Keys to heart disease, diabetes, cancer may be in genome's 'dark matter'

A new method lets researchers quickly screen the non-coding DNA of the human genome for links to diseases that are driven by changes in gene regulation.

The technique could revolutionize modern medicine's understanding of the genetically inherited risks of developing heart disease, diabetes, cancer, neurological disorders, and others, and lead to new treatments.

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As reported in *Nature Biotechnology*, the new technique relies on the gene-hacking system called CRISPR/Cas9. Originally discovered as a natural antiviral defense mechanism in bacteria, the system recognizes and homes in on the genetic code of previous intruders and then chops up their DNA. In the past several years, researchers have harnessed this biologic system to precisely cut and paste DNA sequences in living organisms.

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With the new tool, Gersbach and his colleagues are exploring the 98 percent of our genetic code often referred to as the "dark matter of the genome."

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The technique is already producing results, identifying previously known genetic regulatory elements while also spotting a few new ones. The results also show it can be used to turn genes either on or off, which is superior to other tools for studying biology that only turn genes off. Different cell types also produced different—but partially overlapping—results, highlighting the biological complexity in gene regulation and disease that can be interrogated with this technology.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion, and analysis. Read full, original post: How scientists explore our genome's 'dark matter'

For more background on the Genetic Literacy Project, read GLP on Wikipedia