

touching base

Big business

Affymetrix Inc. and Roche Molecular Systems have agreed to join forces to develop a microfabricated chip containing oligonucleotide probes for the detection of mutations in the gene responsible for the fatal lung disease, cystic fibrosis (CF). Stephen Fodor, president of Affymetrix, says that "the Genechip™ system will be configured to detect a panel of 56 important mutations known to cause cystic fibrosis and related diseases." The CF gene would be amplified by a multiplex polymerase chain reaction in some 20 fragments prior to screening. Affymetrix is developing similar technologies for a variety of substrates including specific genes, such as p53 and HIV protease, and whole genomes (mitochondrial DNA, for example).

How gene is my valley

The home of G n thon just outside Paris is poised to become a high-technology corridor or 'genetic valley', attracting the best of international genetics, gene therapy and instrument manufacturing companies by the end of the decade. The 'valley' is already the site of the 'Tr s Grand S quen age' (Very Big Sequencing) Laboratory, owned by Genset and l'Association Fran aise contre les Myopathies (AFM). The sequencing operation generates about one million bases of DNA sequence per day, and aims to have five per cent of the human genome completed by the end of this year. France is keen to develop the area into a spearhead of gene therapy technology, in order (in the words of The French Technology Press Bureau) "to make sure the Americans do not have a stranglehold on future markets".

Nurse on top

It is finally official: Dr Paul Nurse has been named as the next Director-General of the Imperial Cancer Research Fund, succeeding Sir Walter Bodmer, who will become the Principal of Hertford College, University of Oxford, later this year. Nurse, who is 46, is a Fellow of the Royal Society and the former president of the UK Genetical Society. Currently in his second stint at Lincoln's Inn Fields, he will take up his new appointment on 1 September 1996. With an annual budget of more than  50 million at his disposal, Nurse pledges to continue ICRF's war on cancer by focusing on molecular, clinical and epidemiological research.

Desperately seeking dopamine

The reports presented in *Nature Genetics* last month that scientists have uncovered evidence of a link between a normal human personality trait - Novelty Seeking - and a variant of one of the dopamine D4 receptors stimulated a fair amount of media interest. But what if you are anxious to know whether you are an extroverted thrill seeker yet are not a qualified psychologist and do not have immediate access to a thermal cyclotron? Perhaps the character sketch that appeared in the *New York Times* will ring a few bells: according to Natalie Angier, a novelty seeker is someone like "Your flamboyant Uncle Milton who shows up with an armload of presents, bellows his hellos, pretends to pull coins from your ear, knows all the latest disaster jokes and then sits around after the family dinner looking faintly bored."

Speechless in Vancouver

The fourth annual *Nature Genetics* conference, "Genetic Susceptibility & Complex Traits" (full details of which appear elsewhere in this issue), takes place on April 17-19 in Vancouver, British Columbia. More than 200 people have already registered. *Nature Genetics* intends to invite one or two speakers to present their 'late-breaking' research on the final day of the meeting. Readers who feel they might have exciting results to present hot off the bench are invited to contact the Editor during the next few weeks. Alternatively, please send a short summary by fax (202-626-0970) or email (natgen@naturedc.com).

Fig. 1 Mouse in a radial arm maze.

IMAGE
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REASONS

learned the platform position, the mutant mice had difficulty in their ability to acquire or use new information¹². Again, this is a different type of deficit that would be expected from a purely hippocampal disruption.

Despite the growing trend of analysing behavioural flaws in mice, the interpretation of such performance deficits requires caution. Poor performance may reflect limited access to environmental information arising from a sensory deficit, the inability to respond adequately because of a motor deficit and/or the animal's inability to integrate sensory stimuli and motor output appropriately into an effective behavioural strategy. Testing animals in multiple paradigms makes interpretations of deficits more meaningful. Specific sensory or motor deficits can be uncovered and the use of parallel tasks that assess similar neural capabilities, but require different behavioural responses, will determine whether a specific deficit is due to cognitive or performance factors. Also, the lack of a clear behavioural alteration in a gene deletion model does not necessarily mean that the normal gene product does not have an important role. Compensatory mechanisms that would not normally underlie a behavioural response may occur in the absence of this gene product.

Regardless of their sophistication, formal assessments of behavioural capabilities are no substitute for experimental observation of animals in their home cages and with conspecific

control littermates. The recent demonstration of aggression and hypersexuality in gene-targeted nitric oxide synthase male mice was not a predicted finding, but became apparent only after observations of behaviour in home cages².

How far can mouse models carry us toward an understanding of deficits in higher cognitive function in humans? Many experts in mental retardation stress the essential role of language in cognitive development, thus casting doubt on the usefulness of mouse models. This view places little credence in the notion that relatively simple behaviours in mice may provide direct models of much more complex situations in humans. Nonetheless, many researchers are enthusiastically exploiting the obvious strengths of the interface between genetics and behavioural sciences. It seems likely that understanding of the relationship between gene expression and higher brain functions will advance considerably before progress founders for want of a dyslexic mouse: or, to paraphrase Descartes - "*Cogito, ergo mus.*" □

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