

Characterisation of Nucleic Acids by Nanopore Analysis

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-12.00pm-
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- Abstract -

The goal of our current research is to perform single molecule analysis of base sequences in nucleic acids at rates exceeding thousands of bases per second. To this end, we have found that single-stranded DNA and RNA molecules in solution can be driven through a nanoscopic pore by an applied electric field. As each molecule occupies the pore, a characteristic blockade of ionic current is produced. Information about length, composition, structure and dynamic motion of the molecule can be deduced from modulations of the current blockade. We have also captured single molecules of DNA that have formed complexes with DNA-processing enzymes such as Exonuclease I and the Klenow polymerase. Our expectation is that such enzymatic 'molecular machines' will control the rate of nucleic acid motion through the pore in such a way that single nucleotide resolution can be achieved.

- Venues -

Rankine Brown 106, Victoria University of Wellington
Level 1, Psychology Building, University of Canterbury
Teaching Facilities, South West corner, Information Services Building, University of Otago
Rm 429, Human Sciences Building, 10 Symonds Street, University of Auckland



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