THERE'S A CERTAIN SERENDIPITY TO THE EVOLUTION of a science career, says David Ginsburg, a charter faculty member of the University of Michigan Life Sciences Institute.

You go to Yale thinking you want to be a mathematician, or maybe a physicist, and you wind up graduating (magna cum laude) with a degree in biochemistry. You enroll in an M.D./Ph.D. program at Duke — interested mainly in the Ph.D., but thinking, well it's only another two years to add in the medical degree — but leave with "just an M.D."

"I quickly figured out I didn't want to be a surgeon — my nose always itched when I was scrubbed up and had a mask on," says Ginsburg, with characteristic dry humor. "I largely ended up in hematology by process of elimination."

One day in the early 1980s, Ginsburg asked to join the lab of Stuart Orkin, M.D., whom he met on a pediatric hematology rotation at Boston Children’s Hospital during his clinical training.

Orkin studied the genetics of blood disorders, and under him Ginsburg began investigating the underpinnings of a clotting illness known as von Willebrand disease. "I wasn't following any master plan," Ginsburg says.

Flash forward three decades and Ginsburg, who has been a Howard Hughes Medical Institute investigator since 1985, is now known for his innovative work on the physiology and genetics of bleeding and clotting disorders.

"David has had a remarkable career and has transformed our understanding of a whole area of medicine," says Orkin, the David G. Nathan Professor at Harvard Medical School, Boston Children’s Hospital and Dana Farber Cancer Institute, an HHMI investigator, and a member of the LSI’s Scientific Advisory Board.

Similarly, openness to unexpected twists and turns is the hallmark of good discovery science, says Ginsburg, and a reason the current obsession with translational research — that is, focusing on projects solely on the basis of expected clinical outcomes — is overblown.

Take the hot new genome editing tool CRISPR/Cas9: “If you were to say, 'Hey, we found these funny repeating DNA sequences in bacteria and we want to figure out what they do,' a focus on translational research might lead to the response, ‘Don’t waste your time — go work on curing cancer!’ And yet CRISPR will probably have a bigger impact on human disease than anything that’s been discovered in years,” says Ginsburg, who is also the James V. Neel Distinguished University Professor of Internal Medicine and Human Genetics at the U-M Medical School. “Some people think there are all these cures waiting in the wings, if only we threw more money at them, but that’s not how science works.”

In his own research, Ginsburg found himself unexpectedly delving into the nitty gritty of cell biology as he traced a rare genetic bleeding disease called combined factor V and factor VIII deficiency from the bedside back to the bench.

It turns out that this disease results from loss of either of two proteins that together form a complex known as a cargo receptor — which helps transport proteins from the endoplasmic reticulum to the Golgi apparatus to be packaged and excreted from the cell.

“So, it makes sense that when you don’t have that cargo receptor, specific proteins will have trouble getting out of the cell,” Ginsburg says. “But it raises all sorts of new questions about how proteins move from the ER to the Golgi. And so today that’s what about a third of my lab is working on.

“Sure, I’d love to cure this disease — wouldn’t we all — but the thing that’s driving me is wanting to understand how the fundamental processes work. If society invests in basic science and lets knowledge accumulate, there are plenty of people who will do that last step of translating big discoveries.”