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Researchers develop a safer CRISPR technique

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The UT Austin team developed a way to rapidly test a CRISPR molecule across a person's entire genome to foresee other DNA segments it might interact with besides its target.



Scientists from The University of Texas at Austin took an important step toward safer gene-editing cures for life-threatening disorders, from cancer to HIV to Huntington's disease, by developing a technique that can spot editing mistakes a popular tool known as CRISPR makes to an individual's genome.

More than a dozen clinical trials employing CRISPR on human cells are reportedly already underway, but the approach is imperfect.

The UT Austin team developed a way to rapidly test a CRISPR molecule across a person's entire genome to foresee other DNA segments it might interact with besides its target. This new method, represents a significant step toward helping doctors tailor gene therapies to individual patients, ensuring safety and effectiveness.

The researchers took a do-it-yourself approach to developing the equipment and software for their technique, using existing laboratory technology to develop CHAMP, or Chip Hybridized Affinity Mapping Platform. The heart of the test is a standard next generation genome sequencing chip already widely used in research and medicine.

Two other key elements -- designs for a 3-D printed mount that holds the chip under a microscope and software the team developed for analyzing the results -- are open source. As a result, other researchers can easily replicate the technique in experiments involving CRISPR.