



MASTER'S DEGREE IN BIOMEDICAL RESEARCH
Research Project Proposal
Academic year 2024-2025

Project Nº 45

Title: Mycotoxins and cancer (Part of the project: "Mycotoxins and cancer: human biomonitoring studies and toxicological characterization (MYCOCANCER). Ref. PID2021-126026OB-100. Ministerio de Ciencia e Innovación.)

Department/ Laboratory: Laboratory of Analytical Techniques (CIFA). Department of Pharmaceutical Sciences. Faculty of Pharmacy and Nutrition.

Director 1 Elena González Peñas

Contact: mgpenas@unav.es

Codirector:

Contact:

Summary

The ingestion of mycotoxins (toxins caused by fungi) through contaminated food affects human health in different ways. In recent years, some studies have been carried out on the possible relationship between their plasmatic levels in humans and certain diseases, especially cancer, and this relationship has been found for hepatocellular carcinoma, colorectal cancer or liver cancer.

The global project MYCOCANCER aims to study the relationship between the occurrence of cancer and the presence of mycotoxins in human plasma in samples from a cohort designed to assess the development of cancer in volunteers. This cohort is made up of samples of volunteers from a Spanish Region. Data are available on the occurrence of prostate and breast cancer over a 20-year period in volunteers who gave their plasma at the beginning and end of this time. The study of the presence of mycotoxins in these samples can help to interpret and evaluate the possible relationship between exposure to mycotoxins and cancer.

The tasks to be carried out by the master's student are:

- To participate in the analysis, using high-resolution liquid chromatography coupled to mass detection (LC-MS/MS), of 27 mycotoxins in the samples. There are 1,400 available samples, but the student will analyze a small percentage of them, based on the time available.
- To Interpret the data obtained (levels of the 27 mycotoxins in human plasma samples): which are more prevalent, more frequent combinations, etc.

Table with 2 columns and 2 rows: yes, no, x

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?