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**Immunomodulatory effects of pectin supplementation depends on the mouse strain and pectin characteristics.**

*Frank Blanco-Pérez<sup>1\*</sup>, Hanna Steigerwald<sup>1\*</sup>, Maren Krause<sup>1</sup>, Melanie Albrecht<sup>1</sup>, Stoll Dominic<sup>2</sup>, Stefan Schülke<sup>1</sup>, Hans-Ulrich Endreß<sup>3</sup>, Sabine Kulling<sup>2</sup>, Melanie Huch<sup>2</sup>, Stefan Vieths<sup>1</sup>, Stephan Scheurer<sup>1</sup>*

*\*This authors contributed equally*

<sup>1</sup>Paul-Ehrlich-Institut (PEI), Federal Institute for Vaccines and Biomedicines. Langen, Germany

<sup>2</sup>Max-Rubner-Institut (MRI), Federal Research Institute of Nutrition and Food, Karlsruhe, Germany

<sup>3</sup>Herbstreith & Fox KG, Neuenbürg, Germany

Pectin is a dietary fiber widely used in processed foods to generate gels or modulate viscosity but also acts as prebiotic. It is classified due to its degree of esterification (DE). Pectin from different sources such as apple or citrus serves as carbon source for beneficial gut bacteria and its fermentation might generate short chain fatty acids. A beneficial effect on different diseases such as IgE-mediated food- and respiratory allergy is discussed, either by direct interaction with immune cells or indirectly by modulation of the gut microbiota.

Therefore, we aimed at evaluating the immunomodulatory effect of pectin supplementation in mice. Three mouse strains (CBA, BALB/c and C57BL/6) were fed with different amounts of either apple pectin (AP; DE 57%), citrus pectin (CP; DE 7.3%) or control diet (CD; 20% cellulose) for 2 weeks. Feces were collected and mice were monitored daily in regard of their body weight, food consumption and general health status.

Each mouse strain showed different effects associated to the pectin supplementation. CBA had a reduced body weight gain, and enlarged small, large intestine with 15% AP. BALB/c showed an increased body weight gain with the CP and a shorter small intestine. C57BL/6 had no effects on the body weight or intestine size.

Pectin led to remarkable changes in the gut microbiota, e.g. AP supplementation shifted microbiota balance towards Bacteroidetes. In addition, AP showed immunomodulatory effects on the serum total IgA, IgG and IgE as well as an enlarged caecum in all mouse strains.

In conclusion, our results suggest that not only pectin characteristics are important to evaluate its effects on the microbiota, but also the mouse strain plays an important

role. This needs to be taken into consideration when the effects of pectins are studied in mouse models.

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