A unique technology to rapidly screen new drugs, therapies

October 6 2020

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The University of Colorado Anschutz Medical Campus announced a new robotic screening and imaging technology today marking a major breakthrough in the detection and treatment of disease.

The technology, made possible by a gift to the University of Colorado

Skaggs School of Pharmacy and Pharmaceutical Sciences, could cut the screening time for new drug therapies by half. That means therapies and pharmaceuticals could be ready for patients faster than ever before.

"This technology does not exist at any academic institution in the Mountain West and is limited between the two coasts, placing the CU Anschutz Medical Campus in a unique position to advance drug discovery in Colorado and beyond," said David Ross, Ph.D., associate dean for research at the CU Skaggs School of Pharmacy and Pharmaceutical Sciences. "We envision this new screening and imaging technology will be applied to both small molecule and biologic drug development and will position the CU Anschutz Medical Campus for the next generation of translational discovery where speed and efficiency are essential."

Faculty at the school worked with Perkin Elmer, a global health innovation leader, to customize the technology, called the Explorer G3 Integrated Workstation. The instrument is the only one of its kind. It will enable rapid and cost-effective screening of hundreds of thousands of potential therapies, including treatments for cancer and Alzheimer's disease.

The technology is expected on campus early next year.

"The custom-made instrumentation will harness unique cell-phenotypic and biochemical models of human disease to identify new therapeutic targets and translate those discoveries to therapies at a faster rate," said Daniel LaBarbera, Ph.D., director of the high throughput drug discovery and chemical biology core facility at CU Anschutz Skaggs School of Pharmacy. LaBarbera helped customize the technology.

"Currently, it would take weeks to screen a library of effective therapies," he said. "With this new automation, the same screening

process is reduced to days."

This new technology will allow the printing of patient samples, cells and organoids of different types into uniform arrays for screening or imaging purposes.

It also uses four specialized cameras known as sCMOS cameras that generate fast, high resolution images simultaneously.

"One of the major strengths of the CU Anschutz Medical Campus is the overall vision of melding basic and clinical sciences to bring creative therapeutic approaches to patients," Ross said. "The focus on translational therapeutics has been assisted by the presence of drug discovery technologies on campus, particularly in the school of pharmacy."

A new Center for Drug Discovery will be created at CU Anschutz focused on speeding up research into new drugs and therapies. The center will work with the University of Colorado Cancer Center and the Colorado Clinical and Translational Sciences Institute to facilitate new drug discovery and development.

Provided by CU Anschutz Medical Campus