Novel Diagnostic Approach for Lyme Disease Using Cell-Free DNA

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Executive Statement:

A groundbreaking approach to Lyme Disease diagnostics through targeted sequencing of cell-free DNA.

Technology Overview:

This technology involves a novel diagnostic method for Lyme Disease by detecting cell-free DNA (cfDNA) from Borrelia burgdorferi and other Lyme-causing bacteria in blood plasma. By focusing on targeted sequencing assays that identify small genomic fragments, this approach significantly enhances the sensitivity and specificity of Lyme Disease diagnostics. Utilizing the Oxford Nanopore platform, this method enables direct sequencing of fragmented, low-input DNA, offering a powerful tool for early and accurate disease detection.

Key Advantages:

- Enhanced diagnostic sensitivity and specificity
- Ability to detect DNA at low concentrations
- Minimally invasive testing through blood plasma
- Reduction of PCR errors through direct sequencing
- Cost-effective and highly sensitive diagnostic tool

Problems Addressed:

- Early and accurate detection of Lyme Disease
- Reduction of Lyme Disease misdiagnoses
- Identification of Lyme Disease in cases with low bacterial load
- Overcoming limitations of current diagnostic methods that require complete genomes

Market Applications:

- Clinical diagnostics for Lyme Disease and co-infections
- Research tools for studying the genomics of Lyme-causing bacteria
- Development of new treatment strategies based on early and accurate diagnostics
- Potential expansion to other diseases characterized by cf
- DNA