

The identification of new peptide sequences was performed on November 11, 2022 by conducting three publication searches.

- A search of the Core Collection of Web of Science and Medline using the term:
TS=((celiac* or coeliac* or ((gluten or glutenin or gliadin) near/3 (intoleran* or sensiti*))) AND (wheat or barley or spelt or rye or oat or gliadin or gluten*) and (peptid* or epitop* or motif) AND (t-cell-epitop* OR t-cellreceptor OR t-cell-response or tcell or TCR or MHC or HLA-DQ2 OR HLADQ8) AND (activat* or recogn* or stimulat* or response*))
- And searches to identify publications that cited either Sollid et al., 2020 or Sollid et al., 2012. These searches used the Core Collection of Web of Science and Scopus.

All three searches were confined to a timeframe between November 4, 2021 through November 10, 2022.

Publications identified by the three searches were collated, de-duplicated and then compared to the publications that were previously reviewed in the 2022 database build process. A total of 48 publications were identified (see list below).

The 48 publications were divided into four approximately equal sized groups and each group was assigned to two reviewers such that each of the 48 publications received two independent reviews.

The reviewers were tasked with identifying whether the publication contained one of two classes of information that identified novel peptides that were not found in the 2022 CropLife Celiac Peptide Database.

The publications were reviewed using the following criteria:

- Did the publication feature structural data of a complex composed of an HLA-DQ molecule, a peptide and a T-Cell receptor?
- Did the publication fulfill the criteria described in Sollid et al., 20122.
 - Reactivity against the epitope must have been defined by at least one specific T-cell clone.
 - The HLA-restriction element involved must have been unequivocally defined.
 - The nine-amino acid core of the epitope must have been defined either by an analysis with truncated peptides and/or HLA-binding with lysine scan of the epitope or comparable approach.

Of the 48 publications reviewed, none contained novel peptide sequence that either fulfilled the requirements of Sollid et al., 20122 or contained HLA-DQ molecule-peptide-T-Cell receptor structural data. Although no new peptide sequences were identified, a 2023 database that is identical to the 2022 database is being released to reflect the up-to-date nature of the 2023 database that is reflected in the literature search and publication review.

A complete selection of 2023 celiac peptides, including transamidations can be found [here](#):

A complete selection of 2022 celiac peptides, including transamidations can be found [here](#):

A complete selection of 2021 celiac peptides, including transamidations can be found [here](#):

A complete selection of 2020 celiac peptides, including transamidations can be found [here](#):

The 48 publications identified in the search are as follows:

- Abadie, V., et al. (2022). "A Mouse Model of Celiac Disease." *Current protocols* 2(8): e515.
- Amnuaycheewa, P., et al. (2022). "Development of a Sequence Searchable Database of Celiac Disease-Associated Peptides and Proteins for Risk Assessment of Novel Food Proteins." *Frontiers in allergy* 3: 900573.
- Amundsen, S. F., et al. (2022). "Transglutaminase 2 affinity and enzyme-substrate intermediate stability as determining factors for T-cell responses to gluten peptides in celiac disease." *European journal of immunology* 52(9): 1474-1481.
- Anderson, R. P. (2022). "Emergence of an adaptive immune paradigm to explain celiac disease: a perspective on new evidence and implications for future interventions and diagnosis." *Expert Review of Clinical Immunology* 18(1): 75-91.
- Anderson, R. P. (2022). "Review article: Diagnosis of coeliac disease: a perspective on current and future approaches." *Alimentary Pharmacology & Therapeutics* 56: S18-S37.
- Aufiero, V. R., et al. (2022). "Diploid Wheats: Are They Less Immunogenic for Non-Celiac Wheat Sensitive Consumers?" *Cells* 11(15).
- Birinyi, Z., et al. (2022). "Immunoanalytic investigation of grain proteins antigenic for celiac disease patients in an einkorn collection." *Food Chemistry* 371.
- Buchold, C., et al. (2022). "Features of ZED1227: The First-In-Class Tissue Transglutaminase Inhibitor Undergoing Clinical Evaluation for the Treatment of Celiac Disease." *Cells* 11(10).
- Catassi, C., et al. (2022). "Coeliac disease." *Lancet* 399(10344): 2413-2426.
- Christophersen, A., et al. (2022). "Phenotype-Based Isolation of Antigen-Specific CD4(+) T Cells in Autoimmunity: A Study of Celiac Disease." *Advanced Science* 9(10).
- Ciacchi, L., et al. (2022). "Structural bases of T cell antigen receptor recognition in celiac disease." *Current Opinion in Structural Biology* 74.
- Ciacchi, L., et al. (2022). "Structural basis of T cell receptor specificity and cross-reactivity of two HLA-DQ2.5-restricted gluten epitopes in celiac disease." *Journal of Biological Chemistry* 298(3).
- Daly, M. E., et al. (2022). "The Fate of IgE Epitopes and Coeliac Toxic Motifs during Simulated Gastrointestinal Digestion of Pizza Base." *Foods* 11(14).
- Dieckman, T., et al. (2022). "Celiac disease: New therapies on the horizon." *Current Opinion in Pharmacology* 66.
- Dios, A., et al. (2022). "Changes in Non-Deamidated versus Deamidated Epitope Targeting and Disease Prediction during the Antibody Response to Gliadin and Transglutaminase of Infants at Risk for Celiac Disease." *International Journal of Molecular Sciences* 23(5).
- Dvoracek, V., et al. (2022). "Specific Avenin Cross-Reactivity with G12 Antibody in a Wide Range of Current Oat Cultivars." *Foods* 11(4).
- Frick, R., et al. (2022). "Affinity maturation of TCR-like antibodies using phage display guided by structural modeling." *Protein engineering, design & selection : PEDS* 35.

Geisslitz, S., et al. (2022). "Wheat amylase/trypsin inhibitors (ATIs): occurrence, function and health aspects." *European Journal of Nutrition* 61(6): 2873-2880.

Gnodi, E., et al. (2022). "Celiac disease: From genetics to epigenetics." *World Journal of Gastroenterology* 28(4): 449-463.

Guzman-Lopez, M. H., et al. (2021). "A Bioinformatic Workflow for InDel Analysis in the Wheat Multi-Copy alpha-Gliadin Gene Family Engineered with CRISPR/Cas9." *International Journal of Molecular Sciences* 22(23).

Guzman-Lopez, M. H., et al. (2021). "Oral Consumption of Bread from an RNAi Wheat Line with Strongly Silenced Gliadins Elicits No Immunogenic Response in a Pilot Study with Celiac Disease Patients." *Nutrients* 13(12).

Hailegiorgis, D., et al. (2022). "Variations in immunodominant epitope and molecular conformation of alpha-gliadins in elite Ethiopian durum wheat cultivars." *Journal of Crop Science and Biotechnology* 25(3): 325-336.

Haro, C., et al. (2022). "Consumption of Triticum Bread Reduces Immunogenic Gluten Intake without Altering the Gut Microbiota." *Foods* 11(10).

Hudec, M., et al. (2022). "Enhanced Extracellular Transfer of HLA-DQ Activates CD3+ Lymphocytes towards Compromised Treg Induction in Celiac Disease." *International Journal of Molecular Sciences* 23(11).

Juhász, A., et al. (2022). "Digestibility of wheat alpha-amylase/trypsin inhibitors using a caricain digestive supplement." *Frontiers in Nutrition* 9.

Kamal, N., et al. (2022). "The mosaic oat genome gives insights into a uniquely healthy cereal crop." *Nature* 606(7912): 113-+.

Kim, M. L., et al. (2021). "Hydroxychloroquine inhibits the mitochondrial antioxidant system in activated T cells." *Iscience* 24(12).

Klonarakis, M., et al. (2022). "Review article: Therapeutic targets for the pharmacologic management of coeliac disease-The future beyond a gluten-free diet." *Alimentary Pharmacology & Therapeutics* 55(10): 1277-1296.

Leisova-Svobodova, L., et al. (2022). "Analysis of oat seed transcriptome with regards to proteins involved in celiac disease." *Scientific Reports* 12(1).

Levescot, A., et al. (2022). "Immunopathogenesis and environmental triggers in coeliac disease." *Gut* 71(11): 2337-2349.

Li, J., et al. (2022). "KIR+CD8+ T cells suppress pathogenic T cells and are active in autoimmune diseases and COVID-19." *Science* 376(6590).

Liu, C. and J. Yang (2022). "Enteric Glial Cells in Immunological Disorders of the Gut." *Frontiers in Cellular Neuroscience* 16.

Mamone, G., et al. (2022). "E40 glutenase detoxification capabilities of residual gluten immunogenic peptides in in vitro gastrointestinal digests of food matrices made of soft and durum wheat." *Frontiers in Nutrition* 9.

Marin-Sanz, M., et al. (2022). "Comparative characterization of the gluten and fructan contents of breads from industrial and artisan bakeries: a study of food products in the Spanish market." *Food & Nutrition Research* 66.

Mullins, E., et al. (2022). "Scientific Opinion on development needs for the allergenicity and protein safety assessment of food and feed products derived from biotechnology." *Efsa Journal* 20(1).

Palanski, B. A., et al. (2022). "An efficient urine peptidomics workflow identifies chemically defined dietary gluten peptides from patients with celiac disease." *Nature Communications* 13(1).

Paolella, G., et al. (2022). "Type 2 Transglutaminase in Coeliac Disease: A Key Player in Pathogenesis, Diagnosis and Therapy." *International Journal of Molecular Sciences* 23(14).

Pérez-Gregorio, M. R., et al. (2021). "New-Level Insights into the Effects of Grape Seed Polyphenols on the Intestinal Processing and Transport of a Celiac Disease Immunodominant Peptide." *Journal of Agricultural and Food Chemistry* 69(45): 13474-13486.

Perez-Perez, M., et al. (2022). "Boosting biomedical document classification through the use of domain entity recognizers and semantic ontologies for document representation: The case of gluten bibliome." *Neurocomputing* 484: 223-237.

Qiu, L., et al. (2022). "Computational Alanine Scanning Reveals Common Features of TCR/pMHC Recognition in HLA-DQ8-Associated Celiac Disease." *Methods in molecular biology (Clifton, N.J.)* 2385: 293-312.

Rotondi Aufiero, V., et al. (2022). "Diploid Wheats: Are They Less Immunogenic for Non-Celiac Wheat Sensitive Consumers?" *Cells* 11(15).

Seidel, G., et al. (2022). "The Underlying Effects of Celiac Disease and Subsequent Implications on Deployment in the United States Army." *Military Medicine* 187(3-4): E322-E328.

Shewry, P. (2022). "Wheat grain proteins: Past, present, and future." *Cereal Chemistry*.

Sole-Jamault, V., et al. (2022). "Optimization of large-scale purification of omega gliadins and other wheat gliadins." *Journal of Cereal Science* 103.

Sollid, L. M. (2022). "Gut tissue-resident memory T cells in coeliac disease." *Scandinavian Journal of Immunology* 95(1).

Song, Y., et al. (2022). "Binding Affinity Calculations of Gluten Peptides to HLA Risk Modifiers: DQ2.5 versus DQ7.5." *Journal of Physical Chemistry B*.

Zhou, C., et al. (2022). "Focused B cell response to recurring gluten motif with implications for epitope spreading in celiac disease." *Cell Reports* 41(4): 111541.

Zhu, X., et al. (2022). "How does a celiac iceberg really float? The relationship between celiac disease and gluten." *Critical Reviews in Food Science and Nutrition*.