World's largest disease database will use artificial intelligence to find new cancer treatments

November 12 2013

A new cancer database containing 1.7 billion experimental results will utilise artificial intelligence similar to the technology used to predict the weather to discover the cancer treatments of the future.

The system, called CanSAR, is the biggest disease [database](#) of its kind anywhere in the world and condenses more data than would be generated by 1 million years of use of the Hubble space telescope.

It is launched today (Monday 11 November) and has been developed by researchers at The Institute of Cancer Research, London, using funding from Cancer Research UK.

The new CanSAR database is more than double the size of a previous version and has been designed to cope with a huge expansion of data on cancer brought about by advances in DNA sequencing and other technologies.

The resource is being made freely available by The Institute of Cancer Research (ICR) and Cancer Research UK, and will help researchers worldwide make use of vast quantities of data, including data from patients, clinical trials and genetic, biochemical and pharmacological research.

Although the prototype of CanSAR was on a much smaller scale, it

attracted 26,000 unique users in more than 70 countries around the world, and earlier this year was used to identify 46 potentially 'druggable' cancer proteins that had previously been overlooked*.

The new database will drive further dramatic advances in drug discovery by allowing researchers access to, and the ability to interact with, unprecedented amounts of multidisciplinary data in seconds.

CanSAR now contains more than eight million experimentally derived measurements, nearly one million biologically active chemical compounds and data from over a thousand cancer cell lines. It also contains drug target information from the human genome and model organisms. Research that had previously taken months to complete will now take only minutes.

Dr Bissan Al-Lazikani, Team Leader in Computational Biology and Chemogenomics at The Institute of Cancer Research, said: "CanSAR uses artificial intelligence, like that used in weather forecasts, to predict which potential drugs are likely to work in which circumstances. The database is capable of extraordinarily complex virtual experiments drawing on information from patients, genetics, chemistry and other laboratory research. It can spot opportunities for future cancer treatments that no human eye could be expected to see."

Professor Paul Workman, Deputy Chief Executive of The Institute of Cancer Research, said: "This is an extraordinary time for cancer research, as advances in scientific techniques open up new possibilities and generate unprecedented amounts of data. Our aim is to make this wealth of information, coming from both the clinic and from the laboratory, freely available in a very user-friendly form to as many people as possible.

"This database speaks many different languages - a chemist and a

clinician can access data from each other without having to understand each other's jargon. It is so easy to use that anyone can have a go - I fully envisage a bright A-level student using it and in the future that might even be where we see fresh ideas coming from."

Nell Barrie, Cancer Research UK's senior science information manager, said; "Research into cancer relies on international collaboration, and the CanSAR database makes it easy for scientists around the world to tap into huge amounts of information - from the lab and the clinic - to fuel new discoveries. The clues we need to tackle cancer are hidden in data like this and by making it freely available we can boost our progress and make breakthoughs sooner."

Provided by Institute of Cancer Research

Citation: World's largest disease database will use artificial intelligence to find new cancer treatments (2013, November 12) retrieved 27 April 2024 from https://medicalxpress.com/news/2013-11-world-largest-disease-database-artificial.html