

Transcript of Podcast Interview with Prof. Melissa Little on 7th December 2021

Ingrid [00:00:00] Hi! I'm Ingrid, welcome to this podcast interview with Melissa Little

[Intro Music]

Ingrid [00:00:16] Melissa, thank you so much for taking the time to join me here today. I'm really excited to have you on, and can I just say that your list of achievements is truly impressive! You're a group leader at the Murdoch's Children's Research Institute in Melbourne where you're also the theme director for Cell Biology, you were previously the President of the Australasian Society for Stem Cell Research, you're currently the President of the International Society for Stem Cell Research. And on top of all that, you've just become the director of the NNF Centre for Stem Cell Medicine here at reNEW which isn't just one centre but an international consortium. And I have to ask the obvious question – how do you manage it all?

Melissa [00:01:09] Well, I guess renew hasn't started, so we're about to find that out, but yeah, I mean, I think it keeps it interesting, it keeps it really exciting. You know, I've worked for many years bringing researchers together across many organisations, as you can see nationally and internationally, but particularly in stem cell medicine across Australia. I've been doing this for some time and I think it's really exciting to be able to find those opportunities where you can bring people together and do something that wasn't quite on their agenda. And I think the renew opportunity is really remarkable. And well, while Europe and Australia are a long way apart, there's already collaborations and a lot of potential for new collaborations and just an amazing opportunity around what can be done between all these really stellar stem cell research is across the globe that is not always easy to achieve as someone running your own lab. And so that, I guess, has kind of been a real passion of mine in my long career as a scientist is to try and see how we can do better than we can just do on our own in our own lab.

Ingrid [00:02:25] And through all these experiences of collaboration, what do you now look for when finding collaborators?

Melissa [00:02:36] I think you're looking for umm... a common idea, a common opportunity. You know, I think some of the best collaborations are when there are differences in the skill sets of the people at the table and then that really allows you to take the science laterally rather than just becoming good at one type of thing and then just doing more and more of the same. And so instead of leading having the technology lead the decision about what you do in your lab, you can have the biology and curiosity and the question lead what you do and when you bring a collaborator to the table that opens up your options and you know, it's got to be mutually beneficial and mutually exciting for everyone involved and often it requires some time. You know, I think you yourself working across wet laboratory science and social ethical science, you have to spend a bit of time and effort getting to know your collaborators and learning their language because in fact, there is phenomenal variability in the languages that we use in our own little speciality. And that's pretty fascinating, too. So, you know, I think it's science to me is incredibly creative, and it's those intersections and collaborations where you can really be extraordinarily creative and create something out of that together. [15.8s]

Ingrid [00:04:06] And this creativity aspect seems to be something that you've excelled at since a young age. If I remember correctly, you won a creative writing prize before going to University, and you also got your best secondary school grades in the Arts and English rather than a science like biology.

Melissa [00:04:30] I was really passionate about biology. I might not have won the prize, but I did very well in it. My father was a scientist. Art to me is my real excitement and I still like to paint. And again, it's a very creative thing to do. Err, English. You know, if you're a scientist, you're right and running and grand is creative writing, you can say, Well, that sounds terrible. You're making it up. Now you have to actually bring together a story where you can convince a reviewer that first of all, you understand your biology well enough to write a story about it. And secondly, that you know where you're going with it. And so an ability to write is critical, you know, for the scientist. And an ability to communicate is also critical. And whether that's communicating in the written form, in a review or in a paper or in an article or communicating verbally, we have a phenomenal responsibility to communicate our science not just to each other, which is important, but to the community. And I think that that is an obligation rather than a nice-to-do. So being able to write is really helpful. And I enjoy it.

Ingrid [00:06:04] I think it's really important – and it's really nice to hear – that you enjoy such a big part of your job

Melissa[00:06:10] Yeah, I mean, people complain, Oh, I know I'm going to run a grant. Oh, this is so hard. I actually really like it, as you know, it actually is a process of saying now where am I and what do I think would be cool? And actually writing it, bringing it all together, it's, you know, lots of jobs have to do that type of pitching. I think it's a good way of pausing and saying “What am I doing that's good and what am I going to do now?”

Ingrid [00:06:36] I completely agree, but I also think it's really interesting that being able to form a narrative is so important and necessary to a scientific career and yet we don't have any formal training in writing or how to build a story until quite a while down the line

Melissa [00:06:58] Hmm. I think there's a lot we don't train people in this in this field. I, I feel my primary degree in science didn't teach me a lot. I think there are many other professional skills that I needed to learn that weren't a part of my university degree. And so, you know, it's not so surprising that people might get a little bit further into that career and go, Oh, I'm not. I didn't know that I was going to have to do that. [laughs] But they do.

Ingrid [00:07:35] Yeah, and what do you think we could do maybe as an institute or on a more systemic level to help people or fill that gap in?

Melissa [00:07:50] I think we need to try and ensure that the people in our teams and in our institutes have opportunities to learn how to speak and to learn how to present themselves. And, you know, for some people that can be confronting. But if you're doing it to your own lab members first, you have to be asked to do that.

Everyone in my lab presents, including the research assistants. So, you know, the technicians do as well. And I think that we have a responsibility to help people learn how to do that well because it's important for their careers.

Ingrid [00:08:23] So it sounds like a practice-makes-perfect kind of thing then?

Melissa [00:08:30] Yeah, I mean, OK, you can go and to a course on it, but actually doing it as part of your job, you do improve and you grow in confidence and you, you know, at one stage I used to hand out chocolate frogs to anyone in my life that asked a question in the seminar just to try and encourage people to be willing to ask a question. And that actually means that they start to formulate questions. And all of those things are... you do learn on the job because nobody taught you necessarily how to do that at Uni. Although I think, you know, I'm an old person now, you know, when... when people go through university now, I think they probably have a broader, perhaps more rounded education. It was pretty classical when I went through.

Ingrid [00:09:18] Speaking of your university experience though, could you maybe tell me a little bit about how did you get started in research?

Melissa[00:09:27] I actually ermm... I did science, that was my primary degree. My honours degree was in physiology and I happened to do an honours in Renal Physiology and that was just chance. It was a project that I did. I was pretty tired at the end of it, I wanted to get a job and I got a job as a research assistant and it happened to be in a in a laboratory that worked on kidney again, but this time from the point of view of kidney cancer and from the point of view of the molecular basis of kidney cancer. That, again, that was chance. And I think I worked out pretty quickly that I really liked science and I wanted to be the person driving the bus. And so I did a Ph.D. in that area and I did a postdoc in Edinburgh at the MRC Human Genetics Unit with Nick Hastie. And that was at a time where a gene called WT1 was cloned and this was a tumour suppressor. It was at the time where tumour suppressor genes were really new, and the concept was that, you know, these genes were there to protect us from tumours., and if you lost two copies then you got a tumour. And this was a gene that was responsible for kidney cancer called Wilms tumour. And working as a postdoc in Edinburgh, it became apparent that that gene had a very tight gene expression during development in the kidney and the gonad. And I just thought "Well, that's very interesting. Why is it so specific?". And it's because, it's really there to allow you to have kidneys. That's its developmental role. And that took me in a completely tangential direction, which was trying to understand kidney development and the molecular basis of kidney development, which I worked on for 15-20 years and in probably around the year 2000, my kids were pretty young, and I think I came to a realisation that what I wanted to be able to do at some point in my career is do something that mattered to patients. And, and the concept then was how do I use my developmental biology to do useful things for humanity? And that was really the beginning of embryonic stem cells in humans. The whole concept of adult tissue regeneration, the concept that every adult tissue had a stem cell. And so that just took me again in another direction, down stem cell biology. And that's really what I've focused on since then.

Ingrid [00:12:15] Just picking up on what you said about becoming more interested in the more translational side of research when you became a parent, was there a link between the two or was that just pure coincidence?

Melissa [00:12:36] Hmm... I don't think I've ever connected the two. [laughs] Being a mum was just part of what I wanted to do in my life and... But I did, I did have always had a strong appreciation that being a scientist is fantastic and actually it's a great career if you're a mum because you are ultimately the boss. And so you can time manage that around your kids, and that's a really fantastic opportunity. But I also was really aware that everything I did was funded by somebody. You know,, my ability to, you know, have such a great career and be able to ask fantastic questions and follow my nose was being funded by mostly the taxpayers. Most of the funding that we get is from government and government has money because of taxpayers, and I think I just kind of realised that, you know, hundreds of years ago, painters and musicians and scientists had patrons, and the only reason they did what they did was because someone paid for them. And it's not so different now. It's just that it's the community that's paying. And I really wanted to understand more the link between what we might do and what we might benefit to the community. And I think we do have to remember that we're here by the grace of somebody's funding and that the community believes what we do as scientists will matter to them. And I really want to see what we can do out of beautiful fundamental biology that matters to the community.

Ingrid [00:14:23] It seems that there's a very strong link between community funding and research. But how do you think that changes- or even, does it change when you're being funded by a private company who might have some ethical responsibility towards their community, but for whom that's not their main priority?

Melissa [00:14:47] I think if we're talking about a large charitable trust, any large charitable trust, I see them in the same way. They are putting philanthropic funds that have come from a variety of different sources on the table because they believe in health, in education, in sustainability, in the future of their community. And this is what we used to call the triple bottom line of most companies. Many companies put money on the table for similar public good. And I think public-private partnerships have a really important role to play in society. So I put into philanthropy large charitable trusts such as the Novo Nordisk Foundation itself, but also, you know, elderly ladies who have left me small donations. You know, there's a big variety of charitable contributions that also come into science, and I'm grateful for them as well.

Ingrid [00:15:45] And just looking at the difference between public and private sectors from a slightly different angle: you've been involved in a science start-up called Nephrogenix, could you tell me a little about that experience of working in industry.

Melissa [00:16:04] Yes, well like many spin outs, Nephrogenix doesn't exist anymore, but it really was looking at what products we might develop and how to do that and spinning out of company is one approach to doing that. I learnt an enormous amount. In fact, I actually trained as a company director in order to take on that role because I wanted it to be very clear and sure of what my legal responsibilities were. And that has really helped me to understand how

corporate governance works and how responsibility works within that type of setting. I think that the understanding of corporate governance has helped me a lot in the leadership roles that I've held subsequently. So it really was an amazing learning experience, even though it was a small start-up.

Around that time, I was also an Eisenhower fellow, which was an amazing opportunity to actually spend several months in the U.S. as an Eisenhower fellow looking at the barriers to translation of research into outcome in the stem cell space. And at that time, you know, that was incredibly early in in a sort of genesis of stem cell biology, and it really gave me a look at the steps along the way, from science to a product and realised how many barriers there are right down at beginning for the academic whose basically next grant is going to be critical to keep their staff on site and whose productivity is evaluated as publications. And that really inherently doesn't help academics to work on that pathway towards outcome. And that has fascinated me for years. And again, I think in reNEW, we have an opportunity to try and change that paradigm for the researchers within the consortium.

Ingrid [00:18:00] That's really encouraging to hear, I think a lot of early career scientists would really appreciate your answer, especially with all the concerns of the current publish-or-perish culture in science and the dilemma of do you just go for publishing more or do you take a risk and try to publish better quality but maybe hold out on publishing for a while

Melissa [00:18:27] It is, I mean, I actually see this culture as a very, very tangible barrier. I see it as a tangible barrier to delivering good science. It's not an easy challenge to get around. I really do think you should always publish quality. There's an enormous push, particularly in this country, to evaluate people based upon the quantity of their outcome. But you have to aspire to do good quality research. The biology will tell you what's real. It's the only way to move forward is to do high quality research.

Ingrid [00:19:03] On the topic of barriers to good research within the research culture, and going back to something we've touched upon a bit previously, there's a lot of pressure on women in academia to choose between family and science. As a parent yourself and as a successful scientist, I was wondering what your reflections are on this and, firstly maybe, do you believe men in science face the same pressures when they are parents?

Melissa [00:19:34] No, I don't believe men do face the same pressures. You know, I'm kinda curious to see how this works out in Denmark, which is really held up as a paradigm of being able to enable working mothers. But you know, whether that's a reality on the ground, I've yet to see. But in many, many countries, I have seen the pressure on women - to working women - to continue to play the primary role at home. And that's not just men placing that pressure on them, it's women placing that pressure on other women. It's society placing an expectation on you to be a caregiver as your primary function. And I think we haven't moved away from that yet. There is also a phenomenal unconscious bias and I think unconscious bias is really something that's not talked about enough and that we really need to discuss openly. And it's not just an unconscious bias of men choosing men or women. It's also an unconscious bias of women thinking women are less able to commit than men. So,

you know, we really need to think very carefully about acknowledging unconscious bias and discussing how unconscious bias is affecting what we do.

Ingrid [00:20:59] I think these are some really relevant and really interesting reflections and particularly pertinent to our current research climate. I was just wondering, looking forward what you think could be effective methods remedying some of these problems and issues you've raised?

Melissa [00:21:19] I think we just have to always look for where barriers exist and try and make sure that we're not reinforcing those barriers. I think that in the competitive grant funding systems internationally - and this has been recognised by many people, I remember Frank Gannon did a review and he was at EMBL - we have to look at the criteria and not have time barriers in it. You know, you can only apply if you are X years post-PhD, well, if you're a woman, you're raising two kids, that's a little bit different.

But, I actually think one of the most critical decisions you can make is who your partner is. And I think many people think, well, I shouldn't be choosing my partner based on whether they want to support my career, but I would disagree. If you want a career, your partner has to care that that's important to you. And I would have said that my husband has never questioned the importance of my career to me or to our family, and that's been incredibly, it's been critical for me to be able to keep going. And it is a major barrier to women that I see at choosing. And I have to say, you know, absolutely your right to choose to take time off, to leave your career, to devote your life to your children. Absolutely your right. But I still feel there are many expectations that mean women opt out when they may not really have wanted to.

Ingrid [00:23:04] I think I agree with that point, thank you so much for sharing your experience and your words of wisdom. Moving to a slightly different but tangentially related subject, you've said before that you're only as good as your team around you. I was wondering then, in that team - or when you're forming that team - how do you form it and what do you look for? Because these are quite high stakes.

Melissa [00:23:37] I think this is probably the hardest thing you ever do in your career is interview people. And I'm not sure that I would claim to be especially talented at this. Sometimes you do well, sometimes you don't do so well. And I think you've really got to look at what is the role that you want someone to play and who are they going to have to interact with? One of the most amazing things I learnt early in my career is that not everybody has the same personality, and that's been enormously valuable because you can sit ten people in a room and say it's sunny and someone will take offence. So you really have to think about who you're employing, who they're going to have to interact with. Do you think that's actually going to cause tension? I actually try and do a mental personality analysis when I talk to... when I interview people. You still sometimes get it wrong. Then it's about setting the parameters. Everyone is equal. Everyone shows respect for each other. There's an enormous amount of value in working together as a team, and that has to be a really clear objective. And the other thing I'd say is you need to be sure that the people you have in your group align with your vision because if they don't, there's going to be tension and then sometimes it doesn't work, and that maybe not because

they're not good people, but they're not particularly good at what they do. Or it may be because they really are not willing to be a team member. And when that happens for the benefit of the team, you need to move them on. And so, you know, I think having a team is so critical to the success of everyone in that team that it's... it is the most important thing you do.

Ingrid [00:25:30] So, this is possibly part of the personality tests you do, but I've heard that you ask people whether they like to cook or garden in interviews. Could you tell me a little bit more about it?

Melissa [00:25:44] I actually do ask people. I kind of like that people who can cook and really like cooking are good biologists. And, you know, you could say that molecular biology is cooking anyway. And but then you can be a person that cooks by following the recipe without deviating. And that's someone who's an extremely conscientious technician. Or you can be someone that just opens the fridge door and says, Now what have I got? And that's equally useful depending upon the context, because you can troubleshoot them. Well, I don't have two eggs. I've only got one. So how am I going to troubleshoot this? So, you know, I do ask that. You know, the other paradigm is if you garden or if you're passionate about gardening, you're probably quite good at tissue culture because it requires careful observation and just, you know, constant tending. I've got a few others that I'm kind of realising with time. Avid sports people are good team players, people that have horses time manage well. [laughs] But I do ask the cooking question because it helps me to say this is someone who's very focused on the recipe or someone who's going to innovate. And there's value for both of those types of people. They just have different roles.

Ingrid [00:27:11] And, now I have to ask you Melissa, how do you like to cook? What are you like in the kitchen?

Melissa [00:27:18] I innovate and just look in the fridge and say, what have we got? And if the recipe calls for something that's not there, I innovate. That's, that's my preference.

Ingrid [00:27:32] And I think that sums up what we've heard in the last 30 minutes very well. Melissa, it's been a pleasure. Thank you for the last 30 minutes. I've really enjoyed it, and I hope you have too.

Melissa [00:27:46] It's been great. It's nice to meet you. And I'm sure I'll get to meet you in person at some point in time.

Ingrid [00:27:55] I'm sure, bye now!

Melissa [00:27:57] Bye bye!

[Outro Music]