



# Proteomic Analysis of Egg White Proteins from Different Eggs

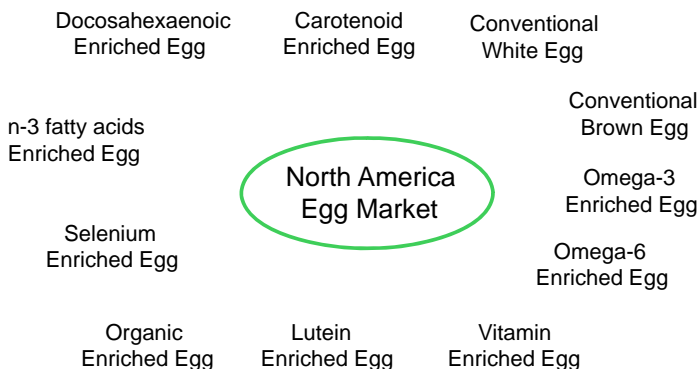
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## Summary

Proteomic analysis of hen egg whites were investigated. Egg white protein expression-levels were analyzed between six different varieties of eggs. Significant differences in abundance of 19 proteins were observed between different eggs, which suggested hen species and diet were the major reasons for diverse protein expressions.

## Background

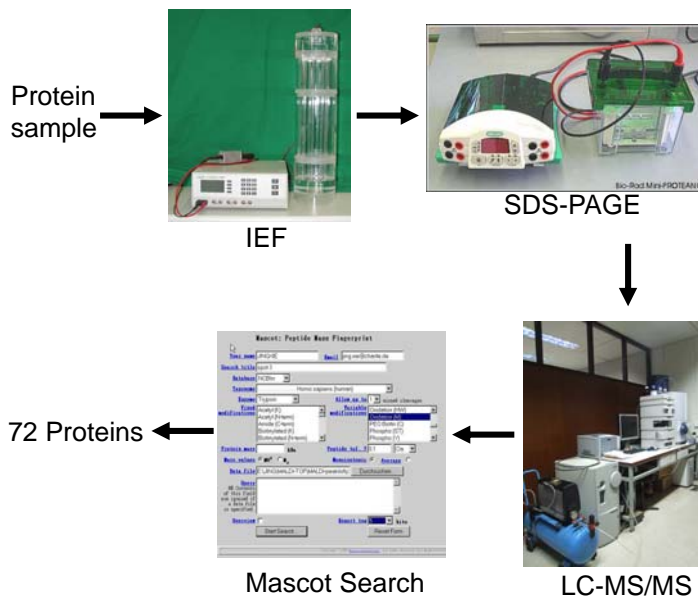
Eggs are not only a nutritional food source but also an important source of protein in food industry. Specialty eggs are gradually reducing the available supply of conventional eggs. Different kinds of eggs are produced by feeding various diets to the hens, which is now becoming more common in providing variety among commercial eggs in current North America supermarkets. It is essential to elucidate whether the change in the hen diet has effect on the protein composition.



## Objective

This investigation will help egg scientists have better understanding of protein composition in various specialty eggs, which may not only provide a new insight on the utilization of specialty eggs in the food industry, but also improve consumer's awareness of the protein quality in different eggs available in the supermarket.

## Method and Technology



## Results

- 23 proteins from 72 detected protein spots were identified. Nineteen proteins (65 protein spots) were significantly different in the abundance among six varieties of eggs.
- The hen species and hen diet may affect protein expressions and cause various effects on different egg proteins.
- A quiescence-specific protein precursor in egg white was identified for the first time.
- It is the first time on proteomic level to identified the ovotransferrin BB, CC, and chain A in egg white.

## Prospect

Presently, different eggs have been designed and produced successfully by altering various levels of ingredients in the hens' diet. The increases of these health-promoting ingredients were verified in these special eggs. Egg, as one of important protein resources, also could be designed to over-express some egg proteins, in which the evaluative study on protein expression among various kinds of eggs are necessary for consumers' awareness and utilization of egg proteins in industry.

## Acknowledgement

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Assisted by all the members of our lab.  
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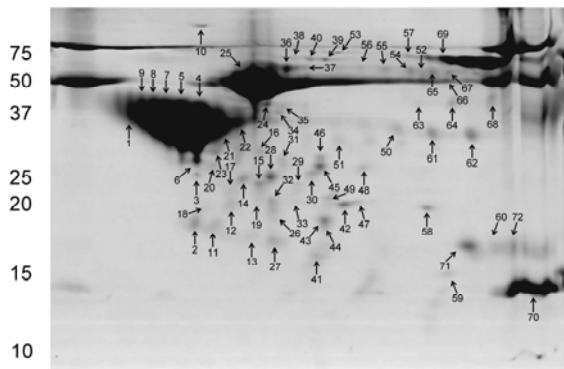


Figure 1. A representative 2-DE gel image of hen egg white proteins (white shell egg). An amount of 100 µg of total protein was loaded on the strip (11cm, pH 4-7) and performed on SDS-PAGE