GLP-1 (glucagon-like peptide-1) is a hormone secreted from L cells of the small intestine which promotes the secretion of insulin from the pancreas. GLP-1 has the characteristic of secreting insulin only in high blood glucose level. Promoting the secretion of GLP-1 for people with higher blood glucose levels is considered effective way for the prevention of diabetes.

We confirmed through the collaboration research with Tokyo University of Agriculture and Technology that HYA (10-hydroxy-cis-12-octadecenoic acid) promoted the secretion of GLP-1 through long chain fatty acid receptor (GPR 40 and GPR 120). Its activity was higher than that of linoleic acid itself, a precursor of HYA, and suggesting that fatty acid metabolism of lactic acid bacteria may contribute to human health. HYA is a promising material to improve blood glucose level, and it is expected to be applied as a functional food.

**HYA (10-hydroxy-cis-12-octadecenoic acid) promotes the secretion of GLP-1**

**Experiment 1** Single dose study of HYA

<table>
<thead>
<tr>
<th>GLP-1 (pg/mL)</th>
<th>None</th>
<th>HYA</th>
<th>LA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLP-1</td>
<td>20</td>
<td>30</td>
<td>15</td>
</tr>
</tbody>
</table>

Method:
- HYA group was administered HYA 1000 mg/kg.
- As control groups, one is the LA group administered linoleic acid 1,000mg/kg. The other is None group which is non-administration.
- The concentration of GLP-1 in the blood was measured after 2 hours from the administration.

**Experiment 2** HYA ligand assay

**HYA has a higher affinity for GPR 40 and GPR 120 than that of LA.**