Reviewer's report

**Title:** Oral administration of PPC enhances antigen-specific CD8+ T cell responses while reducing IgE levels in sensitized mice.

**Version:** 2  **Date:** 28 September 2009

**Reviewer:** Shuichi Segawa

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In this study, the authors clearly demonstrated that the oral administration of PPC significantly inhibited IgE production by skewing the Th1/Th2 balance toward Th1 dominant. PPC might be promising material to alleviate human allergic symptom. However, there are several issues that should be attended by the authors.

**Discretionary Revisions**

1. Page 5, line 14. It is preferable to describe a precise condition for preparation of PPC. A description such as elevated pH and high temperature is ambiguous.

2. In this study, positive control CpG strongly inhibited the increase in serum IgE level (Figure 2) and promoted allergen-specific IgG2a in comparison with 200 or 2000 mg/ml of PPC administered group (Figure 3). Nevertheless, the administration of 200 or 2000 mg/ml of PPC strongly enhanced the antigen-specific CD8+/IFN-gamma+ T cells in comparison with positive control CpG group (Figure 4). It is commonly thought that IFN-gamma+ Th1-type T cells induce the production of IgG2a antibody and suppress the production of IgE antibody. You had better discuss the reason why the ability of PPC to suppress IgE production and promote IgG2a production was lower than CpG in spite of its higher ability to proliferate the CD8+/IFN-gamma+ T cells.

3. In Figure 6, IL-12p70 production from PPC-treated mouse splenocytes was significantly increased compared to those from untreated mouse splenocytes. However, IFN-gamma production from PPC-treated mouse splenocytes was not enhanced, rather, suppressed compared to those from untreated mouse splenocytes. It is well known that IL-12 stimulates the production of IFN-gamma. You need to discuss the reason for this result.

4. What kind of components contained in PPC is responsible for the improvement of Th1/Th2 balance? In the background section, you mentioned that PPC contains poly-phenylpropanoid-polysaccharide complex. Does this polysaccharide complex have an adjuvant activity and contribute to the improvement of Th1/Th2 balance?

**Minor Essential Revisions**

1. Page 19. The delivery of either IFN-gamma or IFN-gamma lead to ~. I cannot understand this.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.