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Big Government Opens Big Database For Cancer Research

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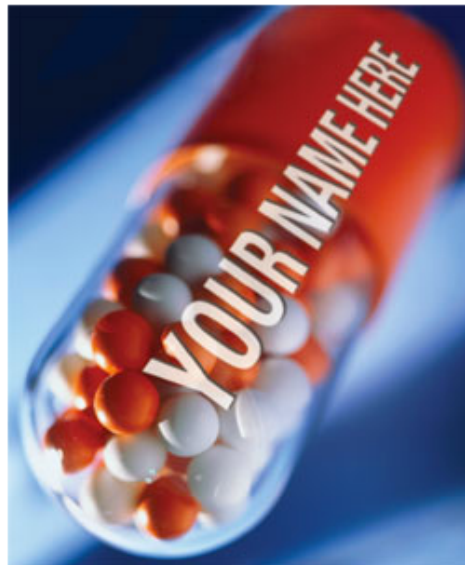
For those of us without degrees in molecular biology, the idea of "personalized medicine" – or PM – can often seem like a vague and distant concept. In this case, the Wikipedia definition of PM is pretty good:

*Personalized medicine or PM is a medical model that proposes the customization of healthcare – with medical decisions, practices, and/or products being tailored to the individual patient. The use of genetic information has played a major role in certain aspects of personalized medicine, and the term was even first coined in the context of genetics (though it has since broadened to encompass all sorts of personalization measures). To distinguish from the sense in which medicine has always been inherently "personal" to each patient, **PM** commonly denotes the use of some kind of technology or discovery enabling a level of personalization not previously feasible or practical.* Wikipedia.org Definition of Personalized Medicine

According to a press release posted on the American Association for Cancer Research website (here), the National Cancer Institute marked a major milestone earlier this week with the public release of the world's largest database of cancer

related genetic variations.

"To date, this is the largest database worldwide, containing 6 billion data points that connect drugs with genomic variants for the whole human genome across cell lines from nine tissues of origin, including breast, ovary, prostate, colon, lung, kidney, brain, blood, and skin. We are making this data set public for the greater community to use and analyze. This comes at a great time, because genomic medicine is becoming a reality, and I am very hopeful this valuable information will change the way we use drugs for precision medicine." **Yves Pommier, M.D., Ph.D., Chief of the Laboratory of Molecular Pharmacology at the National Cancer Institute in Bethesda, MD**

Also from the AACR release was this additional insight:

Pommier and colleagues conducted whole-exome sequencing of the NCI-60 human cancer cell line panel, which is a collection of 60 human cancer cell lines, and generated a comprehensive list of cancer-specific genetic variations. Preliminary studies conducted by the researchers indicate that the extensive data set has the potential to dramatically enhance understanding of the relationships between specific cancer-related genetic variations and drug response, which will accelerate the drug development process.

The data generated in this study provide means to identify new determinants of response and mechanisms of resistance to drugs, and offer opportunities to target genomic defects and overcome acquired resistance, according to Pommier. To enable this, the researchers are making these data available to all researchers via two database portals, called the [CellMiner database](#) and the Ingenuity systems database.

While the ability to sequence human genomes has been relatively rapid and increasingly cost-effective, the ability to make sense of the data being created can often take months or even years.

Opening up this database of cancer-specific genetic variations will accelerate the shift from "blockbuster" style drug development (targeted at broad segments) to drugs that are more effective and targeted at small segments – including "markets of one."

In the broadest sense, that's a large part of the definition of "personalized medicine" and this weeks significant contribution by the NCI to the global scientific community for accelerating efforts around targeted cancer treatment is great news.