Three University of Michigan pathologists have developed software that could improve cancer diagnosis and treatment. Their recent discovery led to their winning a statewide entrepreneurship competition organized by the U-M Center for Entrepreneurship at Michigan Engineering.

Team GENOMENON took first place overall, as well as first in the health category of the Michigan Collegiate Innovation Prize. Members of the team are Mark Kiel, M.D. Ph.D., a pathology resident at the U-M Medical School, and pathology professors Megan Lim, M.D., Ph.D., and Kojo Elenitoba-Johnson, M.D. The team received $40,000.

Beyond a simple contest, the prize was a three-month training program that helped inventors find markets for their technologies and develop their businesses. It utilized the National Science Foundation's Innovation Corps curriculum and offered it to undergraduates for the first time.

"This program is exceptional," Kiel said. "We realized our technology had potential as a business, but we had no idea where we would start. The program has really illuminated the process for us. It's only been three months and we're already on the verge of producing a commercially viable product."

The researchers recognized a need to more quickly interpret genetic information—to find mutations among the 3 billion bits of DNA that make up a patient's genome. So they developed a software program that automates the process and focuses on what they call "clinically important mutations."

Today it takes a long time and a team of specialists to look at a piece of a cancerous tumor, for example, and determine whether it contains harmful genetic mutations. But having that information, the researchers said, helps them better determine the type of cancer, how advanced it is and what the most effective treatment might be.

"GENOMENON software essentially democratizes genome sequencing interpretation," Kiel said.

More than 80 teams applied to participate in the program from more than 16 colleges and universities across the state of Michigan. Twenty-three were chosen to enter. Roughly half of the participants were undergraduate students.

"We're training the future entrepreneurs from across the state in a common language and skill set for creating companies," said Doug Neal, an instructor in the program and co-founder of Ann Arbor venture capital firm Michigan eLab. "Nine out of 10 startups fail. We think the skills these teams are learning in this program can change those odds."

Organizers say the program could also help keep talent in the state. Teams put down roots as they networked and reached out to more than 1,000 potential customers for market research.

"Today isn't the end of this program," said Amy Klinke, contest director and associate director of the U-M Center for Entrepreneurship at the College of Engineering, addressing all those who entered the contest. "It's just the start. We hope that all of you, whether you won money or not, continue to reach

out to your mentors, to the Center for Entrepreneurship and to the resources in the state and continue to grow. If you look at the most successful companies, it's about tenacity, and you've already shown it by what you've done."