Waters

NEWS RELEASE

Waters to Help Accelerate Biologics Production Through Research Collaboration With Singapore's Bioprocessing Technology Institute

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Project Explores LC-MS Data Analytics Methods to Rapidly Characterize Complex Biomolecules

NEWS SUMMARY:

- Waters expands collaboration with Bioprocessing Technology Institute, A*STAR into new areas meant to accelerate bioprocessing and bioinformatics research.
- Projects include developing analytical workflows for nucleic acid therapeutic products and bioinformatics research to deliver robust and accurate identification for a variety of biomolecules.
- Researchers seek to improve the speed and accuracy of analytical workflows to help reduce costs, mitigate risks, and accelerate production of biologics.

MILFORD, Mass. & SINGAPORE--(BUSINESS WIRE)--

Waters Corporation (NYSE:WAT) today announced an expansion of its joint work with the Bioprocessing Technology Institute (BTI), a research institute of Singapore's Agency for Science, Technology and Research (A*STAR). Among their new collaborative projects, Waters and BTI have started work on applying analytics that can rapidly identify and visualize complex molecules within glycomics and metabolomics data to help ensure overall safety, accuracy, and speed of biologics manufacturing.

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Waters and BTI are engaging in data analytics research meant to eliminate a major bottleneck in the characterization of biopharmaceuticals, namely the identification and quantitation of complex biomolecules such

as released N- and O- glycans and metabolites that influence therapeutic function. Isomerism of both glycans and metabolites is particularly troublesome and can be tackled using Waters' advanced instruments. However, because the data generated is massive, advanced bioinformatics approaches and machine learning techniques are needed to deliver robust and accurate identification for these and other biomolecules to overcome time-consuming and expensive conventional methods and current analytical software that cannot adequately interpret or visualize the data.

As part of the project, Waters will contribute scientific expertise and the use of Watersinstruments including the **SYNAPT™ series mass spectrometry system** along with a **BioAccord™ LC-MS System**. The SYNAPT instrument features ion mobility mass spectrometry technology to provide complete characterization of complex compounds and molecules. The BioAccord system can be used to monitor product quality attributes in real time that can affect efficacy and safety of innovator drugs and biosimilars.

"Complex structural analyses of a molecule may hold the key to the development of novel therapies, including biologics and cell & gene therapies. The understanding of complex glycan and isomeric compound structures is largely constrained by the ability to rapidly and accurately analyze these structures from raw mass spectrometry data," said Associate Professor Andre Choo, Deputy Executive Director of BTI. "Leveraging BTI's deep domain expertise in bioprocessing technologies and advanced bioanalytical capabilities, BTI and Waters will develop methods that combine data analytics with extensive bioinformatics libraries to ease complex data annotation. Our aim is to make data interpretation easier and faster for scientists to accelerate discovery, for conventional biologics and novel therapeutics."

"Our work with BTI spans multiple successful collaborations in the realm of glycomics and bioprocessing research," said David Curtin, Vice President of Asia Pacific, Waters Corporation. "They are pioneers in biomanufacturing innovation in Singapore with world-class expertise in bioprocess science and engineering. This work aims to help biotherapeutic manufacturers with at-line or in-line measurements of complex molecules to identify issues quickly during routine production and reduce costs or frequency of failed batches."

First established in 2014, Waters' collaborative relationship with BTI has focused on evaluating the performance of a new N-linked glycan label aimed at biopharmaceutical applications, the **GlycoWorks™ RapiFluor-MS™ Glycan Kit**, and its complete workflow – from sample preparation to analysis – for glycosylation profiling.

Additional Resources

- Learn more about **Bioprocessing Technology Institute** (BTI), a research institute of A*STAR
- See previous news releases from Waters & BTI from **2016** and **2017**
- Connect with Waters via **LinkedIn**, **Twitter**, and **Facebook**

About Waters Corporation (**https://www.waters.com**)

Waters Corporation (NYSE:WAT), the world's leading specialty measurement company, has pioneered chromatography, mass spectrometry, and thermal analysis innovations serving the life, materials, food and environmental sciences for more than 60 years. With more than 7,400 employees worldwide, Waters operates directly in 35 countries, including 14 manufacturing facilities, and with products available in more than 100 countries.

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