

What is a Biochemist?

Biochemistry is a combination of biology and chemistry, and a Biochemist is an expert in the chemistry of living organisms. For example, a Biochemist might study what molecules do in the biological processes needed for life. Most of a Biochemist's work takes place in a lab, using specialized equipment to study chemical reactions.

What does the Biochemist do in Venom CoLab?

The Biochemist in each group identifies molecules in the venom sample.

The Biochemist and Molecular Biologist both learn about how venom is a mixture of proteins, peptides, and small molecules. The Biochemist dives deeper into how the molecular makeup of venom differs between different organisms. In Chapter 2, the Biochemist separates the venom sample using High Performance Liquid Chromatography (HPLC), and identifies individual molecules using Mass Spectrometry. Throughout all chapters in Venom CoLab, the Biochemist can contribute their knowledge about how the properties of molecules in venom can be used to separate and identify them.

XR Component

The Biochemist uses XR in Chapter 2. The sample of venom the Zoologist collected in Chapter 1 will be magnified, representing individual molecules with a collection of 8 distinct 3D shapes. By dragging along the HPLC tube onscreen, the shapes will separate. Shaking a molecule onscreen will charge it, and sending it to hit a distant target will reveal the molecule's mass, just like in a mass spectrometry analysis. The Biochemist must tell their teammates what the mass is for each molecule, so they can type it in to complete the graph they see onscreen. Once the molecules have a mass, they can be compared to reference molecules and identified.

Prologue Chapter 1 Chapter 2 Chapter 3 Chapter 4

The venn diagram below shows the peptides in two different samples of venom. Move the peptides that both samples have in common to the center.

Prologue Chapter 1 Chapter 2 Chapter 3 Chapter 4

As Biochemist runs the HPLC to separate the peptides in your sample, the results will appear on the chromatogram. Fill in the mass using the results of the mass spec analysis.

Mass (kDa): 1.09 3.7 2.65 3.27 4.33 3.9 3.99 5.1

Tap the molecule to perform the mass spec. The longer it takes the molecule to hit the detector, the greater its mass.

MOLECULES	MASS (kDa)
Peptide A	
Peptide B	
Peptide C	
Peptide D	
Peptide E	
Peptide F	
Peptide G	
Peptide H	