

BIOCENTURY Innovations

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EMERGING COMPANY PROFILE

AURANSA'S AI-PREDICTED PIPELINE

By Jennie Walters, Staff Writer

Auransa Inc. has built a predictive AI-based discovery engine that analyzes patient-derived data to identify and develop the right compound for each patient subpopulation in less time than traditional discovery methods.

“The engine unbiasedly reveals the heterogeneity that is contained in a disease,” co-founder and CEO Pek Lum told BioCentury.

Auransa feeds its SubtypesMarkersTargetsRedefining (SMarTR) engine patient data from public databases, overlaying RNA, DNA and genotype data on top of clinical data, Lum said. Using several undisclosed machine learning techniques, the engine sifts through those data, clustering the information to detect patterns that translate into patient subpopulations. From those patterns, the engine uncovers disease subtypes and predicts targets, small molecule therapies and preclinical models for the subtypes.

Unlike conventional approaches that screen thousands of compounds with hit rates of 1-4%, Auransa's engine typically tests about 10-30 of the predicted compounds and has averaged hit rates of 50% across multiple disease areas in cell-based assays or *in vivo* or *ex vivo* experiments, also predicted by the engine. Lum said Auransa can create analogs of compounds after the hits are produced in the lab.

It takes two to three weeks for Auransa's engine to generate target or compound hits, something that can take years unaided by AI, Lum said, and she expects the engine to detect patterns in data sets more rapidly as its knowledge repository grows.

She said the disease subtypes generated by the engine would also guide future clinical trial recruitment for relevant patient subpopulations.

Auransa has generated two preclinical programs and has 10 discovery programs and 20 *in silico* programs in the wings.

The lead compound AUX-1227 is in IND-enabling studies for hepatocellular carcinoma (HCC); Lum hopes to begin clinical testing in early 2020. She declined to disclose the target or subpopulation, but said it covers a large percent of liver cancer patients.

Auransa has also out-licensed China rights for AU018, a preclinical compound for cardioprotection during

AURANSA INC., Palo Alto, Calif.

Technology: AI-driven drug discovery and development engine for precision therapies

Disease focus: Cancer, infectious disease, inflammation, endocrine/metabolic, neurology

Clinical status: Preclinical

Founded: 2014 by Pek Lum and Viwat Visuthikraisee

University collaborators: None

Corporate partners: Genentech Inc., Vium Inc., Stem Cell Theranostics Inc.

Number of employees: 25

Funds raised: \$24 Million

Investors: Data Collective (DCVC), Lux Capital, AME Cloud Ventures, 11.2 Capital, David Hung

CEO: Pek Lum

Patents: None issued

chemotherapy treatment, to Lee's Pharmaceutical Holdings Ltd.

Internally, Auransa's main focus will be cancer, Lum said, but the engine has discovered new compounds for infectious disease, inflammation and immunology, metabolic diseases and neurology. The company will make partnering decisions case-by-case.

The company also plans to build PK and tox prediction into the engine.

Auransa has collaborated with the Genentech Inc. unit of Roche to research gastrointestinal adverse events associated with PI3K inhibition; previous partners include Vium Inc. and Stem Cell Theranostics Inc. to find compounds for cardioprotection during chemotherapy and for rheumatoid arthritis, respectively.

At least three other companies use AI- or computer-driven drug discovery platforms to generate drug pipelines: Atomwise Inc. processes data on ligand-binding interactions to predict binding between small molecules and targets. Recursion Pharmaceuticals Inc. analyzes single-cell imaging data to create cellular disease models for compound screening. Nimbus Therapeutics LLC uses computational chemistry to create small molecules for metabolic disorders, cancer and immunology.

Matt Ocko from Data Collective (DCVC), an Auransa investor, said Auransa's ability to predict "the intersection of non-obvious patient subpopulations, disease targets and lead compound candidates" sets it apart from other AI-based approaches to drug discovery. **L**

COMPANIES AND INSTITUTIONS MENTIONED

Atomwise Inc., San Francisco, Calif.

Auransa Inc., Palo Alto, Calif.

Genentech Inc., South San Francisco, Calif.

Lee's Pharmaceutical Holdings Ltd. (HKSE:950), Hong Kong, China

Nimbus Therapeutics LLC, Cambridge, Mass.

Stem Cell Theranostics Inc., Redwood City, Calif.

Recursion Pharmaceuticals Inc., Salt Lake City, Utah

Roche (SIX:ROG; OTCQX:RHHBY), Basel, Switzerland

Vium Inc., San Mateo, Calif.

TARGETS

PI3K - Phosphoinositide 3-kinase

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