

Improving diagnostics for breast cancer patients

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Guest: Dr Jo Morris

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Intro VO : Welcome to the Ideas Lab Predictor Podcast from the University of Birmingham. In each edition we hear from an expert in a different field, who gives us insider information on key trends, upcoming events, and what they think the near future holds.

Sam: So we're here today with Dr Jo Morris who is a Reader in Cancer Genetics, here at the University of Birmingham. Hello Jo.

Jo: Hello.

Sam: So can you tell us what your research is in here at the university?

Jo: Well I'm interested in ways in which we can improve treatment for cancer patients, particularly for breast cancer patients. So you probably know that there are a good number of therapies now and cancer treatment, breast cancer treatment, is a good deal better than it used to be but it still affects 50,000 a year and there are still 11,000 women a year who die from it, so we could make things a lot better. So what I'm interested in doing is understanding the cancer cell itself so that we can identify things that are going wrong with it and things that are changing so we can improve diagnostics and improve treatment choices for patients and provide new treatments for patients to increase their chances of surviving breast cancer.

Sam: What's your part of this research?

Jo: So my focus is on the way that cells repair their DNA and that's important because one of the ways in which cancer develops is in a failure to repair the DNA and DNA as you know is very important for regulating how cells divide and how they respond to damage. So we need to know how it is that cells fix themselves and stop themselves becoming cancer.

Sam: And so how do you go about doing this research?

Jo: Well there are a lot of ways we approach the problem but one of them that we're doing at the moment is to, if you like, create an artificial cell in the laboratory that has all the genetics of a cancer patient so that we don't actually have to go and examine a cancer patient over years and years and years, but instead we can just look at a cell that was normal and was a normal breast epithelial cell, but that we subtly changed to carry the same genetics as somebody who's a very high risk of breast cancer and the idea of course is then to follow that cell, see what goes wrong with it so we can develop the diagnostics and the treatments that would treat that cell once it's gone wrong.

Sam: And how far are you on in this process?

Jo: Well this is a new way of doing things, this one. So we've got some of the way there. We have got as far as genetically altering that cell to a degree but we're not finished yet. So we're still trying to get that process and that research tool ready for use but it's not quite there.

Sam: So what impact will the work that you've been doing in breast cancer have on breast cancer research as a whole for the future?

Jo: Well we're really hoping that what we'll do by examining these cells in the lab and following them as they go from being a normal cell to something that's a cancer cell, is examining in some detail the changes that happen along the way and by doing that we'll be able to develop new diagnostics that are targeted at picking up cancer quite early. So the hope there is that we'll be able to bring forward cancer treatment. Rather than waiting for a lump to develop we might be able to pick it up in the blood or use systems we don't currently have for seeing really early signs, long before actual cancer develops.

Sam: And it's that early intervention that's really important in cancer I guess.

Jo: Yes, yes. So we all know that if you go to the doctor earlier and if the cancer's caught in an early stage it's less likely to kill you. So the hope of this is it'll catch it even earlier, even before you even know you have anything.

Sam: So as far as we know, the research that you're doing is actually unique to the University of Birmingham.

Jo: Yes, that's right, as far as I know and of course you never know but as far as I can tell, the development of this novel way of doing things and this new tool is unique to Birmingham. I'm not aware of anyone else that's trying to do this idea of making human genetics in a test tube if you like and then trying to understand the way that those genetics change without going to the patient. I'm not aware of anyone else doing it.

Sam: So there's actually a way that the public can support your research isn't there?

Jo: Yes, that's right. If you're interested in supporting our work in particular here at the University of Birmingham you can go to www.birmingham.ac.uk/giving ([/alumni/giving/index.aspx](http://www.birmingham.ac.uk/giving/alumni/giving/index.aspx)) and directly donate to this research and all of the money will go specifically to this research. So that's a great way of helping us get on with the work and make progress in future. Funding is a very difficult topic for scientists as you might know. This work, we've been very fortunate, has been funded partly by the **Breast Cancer Campaign** (<http://www.breastcancercampaign.org/>), partly by **CRUK** (<http://www.cancerresearchuk.org/home/>) – that's Cancer Research UK – and specifically this one I've just talked about is funded by the Wellcome Trust Breast Cancer Campaign and by the alumni of the University of Birmingham who have been very generous and allowed us to develop this work really from the beginning because it was considered very high risk by some of the other funding bodies and the Birmingham alumni have really helped out a lot. For example, we had an alumni give us quite a good deal of money to help us with an incubator that let us grow the cells and without that I think we'd have had real problems starting it.

Sam: Well I do wish you all the best with your research in the future. So Dr Jo Morris, thank you very much.

Jo: Thank you.

Outro VO : This podcast and others in the series are available on the Ideas Lab website: www.ideaslabuk.com (<http://www.ideaslabuk.com>). There's also information on the free support Ideas Lab has to offer to TV and radio producers, new media producers and journalists. The interviewer and producer for the Ideas Lab Predictor Podcast was Sam Walter.

