

### Chemically-defined CHO media variations in dry and liquid media are identified with the Rebel.

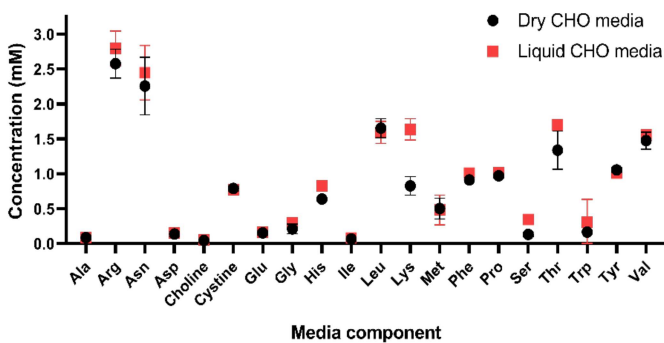


#### BACKGROUND

Chemically-defined CHO media comes in two forms: premixed liquids and dry powders. When deciding which type of media to use, a researcher must decide on the amount of media needed for the project. Liquid media allows for direct use in small format bioreactors, flasks and microplates. Powdered media must be reconstituted into solution, however the shipment and storage of powders is easier and cheaper, so it is often used for larger studies and volumes. Many organizations have dedicated media prep teams and labs to mix formulations of powdered media to simplify the workflows of cell culture and upstream process development labs. Running a quick fresh media assay prior to feeding the culture ensures consistency of the media components when scaling up or during the transition between liquid-to-dry media blends.

#### THE EXPERIMENT

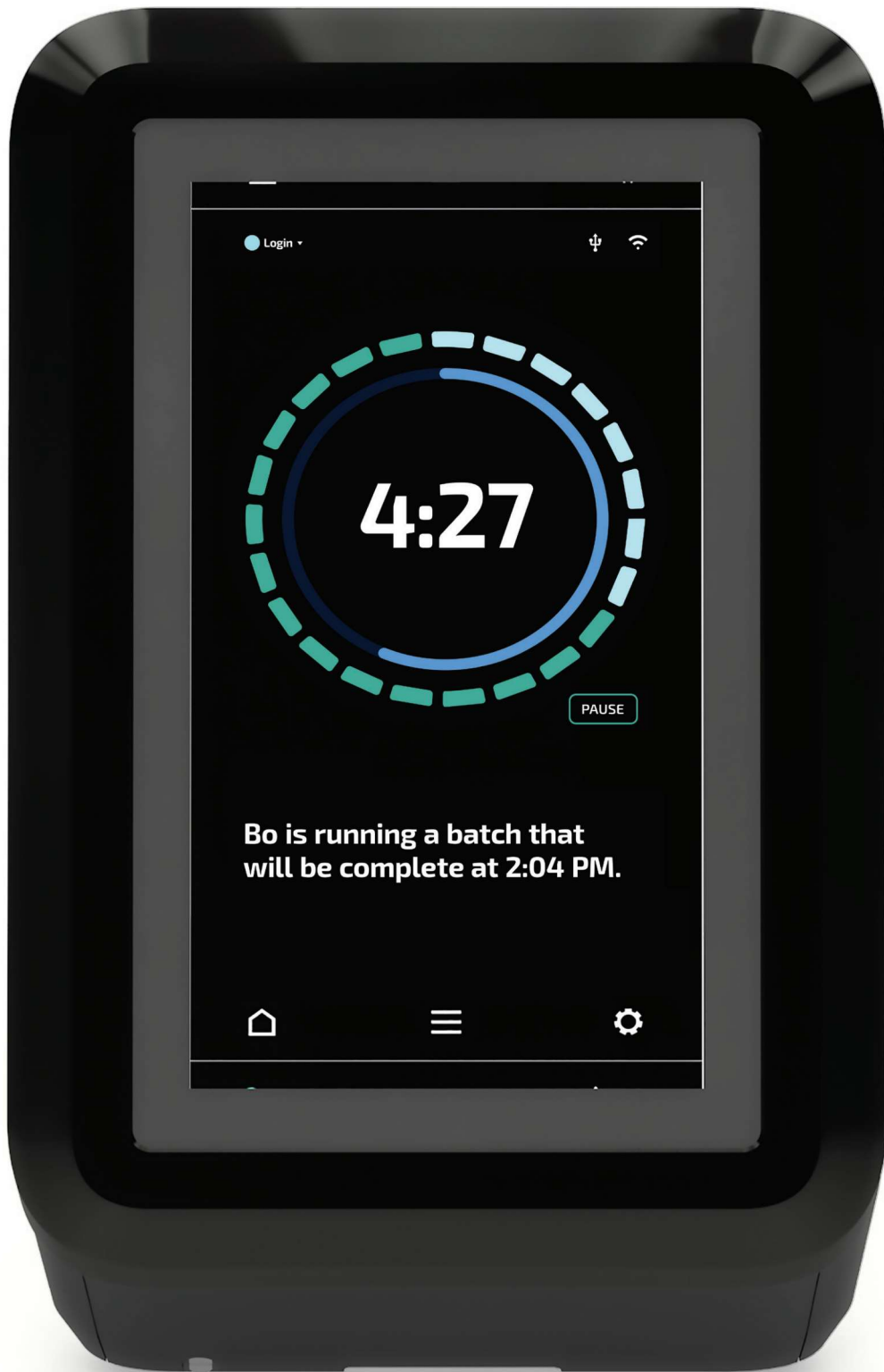
The concentrations reported below are from the analysis of a dry and liquid chemically-defined CHO media formulation (Figure 1). Both media blends came without glutamine. For the dry formulation, the manufacturer’s directions were followed to prepare the media. The samples were diluted 10X with Rebel diluent and the reported concentrations were averages from five replicate tests.



**Figure 1:** Comparison of media component concentrations between dry and liquid formulations of a commercial chemically-defined CHO media.

#### DISCUSSION

The twenty shared media components tracked in this study highlight how there can be differences between the initial forms of media despite the claims that the blends are identical. Sixteen of the components were all within  $\pm 10\%$  of one another in concentration. However, there were four amino acids that differed by more than 20%, and in all cases their concentrations were higher in the liquid media compared to the dry media. His, Lys, Ser and Thr were all lower by 22%, 49%, 62% and 21%, respectively, in the dry media compared to the liquid media. The Rebel affords the ability to quickly screen media prior to adding it to your bioreactor so that variations in the nutrient levels like these can be detected ahead of time. Although the original formulation may be the same, one should not assume that transitioning from the liquid to dry formulation of a chemically-defined media will result in identical values. Storage conditions and mixing may cause shifts in the concentrations of media components so verify the media.



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