

Joyce Taylor-Papadimitriou

Joyce Taylor-Papadimitriou was born in Burnley, Lancashire, in the UK. She obtained her first degree in Biochemistry from the University of Cambridge in 1954. She obtained her PhD with Lou Siminovitch at the University of Toronto. While a postdoc at NIMR in Alick Isaacs's lab she was the first to demonstrate that the action of type 1 interferons requires the synthesis of effector proteins. From NIMR she moved to Greece and worked there for eight years. She then returned to London and set up her lab at ICRF (now the CR-UK London Research Institute). Since 1997 she has been head of the CR-UK Breast Cancer Biology Group based at Guy's Hospital.

Joyce's major research interest has been the phenotype of breast cancers in the context of normal mammary epithelium. She identified and characterised a tumour associated antigen (the MUC1 membrane mucin) which is over expressed and aberrantly glycosylated in breast and ovarian cancer. The first antibody to the mucin, which she developed, has been shown in a Phase I/II trial to improve survival of ovarian cancer patients, and is now being evaluated in a large randomised Phase III trial. Other immunogens based on the MUC1 mucin are also in clinical trial.

In the interview that follows, Fiona Watt, Editor-in-Chief of JCS, asks Joyce about her experiences as a woman in science.

FMW: *What changes for women in science have you observed during the course of your career?*

JTP: I think in some ways it has become more difficult for women. They represent 50% of the work force at the PhD and postdoc level, yet the proportion in the decision making positions has not increased proportionally.

FMW: *How has your research career impacted on your personal life and vice versa?*

JTP: My choice of direction was governed by my personal life rather than

the other way round. Also, my personal life is rather different from most women who have managed to make a reasonable career in science. I am probably not a good role model, as I think I was fortunate in being in the right place at the right time in my postdoc year.

As a young, single lady I worked in the Department of Virology at NIMR, Mill Hill. I was funded on a Canadian fellowship, as I had lived in Canada for 8 years. My task was to move the interferon work from Virology across into Biochemistry. From that work I published two papers which were seminal at the time, in that they showed that interferon required induction of mRNA and proteins. Looking back, I was awfully cavalier as I just published alone. This was because my boss, Alick Isaacs, was not well and I found my own project to work on. These two papers probably saved me from professional extinction since, before taking up the Assistant professorship that I had been offered in Toronto, I went off to Greece on holiday and ended up staying there. I had met Spyros Papadimitriou on a boat trip round the Greek Islands and three days later we decided to get married.

I ended up synthesising peptides for 3 years in the Organic Chemistry Department in the University of Athens where I worked with Leonidas Zervas, a very clever chap who invented the original protecting groups. This interlude took me away from biology, but in 1969 I managed to get an Eleanor Roosevelt Fellowship (as a Greek) to work with Michael Stoker, who was then in charge of ICRF and admired my postdoctoral work on interferons.

I think with two small children my working life was easier in Greece than in London. However, I had established myself in the scientific community because of the interferon work and got the Eleanor Roosevelt Fellowship on the basis that I would get back into biology and then synthesise interferon chemically. It is worth mentioning that although I had two children to support, the fellowship paid me as a single woman; if I had been a man with a family I would have been paid more. The Roosevelt Fellowship was for one year, but the money was only sufficient for my entourage for 9 months, and I returned to Greece after this time, having



Joyce Taylor-Papadimitriou on vacation in Greece after she moved to ICRF.

acquired enough data to publish three papers. My husband didn't have a passport under the Colonels, who came to power in 1967, and so he had to remain in Greece for 7 years until the dictatorship was overthrown. In 1974 we were both able to leave and I took up a 5 year fellowship that Michael Stoker offered me.

Since we came back to England as a family, my husband has been a tower of strength. He is probably the most important single factor in allowing me to progress as I have in science. I have been very privileged to share my life with him.

FMW: *Do you feel that being a woman is an inherent advantage/disadvantage for a career in science? Why?*

JTP: I have to say that it is only in the last twenty years that I have given much thought to this. Possibly because I was one of the lucky ones and got the opportunity to run my own lab. Also when you are young and the pheromones are active, you think all is equal and that men are discussing the science because that's what they are interested in, when actually they are just chatting you up.

Now I think it is on the whole a serious disadvantage being a woman once you get beyond the postdoc stage. The reasons are as follows. Although women make up 50% of the work force at the bench this is not reflected as you go up

the pyramid. If there are few women in the decision making positions, it's a Catch 22 situation: you can't influence appointments to the top jobs or ensure that women are being head hunted. I think this is very frustrating as I find that women apply to my lab partly because I am female. Also I think my example gives them confidence that they can progress to a reasonable position. However, there are not many examples of women directors of institutes.

Chaps like bonding and forming a network with chums. This means that when positions come up, particularly those involving power structure and decision making at high levels, women are not head hunted in the same way. Traditionally the thought is that men can move and bring their wives and families along with the baggage. This sin of omission also carries over to recruiting scientists to advisory bodies in companies and other organisations. And of course the Royal Society have very few women fellows. Some things are changing, but not as much as they should be.

If a woman scientist does not have a supportive husband, family loads are

excessive. Money is crucial for lightening the load on women, for example by paying for child-care, but even with a good salary a woman scientist still bears a much bigger burden than most men carry. Before having children it's important to get to the point in your research where you are not completely dependent on your own hands for being productive, since long days at the bench are difficult to deal with.

Sometimes, I think for a variety of reasons, women have lacked the confidence they need to forge ahead in science. I believe this is changing. Certainly my own daughters imbibed the culture that mums can enjoy the world in all its aspects – have a family and a career and fun – and also express opinions. My daughter Irini went to the Bartlett and then RADA, and is an actress and works for a charity. She gave us a grandson early – he is now 17. My daughter Alike is a medic with two children, currently doing a PhD (though not at the bench, at the computer). It's surprising how many of my daughters' contemporaries from Berkhamsted school for Girls who went on to Oxford

and Cambridge have followed the traditional path of being a supportive wife and mother. Nothing wrong with that of course, but it seems to be rather a waste of some of the talents I saw in them when they were growing up.

FMW: *What are your remaining career ambitions?*

JTP: Having talked about the disadvantages of being a woman in science, I have to admit that in the shelter of ICRF (now CR-UK) I have been fortunate to be well supported to the point that I am in position on salary well past my sell-by date. My career ambitions are to work as long as my brain is functional and to support younger scientists in their efforts. It is important to have autonomy in work. Too much structure and control from the men in suits is not helpful to research.

doi:10.1242/jcs.00983

*Feedback on our series of **Women in Cell Science** articles is always welcome and should be emailed to wics@biologists.com*