LESAs small drug molecules from dried blood spots

**Method**
12 al., fortified lithium heptane blood (Bioanalytical, Inc., USA) was spotted onto Advion TriVersa NanoMate 237 (TriVersa NanoMate, Inc., USA) and dried at 35 °C for 2 hours at room temperature (standard column range: 105,000 ng/mL). Dried spots were mounted on a 96-well plate and analyzed using a microsprayer needle (Advion, TriVersa NanoMate, Inc., USA). Dried blood spot samples were aspirated into a 16 µm microjunction needle from Advion BioSystems, Inc., Ithaca, NY USA and introduced into a TriVersa NanoMate® 1,000 (0.1 µL) emitter with a 300 nL/min, negative ion mode as extraction solvent with a setting of 1.5 µL solvent aspirate/dispense cycles for each sample. LESA parameters used were a pressure assist of 0.9 psi. The TriVersa NanoMate from Advion BioSystems, Inc., is a commercially available instrument for LESA analysis that combines LESA with nanoelectrospray ionization for mass spectrometry.

**LESAs Small Drug Molecules from Dried Blood Spots**

**Method**
Whole guinea pig lung was extracted from the animal, connected to a perfusator and mechanically vented before dosed intratracheally with 3 mg fluticasone propionate in 5 mL air using a microsprayer needle. Tissue was then frozen, sliced in 16 µm thicknesses and placed on glass slides for vacuum drying and further LESA processing. LESA parameters used were a pressure assist of 0.9 psi.

**LESAnalytic of Tissue Sections**

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Whole guinea pig lung was extracted from the animal, connected to a perfusator and mechanically vented before dosed intratracheally with 3 mg fluticasone propionate in 5 mL air using a microsprayer needle. Tissue was then frozen, sliced in 16 µm thicknesses and placed on glass slides for vacuum drying and further LESA processing. LESA parameters used were a pressure assist of 0.9 psi.

**Surface analysis of Rifaximin (SIM transition 499.1/413.0).** (Two volunteers, data points from three consecutive days) HCTZ pharmacokinetic after 0.25 mg/kg oral dose.

**Summary**

- Liquid Extraction Surface Analysis (LESA) is a new and versatile tool in the bioanalytical laboratory.
- The TriVersa NanoMate from Advion BioSystems, Inc., is a commercially available instrument for LESA analysis that combines LESA with nanoelectrospray ionization for mass spectrometry.
- LESA allows direct analysis from dried blood spot (DBS) media with good sensitivity and rapid method development times for small molecule quantification (e.g. HCTZ).
- LESA also provides spatial information for drug distribution studies in tissue sections and allows for drug profiling with a resolution of ca. 1 mm.
- Other areas of use (data not shown) are small molecule analysis from thin tissue sections and allows for drug profiling with a resolution of ca. 1 mm.
- Literature and Acknowledgements


**Literature and Acknowledgements**

1. **Authors:** Daniel Eikel1 and Yoshiharu Naito2
2. 1Advion BioSystems, Inc., Ithaca, NY, USA
3. 2Advion Japan KK, Tokyo, Japan

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