18 0 1 hr