

Accepted Manuscript

The thermal aggregation of ovalbumin as large particles decreases its allergenicity for egg allergic patients and in a murine model

M. Claude, R. Lupi, G. Bouchaud, M. Bodinier, C. Brossard, S. Denery-Papini

PII: S0308-8146(16)30215-1

DOI: <http://dx.doi.org/10.1016/j.foodchem.2016.02.054>

Reference: FOCH 18774

To appear in: *Food Chemistry*

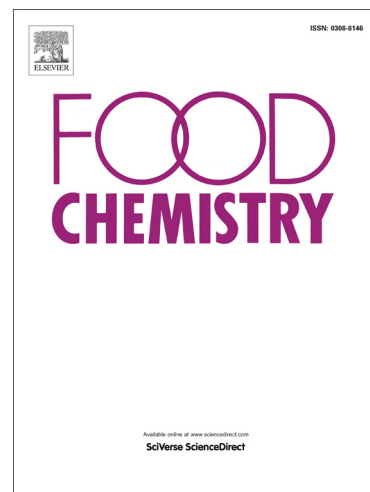
Received Date: 25 September 2015

Revised Date: 14 January 2016

Accepted Date: 9 February 2016

Please cite this article as: Claude, M., Lupi, R., Bouchaud, G., Bodinier, M., Brossard, C., Denery-Papini, S., The thermal aggregation of ovalbumin as large particles decreases its allergenicity for egg allergic patients and in a murine model, *Food Chemistry* (2016), doi: <http://dx.doi.org/10.1016/j.foodchem.2016.02.054>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



The thermal aggregation of ovalbumin as large particles decreases its allergenicity for egg allergic patients and in a murine model

Claude M.^a, Lupi R.^a, Bouchaud G.^a, Bodinier M.^a, Brossard C.^{a*}, Denery-Papini S.^a

^aINRA, UR 1268 BIA (Biopolymers, Interactions, Assemblies), F-44316, rue de la Géraudière, 44316 Nantes, France

*Corresponding author :Chantal Brossard, INRA UR 1268, rue de la Géraudière, BP 71627, 44316 Nantes, France; Tel: 33+(0)240675087; Fax: 33+(0)240675025

E-mail: chantal.brossard@nantes.inra.fr

ABSTRACT

Most egg-allergic children can tolerate extensively cooked eggs. Ovalbumin, a major allergen in egg whites, is prone to aggregate upon heating. This study compares ovalbumin's allergenicity when it is aggregated as large particles to ovalbumin in its native form. Immunoglobulins (Ig)-binding and the degranulation capacities of native and aggregated ovalbumin were measured with sera from egg-allergic children and from mice sensitized to native or aggregated ovalbumin. The influence of ovalbumin structure on Ig production upon sensitization and elicitation potency by challenge was also studied. We showed that heat aggregation of ovalbumin as large particles enhances IgG production and promotes IgG_{2a} production (a shift toward the T helper 1 profile). Aggregated ovalbumin displayed lower Ig-binding and basophil-activation capacities for sera from both allergic patients and mice. This work illustrates the links between ovalbumin structure after heating and allergenicity potential using parameters from both the sensitization and elicitation phases of the allergic reaction.

Keywords: Aggregation; Basophil activation; Egg allergy; Food processing

Running title: Thermal aggregation as large particles and allergenicity of ovalbumin

Download English Version:

<https://daneshyari.com/en/article/7588936>

Download Persian Version:

<https://daneshyari.com/article/7588936>

[Daneshyari.com](https://daneshyari.com)