

Monica Guzman



Monica L. Guzman, PhD is an Associate Professor of Pharmacology in Medicine in the Division of Haematology and Medical Oncology and Assistant Director of Diversity Equity and Inclusion of Basic and Translational Science in the Sandra and Edward Meyer Cancer Center at Weill Cornell Medicine (WCM), USA. Dr Guzman completed her undergraduate studies at the University of Guanajuato, Mexico, and earned her PhD in Microbiology, Immunology, and Molecular Genetics at the University of Kentucky, USA. Monica has also been an Instructor in Medicine at the University of Rochester. She joined WCM in 2009 and was later awarded the NIH Director's Innovator Award and the V-Foundation Scholar.



Monica's passion is to perform world-class translational research through close interactions between research and clinic to accelerate the development of new, more effective treatments that ablate malignant stem cells. Her passion has been noticed as she was listed among 100 inspiring Hispanic/Latinx scientists in America in 2020 and was Included in Hispanic Role Models in Science: Advice for Future

Scientists (Hispanics in Medicine and Science) by Paola Mina-Osorio. Recently, Dr Guzman was included in "Ciencia y Vida," a compilation of 36 Outstanding Mexican Scientists by Hector Mayani. Editorial Paralelo 21. 2023.

Monica's lab aims to identify vulnerabilities in malignant stem/progenitor cells, measure residual disease, assess the tumour microenvironment, and identify therapeutic approaches to eliminate malignant cells without harming their normal counterparts.

Could you describe your research and what impact it may have on the field of onco-immunology?

My laboratory conducts translational research for hematologic malignancies. I will provide an example of work that has resulted in clinical application. During my PhD in the laboratory of Craig Jordan, we identified a cell surface marker present in leukemia stem cells (LSCs) but not in normal hematopoietic stem cells (HSCs); this marker, known as CD123, many years later became very attractive as a target to eradicate LSCs for patients with leukemia. Thus, my group established an alliance with a pharmaceutical company to generate important pre-clinical data to determine the potential of allogeneic chimeric antigen receptor (CAR) T cells to target CD123 to eliminate LSCs without causing damage to HSCs. The work suggests that these CAR T cells represent a universal approach (i.e., can be used in many patients) with the potential of eliminating the "root" of AML without harming normal hematopoiesis. The work led to a phase 1 clinical trial for AML patients, with hopes to advance the field of onco-immunology.

Currently, we are working on identifying approaches to improve CAR T cell therapy for patients with lymphoma and multiple myeloma.

What are the practical implications of your research?

I will provide another example of the practical implications of our research: Even though CAR T cells have become a promising treatment for some hematologic malignancies and are part of the standard of care for patients with relapsed/refractory lymphoma and multiple myeloma, patients are still relapsing. Thus, we are developing translatable combinatorial approaches, such as radiation therapy combined with CAR T cell therapy, to improve their response. We are currently starting a clinical trial for patients with lymphoma to test the efficacy of this combined approach.

Is there any recent “good news” in the cancer research field?

The “good news” is with newer technologies we are able to know more about the features of an individual’s cancer which opens the door to personalized therapy. Currently we have a hand full of such therapies that are beginning to benefit some patients.

Do you foresee there ever being a “cure” for cancer?

I do; I think I could be in two ways: (1) Continue understanding how to “rewire” the immune system tailored for individual cancer patients. (2) Prevention approaches, either by early detection or specific monitoring strategies tailored to people at risk.

Congratulations! You have been recognised as a role model so many times! How does this feel? Does it add pressure?

I feel humbled by such recognition and understand the importance of sharing our stories and career trajectories. It inspires me to get more involved in mentoring and developing programs to engage young students who may have yet to access scientific research in exploring the field. I hope to inspire future immunologists to pursue their passion and make a difference in the field.

What would you like to say to inspire future immunologists?

Immunology is a field that still has many things to be discovered and to be understood. Discoveries happen with curiosity, tenacity, and collaboration with others. So, be curious and explore, get out of your comfort zone, and engage with others.

What roles do you have on the International Union of Immunological Societies (IUIS) Committees?

I am a member of the educational committee and gives me the opportunity to get involved in the planning of courses, participate in courses as faculty sharing my research or discussing the importance of diversity and inclusion and is a vehicle to reach to immunology students in different parts of the world.

What do you envision for the IUIS EDU Committee in the next 10 years? How do you think teaching and learning will change?

In 10 years, the IUIS EDU committee will have followed the trajectory of students who have participated in IUIS courses. Such students will be able to serve as faculty in new courses with an understanding of the benefits of the courses, becoming role models for the generations to come.

Teaching will likely change by becoming more accessible and interactive as technology advances and maybe even breaking some barriers, such as language.

Interview by Bon (Bonamy) Holtak