

Jim Allison

Born: Texas

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Science picks you; you don't pick science.

I grew up in Alice, Texas – a small town down a long dusty road in south Texas. It was an oil boom town, where football reigned. Friday nights, everyone in town would go to our high school football game. I was the youngest of three brothers – my two older brothers were star football players, but I wasn't really interested. My dad understood. He encouraged me to mess around with my Gilbert chemistry set in the garage or go out into the woods behind our house and dissect frogs and horned toads. He'd have been less happy if he had known that I liked to head away from town and construct small-scale chemical bombs! Over the years, I found lots of scientists that used to make bombs when they were kids. Of course, those were simpler times.

I fell in love with science in those woods.

My mother died of cancer when I was a kid. I didn't really understand what was going on. In the 50's, nobody talked about health issues. All I knew was that she was sick. One day, a friend's mom was about to take us to local swimming pool, when somebody came running out and said, "Hey you gotta go home." So, I went into my mom's room and found her dying. I sat on the bed with her and held her hand while she died. I was 11 years old. I was alone a lot after that; for company, I picked up the harmonica. I liked to wander around in the woods at the edge of town and just toot away. I'd always liked different kinds of music - I liked the Blues. I liked some country music. I liked certain kinds of jazz. But I settled into this groove where it was mostly jazz and outlaw country. Willie and Waylon and the boys, as they call them, that stuff really spoke to me somehow, and when you learn how to make it yourself, it's really fun. That's why I love playing in bands.

To some extent, a band's almost like the lab. When a lab's working well, there's an interplay with your colleagues, where you suggest an idea and they give something in reply and it's the back and forth. It's the same way in a band when you get with your friends and colleagues and you finally hit it off, where you get to the point where you could just nod. You finish playing something, and you nod to the person and the next person just picks it up instantly. There's a continuity that comes out of it that takes everybody participating. So, at that level, I think it's a lot like the laboratory and when it's working well, it's really cool.

My work in cancer came out from my love of basic science. I consider myself a fundamental scientist. I was working on T-cells; I wanted to know how T-cells worked. And whenever I helped find something that could be applied to a cancer problem, I'd work on it. But it wasn't that way every day I was doing it. Some people love applied science, but I love basic science more.

Basic science takes a long time, but it's essential work. In many ways, my entire life in science, I've been working on the new wave of cancer treatments now called immunooncology. Members of my lab at Berkeley and I published our first paper on the CTLA-4 blockade and its applications for cancer in 1996. The FDA didn't fully approve ipilimumab as a drug that could be given to patients broadly until 2011. I think a lot about how many people who might have been helped by the drugs died before the drugs were approved. One of these people was my brother.

The crazy ups and downs of basic science funding by the federal government makes drug development timelines longer. Sure, private philanthropies and pharmaceutical companies fund science, but they're not funding basic science, they're funding translational science or science for a specific disease. Funding for basic science comes from the federal government, and that support has started to go away. Given all the advantages that have come to the United States because we are the world leader in science, it seems nuts to me that politics that are eroding our support for basic science.

Most of the advances that we've made in solving health problems have been through the evolution of advances uncovered in basic science, and that will always be the case. This is the reason the average American lives 30 years longer than they did 100 years ago. For example, for cancer, most treatments available now came out of basic science research. Unfortunately, in parallel with the decline in federal funding, there's been a decline in the number of Americans who want to do science. I think that's happening in part because we don't have enough role models. Celebrities we have plenty of, but when we see examples of a rich, purposeful, creative life, how often do we think of scientists?

I took a summer biology course when I was studying at the University of Texas. There were 37 people in that course. I tracked the people over the years, and I was the only one that ended up staying in science. This was a special program that came out of the panic after Sputnik, when the government said we need to train more young people to become scientists in America, but for the most part, it just didn't work. I was such an anomaly coming out of Alice.

Today, there's no opportunity for people who grew up in a neighborhood like mine to really become a scientist. Texas has become caught up in the politics-fueled culture wars. We're debating whether facts are facts, or the best idea is the best idea if it doesn't come from someone of the right background. We're stuck in arguments over whether evolution happens or not. That's not an issue anywhere in the world except the United States. Evolution is a fundamental building block for all of biology. If you don't have Darwin, if you don't have evolution, you can't understand biology. Just like you can't understand physics without Newton or Einstein.

Since we don't grow our own scientists, they come from overseas. My lab is 90% people from various countries. Only 10% are born in the U.S. I just hired folks who have the training and curiosity and passion to be great scientists and the results speak for themselves. And to make matters worse, there's this nativism that's emerging, where we don't want to let anybody in anymore from certain countries, and more generally, to limit immigration. We want to cut down the number of bright minds from around the world who come to use science to help Americans. We better figure out very fast how to change the way we go about educating the scientific leaders of tomorrow, or pretty soon, we won't be in the first ranks of science in the world anymore. And that's just a fact.

We're missing so many people, people of talent, people of promise, people of hope that could do tremendous things if we just find a way to make the life of the sciences more available to them and make its appeal clearer. I'd like us to champion the idea of becoming a star at science and biology, instead of just football and stuff like that. If we just celebrated modern role models in science – like we once did with Benjamin Franklin or Thomas Jefferson -- and gave our kids the opportunity to learn real science, there would be people from all over our country that would go into science, matching the passion for science we see all over the world. Let's not teach mathematics, science, biology, and chemistry like they're chores that people have to learn, subjects that almost everyone hates. I'd love for kids to see science in the way I always have, the opportunity to enter an amazing, powerful and magical world. Once you get into it, math is beautiful, biology is beautiful -- once you learn the fundamentals, they offer entry into a glittering world of possibilities. We're losing a generation of kids now, but we can turn it around.

We can inspire kids across the country to enter the community of science and to join the folks around the world who use science to do astonishing things.

I think kids will love the sciences because I think discovery is just in us somehow. That is why people set sail in boats never knowing whether they were going to come back or not. People do crazy things, but it's because we want to know what's out there. I think that's truly what sets humans apart. It's not being able to reason. Lots of species have a rudimentary reasoning ability; it's that desire to really know stuff that you don't know and try to understand why things are going on and what's out there.

To be a great scientist, I think you have to look at everything with a fresh eye, like it's a gem or something. Look at every facet, turn it, see the sparkles, see the distortions of light created by its uniqueness. Just study it, come to know it. Be open to what you discover, no matter what everybody else is saying. You have an idea and you test it and you get a result. Sometimes it's not what you want, but what you got, it can really take you down a new path that everybody else would just walk away from, and say, "No, so and so says something else, so this can't be right." You just got to have confidence in yourself to say no, they're wrong. The conventional thinking has got to be disrupted at some point. If it's not disruptive, it's probably not all that interesting.

What motivates me mainly, I must admit, is this dirty little secret I think many scientists have now. I want to be the first person on the planet to really understand something. That's sort of it. It's the icing on the cake if it's something that will help people and really pay people back for helping us do what we love doing anyway. That's basically it. I always felt I wanted to do something to help people. I don't think about that every day, but the first thing is knowing something that nobody else does, and then taking advantage of it to do something good.

I've made a lot of discoveries over the years that were important, but CTLA-4, when I figured out how to use it to treat cancer, was the first time that I ever really felt that I'd found something that could really benefit a lot of people. I had that feeling right from the start, and it just kept building and building and building as we showed that more kinds of cancer respond, and then as the first clinical results came in confirming it worked in humans.

It was the first discovery I'd made where felt, this definitely is gonna have a big impact on cancer. I know that. I'm confident of it. Nobody better gets in the way!

I'm so glad that it's worked as well as it has. Every week, I get handwritten letters from folks all over the world who tell me that our drug has helped their families. What could possibly be better than that?