Cancer drug data release set to power next wave of therapeutic discovery

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This week (25 July) the Genomics of Drug Sensitivity in Cancer project has released the results of four years of intense data gathering and exploration which will power genetic research into cancer treatment worldwide. The freely available data set includes unique data comparing almost 1,000 cancer cell lines' responses to 453 licensed and

experimental drugs.

The project, led by researchers at the Wellcome Sanger Institute and Massachusetts General Hospital, builds on the previous six years' study, and practically doubles the volume of novel data available on the website—making it the largest public dataset of its kind in the world.

This new data release brings the amount of freely available, open-access data on the website to 453 cancer treatment compounds, 989 cancer cell lines, 494,973 genomic associations tested and 386,293 drug dose response curves.

The previous study has already enabled discoveries that led to drug trials of PARP inhibitors in childhood bone cancer, directly contributed to drug development in the pharmaceutical industry and powered 70 research studies across the globe. The datasets are accessed by over 350 users each day and this is set to increase with the new data release. The project team hope that this enhanced resource will help to power new discoveries and therapeutic options for many years to come.

The Genomics of Drug Sensitivity in Cancer project is a pioneering public-private partnership funded by Wellcome. It combines samples of hospital patients' cancer cell lines with licensed and experimental cancer drugs from a number of pharmaceutical companies, and applies in-depth observation and genetic analysis to identify how the underlying changes in a person's DNA affect how they will respond to treatment. The ultimate goal is to identify biomarkers that could be used in the clinic to identify which drugs will work best to treat a patient's cancer, based on the tumour's genetic profile.

Working together, the Wellcome Sanger Institute (UK) and the Center for Molecular Therapeutics, Massachusetts General Hospital Cancer Center (U.S.) have investigated samples from 30 different adult and

paediatric cancers. The tumour types include blood cancers and solid tumours, primary and metastatic, common and rare. The novel data offers a rich resource with opportunities for cancer scientists to discover more about how cancer cells work, how they respond to treatment, and generate new therapeutics and drug combinations.

Now part of the Cancer Dependency Map (Cancer DepMap) project, the vast dataset is available on the www.cancerrxgene.org website.

Mathew Garnett, co-lead of the Genomics of Drug Sensitivity in Cancer project, and group leader at the Wellcome Sanger Institute, said: "We are delighted that we have been able to create, and release, this valuable data to the global cancer research community. Our Genomics of Drug Sensitivity in Cancer database is the world's largest repository for information on how a cancer's underlying genomic landscape influences its response to cancer treatments. We hope it will provide new insights that will point to new ways to target, and treat individual tumours."

The team have further data releases planned for the near future.

More information: Genomics of Drug Sensitivity in Cancer project (www.cancerrxgene.org)

Provided by Wellcome Sanger Institute