

Why? What if? Why not?

KEY QUESTIONS FORM BASIS FOR INVENTION

By Ann Miller Baker

One of the newest members of the Florida Inventors Hall of Fame, Bill S. Dalton, Ph.D., M.D., says he's honored on more than his own behalf.

"My science is team science, teams of people," says the founder and CEO of Moffitt's for-profit subsidiary M2Gen® and director of The DeBartolo Family Personalized Medicine Institute at Moffitt. "While I'm getting this award, I really feel like I'm representing teams, and I'm honored and humbled to do that."

Dr. Dalton, Moffitt's former president and CEO, holds 10 U.S. patents and is regarded as a health policy expert in cancer research. The Florida Inventors Hall of Fame celebrates achievements that advance quality of life for Floridians, but Dr. Dalton is recognized for revolutionizing developments in cancer treatment with a global impact: the creation of Total Cancer Care®, a unique protocol, or study, aimed at accelerating cancer research to advance the discovery of new personalized cancer therapies. It is a protocol being used by more than a dozen institutions nationwide.

INNOVATION REQUIRES RISK

"Moffitt embodies the concept of team science," says Dr. Dalton. And the scientist in him developed long ago. "Even as a kid, I loved playing with toys that I could take apart and then try to put together again, radios and things like that. My folks tell me my favorite question was 'Why?' As a scientist, that's your primary question. 'Why is this?' When you become an inventor, you start thinking, 'What if?' And that transition to 'What if we were to do this?' also means you have to take a little risk. If you're going to modify or innovate, then there's probably some risk to it."

Trained as a Ph.D. in pharmacology and touched by his medical oncology rotation as an intern, Dr. Dalton has devoted a lifetime of research to drug resistance and cancer. More than a decade ago at Moffitt, he saw the opportunity to move from science to innovation in cancer drug resistance.

"The 'why' started with why are some people doing well and others not? What's going on here? The disease looks the same, but this person did very well and this one didn't. So what if we were to study patients, learn from each individual — the one that did well and the one that didn't — and compare them. That's the core of Total Cancer Care. What is happening between populations that look similar in one respect but clearly aren't because they're not responding similarly? If we want everybody in the category of responder, we can't treat everybody the same way."

From that "what if?" the Total Cancer Care Protocol was born. Dr. Dalton hastens to add that many contributed to the process, improving upon the initial idea. "This is a complete effort of teamwork and committed individuals, from every person here, every researcher, clinician and frankly even the board."

ORIEN AVATAR™ RESEARCH PROGRAM

Thirteen cancer care institutions across the nation are now part of the Oncology Research Information Exchange Network, or ORIEN® which all use the Total Cancer Care Protocol, impacting the lives of over 130,000 patients and creating one of the largest biorepositories and data warehouses in the United States dedicated to the improvement of personalized medicine. "M2Gen essentially is the engine, if you will, behind ORIEN to operationalize this concept of Total Cancer Care throughout the nation."

It's also the means of delivering the ORIEN Avatar™ Research Program. As its name implies, Avatar uses a model to develop the ability to predict and shape a cancer patient's treatment response. In this case, the avatar or model is drawn from the experiences of similar patients. "We look at clinical history. We look at the molecular aspects of the tumor. We can say this patient looks most similar to this group of patients. And this is what's happening to that group, what's working and what's not working." In this way, Dr. Dalton explains, medicine moves from reactive to anticipatory. "If you've been diagnosed with cancer, we don't want to wait for you to develop a problem. Let's be proactive. The more we can prevent, the better for the patient."

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BILL S. DALTON, PH.D., M.D.



Photography: Ray Reyes

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Patients are Dr. Dalton’s inspiration. They are the heart of what sets Total Cancer Care and ORIEN apart from other similar efforts, “asking patients if we can follow them throughout their lifetime to learn. This requires a patient’s consent to donate their data and their clinical history, as well as tissue, for us to study, and to allow us to re-contact them if we find something of benefit. We stay engaged with these patients throughout their life with the intent of understanding their needs, because the needs of a patient vary depending on their journey in dealing with cancer.”

“I’ve been blessed to be surrounded by brilliant people,” says Dr. Dalton, “people I can learn from. Being at Moffitt is just incredible, with people like H. Lee Moffitt himself, Sen. Connie Mack, Bob Rothman, Ted Couch. These are folks that are extremely successful but totally committed to helping people. And there is an abundance of them at Moffitt. It’s an incredible combination of talent and goodwill. There is a sense of family here. There is a sense that what we do makes a difference. You can see the pride, but you can also see the dedication that we have in serving our patients.”

As Moffitt marks 30 years of caring for patients, Dr. Dalton sees it as an opportunity to look back as well as forward. “The pause and little introspection is valuable for course correction. How do we need to modify things to get where we need to be?”

ONE MORE “WHAT IF”

Thirty years from now, Dr. Dalton hopes, “the word cancer will be something in the history books. It’s probably something that will always be with us, because it does occur spontaneously. I’d hope we can identify those patients at risk and modify lifestyle or even use a potential preventive therapy so that cancer is truly in the history books. That’s where I hope we are in 30 years.”

And he has one more “what if,” based on expanding the premise of Total Cancer Care. “What if we take the same approach for Alzheimer’s disease? Autism? Heart disease? There’s no reason we can’t. What we’re learning for cancer in terms of anticipating need and then developing options can be applied throughout the entire health care process. This is as much a sociological experiment as it is a science experiment, because by doing so, you’re changing health care. You’re changing health care policies. This is why it will probably take 30 years.

“We still have a lot of work to do. This is something we’re going to be continuing, in a sense, forever. We have something incredible to offer, but it needs to continuously be improved upon. We have a saying: Be proud but not satisfied.”

Or, as the inventor in Dr. Dalton would put it – “never stop asking, ‘What if?’” 🗣️