

Who can tell where chemistry ends, and where physics or biology starts? The borders between the sciences are often blurred and the most exciting discoveries of today come from the intersections of these disciplines. I would like to be such a researcher who works from not only the perspective of a chemist, physicist or biologist, but instead thinks across a broader spectrum.

I have always been interested in science and problem solving, but the ambition to become a researcher became clear to me when I was presenting at the 11th International Conference on Colloid Chemistry. I have been working on artificial tissues made from polysuccinimide loaded with magnetite nanoparticles. Being part of the scientific community and having leading nanochemists listening to my presentation and asking questions, was inspiring and helped confirm my wish to continue research.

I joined the Nanochemistry Research Group at Semmelweis University in the summer of 2017 and was developing polysuccinimide polymers loaded with magnetite nanoparticles for therapeutic and diagnostic applications. During this project I learnt to use techniques like electrospinning, IR and UV-Vis spectroscopy, scanning electron microscopy, magnetic hyperthermic effect measurements, atomic force microscopy and thermogravimetry. It was interesting to see how versatile scientific concepts, often coming from distant areas of science, are translated into practice in a research lab. However, not everything works the first time. For example, when I was trying to measure the iron content of my samples using spectrophotometry, despite repeating the experiment several times, I could not get the expected results. In the end it turned out that the spectrometer I used was broken. Having the wrong results multiple times did not discourage me; I was keen to persevere and find the root of the problem.

As a part of this project, I also had the opportunity to learn the process of writing scientific papers, and am in the process of writing one for a conference for university students, and another paper for a scientific journal is in progress as well.

Recently, I have also presented my work at a student conference and won the 1st prize. In 2014 and 2015 I took part in the 11th and 12th International Junior Science Olympiads in Argentina and South Korea, where I won bronze and silver medals respectively. I was fond of these particular competitions, because the problems given often required knowledge of multiple areas of science. In 2017 and 2018, I have been a finalist in the International Chemistry Olympiad selection competition, and I was selected for the Hungarian team of the Mendeleev Olympiad to be held in 2019. In 2018 I won the Hungarian Chemistry Olympiad and was a finalist in biology and physics as well.

From a young age I was very interested in mathematics, and competitions and math camps helped me develop a mind for problem-solving. For me, maths has always gone hand-in-hand with science, and I also learnt to code in a few languages, such as JavaScript and C#, because I think a mathematical and computational background is extremely useful for a modern researcher. I benefited from these skills in the spring of 2017, in CERN, where I updated the data collector webpage of the Compact Muon Solenoid (CMS) detector during a two-week internship programme. I also presented my findings at a CMS conference in Switzerland.

Besides research and scientific competitions, I enjoy skiing and dancing. I do folk dancing for 12 years now. Our group has won awards in several national and international folk dance competitions. I find it a nice way to relax after strenuous mental exercise. The prospect of studying in an environment where asking questions is just as important as finding answers to them, is very attractive to me. I am looking forward to start university, because it is the next milestone on the path of becoming a researcher.