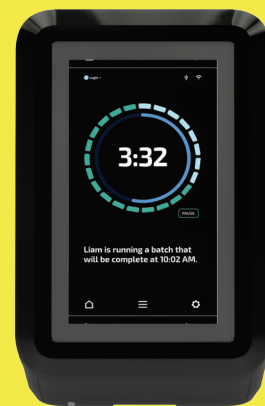


Serum supplemented media analysis is routine with the Rebel.



BACKGROUND

Fetal bovine serum (FBS) is a common cell media supplement due to its supply of growth factors necessary for certain culture processes. FBS is typically supplemented at less than 10% v/v and can be purchased from many commercial vendors. When using media supplemented with FBS, media analysis may be complicated due to the high levels of proteins in solutions. These proteins may interfere by loading preferentially to chromatography columns so specialized sample preparation protocols are required to remove (e.g. precipitate) the proteins. The resulting supernatant is then available for additional preparation and derivatization steps required prior to analysis of media components like amino acids and vitamins.

THE EXPERIMENT

The nutrient composition of a commercially available chemically-defined media (without Gln) was supplemented with FBS at various concentrations (0% - 10%). Samples were diluted 100X with Rebel diluent, placed into a vial and run immediately by the Rebel. No additional protein precipitation step was performed and all samples were run for five replicates. (Figure 1)

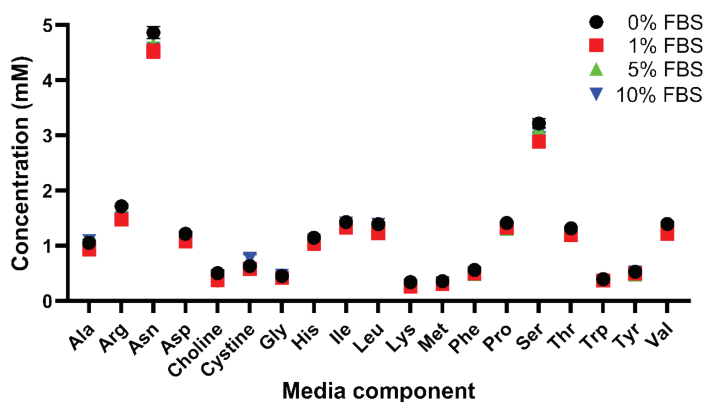


Figure 1: Concentrations of media components in FBS supplemented chemically-defined media tested on the Rebel.

DISCUSSION

FBS supplemented media is common for many cell culture applications, and the Rebel is suited for its analysis. Across all concentrations of FBS supplemented media, there were no major changes in the reported levels of the components. Most components had concentrations between 0.5 and 1.5 mM. Both Asn and Ser had the highest average concentrations of 4.66 ± 0.15 mM and 3.07 ± 0.14 mM, respectively. The lowest concentration components were choline, Gly, Lys, Met, and Trp with average concentrations of 0.42 ± 0.07 mM, 0.44 ± 0.02 mM, 0.30 ± 0.04 mM, 0.33 ± 0.02 mM and 0.38 ± 0.01 mM, respectively. For each media preparation, the average relative standard deviation across all components was 3%. As demonstrated here, at-line media analysis of FBS supplemented chemically-defined media by the Rebel provided precise results without the complexity of additional sample preparation steps like a dedicated protein precipitation. If your process requires FBS supplementation, and you have been struggling to implement media analysis due to the complexity of the media, the Rebel is the tool for the job.

