

Revolutionizing  
genomic science  
with a patient-first  
approach.

**The Gene Editing Institute at ChristianaCare advances the power of CRISPR gene editing technology to improve human life through research and development.**

The Gene Editing Institute is improving current gene editing tools and discovering new ones. The pace at which discoveries and improvements are occurring is like no other time in science. The race to find the safest, most reliable tool is paramount.

What's often missing in the race among scientists to find the next great discovery are the smaller revolutions that can make significant impacts. It's not enough to ask how we can eradicate cancer in the future—we must look for ways to use these tools to help patients now. How can existing gene editing tools improve treatments and quality of life for patients in our hospitals today?

With decades of experience in the field of genome editing, Eric B. Kmiec, Ph.D., formed the Gene Editing Institute in 2015 out of the Center for Translational Cancer Research at the Helen F. Graham Cancer Center & Research Institute. Since then, the team has moved to a new laboratory on STAR Campus in Newark, DE, met with the FDA to begin planning a human clinical trial to treat lung cancer with CRISPR, made gene editing more precise and efficient, and created a robust curriculum and program to bring gene editing to the classroom.

**The Gene Editing Institute is pioneering gene editing technologies that will drive the development of diagnostic tools for delivering personalized care to patients.**





## 1. We are refining the gene editing tool to make it safe and effective for patients.

**We've reduced "off-target" edits to other parts of the genome.** We've developed a highly specific CRISPR tool that reduces the number of off-target edits to other areas of the genome, which is vital for further research and patient applications.

**We developed the first CRISPR tool to repair DNA outside the human cell to speed therapies to patients.** In partnership with an Israeli biotech company, Fore Biotherapeutics, the Gene Editing Institute has developed a breakthrough CRISPR gene-editing tool that can provide insights that allow doctors to quickly choose a precise course of treatment for each patient.

**We created a unique software program that verifies that CRISPR edits are staying on target.** DECODR™ is now utilized by trusted academic and medical institutes in dozens of countries, including Harvard University and Stanford University.



## 2. The Institute is developing the first cancer patient trial using CRISPR to directly target a solid tumor (non-immunotherapy).

**The Gene Editing Institute has also spun out its first commercial biotechnology start-up: CorriXR Therapeutics™.** This start-up focuses on tools that can disable the genome of a tumor cell but not the genome of a healthy cell.

**The Institute is working through the regulatory process to begin a human clinical trial to treat lung cancer within the next year.** This trial will be the first within the cancer field to test CRISPR's effectiveness at disabling a specific gene within the tumor to improve chemotherapy's power and reduce the tumor size.

## 3. The Institute inspires and helps prepare the next generation of gene scientists.

**We have created one of the first gene editing curriculums for high school and college students.** With support from the National Science Foundation and in partnership with Delaware Technical Community College, CRISPR In A Box™, a teaching toolkit, was born. Students get a unique hands-on experience by carrying out CRISPR gene editing with genetic readout in bacteria. This technology allows us to place gene editing in the hands of students from diverse backgrounds, continuing our commitment to equity in the healthcare and scientific community.



To learn more about the Gene Editing Institute and how you can help, please email [geneeditinginstitute@christianacare.org](mailto:geneeditinginstitute@christianacare.org) or contact Mak Sisson, Science Communications Specialist, at [makenzie.sisson@christianacare.org](mailto:makenzie.sisson@christianacare.org).