

BIO FOCUS

ISSUE 1 | SEPTEMBER 2020

MISMR
Michigan Society for Medical Research



TOXICOLOGY

What is Toxicology?

Toxicology is a scientific field that involves the study of the adverse effects of chemicals/substances/situations that can potentially harm people, animals, and the environment. It is known as the "science of safety" because it has evolved from a field focused on studying poisons and chemical exposures to studying safety. Toxicology uses the disciplines of biology, chemistry, pharmacology, and medicine to predict what and how chemicals may cause harm, and discovers methods to preserve public health from these negative effects.

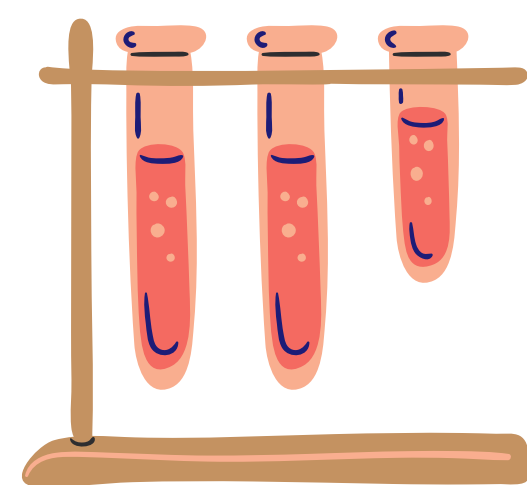
What is a Toxicologist?

A toxicologist is a scientist that has a strong understanding of many scientific disciplines and works with chemicals/substances to determine their toxicity to living organisms and their environments. Also, just as there are different types of doctors, there are toxicologists with different specialties.



Important Toxicology Concepts

- Not everyone responds to substances in the same way, rather there are many factors that contribute to peoples' responses. These factors include the amount/duration of exposure, the person's age, and an individual's susceptibility to a substance.
- The dose of the chemical/substance that a person is exposed to is important because all substances have the potential to be toxic if given to living organisms in certain conditions and/or at certain doses. Thus, toxicology seeks to understand and identify at what doses and what exposures a substance becomes hazardous.
- Toxicologists also know that even low-dose exposures that seem to be insignificant can inevitably lead to an adverse effect over time if exposure is continuous or during a vulnerable time (ex. pregnancy).



Resources to Learn More About Toxicology

- <https://toxlearn.nlm.nih.gov/Module1.htm>
- <https://www.news-medical.net/health/What-is-Toxicology.aspx>
- <https://www.toxicology.org/>
- <https://www.journals.elsevier.com/toxicology>
- <http://toxedfoundation.org/what-is-toxicology/>
- <https://www.nature.com/subjects/toxicology>

