

So You Want to Be an A★STAR Scholar...

Do all scholars start out as straight-A students? Do young scholars get a chance to make significant contributions when they join A★STAR? Talent Times sat down with four new scholars to learn about their interests, turning points and experiences.

What is it about science that intrigues you?

Christine (C): The impact of synthetic chemistry amazes me. Something as common as flu medicine actually plays a very significant role in healthcare.

Benedict (B): Whenever we smile, calcium reacts with other proteins in our cells to contract the muscles. I'm curious about how biological molecules perform their functions.

Yan Han (YH): Isn't it interesting how one drop of acid can change the pH scale of a solution? That was my earliest memory of conducting science experiments. Right now, I'm

studying Materials Science and Engineering, and I get to delve into the various engineering fields.

Jacqueline (J): I use computer software to see chemical structures at the nanoscale. During my research attachment, I had the chance to work with P&G and discover how to enhance consumer care products.

What are some of the interesting technologies you get to use?

B: I'm using Correlative Light and Electron Microscopy (CLEM) to uncover the mystery of tight junctions. With it, we can see things like sub-compartmental organisations in the cells.





"I aim to understand the molecular organisation of tight junctions. Tight junctions are protein complexes that are on epithelial cells, and they regulate the movement of solutes through the epithelial barrier. There is increasing evidence that loss of tight junctions in maintaining cell-to-cell integrity can promote invasion and metastasis of cancer cells."

Benedict Tan Jianwei, 26
A*STAR Graduate Scholarship (Singapore)
Heading to the National University of Singapore for his PhD studies



"By examining molecular structures, I learn about the properties that make shampoos and detergents smell and clean better. One of our aims is to make manmade polymers like plastics biodegradable. More specifically, how can we make the shells encapsulating the drugs safer to consume?"

Jacqueline Tan Si Jia, 26
National Science Scholarship (PhD)
Heading to Oxford University for her PhD studies

YH: I had the opportunity to place samples in a test chamber that accelerates corrosion effects. After a few months, we saw the effects that years of corrosion had on the samples.

with science is tough love. I became unafraid to ask questions and voice my opinions. This came in useful when I minored in Physics, and I was one of two girls in a male-dominated cohort.

Tell us about your life's turning points.

B: Ninety-nine per cent of my final year project was a failure. I now take the time to design better experiments and think of more checkpoints.

J: I actually got a big fat C for my PSLE Science examination. What I have

What traits do scientists need?

J: Science communication has become very important. I'm fascinated by the way TED speakers package information into bite-sized yet powerful chunks. Digital media also inspires me to think of lead-in statements to pique the interest of the audiences.

Tips on LIVING AN ORGANISED LIFE

Make Google Your Best Friend

"I learnt how to cook, use programming software and even write calligraphy thanks to Google. We can get answers readily from the internet, but of course there's a need to be discerning!"

- Jacqueline

Have a Schedule of Your Work

"Time passes quickly without you knowing. Be focused about what you want to achieve and work towards your goal."

- Yan Han

Go Beyond Grades

"Invest time in doing something you really enjoy, even if it's not in your current curriculum. Experiences matter more than grades."

- Christine

Know Your Strengths

"Figure out what you're good at and pursue that. Don't follow trends — you will face strong competition."

- Benedict

"I look at p53, a tumour suppressor protein that regulates your cell cycle and prevents tumour growth. Its function is limited when Mdm2 binds with it, and this process leads to proteasomal degradation. I hope to find a competitive inhibitor similar to p53 to bind with Mdm2. In so doing, we can then release p53 and let it perform its original function."

Christine Ng Sih Chin, 19
National Science
Scholarship (BS)
Heading to Imperial
College London for her
Bachelor's degree

"I'm studying the effects localised corrosion has on aluminium aerospace alloys. This is an important study because we want to ensure aircraft integrity. Studies have been conducted in Europe, but given Southeast Asia's hotter climate, the material's failure mechanisms may differ."

Liew Yan Han, 27
A*STAR Graduate
Scholarship (Singapore)
Heading to the National
University of Singapore
for his PhD studies

C: I agree. There is a need to know how to distil your research's technical facts into something that resonates with the public. They are the ones that your research will benefit.

What is the one misconception that people have about what you do?

YH: They think that we're always stuck in laboratories. In reality, I have the freedom to plan my own schedules. I also collaborate with different scientists from outside my field.

Has science impacted your everyday activities?

C: Science has made me question a lot more. I'd ask myself "Why can't we use this method?" I'm the same way when suggesting

fashion choices to my sister. "Why don't you bring this bag?"

J: I'm a very precise baker in that I follow recipes to a tee. It's comforting whenever my yeast activates — thanks to factors like right water temperature. I feel validated as a chemist (laughs).

How has the A*STAR scholarship helped you?

YH: Besides the financial assistance, the programme

offers regular networking sessions with fellow scholars and upper management. It is through these interactions that I begin to envision how my research can benefit the world.

B: It has allowed me to explore my scientific interests and enter a field of my choice. It gives me the confidence to take charge of my own life and make long-term plans.

