Q&A: Fabio Mussi

VENICE

Before last April's general election in Italy, *Nature* reported deep dissatisfaction among scientists about what they considered disastrous science-policy decisions by Silvio Berlusconi's right-wing government. An international conference on evolution in Venice last month was opened by new research minister Fabio Mussi — a member of the Democrats of the Left party, part of the ruling coalition. Known for his bluntness and quick humour, he gave **Alison Abbott** a snapshot of his plans for putting things right.

Q What is the most important issue?

A Money money money. Italy spends less on science and innovation than it should. We want to increase public investment. We want Italian scientists to make better use of opportunities to win European Union research funds. And we want to find ways to make industry contribute more.

Q What can be done about the much-criticized leadership of organizations such as the Italian Space Agency and the National Research Council?

A It's another very important priority, to change a few presidents of our research organizations. It hasn't proved very easy, but when we have done

this, other problems will be much easier to solve.

Q What about the Italian Institute of Technology, conceived by the last government as a version of the Massachusetts Institute of Technology and viewed by many as a white elephant?

A This was not born well, but I cannot struggle with my conscience to kill it. It was given €240 million (US\$305 million) by the last government that it hasn't spent — we are not going to give it any more money until it does so. I am very much in favour of merging it with the European Institute of Technology [planned by the European Union along similar lines].

"It seems to me that those who believe in intelligent design are the ones who support politics that are not intelligently designed."

New wave: research minister Fabio Mussi opened an international conference on evolution in Venice last month.

Cloners break away from the herd

B. CURTIS/PA/EMPICS

Following on from Dolly: using differentiated cells might be key to efficient cloning.

Surely it's easier to clone mammals from cells that are dividing, than from those fated never to do so again? That's certainly the assumption with which most biologists have been working.

But results from a study in mice suggest that the opposite may be true: in attempts to clone mouse embryos from three groups of blood cells, the most differentiated ones worked best. The finding could improve the lamentable state of cloning, although experts are stumped for an explanation.

In cloning, researchers insert the nucleus of a cell, say a skin cell, into an egg stripped of its own nucleus. This process is thought to reprogramme the DNA in the nucleus, giving it the potential to orchestrate the development of an embryo. Nuclei from stem cells, which can give rise to various other types of cells, were assumed to be easier to reprogramme than nuclei from differentiated cells that have lost the ability to divide. Cloning from embryonic stem cells is much more successful than from adult stem cells, for example.

Now Jerry Yang of the University of Connecticut, Storrs, and his colleagues have compared mouse blood cells at three stages of differentiation. One group comprised stem cells that could produce all blood-cell types. A second group of cells could make only a hand-

ful of cell types, and a third group was composed of completely differentiated white blood cells called granulocytes.

The granulocytes were easiest to clone. With these cells, 35% of cloning attempts yielded young embryos, compared with 11% in the intermediate group and less than 8% from the stem cells (L.-Y. Sung *et al. Nature Genet.* doi:10.1038/ng1895; 2006).

Scientists have long debated whether cloning is so difficult because reprogramming doesn't work well, or because the few clones produced grew from rare stem cells lurking among the differentiated cells used. Dolly the sheep, hailed as the first mammal cloned from an adult cell, was created from a mammary gland — but some claim she could have come from a stem cell in that tissue.

Previous attempts to clone from fully differentiated cells have been problematic, and it's possible that granulocytes may simply contain particular biochemical factors that make them easy to clone. But if Yang's result holds generally, Dolly may have come from a differentiated cell after all. It would also be good news for the technique of therapeutic cloning, in which researchers hope to clone patients' cells and use the resulting embryos to extract embryonic stem cells to treat disease. ■

Helen Pearson