

Explify EP1 FINAL (315 Words, Conforms to 2:00)

What's causing my patient's infection? A new approach known as metagenomics is helping doctors answer that question more comprehensively and more accurately than ever before.

Infections are caused by pathogens, microorganisms that invade the body and make us sick. These include viruses, bacteria, fungi, and parasites.

Like all living things, pathogens have unique genetic signatures that, in addition to determining their traits, can be used to identify them. It's now possible to use technology called next-generation sequencing to decipher the genetic makeup, or genome, of any and all microorganisms within a patient sample. Scientists can then use advanced data analysis tools to precisely identify pathogens that make a patient sick.

Metagenomics represents a breakthrough in diagnosing infectious diseases.

That's because traditional methods often don't work. Growing, or culturing, microorganisms in the laboratory can take days to weeks, and often yields no results. Meanwhile, another testing method called PCR looks for a specific short region within a pathogen genome as a fingerprint.

The problem is, a specific PCR test needs to be used for each pathogen, which makes it difficult when looking for dozens or hundreds of pathogens. If a patient's illness is caused by multiple pathogens or one a doctor had not suspected, PCR tests could miss some or all of the pathogens, leaving doctors without the critical information they need to select the optimal treatment for their patients.

Metagenomics is far broader and provides more information. It analyzes the whole patient sample and identifies *all* of the pathogens that are present, including ones other tests miss. This means doctors can identify the pathogens they're looking for and those they didn't think to test for, including new ones that have not been seen before, or that are resistant to treatment.

Metagenomics is empowering doctors to make better decisions faster so patients can feel better, faster.

Learn more about the power of metagenomics at IDbyDNA.com.