Tzekaki Eleni

I have studied Chemistry, completed my Diploma Thesis in Biochemistry, and obtained my PhD in Biochemistry. In my undergraduate thesis, I investigated the metabolic adaptation at the genetic and protein levels of Arthrobacter phenanthrenivorans Sphe3 using polycyclic aromatic hydrocarbons as substrates. Techniques such as RNA isolation, conversion of RNA to cDNA, and RT-PCR were used to study its transcriptional expression. In my master's thesis, I was part of the research group under the leadership of Prof. M. Tsolaki, who aimed to examine the effect of a one-year extra virgin oil intervention in patients who suffered from Mild Cognitive Impairment (MCI). This study (MICOIL: NCT03362996) was conducted on 150 participants. For this study, I was awarded the second prize in the 5th International Medical Olympiad (2019) and was invited to present detailed work at the 2nd International Yale Symposium on Olive Oil and Health (2019). Later in my PhD thesis, having devoted myself to research related to Alzheimer's pathobiology, my PhD aimed to generate an in vitro model that would recapitulate the pathology of AD. For this reason, cells were isolated from the brain of newborn rats and cultured in Matrigel to develop 3D structure. Brain organoids were partially characterized using immunohistochemical methods to identify the presence of neurons, glial cells, astrocytes and progenitor cells and then they treated with Liposaccharides (LPS) to induce inflammation. Intracellular and secreted proteins related to the pathway of cellular antioxidant capacity, inflammation and apoptosis were studied in the presence or absence of lipopolysaccharides. Apart from the main project of my PhD, I also took part in a funded research project in which we studied the effect of a Virtual Reality training system on ameliorating MCI, and I was also awarded a scholarship of excellence in biochemistry, which focused on addressing human diseases. Later, I acquired teaching experience as I worked in at the International Hellenic University, as an academic fellow holding the position of Assistant Professor for the course of Biochemistry, at the Department of Nutritional Sciences and Dietetics. As a postdoctoral researcher, I am endeavoring to improve the technique for generating a brain organoid model. Additionally, I am a member of the research team of 2D-BioPad, a Horizon-Grant project whose aim is to design a graphene-based kit for diagnosing AD (2D-BioPAD, Horizon, EU).