Poster

Improvement in the production of mini - antobiodies anti-gluten

Laura Fraile Cava(1*), Javier López Manzano(1), Patricia Segovia Menacho(1), Miguel Arévalo Rodríguez(1), Francisco Martin Bermudo(2)

(1) Biomedal S.L., Centro Andaluz de Biología del Desarrollo (CABD), Universidad Pablo de Olavide (Sevilla).

(2)Departmento: Biología Molecular e Ingeniería Bioquímica. Universidad Pablo de Olavide.

Keywords: Celiac disease; gluten; miniantobodies; inmunoassays

ABSTRACT

Motivation: : Gluten content from very foods, like barley, rye, wheat and in certain oat varieties, must be removed in individuals with celiac disease. Immune-based assays using monoclonal antibodies specific for these immunotoxic peptides would facilitate their detection in food. Two monoclonal antibodies, G12 and A1, were developed against a highly immunotoxic 33-mer peptide.(1)

In most of the Western countries, the level of gluten content in food to be considered as gluten-free products is below 20 parts per million measured by ELISA based on specific anti-gluten peptide antibody (2). The company Biomedal S.L. designed minimized single chain antibodies (scFv) in away they can produce by bacterias, which specifically recognize peptides of gluten (3). The object of this work is to improve the production and specifity of these mini-antibodies.

Methods: Several techniques have been used for the production of these scFv, like cloning and purifying in different strains. Enzyme-linked immunosorbent assays (ELISAs), affinity chromatography IMAC and Western blot analysis have been carried out to measure the sensitivity of these antibodies.

Results: ELISA and Western blot methods showed that most of antibodies wasn't functional because they get degraded.

Conclusions: To improve the detection of gluten by these ScFv, the production will be carried out in other strain to prevent degradation of the antibody.

REFERENCES

(1)Belen Moron, Michael T. Bethune, Isabel Comino, Hamid Manyani, Marina Ferragud, Manuel Carlos Lopez, Angel Cebolla, Chaitan Khosla, Carolina Sousa1*."Toward the Assessment of Food Toxicity for Celiac Patients: Characterization of Monoclonal Antibodies to a Main Immunogenic Gluten Peptide".May 2008 | Volume 3 | Issue 5 | e2294

(2)Ana Real, Isabel Comino, Ma de Lourdes Moreno, Miguel Angel Lopez-Casado, Pedro Lorite, Ma Isabel Torres, A ngel Cebolla, Carolina Sousa1*. "Identification and In Vitro Reactivity of Celiac Immunoactive Peptides in an Apparent Gluten-Free Beer".June 2014 | Volume 9 | Issue 6 | e100917

(3)Patricia Segovia Menacho(1,*), Mercedes Sánchez Infante(1), Matilde Revuelta González(2) y Miguel Arévalo Rodríguez(1) . Producción en bacterias de minianticuerpos anti-gluten recombinantes.