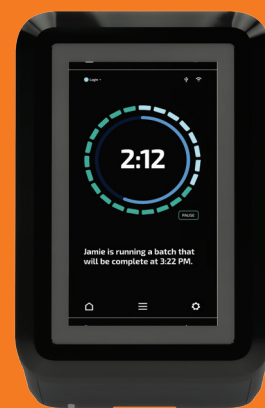


### The Rebel handles non-ionic surfactants in cell media samples with ease.



#### BACKGROUND

Non-ionic surfactants like Tween 20 and Tween 80 can be additives to cell media for a variety of purposes. If Tweens are used at low concentrations, they are considered mild surfactants since they do not interfere with protein-protein interactions. Tweens primarily work to disassociate protein-lipid and lipid-lipid interactions, so they are often used to lyse cells to improve protein extraction and isolate nuclei. Tween may improve protein solubility and secretion, in addition to preventing aggregation and stabilizing high-order structure. In some bioprocesses, Tweens may affect cell viability, growth rates, and biofilm formation. Additionally, Tween containing samples might encounter interference with traditional chromatographic approaches and require extraction or purification procedures for removal before analysis.

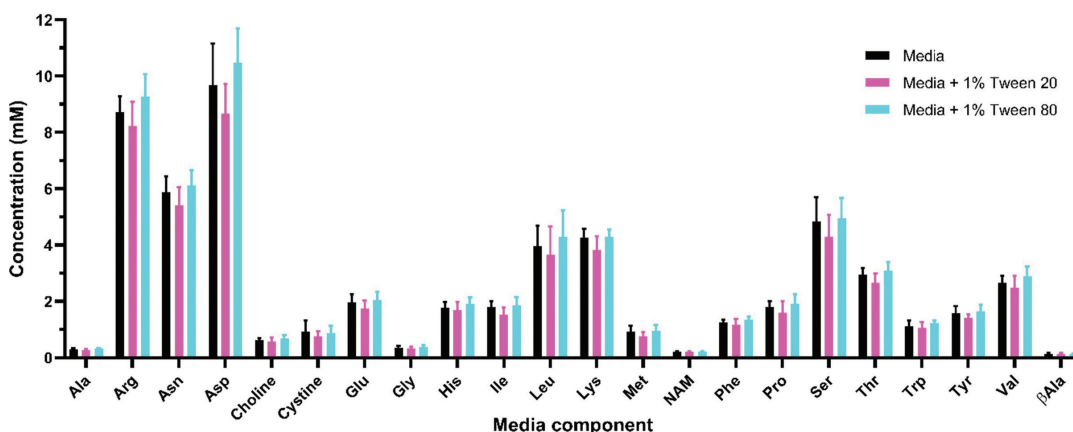
#### THE EXPERIMENT

Individual samples of fresh chemically-defined cell media (without Gln) were prepared with 1 % of either Tween 20 or Tween 80. These two samples, along with the regular media sample, were diluted 100X with the Rebel diluent, placed into a vial, and run for three replicates each on the Rebel with no additional sample preparation. (Figure 1)

#### DISCUSSION

Gentle polysorbate surfactants like Tween have a variety of applications in bioprocessing. To ensure success when sampling from solutions containing Tween 20 or 80, analysis workflows should be screened to ensure no interference or bias is included in the measurements. At

just a single 100X dilution level, the Rebel was able to quantitate 19 amino acids and other media components (e.g., choline, nicotinamide, and  $\beta$ -alanine) in all three samples tested in this study. There was no significant difference in the reported concentrations for any of the analytes in all the samples and replicates that were run. Therefore, there was no evidence of interference with the addition of either 1% Tween 20 or Tween 80 in the chemically-defined cell media. If non-ionic surfactants like Tween 20 or 80 are commonly added to your processes or fermentations, and you do not want to delay your routine cell media analysis measurements, run them at-line on the Rebel.



**Figure 1:** Media component concentrations from chemically-defined CHO media in the presence of the non-ionic surfactant Tween 20 and Tween 80. Error bars are from the standard deviation of  $n = 3$  replicates.

