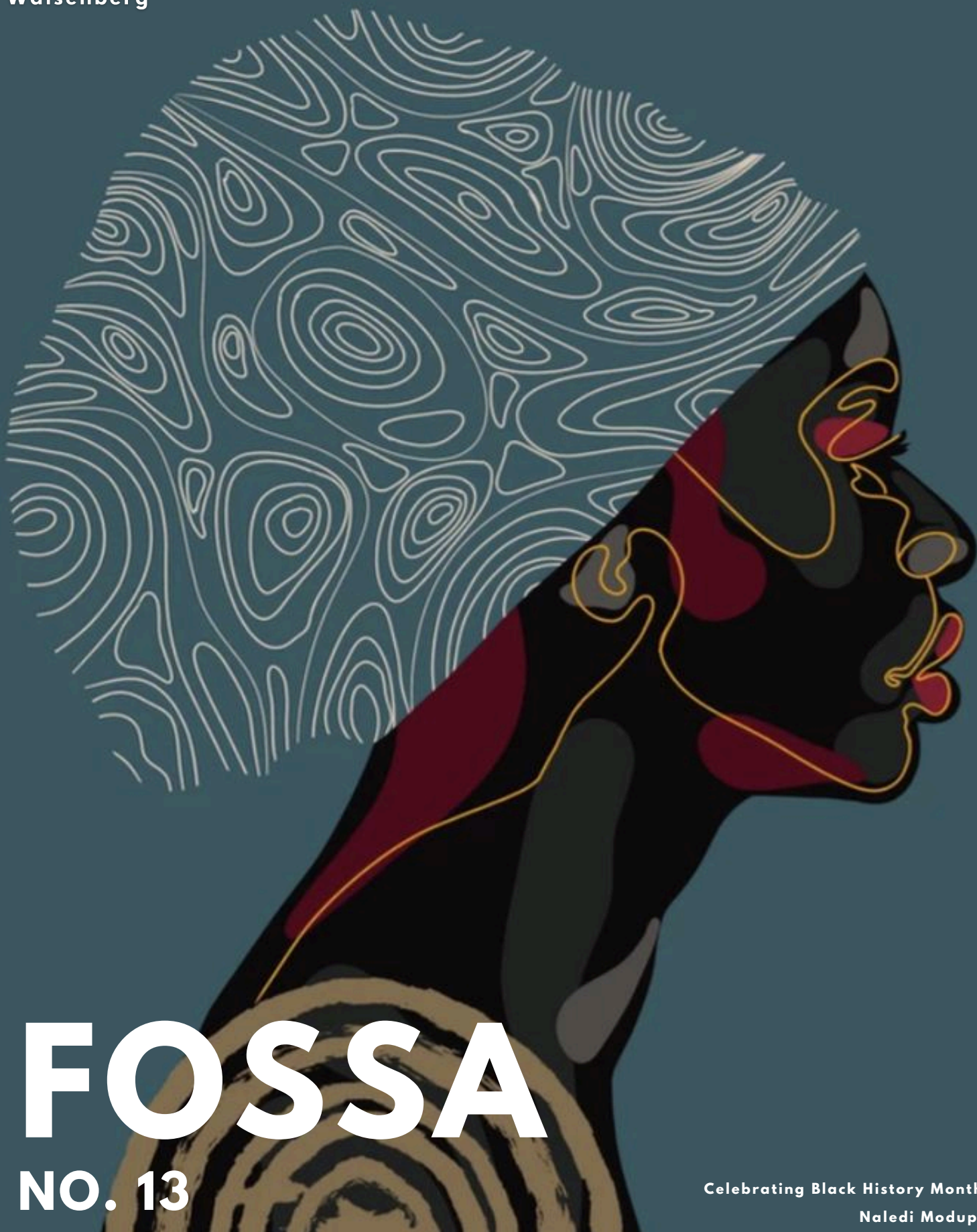


Editors: Sami
Poulsen & Shunit
Waisenberg



FOSSA

NO. 13

Celebrating Black History Month
Naledi Modupi

RESEARCH SPOTLIGHT

Arfan Sivarooban

The Epidermal Growth Factor Receptor (EGFR) Extracellular Domain (ECD) is a protein segment responsible for binding growth factors that regulate cell proliferation. Fragment antigen-binding (Fab) is a region on an antibody that binds to antigens, in this case, specific to the EGFR ECD, forming complexes essential for studying protein interactions and crystallization.

The subjects of this study are the EGFR ECD and Fabs engineered with specific point mutations (Named S1C, S1CE2, S1CE3..., S1CE8). These mutations are designed to investigate their impact on the crystallizability of the antigen-Fab complexes.

The purpose of this research is to determine if specific point mutations in the Fabs affect the crystallizability of antigen-Fab complexes. This insight could potentially enhance our understanding of protein interactions and aid in the development of targeted therapeutics. The hypothesis of this study is to identify which Fab variant increases the crystallizability of the antigen-Fab complexes the most, facilitating better structural analysis through crystallography.



Our research focuses on crystallizing various antibody-antigen complexes, including those involving antigens like ROR1 and ROR2 (associated with blindness), HER2 (linked to breast cancer), and EPOR (related to anemia). By analyzing these crystals for protein structure, we aim to identify the best specific point mutations for increasing crystallizability.

The data obtained from our research is sent to SickKids for further analysis with a therapeutic downstream approach. If we can determine the best specific point mutations for specific antigen-antibody complexes related to diseases, this information can be used by SickKids and pharmaceutical companies to develop more effective treatments. This could lead to better-targeted therapies for conditions such as blindness, breast cancer, and anemia, ultimately improving patient outcomes.

PRIORITIZING BLACK MENTAL HEALTH DURING BLACK HISTORY MONTH

While **Black History Month** is a time to celebrate the achievements and contributions of the Black community, it's equally important to acknowledge the challenges, especially those surrounding mental health. Many Black students face unique stressors, including microaggressions, underrepresentation, and the pressure to succeed in predominantly white spaces. These experiences can take a significant toll on mental well-being.

At our university, **Camille Lloyd**, a Black counsellor and psychotherapist at the Wellness Centre, offers dedicated, culturally responsive support for Black and BIPOC students.

Camille provides a safe and understanding space to help students navigate academic pressures, identity challenges, and the emotional weight of systemic discrimination. You don't have to face these challenges alone, support is available.



How to Take Care of Your Mental Health

- **Connect with Campus Resources:** Reach out to Camille Lloyd to book a session or contact the Wellness Centre for additional mental health support tailored to your needs.
- **Find Your Community:** Build a support network by joining groups like the Black Students' Association or Black Students in Science, where you can connect with peers who uplift and understand you.
- **Practice Self-Compassion:** Allow yourself the time and space to rest, recharge, and prioritize your mental health without feeling guilty.
- **Engage in Activities That Ground You:** Participate in wellness activities such as mindfulness, creative hobbies, or movement to support your mental and emotional well-being.

Caring for your mental health is a powerful act of self-love. This Black History Month, commit to creating a culture of care, celebrating one another, and prioritizing wellness within the Black community. Remember, you are never alone, resources and community are here to support you every step of the way.

HIGHLIGHTING BLACK VOICES

DURING BLACK HISTORY MONTH

Overcoming Imposter Syndrome and Lack of Representation for Black STEM Innovators

By: Peace Agada, 3rd Year Health Sciences

You can't be what you can't see." This powerful statement, often voiced by trailblazers, reveals an undeniable truth: The lack of Black representation in innovative fields such as academia, leadership roles, and STEM industries - has created insurmountable barriers. Currently, black individuals make up less than 9% of the STEM workforce in the United States - and an even smaller percentage in Canada (National Center for Science and Engineering Statistics, 2023). What we don't see are the untapped contributions, lost potential, and systemic hurdles hidden behind these percentages.



What we see are the glaring inequities in healthcare for Black communities—higher rates of preventable diseases, inadequate housing conditions, and decreased access to the technological advancements critical to the health of our community. These disparities are compounded by higher dropout rates in education and limited access to mental health services (Government of Canada, 2020). What we carry is a history of chronic stress, unequal opportunities, and the weight of inequity on our shoulders. Research shows that while 94% of Black youth aspire to obtain a university degree, only 60% truly believe they can pursue one (Statistics Canada, 2020). This gap between aspiration and belief is further fueled by environments that fail to reflect our potential. As a first-generation Nigerian immigrant pursuing further education in STEM, I feel these statistics permeate every space I enter, every classroom, every lab, and every boardroom. Imposter syndrome isn't just a whisper of self-doubt—it's the resounding echo of generations who have been told, directly or indirectly, that they don't belong. For this reason, I believe we must change the narrative. We must be what we cannot see. We must dare to stand in rooms that statistics suggest we don't belong in and defy the odds stacked against us. As Black innovators in STEM, we hold the power not just to break barriers but to build bridges—for ourselves, for our communities, and for the generations who will follow in our footsteps. "Once I got into space, I was feeling very comfortable in the universe. I felt like I had a right to be anywhere in this universe, that I belonged here as much as any stardust, any comet, any planet". Mae Jemison. Engineer, Physician, and First Black female NASA Astronaut

Overcoming the Weight of Being Underestimated as a Black Student

By: Jalen Kakonge-Lamanna, 3rd year Honours Science

My name is Jalen Kakonge-Lamanna and I am a third-year Honours Science student at Wilfrid Laurier University. My time at Wilfrid Laurier University has been amazing. I have met so many great people in my program and on campus in general. However, there is a problem that I have been aware of for some time now. Not only have I been aware of this problem throughout my time at Laurier, I have known about this problem throughout the majority of my academic career. Many of the students that I speak to on a daily basis have agreed on something, black students have been consistently underestimated intellectually for years.



Whether it is done subconsciously or not, many people are surprised to hear about the remarkable academic capabilities of black students. Black students who excel academically are often questioned about how they were able to achieve their success and then labelled as being “anomalies”. When speaking to a very good friend of mine, I was reminded about just how often this undermining of academic ability occurs. My friend, who was originally born in Nigeria, explained that people always had a look of shock when they found out about her 12.0 GPA here at Laurier. Even when in class, she explains that students will often be surprised by the fact that she understands certain concepts better than they do. Now, many people will defend this by saying that a 12.0 GPA is difficult to achieve, therefore people will be surprised when someone is able to maintain it. Whether this is the case or not, there is something we must all understand collectively. Many black students experience this form of bias and underestimation from the day they enter the education system. To this day, we see a noteworthy amount of young black students being placed in extra reading and writing support programs, often prematurely. Programs like these can sometimes send the message that these students are not as capable as their peers. For someone who has experienced moments of questioning their academic abilities due to being placed in certain groups, hearing others express surprise at their achievements can be a painful reminder of those times when they doubted themselves.

So, Where do we go from here?

There is one simple answer if you ask me. We must unite. Those within the black community cannot control how others who lack the same experiences may perceive or understand how certain situations feel. While we must continue to educate and hold the people around us accountable, we have to look internally as well. The black community must reject all of the stereotypes and preconceived notions placed upon us. For many black students who have been burdened with stereotyping, these labels often begin to shape their sense of identity. Many start to internalize the belief that achieving any form of academic success would be uncharacteristic of them. Many within the black community will themselves think that black students who excel academically are exceptions to the norm. This way of thinking is a product of years of conditioning and systemic bias. Black excellence is not an anomaly, it is a reality. Together, we must overcome these limiting narratives. Those in the black community should never allow themselves or anybody around them to settle for less because they “weren’t expected of much”. We must reject the notion of “proving our blackness” by conforming to the various stereotypes that have kept us down for generations.

“We Must Rise Above the Limitations Placed Upon us and Embrace the Boundless Potential Within our Community”

Three Groundbreaking Black Scientists from the Past:



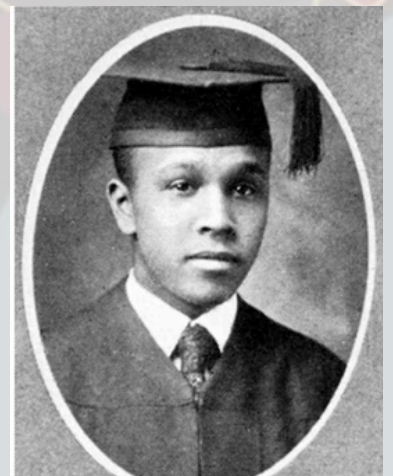
Alice Ball

Developed the first treatment for leprosy while working on her masters degree in chemistry



Gladys West

Her work on satellite data technology lead her to be the Inventor of the Global Positioning System (GPS) which is still used today in countless applications of navigation and communication



Percy Julian

The first person to synthesize the anti-glaucoma drug physostigmine, and holds over 100 chemical patents



Club Highlight

PRE-MED SOCIETY

The Pre-Medical Society at Laurier is all about bringing together students who are passionate about medicine and helping each other along the way. We're a down to earth, supportive group that focuses on both learning and making a difference.

We host a variety of events like info sessions and Q&A's on the MCAT, medical school applications, and different paths. We also have hands-on workshops like suturing and airway management, so members can get practical skills in a fun, relaxed environment. We also have a peer mentorship program and have open resources to answer any questions at any time! But it's not all about the books, we're committed to giving back. Through fundraisers and initiatives, we advocate for equal access to education. So far, we've sent over 120 girls to school in different countries, and we're just getting started.

At the Pre-Med Society, we're not just preparing for our future in medicine, we're working to make a positive impact today.

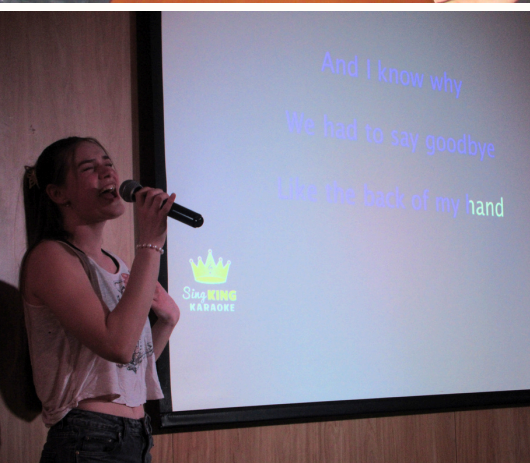




A lookback at...

WILF'S KARAOKE

January 14



Paint



& Sip

February 5th | 7pm - 9pm

Science Atrium

FOSSA
FACULTY OF SCIENCE STUDENTS' ASSOCIATION

The background is a light-colored, textured surface resembling white-washed wood. Scattered throughout are various decorative elements: pink and yellow rose petals, yellow tulips, white and yellow daffodils, and several macarons in yellow, pink, and light purple. A pink gift box with a ribbon bow is in the bottom right corner.

petals & *pastries*

Thursday February 13th
10:00 am-4:00 pm
Science Atrium