



View PDF

Download full issue

Outline

Rationale

Methods

Results

Conclusions



Journal of Allergy and Clinical Immunology

Volume 145, Issue 2, Supplement, February 2020, Page AB163



# Analysis of Non-Human Proteins/Peptides in Human Breast Milk by Mass Spectrometry

Kathleen Lusk<sup>1</sup>, Sydney Leibel MD<sup>2</sup>, Majid Ghassemian<sup>2</sup>, Christina Chambers PhD MPH<sup>3</sup>, Jessica Kitsen<sup>2</sup>, Diba Mortazavi<sup>2</sup>, Kerri Bertrand<sup>2</sup>, Bob Geng MD<sup>2</sup>

Show more

[+ Add to Mendeley](#) [Share](#) [Cite](#)<https://doi.org/10.1016/j.jaci.2019.12.432>[Get rights and content](#)

Previous article in issue

Next article in issue



## Rationale

There is little information regarding the allergen content of breast milk. Previous studies have utilized [ELISA](#), but no studies have performed a broad analysis of the peptide content of breast milk.

## Methods

We performed mass spectrometry on four breast milk samples and utilized the University of Nebraska FASTA database and UniProt for a total of 2211 protein/peptide sequences.

## Results

Each sample had between 806 and 1007 proteins/peptides, with 37 to 44 non-human proteins/sample encompassing 26 plant and animal species. Bovine proteins/peptides were the most numerous; seven unique *Bos taurus* proteins/peptides were found in all samples, and three contained Bos d 5. Cat, dog, mosquito, salmon, and crab were detected in all four samples. All donors ingested fish, shellfish and tree nuts, and all had detection of salmon and crab proteins/peptides; two almond proteins were detected in three samples. [Aeroallergens](#), including dust mite (Der f 28, Der f 25) and mold (Cla h 4) were identified in all samples. Two samples contained allergens to latex (Hev b 9) and chicken (Gal d 10). One sample contained several unique proteins/peptides, including carrot, two molds (including Pen c 19) and Der f 33-like protein.

## Conclusions

These findings represent the first breast milk mass spectrometry with identification of known allergenic proteins in food, contact and [aeroallergens](#). The diet history was insufficiently detailed; an ongoing study is addressing this. The variability in protein detection may reflect differences in individual secretion. These results raise the question of whether breast milk can induce sensitization or tolerance in infants.

## Cited by (0)

[View Abstract](#)

Copyright © 2020 Published by Mosby, Inc.

Part of special issue

Programs and Abstracts of Papers to be Presented During Scientific Sessions: 2020 AAAAI Annual Meeting: All abstracts are strictly embargoed until the date of presentation at the 2020 Annual Meeting. Contact [media@aaaai.org](mailto:media@aaaai.org) with questions.



Download full issue

Recommended articles

Article Metrics

Captures

Readers:

7

[View details](#)