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Frank McCormick, PhD [1]

Behind nearly every new cancer therapy is a team of dedicated researchers who have translated cutting-edge laboratory science into a practical advance for patients. Since early in his career, Dr. Frank McCormick has been at the forefront of this work. His contribution to the field earned him ASCO's esteemed 2010 Science of Oncology Award.

Growing up in England, Dr. McCormick developed a deep, early interest in biology, natural history and, more simply, in ?how things work.? After his high school chemistry teacher told him the future of medical research was in biochemistry, he quickly developed a strong interest in this promising field. As his education progressed, he was attracted to cancer science and, in particular, to research into the reasons that normal cells transform into cancer cells.

?I was fascinated by this concept more than anything else in science at the time,? said Dr. McCormick. ?We thought there must be a simple way to intervene in this process, and then apply the new technique to cancer therapies. It turned out that the process is actually far more complex that we expected.?

In the 1980s, cutting-edge research on a protein called RAS, which is active in many cancer cells, caught Dr. McCormick's attention. This interest soon set the course for the next two decades of his career and led to important new treatment options for several types of cancer.

?Cancer research is extremely challenging and complicated, but I like finding creative solutions to really difficult problems."?€"Dr. Frank McCormick

He said, ?I found it extraordinary that this one simple mutation of the RAS protein could completely transform the behavior of a human cell. The idea of finding a way to turn off, manipulate this mutation was a great intellectual challenge, and at the same time, a challenge that could have a tremendous benefit for treating patients.?

This RAS protein mutation is present in several types of cancer, including kidney, liver, colorectal, pancreas and prostate cancers. Eventually, McCormick's research led to the development of sorafenib, a drug that acts on Raf kinase, a part of the RAS signaling pathway. In subsequent clinical trials, sorafenib was found to represent a major improvement in treatment for advanced cancers of the liver and kidney, which are two of the most hard-to-treat forms of the disease. In fact, sorafenib was the first-ever therapy discovered to extend the lives of patients with advanced liver cancer.

?Seeing the data on sorafenib and how it helped patients with liver cancer being presented at the ASCO Annual Meeting in 2007?€"that was by far one of the high points of my career,? he said.

Dr. McCormick has dedicated his career to working tirelessly to save lives of people with cancer. Outside his research career, Dr. McCormick has been increasingly active with patient advocacy groups like the Pancreatic Cancer Action Network and the Children's Tumor Foundation. He also helps advocate for cancer research and funding by volunteering his time to medical organizations including ASCO and the American Association for Cancer Research. And in his spare time, Dr. McCormick can often be found behind the wheel at the race track, driving cars at 130 to 150 mph.

Looking ahead, Dr. McCormick says his research is now focused on a promising new treatment approach called RNA interference. Instead of targeting single proteins involved in cancer growth, like RAS, this approach could be used to target multiple parts of the larger cancer genome and cause cancer cells to ?self-destruct,? while leaving healthy cells unaffected.

?This technique could truly revolutionize how we treat cancer. We're still a few major breakthroughs away, but I strongly believe it will have a huge impact on treating patients with cancer more effectively and more efficiently,? he said.

Dr. McCormick is so confident about the promise of this research that he recently bet a full auditorium of fellow cancer researchers that in five years time they would see positive study results.

?Cancer research is extremely challenging and complicated, but I like finding creative solutions to really difficult problems. The work is becoming more and more complex every day, but we have enough success stories to know that new cures are always possible.?

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Frank McCormick, PhD, is the recipient of ASCO's 2010 Science of Oncology Award for his outstanding contributions to translational research in cancer. He is currently director of the

University of California San Francisco Helen Diller Family Comprehensive Cancer Center and professor in the Department of Microbiology and Immunology. Dr. McCormick is a pioneering molecular biologist and cancer researcher, whose contributions include the development of sorafenib, a small-molecule tyrosine protein kinase inhibitor used for the treatment of kidney cancer and advanced liver cancer.

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Links:
[1] http://www.cancer.net/navigating-cancer-care/cancer-basics/cancer-care-team/doctor-stories/frank-mccormick-phd