

Stefano Bertuzzi: Science first

Bertuzzi is the newly appointed Executive Director of the American Society for Cell Biology.

Not all paths in science lead to a lifetime in the lab. As Stefano Bertuzzi explains, the success of the scientific enterprise also depends on funding, sharing, explaining, and advocating for research.

Having studied neurodevelopment as a graduate student (1) and axon guidance as a postdoc (2), then having run his own successful laboratory (3, 4), Bertuzzi was well entrenched in a career as a research scientist until he was lured away to work on science policy (5) at the National Institutes of Health. Now, as he prepares to take on his new position at ASCB, he looks forward to exploring new ways to support cell biology research. We reached him at his hotel room on the Chesapeake Bay, where he was taking a week to study up on his new job, to hear about his past and his plans for the future.

SCIENCE, FIRST

I understand that you grew up in Italy...

Yes. I grew up in the outskirts of Milan, in a city called Piacenza. And actually, just two weeks ago I traveled back there to receive an award from my home city that is given every year to one of their distinguished citizens. It was a really special moment.

When I gave my acceptance speech for the award, I wanted to use it as an opportunity to send a message about science and about how important it is to invest in research and science education. I wondered how to do that in an effective way. And then it came to me that my career started there, in Piacenza, thanks to a phenomenal high school science teacher who made a huge difference in my life.

She had started a whole new science curriculum, and what I remember most vividly is that one day she showed up in school with a little box full of fruit flies. She used these to teach us genetics, at the bench—she made us cross the flies with the red eyes and the

flies with the white eyes and write down what was expected to come out in the future generations. Then we did it, and we recorded what we saw. It was just amazing! This really speaks to the importance of science education—something I am eager to work on at ASCB, where there is a very solid tradition in this area.

Then you went to the United States for graduate school...

That decision was spurred by an issue of *Nature* with a cover story about transgenic animals. I thought that being able to manipulate genes in mice would be the coolest possible thing, and I decided that this was what I wanted to do. But this technology did not exist in Italy at the time, so my graduate advisor suggested I try to find a way to carry out my research in the States. I ended up joining the NIH intramural program.

But you didn't actually get to make a knockout mouse until your postdoc...

My postdoc at the Salk Institute with Greg Lemke was probably my most active time. I discovered a new family of homeobox genes, the ventral anterior homeobox (Vax) genes, which are determinants for the identity of certain cell lineages in the ventral anterior neural tube. We showed that, in the absence of Vax-1, axons from the eye cannot

cross the midline and project to the other side of the brain.

By that time I was really settled in the United States, and this was home. But while I was at the Salk, I met Renato Dulbecco, an Italian-born scientist who won the Nobel prize for his pioneering cancer research, and we developed a nice relationship. One day he came to me and said, "Stefano, I heard they are putting together a very ambitious and exciting program in Italy that is modeled on the Howard Hughes. They're very serious about it; would you be interested?"



PHOTO COURTESY OF IKONA PHOTOGRAPHY/LUCA CASARETO

Stefano Bertuzzi

Initially, I thought, "No, I'm happy here in the States." But I had a lot of respect for him, and I thought in the end he might be right, so I ended up applying without much enthusiasm. To my surprise, they selected me for an interview, and even more surprisingly, when I went there I discovered that I liked it! I talked it over with my wife, who was a graduate student in economics at UC San Diego, and it was a tough decision, but we decided to go for it. So I went back to Italy, and I loved working for the Telethon Foundation, one of the best research organizations I had ever encountered. I set up my lab and had a great group of people, and we were very productive. We published several papers.

Unfortunately, the situation for my wife was not as good. She had an excellent CV but was having a hard time finding a job in Italy. She ended up working in the United States, so she decided to return there. So, this time I followed as a trailing spouse. Fair enough.

STILL A SCIENTIST

At what point did you decide to transition into science policy?

When I came back to the United States, I felt like I was running in circles. I felt like I was watching a movie I had already seen—

setting up a lab, writing grants, hiring and training postdocs. But I am the kind of person who really needs to keep moving forward.

I had always had a lot of interest in policy and politics, and I realized, “I’m in Washington—policy central! Why not give this a try instead?” I had the opportunity of my life to work with extraordinary people: Dr. Lana Skirboll, then NIH Science Policy Director, and Dr. Elias Zerhouni, NIH director at that time. And it was love at first sight. I felt like a child in a candy store.

I still consider myself a scientist but one with a much broader perspective that includes laws, ethics, diplomacy, and communicating with the public. My motto is always, “Science first.” Let’s try to do better science, taking into consideration all these other facets that are present in policy.

One of my goals in my career is to make sure scientists understand that money for science is not guaranteed. A national system for funding research is historically a recent phenomenon, and it did not happen by chance. It would not be sustainable without the people who work on science policy and advocacy. I would make reading of *Science: The Endless Frontier* by Vannevar Bush, President Roosevelt’s science advisor, mandatory in any graduate course.

THE BEST POLICY

What sort of things did you work on? We worked on several initiatives, but the overarching aim was to make the scientific

endeavor more efficient and effective. To give you an example, I worked very actively on providing public access to NIH-funded publications. Another big project involved the European Commission, which is a major funder for research in Europe. I worked hard to make sure that bureaucracy wouldn’t get in the way of science, ensuring that US scientists could be funded by European institutions in collaborative projects, just as

European scientists can be funded by the NIH. I also worked to develop innovative systems to capture the effects and the benefits of research from a health and economic perspective. This is a very important issue, especially during tough budgetary times.

“Research represents hope for the future of society.”

You recently accepted a position as Executive Director at ASCB...

Until last month, actually, I was at the National Institute of Mental Health, where I was the policy and communications director, and I loved it. But then I got a call asking if I was interested in this job. I was happy where I was, but two things really attracted me to the job. Number one was having the opportunity to shape the organization as a whole. The way I see it, science is an ecosystem where you have many different players—fundors, universities, private industry, publishers, advocacy groups, among others—and you need them all to get things done. Professional societies like ASCB are there to promote and define the field, and I am excited to be part of that. The other reason is that, being outside government, I would be freer to push for the areas and issues I think are most important for science.

And what are those?

It would be very presumptuous to say, “This is my agenda: here is what we will do.” So the first thing I will be doing, starting at the ASCB annual meeting this year, is meeting with the



PHOTO COURTESY OF STEFANO BERTUZZI

Bertuzzi enjoys sailing during a rare break from work.

different stakeholders in the organization, listening to and learning from them. I want to hear what is important to them. But I do have some ideas of my own.

One is that I want to make sure that young people have a forum where they can talk, discuss, develop, and improve their leadership skills. I also would like to focus on the issue of understanding the returns on basic science investments. It is a thorny issue because it is difficult to measure. But what is clear is that, if we stopped funding basic research today, we might not notice the difference right away, but we wouldn’t be able to adapt to new challenges or emerging diseases. Research represents hope for the future of society; without it, we would be forever stuck in the present. ASCB will be a great place to work on developing these arguments. I can’t wait to start!



PHOTO COURTESY OF PROSPERO CRAVEDI

Bertuzzi has been a mover and shaker in the science policy realm.

1. Bertuzzi, S., et al. 1999. *Mech. Dev.* 81:193–198.
2. Bertuzzi, S., et al. 1999. *Genes Dev.* 13:3092–3105.
3. Tagliatela, P., et al. 2004. *Development.* 131:4239–4249.
4. Soria, J.M., et al. 2004. *J. Neurosci.* 24:11171–11181.
5. Lane, J., and S. Bertuzzi. 2011. *Science.* 331:678–680.