

Eric Olson

Fulfilling a Dream of Freedom

Ruth Williams

In his classic fable, The Gnat and the Bull, Aesop (620 BC–560 BC)—that astute observer of human nature—teaches us the sad reality that the smaller the mind, the greater the conceit. One of the things I like about Eric Olson is that he embodies the notion that a truly great mind is free of conceit. Although he is one of the most successful scientists of our time and despite his extraordinary accomplishments and recognitions, Eric has managed to keep a simple, warm, genuine, down-to-earth style. I find this to be overwhelmingly refreshing, and almost as admirable as his scientific prowess.

I hope the readers will enjoy this foray into the human dimension of Eric's rich and well-rounded personality—his life-long passion for science, his work ethics, his love of music, his views on science and faith, his concern for those who entrust their career to him, and his total lack of arrogance. Eric is one of the best role models for young investigators to emulate, not only from a scientific but also from a human standpoint. Although now he is a veritable icon in cardiovascular research, he tells us that it was not easy to get to that point. This should be a good lesson for others. Indeed, it is never easy in science, for anybody. I hope that those who are at the inception of their careers will be inspired by reading how Eric overcame initial challenges and developed a stunning upward trajectory using the old-fashioned (and irreplaceable) virtues of hard work and perseverance.

—Roberto Bolli

Eric Olson, Professor of Molecular Biology at the University of Texas Southwestern, Dallas, Tex, knows how to build muscle. Indeed, he has been studying muscle development since he landed his first faculty position in the mid 1980s.

Since that time, Olson and his team have discovered major pathways and molecular players that control muscle differentiation. They discovered MEF-2,¹ which promotes development of all three muscle-types: smooth, skeletal, and cardiac. They also discovered the skeletal muscle factor myogenin,² the smooth muscle factor, myocardin,³ and Hand1 and Hand2, which control the growth of the chambers of the heart.⁴



Figure 1. Eric Olson, Professor and Chairman of Molecular Biology, Annie and Willie Nelson Professor in Stem Cell Biology, University of Texas Southwestern Medical Center at Dallas.

More recently, Olson has focused on pathologic cardiac muscle growth and its link to heart failure. More recently still, he has been investigating the role of microRNAs—small gene regulatory molecules—in that growth process.⁵

Olson is not just a muscle man. He is also a musician and entrepreneur: he is in a rock 'n roll cover band with colleagues from his department, and he is a cofounder of two biotech companies, Myogen and MiRagen. Olson spoke to *Circulation Research* about his foray into business, his scientific ethos, and about how the freedom of academia has allowed him to develop a career that is as varied and stimulating as he desires.

Schoolbooks to Biotech

When Did You First Think That You Might Become a Scientist?

I remember in grade school the class would go to the library and everyone would pick the books that they wanted to read. I always gravitated to the science books. I would read about space and nature and science. It captivated me. By high school, I knew I wanted to be an academic scientist. I don't think I ever doubted that I would become one. I was really confident in that. Ironically, I didn't do too well in freshman biology in college and was told by my advisor that I did not have a future in science and better find a different career path. Obviously, I didn't follow that advice.

The opinions expressed in this profile are not necessarily those of the editors or of the American Heart Association.

E-mail: ruth.williams@absw.org.uk
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Figure 2. Eric Olson and Jay Schneider from The Transactivators.

I never had an interest in becoming a physician. I was more attracted to the academic life because of the complete freedom it provides, freedom to think about and pursue whatever you're interested in.

Who Have Been Your Scientific Inspirations?

My primary inspiration was my father. He was a chemist and entrepreneur. He was the most positive person I have ever met and was an endless reservoir of ideas and enthusiasm. Scientifically, there were a number of colleagues here at Southwestern—Mike Brown, Joe Goldstein, and Bill Neaves, to name a few. I admire their commitment to scientific excellence. Also, there is Bill Lennarz, who recruited me to my first faculty position in Houston. As a junior faculty member, I tried to soak up everything I could learn from everyone. Bill was a charismatic and down-to-earth leader. I liked the way he approached science and his style of leadership and energy; he was a real role model for me.

When You Were Just 35, You Took Over From Bill Lennarz as Chairman. Was That Scary?

Not really, although I was a little concerned that I might be committing career suicide, because I hadn't really done any administration up to that point. All I had done was work in my lab. I wasn't sure what the role would require, but it seemed like an interesting new challenge, so I decided, "okay, I'm going to do this. What's the worst that can happen?" I just dove right into it.

Science was still my number one priority, but I was interested in trying to develop my career and add some new dimensions to it. Being Chair of a department, being in control of my local environment, and being able to build an environment that would enable people to be successful was appealing to me. So, I went for it.

Most people become Chairs when they have reached whatever it is they're trying to achieve in their careers and are moving onto the next phase. In my case the role came much earlier. I think the most difficult thing about becoming a department Chair at a young age, when you haven't yet accomplished all your goals, is that it's not all about you at that point. You have to be interested in other people's careers and nurture other people's interests. That becomes a balanc-

ing act when you're still trying to differentiate yourself. I did my best to be as mindful of that as I could.

Another New Dimension You Have Added to Your Career Is Business. Tell Me About That.

I wanted to push the science from my lab beyond just academia. I felt that we could really use our science as a foundation to make new drugs, to help people. I didn't feel like we could do that in an academic setting. So, together with Mike Bristow, Leslie Leinwand, and others, I helped start a company called Myogen, which turned out to be an extremely successful venture.

I had zero experience in the private sector when we started, but I learned so much about how to build a company, how business is done, how to create value from ideas and teamwork. It was extremely exciting and a fulfilling facet of my career. I have recently cofounded a second company called MiRagen that's based on therapeutics using microRNAs.

When I talk about the freedom of a life in academia, this is another part of it: you can develop yourself in new directions that challenge you. Building a biotech company from scratch requires a whole set of different skills and a completely different perspective on doing science. It is much more directed. You have to think about practicalities and issues of how you would translate findings into something of therapeutic value.

Positivity and Persistence

What Has Been Your Career High Point?

One particularly cool experience in my career was having the legendary singer/songwriter Willie Nelson and his wife, Annie, establish a professorship that I hold. I'm a music lover, so being connected to Willie in this way has been special.

With respect to the science, I don't know if there has been one particular highpoint. Maybe it's right now. Or maybe I haven't gotten there yet. Things have gone pretty well. I'm really happy about what my lab has accomplished. I haven't seen the down side of this career yet.

Really? No Downside?

Well, I had a tough time getting established as an assistant professor, when I first went to Houston. Muscle differentiation was a completely new field for me. I had no pedigree in it. I'd not even been to a relevant scientific meeting. All the grants I was writing were getting demolished.

There's a major international meeting held every 3 years in the muscle field. I remember I had been an assistant professor for 3 years and applied to give a poster at this meeting—just a poster—and it got rejected. So I thought, "Wow! I can't get a grant and my work isn't even considered interesting enough to present as a poster." It was very demoralizing. But, it made me redouble my efforts and try harder. Eventually, I got my first NIH grant funded, after three tries. It was tougher than I expected, but it strengthened me.

When the Odds Were Against You, Where Did You Find the Confidence to Carry On?

I had no alternative. As a basic scientist, as a PhD, you don't have a clinical option as MDs do, so basically, failure was not an option. I just dug deep. The chairman, Bill Lennarz, believed in me, and I had good people in my group. We maintained high energy and enthusiasm, and things ultimately worked out.

I never became despondent. I sometimes wondered if I had overestimated myself or underestimated the difficulty of being successful in science, but I didn't really panic. I just kept working.

What Are Your Strengths and Weaknesses?

My strengths are that I'm willing to work hard and do whatever it takes. I like to think out of the box and push in new directions. And I hope I'm good as a coach. I'm what they call a player's coach: I'm very engaged with the players in the lab and, when I'm in town, spend a big part of my day wandering around talking to people about their experiments. I think one of my strengths is that I am able to motivate people to achieve their highest potential.

My weaknesses? I'm sure I have a lot. Maybe I tend to take on too much. I tend to overextend myself. But it's all good. I try not to think about weaknesses, only positive stuff.

Passion, Dedication, Faith

What Is Your Favorite Thing About the Job?

It's exciting and it's whatever you want it to be. You can really do anything in this business. If you want to travel, you can travel; anything you want to work on, you can pursue. If you want to go and start a biotech company you can do that, too. You don't have a boss, and you don't have to answer to people, other than your peers.

I'm really passionate about it. Some people like to play golf on the weekends or go fishing or work in the yard. I like to go to the lab. My job is like my hobby. I've been very fortunate that my wife and kids have allowed me to pursue my passion for science, even when it has meant traveling too much, or spending too much time in the lab, or just day-dreaming about the next experiment.

Is It Science 7 Days a Week for You?

I definitely come to the lab every day. The weekend is a good time. The phone is not ringing. I can sit and talk to the people in my lab. Spend more time with them.

Do You Expect Your Lab Staff to Be in on the Weekends, Too?

I don't tell them what they have to do or don't have to do, but I think when people join my lab they do so because of the culture. If people want to work nine to five they probably don't join my group.

Texas isn't a dream destination for everyone. People don't come because they want to go surfing every weekend. So, that's an initial filter that helps me figure out whether people are really dedicated.

Are You a Good Mentor?

I think so. At least I try. I put a lot of energy into my students and postdocs, and I maintain a lifelong relationship with them. There's not a day that goes by without one of them calling to talk about things. I've trained more than 50 PhD students and probably twice that number of postdocs. I can go to almost any city in the world and find people from my lab. We're a big network. I find that to be a special part of academic life.

How Do You Think Your Staff Would Describe You?

Oh that's a tough one. They'd probably say that I'm intense but, hopefully, in a positive way. Many of my ex-lab members tell me that their period in my lab was the most important period of their careers and the one that they look back upon most fondly. So, that makes me feel good. I've been fortunate to have been able to work with such an incredible group of students and postdocs who deserve the credit for whatever my lab has accomplished.

Tell Me Something People Would Be Surprised to Know About You.

One thing people find surprising is that I play guitar and harmonica in a rock 'n roll band—The Transactivators. There are a lot of musicians in my family, and I played several instruments when I was growing up. Rocking out with my friends in the band is a real blast.

What About People in Your Lab? Is There Anything They Don't Know About You?

Wow, that's a really tough one. I'm pretty transparent. I think they know an awful lot about me. [Thinks]. Ok, here's one. When I am traveling on the plane and have my headphones on, most people probably think I'm listening to rock 'n roll. Actually, I am frequently listening to inspirational sermons from the minister of my church.

How Do You Balance Your Religious Beliefs With Your Scientific Endeavor?

I don't believe the two are mutually exclusive. In fact, the logic and beauty of science strengthens my faith, if that makes any sense. Anyway, irrespective of one's personal beliefs, I think religious teachings provide good lessons for life.

What Advice Do You Give Your Lab Members About Continuing Their Science Careers?

Pursue your passion. Write your own story. And don't pattern your career after someone else. There are so many ways to be fulfilled and successful in this career, and there is no one-size-fits-all. You have to figure out what it is that makes *you* excited, what makes *you* want to get up and go to the lab in the mornings (and on weekends!).

The great thing about a scientific career is that it affords you so much freedom. There is a downside however—there's no instruction manual. So, it takes time to figure out what

your story is going to be and where your strengths and weaknesses lie.

My father used to say, “live your dream if you dare.” In science, you can do just that, if you can figure out how.

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