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Bio-Techne and Oxford Nanopore Technologies partner to bring innovative reproductive health and carrier screening solutions to the market

New collaboration will develop assays that offer a streamlined workflow for analysing even the most challenging genes.

MINNEAPOLIS, Dec. 1, 2022 /PRNewswire/ -- Asuragen, a Bio-Techne brand (NASDAQ: TECH) and Oxford Nanopore Technologies plc (Oxford Nanopore) (LSE: ONT), today announce a collaboration to develop assays designed to deliver more accurate and reliable options for reproductive health and carrier screening. Asuragen will leverage its gold-standard PCR technology with Oxford Nanopore's any-read-length DNA sequencing capabilities to develop the first sequencing system to identify the most challenging yet high prevalence carrier genes in a single, unified workstream that today requires multiple other methods.

Carrier screening identifies at-risk-couples (ARCs) with pathogenic variants associated with severe genetic disorders. This information can be used to determine the residual risk for passing on a condition to their children and help guide reproductive decision-making. Although traditional sequencing methods allow identification of large numbers of genetic sequence variants, they cannot effectively resolve many problematic genes, such as those with tandem repeats, copy number variation, pseudogenes, and structural variation, that are recommended in professional practice guidelines. For example, six of the 10 genes with the most common pathogenic variants in carriers are difficult to genotype using traditional methods, often requiring a complicated and costly combination of solutions.

The expectation to resolve these "hard-to-decipher" genes is also growing. In thelatest recommendations from the American College of Medical Genetics and Genomics (ACMG), screening for more than 100 genes is recommended for all prospective parents, regardless of ancestry or ethnicity and more than a dozen of these genes are known to be significantly "dark" or "challenging" to genotype. Current characterisation of many of these genes requires a patchwork of cumbersome assays spanning different technologies and platforms that are both costly (time, labour, expertise) and provide incomplete data, covering only select pathogenic variants.

With this new collaboration, technical limitations can be addressed by combining two innovations: Asuragen's long-range PCR and Oxford Nanopore's any read-length sequencing capabilities. The integration of these technologies in a single workflow can resolve both challenging genes and conventional genes using a single sequencing system. This project will develop an integrated wet- and dry-bench kit for genotyping 11 genes that are critical for carrier screening, including eight notoriously hard to analyze genes, and will be configured modularly to accommodate multiple use cases for carrier screening. It is

estimated that these 11 genes represent conditions covering ~70% of all pathogenic variants associated with a severe genetic disorder for ARCs compared to bespoke panels that require more than 15 times the number of genes along with multiple technologies to resolve them, including sequencing.

"We are really pleased to be working with Asuragen to develop more robust, reliable and accessible options for reproductive health and carrier screening," said Gordon Sanghera, Chief Executive Officer of Oxford Nanopore Technologies. "Oxford Nanopore's ability to sequence any-length of DNA fragment will help to overcome the technical barriers with the current standard screening. This is especially important as we know that a significant fraction of all disease-causing variation is made up of variants that are larger than a single base-pair substitution, meaning that nanopore-based sequencing can quickly and accurately characterise variants of interest throughout the genome."

"Asuragen has a long history of delivering accurate, dependable and easy-to-run kitted assays that resolve complex structural variants, such as repeat expansions and copy number changes," commented Kim Kelderman, President of Bio-Techne's Genomics and Diagnostics segment. "As clinical labs face increased demand for more informative and equitable carrier screening tests, we look forward to being a trusted partner to help laboratories implement scalable assays for these and other variants by leveraging the best of AmplideX® PCR and nanopore-based sequencing. Our work with Oxford Nanopore's technology and team has demonstrated tremendous promise for how innovations from both companies can be combined to create a complete solution for conventional and challenging genes alike."

The Asuragen kit will include reagents and tools for target enrichment, analysis software, and use a workflow that integrates Oxford Nanopore's library preparation reagents and sequencing instruments. The assay will enable high-volume reference and specialty laboratories to provide more and better information for "hard-to-do" genes, consolidate traditional assays into a single workflow and reduce overall costs in a scalable system framework. This will also enable further decentralisation of reproductive health analysis by providing an easy-to-run, streamlined procedure for laboratories to perform carrier screening in house for those genes that most contribute to the carrier burden in diverse populations.

About Bio-Techne Corporation

Bio-Techne Corporation (NASDAQ: TECH) is a global life sciences company providing innovative tools and bioactive reagents for the research and clinical diagnostic communities. Bio-Techne products assist scientific investigations into biological processes and the nature and progress of specific diseases. They aid in drug discovery efforts and provide the means for accurate clinical tests and diagnoses. With thousands of products in its portfolio, Bio-Techne generated approximately $1.1 billion in net sales in fiscal 2022 and has approximately 3,000 employees worldwide. For more information on Bio-Techne and its brands, please visit https://www.bio-techne.com/.

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About Oxford Nanopore Technologies

Oxford Nanopore Technologies' goal is to bring the widest benefits to society through enabling the analysis of anything, by anyone, anywhere. The company has developed a new generation of nanopore-based sensing technology for real-time, high-performance, accessible and scalable analysis of DNA and RNA. The technology is used in more than 120 countries to understand the biology of humans and diseases such as cancer, plants, animals, bacteria, viruses and whole environments. Oxford Nanopore Technologies products are intended for molecular biology applications and are not intended for diagnostic purposes.

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Forward-looking statements

This announcement contains certain forward-looking statements. Phrases such as "potential", "expect", "intend", "believe we can", "working to", "anticipate", "when validated", and similar expressions of a future or forward-looking nature should also be considered forward-looking statements. Forward-looking statements address our expected future business, and by definition address matters that are, to different degrees, uncertain and may involve factors beyond our control.

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