

The Slimy Case of the Banana Slug

Watch the video, “Banana Slugs: Secret of the Slime” on the PBS website.
(<https://ww2.kqed.org/science/2015/02/17/banana-slugs-secret-of-the-slime/>)

As we learned in the video, slugs make slime as a defense, as lubricant to help them move across the forest floor, an adhesive that allows them to crawl up vertical surfaces, and even as a way to communicate. We also learned that it's very similar to the stuff that coats our noses and lungs and occasionally drips out when we have a cold. The liquid crystal structure of slime gives it the sticky yet slippery properties super valuable to slugs but also to humans who depend on mucus to coat our respiratory and digestive tracts and to protect us from bacteria and viruses that invade our bodies.

Slime is mostly water, but the water comes from the environment, not from the slug itself! When released from the slug, a tiny packet of slime can absorb up to 100 times its original weight in water. So, it helps slugs, which, like us, are mostly water, to stay moist.

So, what is in a little packet of slime? It turns out that a number of different molecules make up the non-water portion of the mucus. The most common one, though, is something called a mucopolysaccharide, a long chain of repeating sugars with a bit of chemical modification. Scientists are interested in being able to synthesize artificial slug slime for all sorts of uses. So, they've worked to figure out the chemical components of these mucopolysaccharides. A few of the major molecules are presented below.

