

Prior Food-Induced Allergic Gut Inflammation Leading To Multiple Food Allergies in C57Bl/6 Mice

Airton Pereira e Silva¹, Bárbara Marmello¹, Isabelle Guimaraes¹, João Soares¹, and Gerlinde Teixeira¹

¹UFF

August 14, 2020

Abstract

Abstract: **BACKGROUND:** Food allergies are usually managed by food avoidance. Hidden allergens in food, due to cross-contamination and/or allergenic additives added during production, place an important concern in today's increasing food allergy cases worldwide. Previous studies showed that introduction of new food components, in an inflamed intestine, results in sensitization to this food. Thus, our aim was to evaluate the kinetics of multiple food allergy induction. **METHODS:** Adult male C57BL/6 mice were divided into five groups, four of which were submitted to an intestinal inflammation induction protocol to peanuts. Egg white (OVA) diluted 1:5 v/v in distilled water was instilled by gavage 6h-before (EXP-1), concomitant (EXP-2) and 6h-after (EXP-3) the onset of the peanut challenge diet. Positive control (POS CONT) and NEG CONT received saline per gavage. Finally, animals were challenged with subcutaneous injections of OVA. **RESULTS:** No changes in diet intake were observed. Anti-OVA total IgG antibody titers significantly increased in EXP-2. Flow cytometry revealed significant decrease in CD4+CD25+Foxp3+ and significant increase in TCD8+ in EXP-2. Histomorphometrically, EXP-2 and EXP-3 were classified as Infiltrative and Partial Destruction stages. EXP-1 was classified as Infiltrative, while POS CONT was classified as Partial Destruction. NEG CONT was classified as Normal. **CONCLUSION:** The introduction of a new food only a few hours before the initiation of a gut inflammation is able to induce oral tolerance, however the introduction of a new dietary protein concomitant to the onset or during an ongoing gut inflammation may induce multiple allergies.

Prior Food-Induced Allergic Gut Inflammation Leading To Multiple Food Allergies in C57Bl/6 Mice

Authors & Affiliations

Airton Pereira e Silva^{1,3}, Bárbara Oliveira Marmello^{1,3}, João Ricardo Almeida Soares^{1,2}, Isabelle Mazza Guimaraes^{1,3} and Gerlinde Agate Platais Brasil Teixeira^{1,2,3*}

1 Departamento de Imunobiologia, Instituto de Biologia, UFF, Niteroi, Brasil. Tel +55 21 2629-2313

2 Programa de Pós-Graduação em Patologia, Hospital Universitário Antonio Pedro, UFF, Niteroi, Brasil. Tel +55 21 2629-9128

3 Programa de Pós-Graduação em Biotecnologia, Campus do Valonguinho, UFF, Niteroi, Brasil. Tel: +55 21 2629-2352

Running title : Prior inflamed gut and new food allergy

* Corresponding Author

Gerlinde Agate Platais Brasil Teixeira: Departamento de Imunobiologia, Instituto Biologia, UFF, Alameda Barros Terra s/n, Centro, Niterói, RJ, Brasil; CEP- 24020-510; Tel: +55 21 2629-2313; E-mail: gerlinde-teixeira@id.uff.br

Word count: 2500 words

Tables: 1

Figures 5

Hosted file

Main Text File.docx available at <https://authorea.com/users/348592/articles/475561-prior-food-induced-allergic-gut-inflammation-leading-to-multiple-food-allergies-in-c57bl-6-mice>







