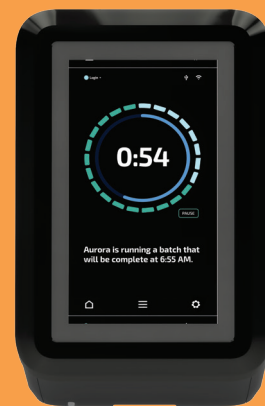


### Investigating the similarities between different vendors' 2X YT liquid media.

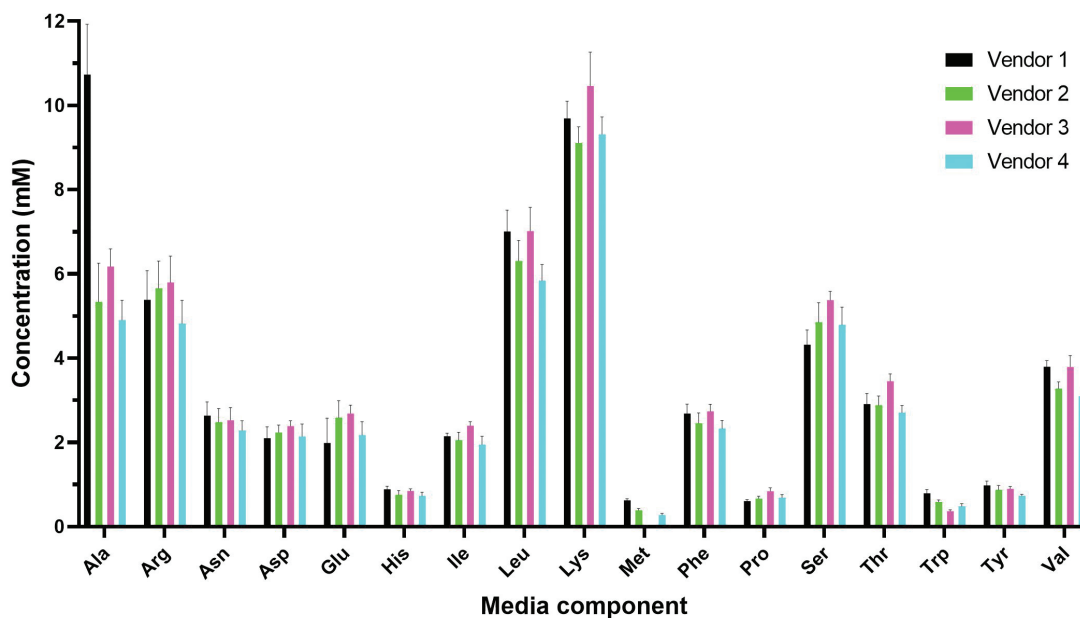


#### BACKGROUND

2X YT media is a traditional media that gets its name from having twice the yeast extract as the traditional lysogeny broth (LB) media. It is commonly used to culture recombinant strains of *E. coli* for DNA, plasmid, or protein production as the tryptone and yeast extract provide sufficient sources of carbon, nitrogen, vitamins, minerals, and amino acids. 2X YT media is also used for the non-selective propagation of M13 bacteriophages since the media provides an appropriate nutrient and growth factor profile to allow the phages to reproduce without stressing or weakening the host cells. Like other microbiological media, 2X YT can be purchased in liquid or dried forms from many commercial sources. Therefore, different levels of the individual nutrients may be observed due to changes in the source and processing methods of the tryptone and yeast extract used in the formulation.

#### THE EXPERIMENT

All commercially available 2X YT liquid media was tested fresh and handled following the manufacturer's instructions. All samples were diluted 250x before analysis on the REBEL with no additional sample preparation. (Figure 1)



**Figure 1:** Media component concentrations from 2X YT media diluted by 250x before analysis. Error bars are from the standard deviation of n = 5 replicates.

#### DISCUSSION

Among the four different vendors tested in this study, Asn, Asp, His, Lys, and Phe all had values within  $\pm 10\%$  of each other. Vendor 1 showed the highest variability from the average concentrations of all the vendors for three amino acids. These amino acids were Ala, Met, and Trp, and they had values higher than the averages by 58%, 45%, and 43%, respectively. At the dilution preparation used in this study, the only undetected amino acid was Met in vendor 3. Researchers can utilize a quick media screen like this to survey their media supplier options to assess vendors' comparability. This test can be standardized when new media is received, during storage, with a supplier or lot change, or a change in the media form (e.g., liquid or dry). Identifying variations in the expected nutrient profile before its use may prevent undesirable culture outcomes like poor growth and low productivity.

