

Prizes in science don't come any bigger than the Nobels, and more often than not this award catapults its recipients from the general research milieu into the realms of scientific stardom. In this, its centenary year, the Nobel committee for Physiology or Medicine decided to honor investigators who have identified vital components of the cell cycle. *Nature Medicine* talked to one of the winners, Sir Paul Nurse.

Sir Paul Nurse

I talked with Sir Paul a day after he had heard that he was one of this year's three winners. It was also the morning after huge celebrations at the Imperial Cancer Research Fund (ICRF) where he has been the Director-General and Head of the Cell Cycle Laboratory since 1996 and also where joint winner, Tim Hunt, works. "It's pretty unreal still," Nurse admitted, "One does dream about such things and when it happens it still doesn't seem real. Ask me if it's sunk in in a week or two."

He was awarded the Albert and Mary Lasker Award for Basic Medical Research for his work in 1998. Over half of the recipients of a Lasker Award go on to receive a Nobel Prize. But while the two committees agreed that Nurse and Leland Hartwell, Head of the Fred Hutchinson Cancer Research Center in Seattle, should receive the prize for their work on the cell cycle, they differed in their third choice of researcher: the Lasker committee believed that Yoshio Masui from the University of Toronto, completed the trio (*Nature Med.* 4, 1103; 1998), whereas the Nobel committee selected Hunt (see page 1168).

"They're both major contributors to the cell cycle," says Nurse. "The difference in their work is that Yoshio laid the biological basis and Tim did the chemistry laid on that foundation. Yoshio set up the oocyte-based system for cell-cycle research and identified the important biological functions and Tim was the first to get the clues about the biochemical molecules that might be involved. These are very complementary contributions."

Nurse credits Hartwell with first turning him onto cell-cycle research. "In fact, Lee got me into this field because when I was a graduate student in 1972 doing miserable experiments—keeping some amino-acid analyzer going in the middle of the night—I read some papers by Lee on temperature-sensitive mutants in yeast and then the first cell-cycle paper by him. I thought it was fantastic and wanted to

do it so I switched fields from being an amino-acid graduate biochemist to yeast genetics and cell biology. I was in a lab interested in plants and I think I might have become a botanist if it wasn't for this switch."

He is referring to his PhD studies at the University of East Anglia, admittedly not a top-tier British university except for certain disciplines such as ecology and zoology. But because none of his family had entered higher education before him, he says he felt more at ease in universities such as Birmingham, where he was an undergraduate in biological science, and East Anglia.

His *curriculum vitae* also reveals that he has not taken the conventional step for a biological researcher of doing a post-doc in the United States. "I did spend months at a time in Switzerland to learn yeast genetics before my post-doc at the University of Sussex, and worked in Copenhagen, but you're right, I've spent my time in the United Kingdom and that's been a deliberate decision, partly because I didn't think it was necessary to go to the States," he admits. "I'm very pro-Europe—it doesn't mean I'm anti-American, but I'm pro-Europe—I rejected the advice of going to the US. Also I had a family and my wife was working, so I had obligations."

But the lack of Oxbridge credentials and US lab experience did Nurse no harm. In 1978 he published the first of 13 *Nature* papers on the relationship between cell mass and mRNA content in yeast (*Nature*, 271, 726; 1978). Then, after working at Oxford as a professor for six years, he moved to the ICRF—one of Britain's two largest cancer research charities—where he became Director-General within three years, overseeing an annual research budget of around £65 million (US\$94 million).

However, if all goes according to plan, Nurse will be looking for a new job next year since the ICRF is in consultation with rival research charity, the Cancer Research Campaign (CRC), and the two plan to merge.

The reasons for the union are manyfold according to Nurse. "There was, in the past, some antagonism between the

two groups on the fundraising front because we're competing for the same market. But the last few years have seen a much-improved relationship between the organizations and this has taken us to merger discussions. We have two people at the top (Gordon McVie and myself) who get on well and can talk about merger. This will lead to a better

cancer research organization for the UK as a whole and allow for the development of a single research strategy in the UK. He says that the merger is also necessitated by the increasing costs of doing quality research in the 'nomics' era. "Also, financially we are both sitting on good reserves so that we can cope with a difficult [merger] period for a couple of years." An independent director has already been appointed for the proposed transition.

If the two can be united into a successful entity, that in itself could turn out to be a great achievement for cancer research in the UK. So, within the last three years, Nurse has won a Nobel Prize and a Lasker Award for his role in discovering key regulators of the cell cycle and been knighted for his services to cell biology and cancer research. Not bad going for a boy from a non-academic background who was the first member of his family to go to university.

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Sir Paul Nurse