

Scientists find new way to extract diluted and contaminated DNA

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(PhysOrg.com) -- University of British Columbia researchers have developed a new way to extract DNA and RNA from small or heavily contaminated samples that could help forensic investigators and molecular biologists get to “the truth.”

“By exploiting the physical traits of [DNA](#) - electric charge, length and flexibility - we’ve been able to extract DNA from samples that would otherwise not produce enough clean DNA for analysis,” says UBC Biophysics Prof. Andre Marziali.

The technique is being commercialized through Boreal Genomics, a UBC spin-off company, and is expected to have broad applications from basic life-science research to forensic sample analysis, bio-defence and pathogen detection for food safety and clinical diagnostics.

The research team, which includes scientists from UBC and BC Cancer Agency’s Genome Science Centre, details the technique in this week’s Proceedings of the National Academy of Science.

Extracting DNA by conventional methods - which rely on the molecules’ chemical properties - has proven challenging when there are only trace amounts of DNA or when the source sample has contaminants with similar chemical traits.

“We’ve found that DNA and [RNA](#) respond to electric fields in a way that is very different from other molecules,” says Marziali. “By

exploiting this unique property, we were able to extract high quality DNA from a highly contaminated sample from the Athabasca oil sands.”

The team also successfully tested the technique on samples provided by the RCMP.

Provided by University of British Columbia

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