

Nano-mapping DNA mutations with CRISPR could transform disease treatment

A team of scientists led by Virginia Commonwealth University physicist Jason Reed, Ph.D., have developed new nanomapping technology that could transform the way disease-causing genetic mutations are diagnosed and discovered. Described in a study published...in the journal Nature Communications, this novel approach uses high-speed atomic force microscopy (AFM) combined with a CRISPR-based chemical barcoding technique to map DNA nearly as accurately as DNA sequencing while processing large sections of the genome at a much faster rate. What's more—the technology can be powered by parts found in your run-of-the-mill DVD player.

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Increasing the speed of AFM was just one hurdle Reed and his colleagues had to overcome. In order to actually identify genetic mutations in DNA, they had to develop a way to place markers or labels on the surface of the DNA molecules so they could recognize patterns and irregularities. An ingenious chemical barcoding solution was developed using a form of CRISPR technology.

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While there are many potential uses for this technology, Reed and his team are focusing on medical applications. They are currently developing software based on existing algorithms that can analyze patterns in sections of DNA up to and over a million base pairs in size.

[Editor's note: Read the [full study](#)]

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion, and analysis. Read full, original post: [Revolutionary Imaging Technique Uses CRISPR To Map DNA Mutations](#)