

Health Care In Our Lives

Precision Science Leads The Way With Revolutionary, Personalized Approach In Brain Tumor Research

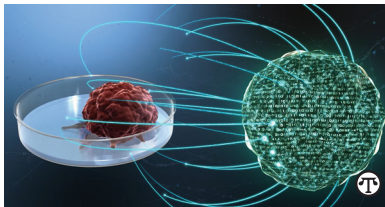
(NAPSA)—For the more than 680,000 Americans living with a brain tumor, there is a revolutionary research effort under way at the Precision Medicine Initiative Against Brain Cancer headed by Dr. Chirag Patil at Cedars-Sinai in Los Angeles, to look at ways of using precision science to tailor personalized treatments for individuals with malignant brain tumors.

Brain Cancer Meets Precision Science

Brain cancer continues to be among the hardest of diseases to treat. Until now, most medical treatments for the most common, aggressive and lethal form of brain cancer, glioblastoma multiforme, which affects more than 138,000 Americans yearly, have been designed for the average patient. Given that every cancer is genetically unique, this “one-size-fits-all” drug treatment has not worked for brain cancer and for most solid cancers. Unfortunately, today’s standard-of-care, which includes surgical removal, radiation therapy, and chemotherapy, has only modest benefits with patients living on average 15 months after diagnosis.

“Precision Medicine, an innovative approach that takes into account individual differences in people’s genes, environments and lifestyles, only works when we apply ‘Precision Science’ to the effort,” notes Dr. Chirag Patil, M.D., Neurosurgeon & Program Director at Cedars-Sinai Medical Center. “If we want to treat cancer more effectively, we need a novel approach to cancer care. In our program, we use tumor genomics and precision science to build a holistic mathematical model of cancer that then can be used to develop new, personalized cancer treatments. Right now, we’re focused on the most common type of brain cancer, but are developing a unique scientific process that could tackle ANY type of cancer.”

This past year, the White House launched the Precision Medicine Initiative to dramatically improve health and treatment through a \$215 million investment in the President’s 2016 budget. The Initiative will provide additional impetus to Precision Medicine’s approach to disease prevention and treatment that has already led to powerful new discoveries and several new treatment methods for critical diseases.



The Cedars-Sinai program uses precision science to build a mathematical virtual brain tumor for testing.

Delivering Personalized Cancer Care Through Big Data And Virtual Simulations

Harnessing the power of big data, Dr. Patil’s program puts a patient’s brain tumor through next-generation genomic sequencing to establish a comprehensive profile of that specific brain cancer. Researchers, in collaboration with Cellworks Inc., a therapeutics design company, use this profile to build a mathematical “virtual” tumor cell. The simulations are then compared to the real patient tumor cells that have been growing in Dr. Patil’s laboratory. The “real data” from experiments in the lab are used to confirm the virtual tumor model—again, this is customized for each individual patient.

The next step is to run a virtual experiment where all FDA-approved targeted drug combinations are tried on the virtual tumor cell to identify the best drug combination that eradicates the cells for the specific brain tumor. In the final step, researchers expose the patient’s real cancer cells to this unique and personalized drug combination to ensure that it effectively kills the patient’s cancer cells in the laboratory.

The Future Is Now

This effort is not someday in the future but is happening now, and has demonstrated remarkable progress in the last six months. Researchers expect to have data on 30 brain cancer patients from this precision medicine strategy by mid-2016. From this, they will develop an innovative randomized clinical trial, not simply to compare one drug to another, but rather compare this innovative Precision Medicine treatment algorithm to a current standard treatment regimen.

Learn More

For more information on this revolutionary approach, visit www.BrainTumorExpert.com, to learn more about Dr. Patil and his precision science approach to treating brain tumors.