

## Genetic Research, Population Health and Māori

Annabel Ahuriri-Driscoll (Ngati Porou, Ngati Kauwhata, Ngati Kahungunu, Rangitāne, Ngati Toa), ESR, Maui Hudson (Whakatohea, Ngaruahine, Te Mahurehure), ESR, and Donia Macartney-Coxson, ESR

Early genetic research focused on identifying single genes responsible for specific familial disorders. However, radical technological advancements such as high throughput testing and genome-wide scanning techniques have made it possible to examine complex conditions influenced by multiple genes and environmental factors to determine population susceptibility. Genetic epidemiology studies the distribution of genetic traits and variation within families and populations, risk factors associated with the frequency of genetic traits, and the role of genetic factors in disease aetiology (Khoury, Beaty & Cohen, 1993<sup>1</sup>). This enables the impact of a specific genetic variation on disease risk in an individual or in a population to be estimated (Kaprio, 2000<sup>2</sup>). As the contribution of a single gene variant to disease can be relatively small, it is important to understand not only the contribution of other genetic factors but how these interact with environmental factors to modulate disease risk.

In New Zealand, Māori communities have expressed interest in genetic aspects of health concerns affecting whanau, hapu and iwi. Current genetic studies involving Māori are focused on a range of issues, including stomach cancer, heart disease, diabetes, gout and nicotine metabolism. The association of genetic susceptibility to disease with ethnicity is problematic for population genetic research, with the potential for community disruption, stigmatisation, stereotyping or undermining either through research processes or outcomes (Hausman, 2008<sup>3</sup>). Care needs to be taken to avoid such harm through use of incorrect terms, for example 'Māori genes'.

The benefits of genomic research are in the early stages of being realised. Pharmacogenomic applications are



(Photograph courtesy of Te Waihono a Kupe kapa haka group)

nearing fruition, with testing for genetic variation potentially enabling more specialised and effective drug therapy. In the absence of genetic interventions

however, there remains a reliance on prevention strategies to reduce risk, with many genome study findings reinforcing rather than building on existing health promotion messages. This highlights a key challenge for population genetic research; to communicate more fully not only the potential risks of participation, but realistic timeframes and expectations for the generation of additional or novel benefits. Continuing progress will require ongoing dialogue and understanding, in the context of robust science-community

*\*“Everything we do is about a relationship and beyond the individual but to that collective, for genetic researchers to think about the implications not just for the individual but for the tribe, the iwi, the hapu, all those levels.”*

– Professor Karina Walters  
(Choctaw Nation, USA)

partnerships.

- 1 M.J. Khoury, T.H. Beaty & B.H. Cohen, *Fundamentals of Genetic Epidemiology*, Oxford: Oxford University Press, 1993.
- 2 Jaakko Kaprio, 'Science, Medicine and the Future, Genetic Epidemiology', *BMJ* 2000;320:1257-1259.
- 3 Daniel Hausman, 'Protecting Groups from Genetic Research', *Bioethics* 2008; 22:3, 157–165.