

Automated prep of MS-sensitive fluorescently labeled N-Glycans with a pipetting robot

April 5 2018



Contour map showing the summed total labeled N-glycan recovery from cetuximab over a range of temperatures for protein denaturation (60C to 90C) along the X-axis and de-N-glycosylation (40C to 60C) along the Y-axis. Credit: Corey Reed

A new original research report available ahead-of-print at *SLAS Technology* demonstrates the semi-automation of a GlycoWorks RapiFluor-MS (RFMS) Kit using a pipetting robot to improve life sciences research productivity. This robotic platform uses standard manual pipettors and an optically guided arm to facilitate the automation of manual procedures, reducing the time researchers spend at the lab bench, and mimicking, as closely as possible, the results obtained when using the manual GlycoWorks RFMS protocol.

The GlycoWorks RapiFluor-MS (RFMS) Kit was launched in 2015 and simplifies the way researchers are able to release and tag N-linked glycans. The kit enables analysts to perform a high-yielding sample preparation and ensures precise and repeatable N-glycans profiles. The RFMS tag is unique in that it provides rapid tagging and supreme sensitivity for both optical and mass spectrometric analyses.

Authors Corey Reed, Jennifer Fournier and Stephan Koza of Waters Corporation (Milford MA) and Nikolas Vamvoukas of Andrew Alliance further simplify this sample preparation [protocol](#) through automation using a commercially available robotics solution from Andrew Alliance. Andrew, the pipetting robot, presents an ideal platform for automation of this kit with its ability to pipette low volumes and adapt to volume variability with customized dominos built specifically for this solution.

To accurately reproduce the results of the manual protocol, temperature sensitive steps are re-optimized for the automated platform and a range of temperatures are tested to achieve maximum N-glycan release efficiency. Following minor adjustments, the automated protocol proves to be statistically comparable to the manual protocol in terms of the recovery of RFMS labeled N-glycans as well as the resulting fluorescence relative peak areas. In addition, a sub-routine in the procedure simplifies the sample concentration normalization process prior to the RFMS protocol, saving users significant amounts of time.

In the end, the authors take a robust and easy to use protocol and successfully expand the benefits to life sciences research by increasing laboratory productivity. Users can now seamlessly transition from the manual protocol to the automated solution, relieving users from monotonous pipetting and controlling key areas of the protocol normally prone to user error.

More information: Automated Preparation of MS-Sensitive Fluorescently Labeled N-Glycans with a Commercial Pipetting Robot can be accessed for free at [journals.sagepub.com/doi/full/ ... 177/2472630318762384](https://journals.sagepub.com/doi/full/10.1177/2472630318762384)

Provided by Society for Laboratory Automation and Screening

Citation: Automated prep of MS-sensitive fluorescently labeled N-Glycans with a pipetting robot (2018, April 5) retrieved 6 May 2024 from <https://phys.org/news/2018-04-automated-prep-ms-sensitive-fluorescently-n-glycans.html>

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