2. GENETIC TESTING

By: Dr N Athimulam

GENETIC TESTING

Genetic Profiles was established in Malaysia in 1994 and the service is provided by the Chemistry Department, Kuala Lumpur. The laboratory is dedicated to excellence in service and provides the most accurate and powerful proven DNA technology. Chomosome Analysis to detect congenital abnormalities are performed in Institute of Medical Research, National Family Planning Board and Laboratory of Universities in Kuala Lumpur.

TYPES OF CASES BY DNA TECHNOLOGY

A) PATERNITY TESTING
B) FORENSIC SEROLOGICAL PRODUCTS

In the parentage testing services, the following are available.

- 3 party case - samples from mother, child and alleged father are tested to determine if the alleged father is biological father of the child (a paternity test).
- 2 party case - samples from child and alleged father are tested to determine if the alleged father is the biological father of the child (also called motherless case).
- Maternity case - samples from alleged mother, child and alleged father or allerged mother and child are tested to determine if the alleged mother is the biological mother of the child.
- Reconstructive case - A deceased parent's genetic make up can be reconstructed by testing two or more first degree relatives of the decreased. This information can be compared to the child's sample information to perform maternity or paternity test.

Formerly, the technique used in DNA testing was the Restriction Fragment Length Polymorphism (RFLP) technique. Based on the combination of the results from 4 genetic loci, the probability of paternity normally exceeds 99% and calculation is based on the DNA profiling database developed for the three major ethnic groups of the Malaysian population. Currently, PCR (Polymerase Chain Reaction) technique with analysis at the microsatellites (or STR - Short Tandem Repeats) is done. The results are based on analysis at 9 genetic loci and the sex chromosome as well. The probability of paternity established is usually not less than 99%.

Conclusion:

Genetic testing and chromosomal analysis form an integral part of diagnosis. As such, this should be encouraged. However, since genetic experimentation and manipulation would be very difficult to supervise and control in developing countries, there should be discouraged. Amniotic fluid analysis for congenital abnormalities (e.g. Down's syndrome) is an established and acceptable procedure. Genetic testing however, just to determine the socially desired sex of unborn baby must be resisted by the medical profession as a whole.

Note: There are no ethical issues in Forensic DNA profile services especially since samples submitted are solely for purposes of forensic identification whereby the genetic loci analysed are non-coding regions.

Ref: Dept of Chemistry