🎉 **New Publication in *Toxics*!**
Congrats to Steev Sutton & Ron Hills of UNE Pharmacy

We sat down with Dr. Steev Sutton to chat about his new review titled, *"Role of Nanoplastics in Decreasing the Intestinal Microbiome Ratio: A Review of the Scope of Polystyrene."* The article was published with Dr. Ron Hills in the internationally regarded journal *Toxics*. Here's what he had to say:

Tell us a little about yourself.
"I was trained first as a pharmacist and then as a pharmaceutical scientist, but I've always been an advocate for a cleaner environment. Before joining UNE, I spent time at Pfizer learning a great deal about gastrointestinal physiology."

What is the microbiome?
"The body has many microbiomes—oral, skin, and more. The colon microbiome is the collection of bacteria, fungi, and other organisms living in the colon. It plays a critical role in producing nutrients we need to stay healthy. When its composition is altered—what we call dysbiosis—it's linked to obesity, diabetes, inflammatory bowel disease, and other chronic conditions."

How did your interest in the microbiome begin?
"Dr. Hills and I have had countless conversations about diet and intestinal health, given his expertise in lipids. Those discussions ultimately led to our first review together in 2019, which received the Best Paper Award in the journal *Nutrients*."

What are nanoplastics?
"Nanoplastics are essentially the 'little sister' of microplastics. In this review, we outline the types of plastics that pollute our environment and why nanoplastics are especially concerning."

Why study nanoplastics?
"With help from several pharmacy student assistants, my lab has been examining how nanoparticles affect cells in culture. Plastic quickly emerged as an obvious—and urgent—area of concern."

What is the 'intestinal microbiome ratio' referenced in your title?
"The major bacterial phyla in the colon are Firmicutes and Bacteroidetes. A decrease in the Firmicutes/Bacteroidetes (F/B) ratio is often associated with inflammation and poorer overall health. We wanted to understand what drives this shift."

What did you find?
"After reviewing hundreds of papers, we found that nanoplastics contribute to:
1️⃣ **Oxidative stress**, which favors Bacteroidetes (facultative anaerobes) and suppresses Firmicutes (obligate anaerobes).
2️⃣ **Disruption of the intestinal barrier**, allowing bacteria and antigens to enter the body, triggering inflammation.
3️⃣ **Microbiome shifts**, including loss of beneficial Gram-positive organisms and overgrowth of stress-tolerant Gram-negative species.

Altogether, we trace how nanoplastics in the gut can drive the hallmarks of intestinal dysbiosis—potentially contributing to inflammatory bowel disease, obesity and metabolic syndrome, neurodegenerative changes, and autoimmune disorders."