

To Whom It May Concern,

Having been deeply curious within the fields of the natural sciences since I was a child, I had particularly been vested into doing research since I was around ten, frequently conducting microscopy-related observations in my middle school at the time. In particular, my main fields of interest were microbiology and virology at the time, however, it was not long thereafter that I likewise started to take an interest and vest my energy into studying the field of organic chemistry.

My curiosity led to me pursuing some very challenging, but very worthwhile, experiments that produced great results during my high school years, such as the isolation of bacteriophages, culturing *E. coli* isolated from my own fecal matter for a biology International Baccalaureate (IB) internal assessment essay, hydrogenation of linoleic and oleic fatty acids under different wavelengths of light for my concurrent chemistry IA, and conducting work on radionuclides which involved the school management and security cordoning off the classroom I was working in until I could complete my research. During my senior year in high school, likewise, I had started a University of California, Irvine (UCI) course on advanced organic chemistry, where I was exposed to spirocyclic, bicyclic, and polycyclic compounds in my first encounter with university-level organic chemistry, and at the same time I had a wonderful chemistry tutor, Anthony Hutson, who supported me throughout my research. Unfortunately, he passed away that subsequent February in 2021 from complication of sepsis, though I did not give up on chemistry during my university career because of the motivation he instilled in me throughout, going as far as to dream about him telling me to carry on with my studies when I found university life especially hard amidst mental health struggles I had.

I was accepted, in early 2021, for a B.Sc. Medicinal Chemistry and Chemical Biology degree at the Jacobs University in Bremen, Germany, on a merit-based scholarship, and started with the university in September of that year. I quickly got involved in professional research groups, such as the inorganic research group of Prof. Dr. Ulrich Kortz and his PhD candidates, as well as - later on - being chosen to join Prof. Dr. Thomas Nugent's organic chemistry group, wherein I synthesized my first organic product. The product I managed to synthesize was a Knoevenagel condensation product out of a compound bank that myself and two other, senior undergraduate students, were working together on in order to publish our own research paper, for there were only three of us in the organic group at the time. However, my mental health declined sharply during that time due to the losses I had suffered, and other adverse life experiences, the year prior.

I ended up dropping out of the university mid-way through my research project with the Nugent lab, and was, simultaneously, devising my own hypothetical antineoplastic drug, for which my father and I founded a pharmaceutical R&D company in the Netherlands, "Benzenoplex BV", and with which I worked to synthesize my target compound alongside an experienced organic chemist we hired to work alongside me, and a lab we leased from Prof. Dr. Jan van Maarseveen's offshoot company at the University of Amsterdam. Nevertheless, although we managed to synthesize the finished compound, I was hoping to functionalize the molecule from

a home-lab I built so as to potentially increase potency and efficacy of the structure-activity relationship (SAR), and thus reduce the amount of drug needed/subsequent cost/metabolic profile effects, however I was seldom able to obtain fruitful results that warranted subsequent ¹H-NMR spectroscopy at the university, and there were reagents with which I found it risky to work with from the home-lab (ie. sodium azide, for example).

My goal at your specialized institute for this kind of research would be to hopefully continue my research on this compound, and allow the team I would work under the benefits of intellectual property sharing if the compound proves successful, for, in spite of all the investors and universities Benzenoplex BV has spoken to, none proved fruitful enough for us to pursue, and I likewise wish to continue this drug as part of an official research project that could, potentially, earn me further certifications. Of course, it is likewise hard for many people to believe that an eighteen-year-old at the time was able to come up with a compound as such that had not been marketed, or synthesized, before, so I am likewise hopeful that your institute would be able to offer me a more open consideration of my proposal.

In addition to my formal undergraduate education, I likewise have completed numerous edx.org courses, such as from Harvard University in the fields of biochemistry and cytology, and have recently earned my continuing medical education (CME) credit program certificate at the Neuroscience Education Institute of Prof. Dr. Stephen Stahl as part of the “Master Psychopharmacology Program”, wherein I trained, in spite of not being a physician, in neuropsychiatry and psychopharmacology of mental health and neurological disorders on a merit-based entry.

In addition to my academic experiences, I have had a handful of personal experiences that I feel may merit mentioning in my application. For example, I had applied for a patent in 2021 with the Norwegian Industrial Property Organization (NIPO), and the World Intellectual Property Organization (WIPO), for an antiviral drug I had devised as part of a high school team for the NYAS’ Junior Academy-based “Combatting COVID-19 Challenge” in 2020, and had collaborated with the biophysics department at the University of Groningen, NTNU in Norway, and the cytology department of Prof. Dr. Klaudia Brix at Jacobs University with regards to the drug, in addition to Dr. Han Xia of the Wuhan Institute of Virology having agreed to test the compound *in vitro* and *in vivo* for us.

I have, moreover, worked as an online biochemistry and medicinal chemistry tutor via Superprof.no for medical school students from March of 2021, to the end of 2022/beginning of 2023, as my first-paid job at the age of seventeen prior to starting - and during the semester I was in - university. Nonetheless, I had to stop tutoring in order to focus on my aforementioned antineoplastic compound, which I devoted a lot of my time and attention to.

Aside from the natural sciences, my interests have extended far and wide into the fields of psychology, philosophy, sociology, and political theory, with me having two books in the writing, one of a compilation of my academic and non-academic philosophical works (academic from the Open University semester I spent studying philosophy), and a book aiming at a synthesis of Lacan and Husserl in regards to a new model of, what I dubbed to be, the “phenomenological

cycle". Politics wise, I was involved in the 2021 Harvard Undergraduate International Relations Scholars Program (HUIRSP), which involved high school students partaking in conferences organized by Harvard undergraduate students in diplomacy and international relations, and involved speakers such as Henry Kissinger, John Allen, and Parag Khana. Furthermore, during the ages of thirteen to fifteen, I worked as a human rights activist with an online campaign via Facebook, and delivered speeches, such as a speech on equality to a Model United Nations (MUN) conference in 2018, for which I was a guest speaker, being inspired in my endeavors by Malala Yousafzai and Aung San Suu Kyi, alongside other political figures.

Travel-wise, I had traveled to much of Europe, and had been exposed to a melting pot of cultures, Dubai, considering I lived there from the ages of one to seventeen. Subsequently, my family and I moved to Norway for a brief while, before my parents, and younger sister, moved to the Netherlands simultaneously as I had started university in Bremen, Germany. The loss of my grandmother, whom I felt the closest to, to COVID, as well as my chemistry tutor, coupled with the persistent moving of countries in 2021 rendered me mentally in the gutters, however, chemistry had helped me pull myself back up through it all, to an extent. I am hoping that, in light of this, I could continue my ambitions at the discretion of your institute, for I hope to offer and contribute as much of myself in my work there as I am able to for the benefit of humanity as a whole.

Best regards,

Filip Latkovic