

A Bold Precision Medicine Ambition: Breaking Down Barriers to Revolutionize Cancer Care

A Conversation with Omar Perez, Ph.D.

As a scientist, Omar Perez, Ph.D., has always been fascinated with precision medicine and targeted therapies. “This interest originated during my graduate school days when I was trying to tease apart how the immune cell system interacts,” he says. “From this experience, I learned that we need better tools and diagnostic efforts to characterize diseases, so better treatment patterns can be defined.”

As a cancer survivor, he is on a mission to advance precision medicine efforts and improve others’ chances of survival.

“When I was diagnosed with a childhood cancer, the concept of precision medicine was nonexistent,” he says. “This moment in my life directed me toward a career in the sciences.”

When Dr. Perez was diagnosed with cancer, there was a one-size-fits-all approach to treating most types of disease. Since then, major strides have been made toward more personalized and targeted treatment, thanks to rapid advances in precision medicine, diagnostic tools, and an enhanced understanding of the genetic basis of disease. For myriad reasons, however, much of the innovation to date has helped to treat patients with advanced disease. Moreover, for many patients, tumors have already grown quite large and may have metastasized by the time symptoms present themselves, with the result being that treatment is initiated only

after the disease has already progressed.

As Head of Medical Diagnostics, US Medical Affairs Oncology at AstraZeneca, Dr. Perez is using his skills, experiences, and passion to drive change in the field of diagnostics and break down barriers to biomarker testing to deliver life-saving medicines for patients.

“AstraZeneca is leading a revolution in oncology to change what it means to live with cancer,” Dr. Perez says. “Precision medicine is foundational to good medicine, and delivering high quality cancer care is at the heart of our strategy.”

“The earlier we can detect and treat cancer, the closer we may get to finding a potential cure,” he says. “At AstraZeneca, we are in a position to propose innovative approaches to help identify and treat patients diagnosed at an earlier stage of their disease.”

To accomplish this goal, Dr. Perez says, the collective oncology community must come together to make sure patients are tested for various biomarkers and genetic mutations that may help inform a patient’s treatment plan. Although biomarker testing has become an essential element of quality cancer care, barriers to biomarker testing still include lack of awareness, which can prevent patients from having access to potentially efficacious treatments.

Upon reflecting on the personal nature of his quest to evolve person-

alized medicine, Dr. Perez says even though biomarker testing is available, like many, he has lost dear friends and loved ones because their biomarker results were not used or received in time to inform their treatment approach. “There is still work that needs to be done; even though there are available tests, sometimes they are not done soon enough. Seeing colleagues and friends unable to get the best treatment options that were available to them because of an incorrect diagnosis, or the lack of molecular testing, is what drives me forward every day.”

“That is why at AstraZeneca, we have an ambition in precision medicine to dramatically accelerate biomarker testing across all tumor types and cancer stages by the year 2025,” Dr. Perez adds. “Every person should have access to timely, accurate in-



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formation about the unique qualities, or genetic mutations, causing their specific cancer.”

A Career Focused on Diagnostics

Before joining AstraZeneca, Dr. Perez worked on oncology initiatives that supported global companion diagnostic developments, strategic partnerships, and commercialization opportunities at Pfizer and GSK.

Within his 17-year career, Dr. Perez helped found Tocagen, a gene therapy company, and co-founded Nodality, a biotechnology company focused on developing blood-based diagnostics. He is an inventor of the multiparametric phospho-proteomic flow technologies and an author of 37 publications and 35 patents. Dr. Perez received his doctorate in Molecular Pharmacology from Stanford University.

He says he has witnessed many changes over these years, including a tightening timeframe for targeted oncology drug development. “The 10 to 15-year development timeframe is more of a four to five-year time frame today,” he says.

Biomarker-driven treatment options are on the rise. In 2014 the Personalized Medicine Coalition (PMC) classified 21% of new molecular entities (NMEs) approved by FDA’s Center for Drug Evaluation and Research (CDER) as personalized medicines. By 2018, it had doubled, to 42%. Meanwhile, there were 21 targeted therapies approved for oncology indications in just the first six months of 2020, exceeding the total number of targeted therapies approved in all of 2019.

“For patients who can be identified by biomarker status, there are more treatment options,” Dr. Perez says.

“The entire goal of this effort is to extend patients’ lives, and that’s the ambition that AstraZeneca is supporting. With precision medicine now applied to approximately 90% of our clinical pipeline, we have the portfolio and the pipeline to make a difference.”

Dr. Perez says his career, from academia to start-ups to big pharma, has imparted a valuable lesson; the importance of bringing all of the key stakeholders together to build a tightly integrated diagnostic and drug development process, a strategic approach that is embraced at AstraZeneca.

“Collaboration is critically important to AstraZeneca’s work in precision medicine,” says Dr. Perez. “That’s why we cultivate a multidisciplinary approach toward addressing key barriers in order to make measurable progress toward accelerating biomarker testing.”

For AstraZeneca, that means supporting education and training surrounding biomarker testing for healthcare practitioners, policymakers, research institutions and hospitals to remain up to date on the latest science and, most importantly, says Dr. Perez, “keeping patients at the center of everything we do.”

“Pharma companies want to change their development paradigms and bring new medicines to market,” he says. “But the ability to correctly identify the patient isn’t so straightforward. We are dedicated to finding the people with cancer who need biomarker testing the most—and engaging with them through telehealth, evaluating reimbursement guidelines, and ensuring protocols and endpoints are designed around patient needs, to position us to deliver the best possible care for people with cancer.”

One major challenge Dr. Perez says we must all seek to overcome is en-

sureing that clinical trials are representative of the population. “We know that many minority and underserved populations are disproportionately impacted by cancer, however Black and Hispanic patients are consistently underrepresented in clinical trials,” he says.

Dr. Perez says AstraZeneca is committed to breaking down barriers for under-represented populations to ensure all can benefit from the revolution in cancer care.

A Bright Future Ahead

For Dr. Perez, the future of biomarker testing is bright. The generation of data has exploded, and the industry is evolving to a state of how to mine or process data more strategically to better redefine development strategies. With data and science driving these successes in oncology, soon there may be other targeted medications in other areas of disease that can benefit patients.

“We’re at a pivotal point. Technologies have evolved so much that they’re now accessible to many,” he says. “I expect the use of diagnostic tools — in oncology and other therapeutic areas — to dramatically increase.”

“But we still have more work to do. We must continue to collaborate with patient advocacy groups, legislators, the oncology medical community and others to help drive policy change. As we revolutionize cancer diagnostics, we must also continue to revolutionize our clinical trial approach,” says Dr. Perez. “Then, we can unlock the full value of precision medicine to ensure we can deliver the right treatment, for the right patient, at the right time on our path toward eliminating cancer as a cause of death.” ■