Anti-Allergy Effects of White Sorghum
Structure of Allergy Onset

- **IgE**
- **Antigen (pollen)**
- **High Affinity IgE Receptor (FceRI)**
- **Mast Cell Basocyte**
- **Granule**
- **Granule Release**
- **Histamine, etc.**

Allergy Symptoms
Effects of WS Bran on suppressing IgE Production

Bran, esp. outer skin contains substances suppressing IgE production sequentially.

Control

内皮 (425 µg/ml)

Effects on suppressing IgE production sequentially.
Oral Administration of WS Bran to Allergy sample mice

Oral administration of WS Bran Extracts (× 1, × 1/20)

0 7 14 21 28 (day)

BALB/c mouse female 6 wk old ♀ (n = 6)

Ip Injection of OVA

Serum collection
Spleen cell collection
Effects of WS Bran Extracts on IgE density in blood

- **[total IgE]**
  - Control IgE density in blood
  - $p < 0.05$

- **[OVA Specific IgE]**
  - Control Antigen-specific IgE level in blood

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>× 1</th>
<th>× 1/20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WS Bran Extract</strong></td>
<td>Ignored</td>
<td>Ignored</td>
<td>Ignored</td>
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</tbody>
</table>

- **WS Bran Extracts**
  - Ignored

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Effects on IgE Gene Expression in Spleen cell of Oral Administration of WS Bran

By suppressing expression of gene in spleen cell, IgE production is controlled.
Effects of Oral administration on Th1/Th2 balance

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<thead>
<tr>
<th></th>
<th>Th1</th>
<th>Th2</th>
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<tbody>
<tr>
<td>Control</td>
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<td>79</td>
</tr>
<tr>
<td>WS Bran Extracts</td>
<td>100</td>
<td>48</td>
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Oral administration of WS bran extracts gave advantage to Th1, and improved allergy conditions.
Effects of WS Bran on de-granulation Control

- **RBL-2H3 cells**
- **IgE**
- **High affinity IgE receptor (FcεRI)**
- **Antigen**

**Graph: % of granule emission**

- **NC**
- **Cont.**
- **0.06**
- **0.17**
- **0.50**

<table>
<thead>
<tr>
<th>WS Bran extracts (%)</th>
<th>% of granule emission</th>
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<tbody>
<tr>
<td>NC</td>
<td>0</td>
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<tr>
<td>Cont.</td>
<td>25</td>
</tr>
<tr>
<td>0.06</td>
<td>p &lt; 0.05</td>
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<tr>
<td>0.17</td>
<td>p &lt; 0.05</td>
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<td>0.50</td>
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</table>

**Notes:**
- IgE: Immunoglobulin E
- FcεRI: A receptor that binds IgE antibodies
- RBL-2H3 cells: A cell line used in allergy research
- De-granulation: The release of granules from cells
- Antigen: A substance that stimulates an immune response