Work on RNA interference brings Nobel triumph

Geoff Watts *London*

For the second time in five years the Nobel prize for physiology or medicine has gone to researchers working with one of molecular biology's favourite laboratory animals: the nematode *Caenorhabditis elegans*. Even more striking is the short interval (eight years) since Andrew Fire and Craig Mello began publishing the work on RNA interference that has now won them the 2006 award. Their findings have already proved valuable in the laboratory and may yet do so in the clinic.

Both in their mid-40s, Professor Fire, working at Stanford University in California, and Professor Mello, of the University of Massachusetts Medical School, had set out to tackle what seemed to be an esoteric problem. They wanted to find out why and how the artificial introduction of RNA into a cell interfered with the function of its genes.

RNA is one of the key elements of what Francis Crick dubbed the "central dogma of molecular biology"—in essence, that DNA makes RNA makes protein. In the years since Crick and Watson unwound the double

helix scientists have picked over the detail of the process by which genetic information is transcribed as proteins.

In the first phase of the process the transcription mechanism of the cell uses a section of DNA as a template on which to construct a complementary, single stranded length of RNA. It is this "messenger" RNA that delivers the information required by the cell's synthetic machinery to churn out a protein of the appropriate composition.

What Fire and Mello found, to their surprise, was that introducing a length of double stranded RNA into a cell interfered with the normal function of the length of DNA—the gene—of which it was the counterpart. Further work by them and later work by others showed that they had inadvertently stumbled on a previously unsuspected piece of biochemical machinery.

It is believed that RNA interference serves several purposes. It helps to regulate the expression of genes and stabilises the genome. By degrading the double stranded RNA that cer-

Nobel prize winners Andrew Fire (left) and Craig Mello said in 1998: "The mechanisms underlying RNA interference probably exist for a biological purpose"

tain viruses use to store their genetic information, it also acts as a cellular defence mechanism.

Biologists have been quick to exploit RNA interference. By choosing the make-up of a length of double stranded RNA they can use it to close down the activity of specific genes in cells they want to study. It has given them, in effect, a molecular switch.

Findings in molecular biology do not always meet with speedy recognition. In this case Fire and Mello realised that they had hit on something important. As they say in their 1998 *Nature* paper, "The mechanisms underlying RNA interference probably exist for a biological purpose" (*Nature* 1998;391:806-11).

Industry group suspends drug company for breaching code

Owen Dyer *London*

Merck Sharp & Dohme UK (MSD) has been suspended from the Association of the British Pharmaceutical Industry for offering a blood pressure testing service only to doctors who prescribed the company's hypertension drug losartan (Cozaar).

The company, the British subsidiary of Merck, was found to have committed serious

breaches of the industry watchdog's code of practice. Clause 2 of the code, covering activities that are likely to bring the industry into disrepute, bars companies from offering inducements to prescribe.

A panel of the Prescription Medicines Code of Practice Authority found that MSD's "Cozaar nurse audit programme" was offered only to

doctors who prescribed the drug. Internal company documents showed that the programme was tied to marketing promotion and that participation was limited to doctors who used losartan.

The panel's ruling against MSD ordered the company to undergo an audit of internal procedures and to issue a corrective letter to the practices that took part in the programme. It also referred MSD to the Association of the British Pharmaceutical Industry's board of management, which exercised its power to suspend the company from membership of the

association. The suspension will last at least three months.

Chris Round, managing director of MSD, said: "We view the finding of a breach by the PMCPA [Prescription Medicines Code of Practice Authority] very seriously and regret this situation, which we feel does not present a true reflection of the core ethics and values of our organisation. We are working hard to reaffirm our core values and standards and restore confidence and pride in our business practices. Our values and standards are not only the foundation of our company and all that we stand for but they are the basis of our success."