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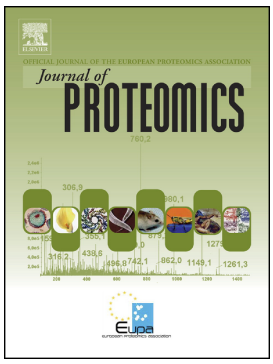

Evaluation of N-terminal labeling mass spectrometry for characterization of partially hydrolyzed gluten proteins

Wanying Cao, Joseph L. Baumert, Melanie L. Downs

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Evaluation of N-terminal Labeling Mass Spectrometry for Characterization of Partially Hydrolyzed Gluten Proteins

Wanying Cao, Joseph L. Baumert, Melanie L. Downs*

Food Allergy Research and Resource Program, Department of Food Science and Technology, Food Innovation Center, 1901 North 21st Street, University of Nebraska-Lincoln, Lincoln, NE 68588

Corresponding Author

*Dr. Melanie L. Downs, Food Allergy Research and Resource Program, Department of Food Science and Technology, Food Innovation Center, 1901 North 21st Street, University of Nebraska-Lincoln, Lincoln, NE 68588-6205. Phone: 402-472-5423. Email address: mdowns2@unl.eduABSTRACT

Gluten, a group of proteins found in wheat, barley, and rye, is the trigger of celiac disease, an immune disorder that affects about 1% of people worldwide. The toxicity of partially hydrolyzed gluten (PHG) in fermented products is less well understood due to the significant analytical challenges in PHG characterization. In this project, an N-terminal labeling mass spectrometry method, terminal amine isotopic labeling of substrates (TAILS), was optimized for the in-depth analysis of PHG and validated using a test protease (trypsin) with known cleavage specificity. Gluten N-termini in test and control groups were labeled with heavy and light formaldehyde, respectively. Trypsin-generated neo N-termini were identified by exhibiting an MS1 Log2 H:L