

# EIP



“I was only one of two girls in my physics AS-level class”

Today is International Day of Women and Girls in Science. Last year, [Women in STEM](#) reported that the percentage of female graduates with core STEM degrees is on the rise, however, still accounts for just 26%.

[Chiara Banas](#), Patent Scientist at EIP, is one of those graduates. In this Q&A session, Chiara speaks openly about studying a STEM subject at university, being one of two girls in her physics AS-level class and the disparity of representation between STEM disciplines as well as the disparity of women in senior STEM roles.

## **Hi Chiara. Please tell us about your career so far?**

I have been a trainee patent attorney at EIP for nearly a year now. I studied microbiology for my undergraduate degree and then a PhD in immunology and bioinformatics. During that time, I also interned as a bioinformatician at a biotech company.

## **Why did you decide to study Microbiology, Immunology and Bioinformatics?**

I decided to study microbiology and immunology as they are two fields which are closely intertwined and complementary to each other.

Microbiology is the study of microorganisms, such as bacteria and viruses, and I have always been interested in how these microorganisms work and evolve. In particular, the ways in which these “small and relatively simple” organisms can successfully infect humans, with our complex and sophisticated immune system. On the other hand, immunology looks at how our immune system works together to respond to and protect us from these microorganisms.

I also decided to study bioinformatics as it is a field that has grown incredibly quickly in the last couple of years, and I believe that it is the future of science. I used bioinformatics to study how all the genes in a cell change in response to viral infection and immunological signals. Bioinformatics has allowed us to understand how cells react to changes and study which pathways are activated. Historically, it would have been too time-consuming and costly to study these thousands of genes in the laboratory. As a result, bioinformatics has allowed massive advancement in scientific research in an incredibly short time.

## **How has studying Microbiology, Immunology and Bioinformatics impacted your career?**

Having bioinformatics knowledge has been highly beneficial to me, from learning coding to the opportunities that have been opened. Being able to code is an important skill to have and, from my experience, a skill that employers are increasingly seeking from candidates now.

My PhD was also in the field of respiratory and viral research, which has been extremely relevant during these times.

## **A significant gender gap has persisted throughout the years at all levels of science, technology, engineering and**

# **mathematics (STEM) disciplines all over the world. Have you seen a lack of representation throughout your career and if so, how do you think this can be overcome?**

There are two main areas where I have seen a lack of representation: Firstly, the disparity of representation between STEM disciplines, and secondly, the disparity of women in senior STEM roles.

## **(1) Disparity of representation between STEM disciplines**

I have always been interested in science from a young age and felt very supported to pursue science throughout my school years. During secondary school, there was already a great push from teachers and external bodies to get more girls interested in STEM subjects. However, STEM encompasses a wide range of fields and there was a disparity in representation between fields. For example, there was an equal or greater number of girls to boys in my biology AS-level class. However, I was only one of two girls in my physics AS-level class. Looking back at that time, I am unsure exactly the reasons why I gravitated more towards biology than I did with physics.

When looking at representation in STEM, it is important to consider the discipline that women are working in. From my experience, getting girls and women interested in studying life sciences and medicine does not seem to be an issue. The issue lies in getting girls and women to take an interest in and be supported in physical sciences, computer sciences, engineering, technology, and bioinformatics. Therefore, I think that it is important that more girls and women are encouraged to learn coding and bioinformatics, so that we do not miss out on opportunities in these fields.

## **(2) Disparity of women in senior STEM roles**

Although there does not seem to be an issue with getting girls and women interested in studying life sciences initially, the disparity seems to arise as women progress in their

careers. Similar to my experience in my biology AS-level class, I found that there was an equal number of women in my university classes. I only started to see a decrease of women at the post-doctoral level, which decreased further at more senior positions. This disparity was the most visible at the most senior levels of professorship and principal investigators. Therefore, the focus needs to be in supporting women throughout their careers and progression into senior roles.

## **Finally, what do you see changing for women in science over the next 10 years?**

Bioinformatics is a fast-growing field and the future of research. There is already a great number of women in the life science field and so it would be beneficial to utilize this existing workforce to train more women in bioinformatics. Therefore, I see more women getting into bioinformatics and more girls at school learning how to code.

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