

## An interview with Irving Weissman at the 2010 ISSCR meeting

The International Society for Stem Cell Research (ISSCR) held their annual conference in San Francisco this June. At the time, the President of the society was Irving Weissman, who is currently on the board of directors of the ISSCR as past President. He is Professor of Pathology and Developmental Biology and also the Director of the Institute of Stem Cell Biology and Regenerative Medicine at Stanford University School of Medicine, where he works on the generation of myeloid and lymphoid lineages from haematopoietic stem cells. At the ISSCR meeting, we asked Professor Weissman about his role on the board of directors of the ISSCR, and also about the meeting and the field of stem cell research in general.



**Thank you for taking the time for a quick interview. Are you enjoying the conference so far?**

Of course, for those few moments I have without administrative duties.

**What have been your highlights of the conference these first two days?**

Well, there are different kinds of highlights. There is of course the highlight that just before the conference we launched our (the ISSCR's) website on people in clinics who are practising for-profit, unproven therapies ([www.closerlookatstemcells.org](http://www.closerlookatstemcells.org)). This is our way of providing patients and their caregivers with the kind of advice they need in order to avoid being promised treatments that have neither the hope of treating or curing the disease nor of providing good medical practice.

**How long have you been involved with the ISSCR; was it from the very start?**

Yes, I was a member of the founding group, but I didn't want the job of ISSCR President until it was more established.

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**How have you seen the ISSCR change over the past eight years?**

I think we went from under a thousand people to nearly four thousand, both as members and as people who are participating in these meetings. We have also formed an alliance with the journal *Cell Stem Cell*.

**The ISSCR is an international society, which means that you reach many different countries and that this meeting is very big. How do you create a connection between researchers from different countries?**

There are several ways. First, the board of directors of the ISSCR is truly international: we have members from Asia, South America, Europe, the US and Canada. Second, at least every third year our annual meeting is outside of North America. The meetings that are within North America usually alternate between Canada and the US. Third, we have regional meetings that we established under my presidency, where groups outside of the US that don't have the attraction, or the money, or the scientific community to put on a large meeting, can join with us and we'll help out and have regional meetings. We've had several; the first was in China in 2007, and we have one this year in The Netherlands. So that's another way to connect with different countries. There is a committee on international issues, which is a great committee, but we're so international in everything that we do that they sometimes find themselves wondering which issue they should focus on.

**Do you see through these meetings that it's really possible to foster a sense of community?**

I think there is a big sense of community here, just like any scientific community. Community means that we have the same standards and the same goals. I wish it would mean that when we review each

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**What I find interesting about the field of stem cell research is that it comes from two directions: there's the very fundamental, basic research in stem cells, and there's the applied side of it, the medical side. How do these two fields interact and what can they learn from each other?**

Well, that's very interesting. At the core of that translation from discovery, moving towards the pre-clinical side of therapy, there is a group of people who do both: scientists, like me, who also find ways to try to do clinical translation. That goes all the way from founding or co-founding companies to helping to write Proposition 71 for California, which included the requirement to fund promising stem cell research to, and through, at least phase one trials. I think that there is a whole group of people who do things like this. In addition to this group, many (but not all) of the basic scientists in the field are translation savvy. They get that partly from participating in companies, as companies are usually the first place where you sit down with multiple disciplines, including clinical disciplines, at the same table. For me, being on the founding scientific advisory boards of AmGen and DNAX provided that for the first time in my life, nearly 30 years ago.

I think that the ability to translate is rooted in the idealism of people. Not just for monetary gain, but because we realise that, aside from skin and haematopoietic stem cells, we have precious little knowledge of how the body is maintained by stem cells. I would say that neural stem cells will be the next to make it from experimental clinical trials to real translation.

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**You briefly mentioned local research here in California; you're dealing with researchers from all over the world, but every country, and every state in the US, has different regulations. How do you see these differences in government organisations affecting the field?**

Well, at the beginning of this meeting we put on a one-day symposium, co-sponsored

by the California Institute of Regenerative Medicine, on that very issue: globalisation. How do you know what other countries are doing and what their regulatory groups are doing? What are the barriers to translation – not only regulatory barriers, but, again, unproven therapies and the oversight of them?

We're hoping to inform and educate regulatory bodies, such as the US Food and Drug Administration, about what the science really is and where we think it should go, and try to get them to be a little less risk averse. I think there are all kinds of ways that we can do that, but one of the unfortunate things that happened with the collapse of the economy and the previous collapse of venture capital funding of high-tech, is that for all intents and purposes, venture capitalists are not at all interested in cell therapy. So, if you try to translate it, no matter what you do, sooner or later you need professional advice for regulation, for carrying out clinical trials and for dealing with institutional review boards. It costs a lot of money and the investment community isn't there.

**I have one final question: where do you see the role of journals like *Development* and the field of basic developmental biology in general, within stem cell research?**

The field of developmental biology, which used to be a morphological field and a whole-animal, whole-tissue and whole-cell experimental field, has moved in the last twenty years into developmental genetics as the major way to do things. There are two aspects to developmental biology: pattern formation and organogenesis. The cells that participate in pattern formation have not yet committed to be stem cells for a specific tissue. But the moment that the cells commit to forming a tissue, such as blood, or an organ like the brain, then you have stem cells that are at the root of growing and maintaining the tissue. And, of course, since they're the only self-renewing cells in those tissues, a tiny, tiny number of cells carry the seeds of commitment for aging, for degenerative diseases and regenerative tasks and, most of all, for cancer. So the field of stem cell biology participates with developmental biology in the organogenesis stage, while developmental biology is also the discipline of getting to that stage.