Lab Spotlight: Cristina Lo Celso

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Deconstructing Blood Cell Research
Building the Hematology Community

Cristina Lo Celso obtained her PhD exploring epidermal stem cells and the role of beta-catenin signalling in adult epidermal cell fate specification at University College London/Cancer Research UK, under the supervision of Fiona Watt. She then moved to Boston to join David Scadden's lab as a postdoctoral fellow, where she established novel microscopy techniques and tools to visualise haematopoietic stem cells in the bone marrow microenvironment for the first time *in vivo* and in real-time. Cristina is currently a Professor of stem cell biology at Imperial College London and a satellite investigator at the Francis Crick Institute, where her research focuses on understanding haematopoietic stem cell function during steady-state and in the presence of stress, such as leukaemia development and infection.

How long have you had your lab?

10 years

How many members make up your lab?
We are 8 in total – 3 postdocs and 5 PhD students. I also co-supervise a number of PhD students who attend lab meetings and collaborate with us on certain projects. Also, we often have up to 2 master's students and up to 4 undergraduate students each academic year – the lab is always in a state of flux!

What is the major research theme of your lab?
The lab is interested in uncovering and visualising cellular processes that take place in the bone marrow and specifically understanding how specific cells are affected in various contexts. For example: how leukaemia cells can directly affect healthy haematopoietic cells – including immune cells; how leukemia and/or infection change the bone marrow microenvironment and ultimately understanding how these dynamics subsequently affect haematopoietic stem cells.

What is your best approach to mentoring students in the lab?
I believe that the most important thing is that students find fulfilment from their PhD/degree. I thoroughly enjoy helping them develop into what they feel is a right fit for them and for their future in multiple ways: 1) by providing guidance on the scientific questions they want to address and the means to uncover, develop and master the approaches required to investigate them; 2) by encouraging career and personal development through opportunities such as presenting at meetings, networking, writing and reviewing papers or supervising junior students themselves in order to figure out career paths they may consider later on – be it in academia or not; 3) by ensuring they recognise and value their successes, purely scientific and not, so that they find genuine enjoyment in their research.

What is the key to running a successful lab?
Being a successful lab goes beyond each individual. It is all about working well as a team, which requires a lot of trust and collaboration. It is important to celebrate achievements together but also to acknowledge that these successes can be shared by multiple people. Furthermore, it is key to stay focussed on the lab's "niche" in the field and within the wider world. For example, while intravital microscopy can be quite a challenging technique to work with, it truly provides a unique angle to the biological studies that we do.

What facilities or equipment does your lab absolutely depend on?
Our research group is very lucky to have 24/7 access to a state-of-the-art microscope, which is vital for our projects. Aside from this, excellent animal facilities, flow cytometry and histology facilities are all essential for our day-to-day work.

What has been your greatest challenge in managing your lab?
Learning how to keep being productive in science whilst leading and mentoring a group of people. It is a challenge to learn how to balance your own passions with those of the people working for you and ultimately "smelling out" and deciding together what the most relevant science is at any one time. Also letting go – this career is a process; your first grant will come with a lot of pressure for delivering your specific aims but as you progress there is more flexibility to allow others to push the science at the bench. It may sound like a compromise, but it brings rewards for everyone.

What advice do you have for new investigators just opening their lab?
Each person is different so I would say there is no real recipe for success. But I believe that it is key to strike a balance between the science, admin, teaching (maybe even clinics!) and life outside the lab. It is key to build a good network of people that you can interact with at any level and can help you with things ranging from experimental advice to driving your career forward. The challenges you will face will be different to those during your PhD or postdoc and you do not want to isolate yourself – by sharing what you are going through with others, you can learn from their experiences. For this, taking part in meetings like ISEH and getting involved with committees like the New Investigator's committee really helps! Finally trust yourself – you will face a lot of opinions but always go with your gut and with what makes you feel most fulfilled.

Does your lab attend the ISEH annual meeting and what is the most beneficial aspect of ISEH membership for your lab?
Yes, we love attending the annual meeting whenever possible as there are plenty of opportunities for trainees to network with the big names in the field in a relaxed environment. The ISEH webinars are brilliant and we enjoy reading the blog as it helps us to get to know the people behind the science.

How do members of your lab celebrate accomplishments?
We like to organise outings or gatherings (usually centred around food!) where we can tackle a fun activity together and have a moment to decompress after working so hard towards a specific goal. Since having become a mum a lot of these now happen at my new house.

Does your lab have any fun traditions?

We enjoy doing “out of the box” and dynamic activities for Christmas lunch. In recent years we have tackled escape rooms, table tennis tournaments, ice skating, pottery and this year we tried our hand at cooking our own authentic Italian pasta and arancini lunch!

Interview conducted by:
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