Validation of Collection and Extraction Methods of Saliva for Use in Biomarker Research
Sarah E. Hurst and Brandon T. Hall
Department of Pharmaceutical Sciences, South College School of Pharmacy, Knoxville, TN 37922

INTRODUCTION
A biomarker is defined as a characteristic that is measured and evaluated as an indicator of a normal biological process, a pathogenic process, or a pharmacologic response to a therapeutic intervention. As such, biomarkers can be a genetic trait, a biochemical change, and/or a change in a structural or functional feature. These parameters are measured either by physical methods, or by using methods of biochemistry and molecular biology providing valuable information on certain disease or metabolic processes. Biomarkers can further be used to identify people who are at risk of a disease years or even decades before symptoms appear. Therefore, one of the most important goals of research in this field is to develop and validate biomarkers that can detect and identify disorders early.

MATERIALS AND METHODS

Saliva Collection
The 1st method is the “drool” method, where the volunteer simply drools into the tube. The 2nd method is the “stimulated” version. Here, the volunteer chews on a piece of parafilm for 1 minute, and then the saliva produced is collected.

Collection Vessel
A commercially available sampling vial made specifically for saliva collection, Oragene•DISCOVER (DNA Genotek) was tested along with disposable centrifuge tubes (Fisherbrand and Corning CentriStar).

RESULTS

Saliva Collection
There is a significant difference in unstimulated vs. stimulated protein expression. This is reasonable as saliva secretion is mainly under autonomic nervous system regulation. Parasympathetic stimulation results in the production of high volume of saliva with low protein concentration while sympathetic stimulation results in low volume, but a greater concentration of proteins.

Acknowledgements
- South College School of Pharmacy
- Laboratory Volunteers (TaKeta Ward)
- Life Technologies
- DNA Genotek
- Promega
- Corning
- Mo-Bio Laboratories, Inc.