OVERVIEW
A Bioanalytical LC-MS/MS Method for the Determination of a Vitamin E Analog in Human Plasma
J. Jeppson, E. Dibbern and R. Nachi
Celerion, Lincoln, NE USA

INTRODUCTION
The goal was to produce a rugged bioanalytical method for determination of a Vitamin E Analog with unlabeled internal standard. Concerns included lipid build-up on the HPLC column along with carryover and solubility controlled with proper reconstituent and mobile phase methanol concentrations.

METHODS
An aliquot of human plasma (EDTA) containing the analyte and internal standard was extracted using a solid phase extraction procedure. The extraction was done using an extraction apparatus equipped with an AB SCIEX API 4000 triple quadrupole mass spectrometer using an ESI source followed by MS/MS to gain proper stability and compound tracking.

RESULTS

Table 1. Solubility of Compound and Internal Standard in Lower and Higher Methanol.

Table 2. Calibration Curve Standard Concentrations.

Table 3. Matrix Effect.

Table 4. Hemolyzed Sample Integrity.

Table 5. Lipemic Sample Evaluation.

Table 6. Recovery Data of Vitamin E Analog.

Table 7. Carryover Evaluation.

CONCLUSIONS
A rugged bioanalytical method for the determination of a Vitamin E Analog with unlabeled internal standard was produced. With the use of 95% methanol and triethylamine, we were able to separate the ISTD from endogenously occurring Vitamin E in the ISTD channel. Solubility and suppression were controlled by proper reconstituent and mobile phase methanol concentrations. A stable method with a limit of detection of 5 ng/mL passed all validation requirements and was used in preliminary production testing.

ACKNOWLEDGMENT
Authors would like to acknowledge the help of the following: Christina Kubena and Elizabeth Peterson.

Funding for this research was provided by Providence Portland Medical Center.