

Biocentre unites all in seeking key to life

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Physicists, mathematicians, engineers, computing experts and chemists are crossing traditional disciplinary boundaries to join the quest to unravel the meaning of life.

The £36 million Manchester Interdisciplinary Biocentre, the UK's biggest interdisciplinary research centre to date, should be completed in 2006 after eight years of planning and negotiation.

It is being touted as a model of how science will develop in the future. It will house up to 600 staff from a wide range of scientific disciplines pursuing the ultimate goal of understanding living systems by examining their molecular structures.

The impressive glass, copper and stone building - which is currently swarming with builders - has been designed with collaboration in mind.

Individual offices are small, to provide maximum space for a central atrium where scientists can "hot-desk" and discuss projects.

John McCarthy, the director of the centre, said he hoped that it would break the traditional science mould, where research was split into rigid single-discipline departments.

"For political and financial reasons, it is easier to put interdisciplinary scientists into existing school structures - but this is often not an ideal solution," he said. "It is perfectly reasonable to regard yourself primarily as a physicist or a chemist who happens to want to focus on a biological problem. But interdisciplinary researchers increasingly tend to forget the labels and just see themselves as scientists."

Douglas Kell, a professor of bioanalytical science at Manchester University, will direct systems biology at the centre. His mission will be to make a "silicon cell" - a complete representation of the workings of a living cell, using yeast as a model organism. This will require mathematicians, engineers, computer scientists and life scientists to work together.

"This is the sort of science I like to do," Professor Kell said. "One of the purposes of bringing people together from different disciplines is to solve problems that no one alone can solve."

But although terms such as multidisciplinary and interdisciplinary have made their way into standard academic parlance, establishing a centre that embraces them was a tough task.

Professor McCarthy said: "Some people are still sceptical. They are concerned that it threatens the status quo and the way things have traditionally been done. In reality, the provision of interdisciplinary infrastructure offers many advantages to mainstream schools."

He pointed out that while research councils and other funders said they were keen to support work that crosses boundaries, in practice it was often hard to secure funding, with many projects getting lost in the gaps between the councils.

Hot on Manchester's heels, Sheffield University has announced a £20 million multidisciplinary complex, with two new research institutes set to employ about 100 staff in areas such as nanotechnology and tissue engineering.

George Rees, Sheffield's business development manager, agreed that such overarching ventures could be an uphill struggle. "It is very easy to underestimate the challenge. Clearly you need capital and space. You have to persuade world-leading individuals to relocate. You also need someone who is visionary and can see the need to go through the pain."

But he stressed that this need not mean the death of single-subject departments. "We're not suggesting physics or chemistry are about to disappear. On the contrary, you have got to have these strengths on which to draw."

Britain is playing catch-up with the US, which has four interdisciplinary biocentres. Japan and Germany have one each.

Professor McCarthy said: "Culturally in the UK we tend to be relatively conservative. This contrasts somewhat with the more can-do approach prevalent in the US. We are likely to seek reasons why there should be only minimal and incremental change, which slows us down."

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