

# DNA fingerprinting proposals announced

In May 2000, the Hong Kong SAR Security Bureau and the Public Security Bureau of the PRC announced their joint strategy to perform DNA fingerprinting of migrants to Hong Kong claiming right of abode. This issue is of great concern to the biotechnology sector in Hong Kong. It is estimated that between 170,000 to 250,000 families require further documentary evidence of their right of abode in Hong Kong. The Hong Kong and PRC authorities agreed that obtaining a DNA fingerprint was the most appropriate way of confirming relationships between claimants and Hong Kong permanent residents.

## Implications

The proposals have far-reaching implications for the biotechnology industry in Hong Kong. Under the current proposals, the Government Laboratory will conduct the testing and 8 staff will be recruited specifically to deal with the DNA fingerprinting cases. They will be able to handle about 3,000 cases per year. However, this appears to be far short of the number required. Even if only 10% of the 250,000 expected cases actually require DNA fingerprint analysis, this means 50,000 tests will be needed (assuming 2 persons from each family are tested). A further 5,000 DNA profiles of suspected or convicted criminals will also be performed by the Government Laboratory, under new legislation approved by the Hong Kong Government in July.

## Costs

A key feature of the proposal is that the claimant (usually a child) is tested in the PRC, while the sponsor is tested in Hong Kong. The costs of the testing will be borne by the



applicant and are estimated to be about HK\$1500 for tests conducted in Hong Kong and RMB 1100 for tests conducted in the PRC. However, this cost will probably not cover the capital costs of setting up the laboratory, the salary and benefits of the civil servant scientists, or the annual running costs of the laboratory. The true cost will, therefore, be subsidised by the taxpayer.

## Unscientific

This splitting of samples between Hong Kong and China is highly unscientific. It is virtually impossible to reproduce the test conditions between laboratories. In addition, this procedure also increases the chances of scientific error or deliberate interference with the samples or the results. The process allows the mainland authority in charge of testing to generate a large source of revenue.

## Alternatives

It appears that the Government did not seek any alternatives when they proposed this plan. The Government has stated that it wants Hong Kong to become an international hub for high technology, with molecular biology

## From the Editor

Welcome to the third edition of *Asia Biotechnology Forum*, a monthly online newsletter providing news and information on the events affecting biotechnology in Hong Kong and Asia. This newsletter is provided with the compliments of Hong Kong DNA Chips Limited.

In this issue, the editor responds to growing concerns about the proposed plan by the Hong Kong SAR Government and the Public Security Bureau of the PRC to conduct DNA fingerprint analysis on migrants wishing to claim right of abode in Hong Kong.

being a key component of this strategy. The role of the Government in this situation is to support the infra-structure and encourage healthy competition in a free market. A biotechnology section of the Technology Development Division of the Industry Department has been created specifically to deal with these matters. Instead the Government has taken on the role of testing itself. This directly affects the survival of many smaller biotechnology companies in Hong Kong, some of which were set up specifically with the intention of servicing the tens of thousands of migrants that are due to settle in Hong Kong in the coming years. These companies have now been deprived of a major source of income.

## Stifling

As is common in the high-tech sector, bread and butter services, such as DNA fingerprinting, often subsidise more expensive long-term R&D projects. The Government's proposals to go it alone will have the result of stifling this high-tech research, as no money or technical skills will be returned to the economy.

**Tender**

A more reasonable approach would have been to open up the DNA fingerprinting service to tender, with all interested companies in Hong

Kong submitting their proposals and being selected by efficiency, cost and accuracy. Only in this way will high technology industries, such as biotechnology, be properly served in Hong Kong.

**SUPER salmon leads the way**

**G**eneticists and fish farmers have succeeded in raising a genetically modified (GM) strain of fish that is able to grow more rapidly. The Atlantic salmon (*Salmo salmar*) has been modified to carry a growth



hormone gene derived from the Pacific Chinook salmon

(*Oncorhynchus tshawytscha*) linked to a powerful promoter sequence. This enables the fish to grow quicker and reach market size faster. However, some fear that the GM **Super fish** could wipe out natural populations should it escape into the wild. One way to combat this would be to restrict the raising of GM fish to inland facilities well away from rivers and lakes. Research on transgenic fish is underway with 35 other fish species, including Pacific coho salmon, catfish and tilapia.

**SNPs. The future of medicine?**

**R**ecently, the medical world has been hearing a lot about SNPs. SNPs (pronounced snips) are Single Nucleotide Polymorphisms. The genes that control the myriad functions of the body are not all identical between individuals. Some variations in the DNA sequence occur. When the differences between sequences are as small as a single nucleotide this is termed a SNP. SNPs are passed down from generation to generation and can be used as genetic markers for particular cellular functions or diseases. Why are they important? If a SNP occurs in the coding region of a gene it may alter the structure or function of the gene product. This may be an enzyme that controls a cellular reaction or a structural or other important protein. If the SNP is in the non-coding regulatory region of a gene, it may alter the level of expression of the gene product. Some of the SNPs that are most important from a therapeutic standpoint are those that regulate the response to drugs. Some SNPs are associated with an improved response to a particular medication. Other SNPs are associated with a poor response. If the full complement of SNPs in an individual is known, doctors can reduce side effects by prescribing the most appropriate medication. In the future, drugs may actually be manufactured and dispensed based on the panel of SNPs that a patient possesses. A knowledge of SNPs, therefore, is truly the future of medicine.

**Corporate information**

We hope you enjoyed this edition of **Asian Biotechnology Forum**. If you have any news or topics you would like to see featured in upcoming editions, or you have any comments or queries we would be pleased to hear from you.

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**Next Issue****In ABF October we will focus on**

- GM tomatoes / rice enriched with vitamin A
- Australia / New Zealand GM labelling review
- HKSAR prohibits private DNA testing for right of abode cases
- Bioremediation - GM bugs tackle waste

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**Published & Distributed by:**

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Hong Kong DNA Chips Ltd.  
September, 2000