

connected through the cell membrane to the cytoskeleton. These beads then adhered to the specific binding sites on the cell surface. When the beads were mechanically bumped with a micro-manipulation device, almost instantaneous movements in the nucleus were recorded on the video microscope — nuclear structures called nucleoli lined up, or moved towards the nuclear membrane.

Mechanical manipulation of other areas of the cell membrane, away from the integrin receptors, did not result in the changes in the nucleus, showing that the response was specific; it was not caused by a general distortion of the cell membrane.

Maniotis and others also recently

published evidence showing that the chromosomes and nucleoli are all interconnected in the living cell — by strands of DNA. The apparently isolated nature of chromosomes in fixed cells appears to be an artefact of the preparation procedures.

These findings probably relate to those of Mina Bissell, at the Lawrence Berkeley National Laboratory in California, who showed that mechanical deformation of malignant cells can affect whether they proliferate or not.

These developments amount to a new field of biology and a new level of complexity in the living cell. Not only are there the biochemical systems of control and communication (which

are only partly understood, even in bacteria<sup>2</sup>), but there is a mechanical level of cellular communication and control as well. And then there must be interaction between the two — which will be fascinating to unravel.

How anyone with some knowledge of this complexity can believe it all developed without an intelligent Creator defies logic.

#### REFERENCES

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## New Bat Species Puzzle

A new species of European pipistrelle (bat) was discovered by British scientists after one of them noticed that their voices squeaked at different frequencies. This led to DNA studies, which showed that there were two distinct types of bats living side by side. According to evolutionary reasoning, they are 'divided by 5 to 10 million years of separate evolution'.

However, in reality, the bats not only live together, they are absolutely identical in every way that scientists can measure. Peter Cotgreave of the London Zoo says:

*'The bat people have measured everything you can think of measuring, they have weighed everything you can think of weighing, and they can't tell the difference'*

In this instance, the assumed evolutionary process has altered the genotype (that is, the information on the DNA) drastically over the alleged millions of years. Yet evolution is supposed to operate by way of natural selection, which acts on the phenotype (that is, the expressed physical characteristics of the organism). It would appear to be a significant

challenge to explain how two creatures could exist side by side, deviating so much genetically with not even the faintest trace of an external change.

However, the matter is not quite straightforward for creationists, either. It would be difficult to imagine two such identical creatures, living together, **not** being members of the same 'created kind' originally. The creationist therefore would have to explain how the two became reproductively isolated sympatrically (while living together).

This is not inconceivable — perhaps random mutational mistakes altering the pitch of the bat's squeal coupled with sexual selection for a few generations. Even this way, it would appear that the standard evolution model, with its longer time-span over which the environment can interact with mutational change, has more difficulty accounting for the total **absence** of any other detectable phenotypic change.

Whereas if there is some hitherto unsuspected intrinsic (that is, genetic) mechanism for **rapid** speciation (as some creationist biologists, requiring something like this for post-Flood

radiation, have long suspected) the observed situation may be easier to accommodate.

#### REFERENCES

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