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（書込厳禁）

Synergistic Anti-allergic Effect by Combination of *Enterococcus faecalis* IC-1 (IC-1) and Luteolin

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【Object】 Previous *in vivo* experiments showed synergistic anti-allergic effect by combination of *Enterococcus faecalis* IC-1 (IC-1) and Luteolin in mice both on Immunoglobulin E (IgE) production and mast cell degranulation. Further molecular mechanism has been investigated.

【Method】 In *in vivo* OVA experiment, 6-week female BALB/c mice were gavage injection with test samples for 25 days. First sensitization was performed on 8th day by intraperitoneal injection with OVA plus adjuvant and continued for 2 more times once in 5 days. OVA challenge was performed by intravenously injection. Help T cell (TH) -related gene expression in mice's small intestine has been investigated by Real-time PCR. In *in vitro* experiment, rat basophilic leukemic RBL-2H3 cells were used for inducing mast cell degranulation model. RBL-2H3 were sensitized with specific IgE overnight, then cultured with test samples for 6 h followed by exposed to antigen to induce allergic reactions. The reaction was stopped by cooling on ice followed by β-hexosaminidase assay.

【Result】 In OVA experiment, mice gavage injected simultaneously with IC-1 and Luteolin showed lowest total/OVA-specific IgE level, statistic different from OVA group compared to mice only gavage injected with IC-1 or Luteolin. They also showed tendency of suppressing Th2-related genes (GATA-3, Interlukin-4) expression in small intestine, which implied the combination may be able to correct Th2 shifting therefore to reducing IgE production under allergy condition. In β-hexosaminidase assay, high concentration of Luteolin showed inhibition effect on mast cell degranulation, whereas IC-1 did not. These results implied combination of IC-1 and Luteolin has no direct inhibition of mast cell degranulation but through other mechanism, probably involving with small intestine. Cell co-culture system for mimicking small intestine model will be used for confirming.