

**PD01 - Respiratory allergens in human milk: potential impact on susceptibility to allergic airway disease**

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POSTER DISCUSSION PRESENTATION

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# Respiratory allergens in human milk: potential impact on susceptibility to allergic airway disease

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## Background

Impact of exposure to environmental allergens during early life on allergic sensitization and disease development is controversial.

## Objective

We investigated whether airborne allergen from *Dermaphagoides pteronyssinus* (Der p), a major cause of allergic asthma, is found in human breast-milk and examined its impact on allergic outcome in a mouse model.

## Methods

Der p 1 was quantified in human colostrum and milk samples from Brasil, Australia and France by ELISA. Basophil degranulation assay was used to confirm immunogenicity of Der p. BALB/c mice were fostered by mothers exposed to Der p during lactation. Progeny allergic response to Der p was measured at 6-weeks.

## Results

Der p 1 was present in 58% Brazilian, 70% French, and 78% Australian colostrum. Median [Der p 1] was similar between countries (96 pg/mL). In mature milk, Der p 1 was found in 55% of samples, median [Der p 1] was 65.9 pg/mL and was significantly lower than in colostrum ( $p=0.0001$ ). Der p 1-containing milks were able to induce basophils degranulation. Mice breastfed by Der p-exposed mothers had 5-fold increased levels of Der

p specific IgE and IgG1 compared to mice breastfed by naïve mothers. Their allergic airway inflammation was not affected.

## Conclusion

Early life exposure to ubiquitous respiratory allergens can take place through breastfeeding. An animal model mimicking the human situation shows early life exposure to Der p through milk primes the immune system. The presence of respiratory allergens in breast-milk may be an important factor in driving the early immune function towards allergic disease.

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