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Dynamic Viscoelasticity as a Rapid Single-Cell Biomarker

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Summary: A rapid non-destructive method to identify differences in cell phenotypes using cell viscoelastic properties

Description: The mechanical properties of living cells are a clear, label-free biophysical marker of cell health and viability. However, current measurement methods are limited by the low measurement throughput rates. A fundamental hurdle to increasing the throughput rate is the cell's response time to an externally applied force typically over cell compliance times, which occurs on the order of seconds. To overcome this limitation, the cell viscoelastic properties can be measured at frequencies far higher than those associated with cell relaxation to identifying significant differences in cell phenotype. This biomarker, combined with novel optical-force methods that enable its measurement, establishes dynamic viscoelasticity as a basis for a non-destructive mechanical analog of current high-throughput cell classification methods (e.g., scattering and fluorescence methods).

Main Advantages of this Invention:

- Non-destructive
- High-throughput (4-5 orders of magnitude greater than current single cell stretching methods)

Potential Areas of Application:

- Biomedical

ID number: # 13021

Intellectual Property Status: US utility patent pending (application #14/307,269).

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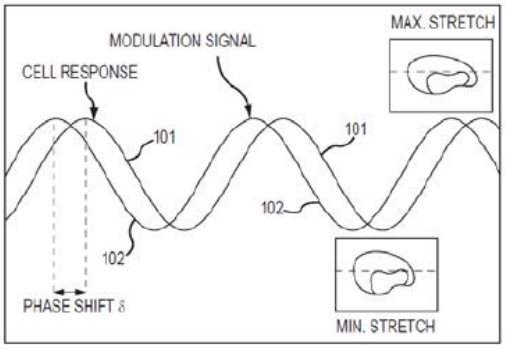
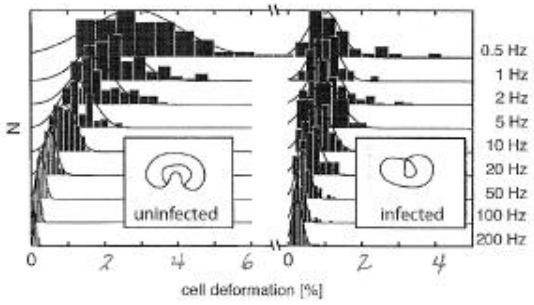
Opportunity: Seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.





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