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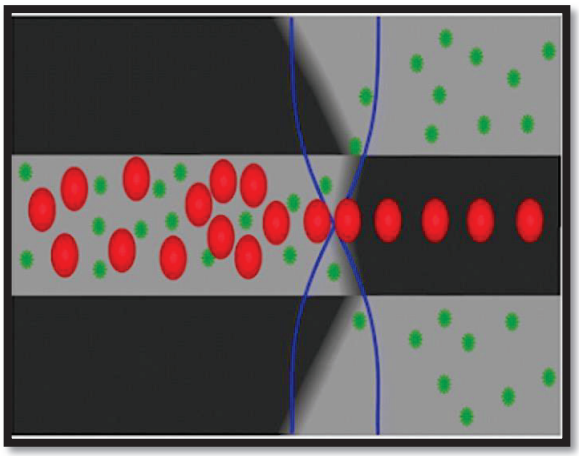
Separation of Nanoparticles via Acustofluidic Flow Relocation



Challenge

Clinical applications in methods of isolating and enriching particles like viruses, bacteria, DNA, etc., require efficiency. Isolation and enrichment of particles with 1 um or smaller size is challenging due to the limitations in instrumentation and the particle size.

Solution

Particles that are smaller than 1 um size can be isolated and enriched by combining acoustophoresis - a method that uses acoustic radiation generated from intense acoustic waves in a liquid medium to manipulate particles and acoustic fluid relocation. By combining these two phenomena, cells and particles can be manipulated continuously.

Benefits and Features

- High sensitivity cell separation
- Separation of particles includes nanoparticles, microparticles, nanoparticles from microparticles, and micron-sized particles from sub-micron-sized particles
- Continuous and rapid cell separation of cells and particles in a flow through manner
- Gentle, label-free, non-contact (hygiene) and high-throughput cell and particle separation technique[1].

Market Potential / Applications

- Clinical applications (red blood cell separation, DNA, viruses, bacteria, etc.)
- Non-contact separation techniques which promotes medical hygiene

Developments and Licensing Status

Status: Available

Commercial sponsor sought? Yes

Patent Status

US Patent Issued US 10,933,429 B2

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EP Patent pending

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Keywords: acoustofluidic, flow-relocation, nanoparticles, acoustophoresis, cell separation

Relevant Publication:

Gayatri Gautam, Rubi Gurung, Frank Fencl, and Menake Piyasena. Separation of submicron particles from micron particles using acoustic fluid relocation combined with acoustophoresis. *Analytical and Bioanalytical Chemistry* **2018**, *410*, 6561-6571.

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