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Hitachi High-Tech and Base 4 to Develop New Nanopore DNA Sequencing System

Hitachi High-Technologies Corporation (TOKYO: 8036, Hitachi High-Tech), a cutting-edge technology company developing and manufacturing scientific and medical systems and Base4 Innovation Ltd. (Base4), the privately-owned Cambridge-based DNA sequencing company today announce that they have entered into a collaborative technology development agreement to develop a long read-length, single-molecule, nanopore-based DNA sequencing system. The system will be based on innovative technology developed by Base4 and state-of-the-art instrumentation developed by Hitachi High-Tech.

The core DNA sequencing technology behind the system is based on the concept of passing a single strand of DNA through a nanometre scale pore and reading out the sequence directly as it does so. To achieve this, Base4 has developed a method of dramatically increasing the signal from this single molecule as it passes through the pore, using laser light enhanced by gold structures. The signal can be read from unlabelled DNA, requiring only minimal sample preparation.

Key features of this system will be its ability to directly read DNA modifications, such as methylation, which is very relevant to the genes associated with cancer, and its ability to achieve long read lengths. This will allow easy analysis of the genetic material, unlike the data from other sequencing systems which can be difficult to analyse and require substantial computing resources.

This collaborative development for unparalleled technologies in the genetic analysis field will enable both parties to contribute to remarkable advances in genome/clinical research.

About Base4

Base4 Innovation Ltd. is a private company located in Cambridge, UK. Base4 is engaged in several development programs of technologies for high throughput DNA sequencing, diagnostics, and single-molecule analysis. For more information on Base4, please visit the company's website at www.base4.co.uk.

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