



Breath Analysis Summit 2007: Clinical Applications of Breath Testing

Scientific Meeting of the International Association for Breath Research (IABR)

November 1 - 3, 2007 | Cleveland, Ohio
Intercontinental Hotel & Bank of America Conference Center


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Agenda

THURSDAY, NOVEMBER 1

- 7:00 am Registration, Continental Breakfast & Exhibits
MBNA Conference Center, 3rd Floor
- 8:00 am Opening Remarks and Welcome Address
Brief Overview of Breath Analysis - *Raed A. Dweik*

Exhaled Nitric Oxide: From Discovery, To Instrumentation, To Clinical Application Chairs: *Serpil C. Erzurum, Raed A. Dweik*

- 8:15 am NO from NOS - *Dennis Stuehr*
- 8:45 am Sources of NO in Exhaled Breath - *Benjamin Gaston*
- 9:00 am Technical and Regulatory Aspects of Exhaled NO Measurements - *Phillip Silkoff*
- 9:30 am Clinical Applications of Exhaled NO - *Raed A. Dweik*
- 9:45 am Refreshment Break, Exhibits, Posters

Selected Abstract Presentations (non-CME)

- 10:00 am Lung Diffusion Capacity for Nitric Oxide and Carbon Monoxide: Methodological Issues and Reproducibility - *Werner Steinhäusser*
- 10:10 am Exhaled Nitric Oxide as Noninvasive Markers of Airway Inflammation from Work Exposures - *Massimo Corradi*
- 10:20 am Changes in Concentrations of Carbon Monoxide and Nitric Oxide in Breath and Skin Gas during Smoking Cessation and Restart - *Kazutoshi Nose*
- 10:30 am Nitric Oxide Breath Analysis with a Room Temperature Infrared Laser System - *Joanne Shorter*
- 10:40 am A Fresh Approach to Exhaled Nitric Oxide Measurement using a Fast-Response, Low-Cost Electronic Indicator - *Leiah Greenham*

- 10:50 am Novel Electrochemical Nitric Oxide Gas Sensor for Breath Analysis - *Kerstin Wex*
- 11:00 am Panel Discussion

Moderator: *Serpil C. Erzurum*

Panel: *Denis Stuehr, Benjamin Gaston, Phillip Silkoff, Raed Dweik*

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Mass Spectrometry and Benchtop Instrumentation

Chairs: *David Smith*

Overview and Technical Aspects of Mass Spectrometry Technologies

- 11:30 am Introduction and Overview - *Anton Aman*
- 12:00 pm Current Advances in SIFT-MS - *Patrik Spanel*
- 12:15 pm Metabolites in Human Breath - *Jörg Ingo Baumbach*
- 12:30 pm Lunch, Exhibits, Posters

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Breath Analysis by Mass Spectrometry

Chair: *Patrik Spanel*

Selected Abstract Presentations (non-CME)

- 1:30 pm The Combined use of Thermal Desorption and Selected Ion Flow Tube Mass Spectrometry for the Quantification of Volatile Compounds in Breath - *Brian Ross*
- 1:45 pm Optimized Set-Up for On-Line Breath Analysis with PTR-MS - *Jens Herbig*
- 2:00 pm Time Resolved Monitoring of VOC Concentration Profiles in Breath along the Expiratory Phase - *Siegfried Praun*
- 2:15 pm Longitudinal Study to Observe Qualitative Variation in Male Breath over a Five Day Period, using 2-Dimensional Gas Chromatography and Time of Flight Mass Spectroscopy - *Simon Stevens*
- 2:30 pm Analysis of Volatile Metabolites from Cultured Bacteria by Gas Chromatography/Atmospheric Pressure Chemical Ionization-Mass Spectrometry - *Masako Ishimaru*
- 2:45 pm Identification of Specific Volatile Organic Compounds from Mycobacteria in Vitro - *Mona Syhre*
- 3:00 pm Stress Responses during Parabolic Flight Maneuvers are Reflected by Changes In Expiratory Air - *Alexander Chouker*
- 3:15 pm Refreshment Break, Exhibits, Posters

Poster Sessions: Technical Aspects of Mass Spectrometry Technologies

SIFT-MS Analyses of the Breath of Volunteers in Three Age Groups - *Kseniya Dryahina*

Expiratory Air Analyses by Online Mass Spectrometry: Co₂ vs Isoprene Controlled Detection Of Alveolar Gas - *Michael Dolch*

On-Line Analysis of End-Expiratory AI in Mechanically Ventilated Patients using Ion-Molecular-Reaction Mass Spectrometry - *Michael Dolch*

A Comparison of the Volatiles from the Breath, Urine and Stool of Asymptomatic Male Humans Using 4D TOF GCMS - *Norman Ratcliffe*

Interference of CFC-Containing Inhalers with Measurements of Volatile Organic Compounds using Selected Ion Flow Tube Mass Spectrometry - *Michael Epton*

A Preliminary Study of Oral and Lung Breath in Patients with Oral Malodour using Selected Ion Flow Tube Mass Spectrometry - *Brian Ross*

Ion Mobility Spectrometry for Metabolic Profiling of Human Breath - *Jörg Ingo Baumbach*

Posters: Breath Condensates and Sensor Arrays

Breath Analysis: Relationship between Expiratory Parameters and Ethanol Consumption - *Fukuoka Yu*

Volatile Components in Exhaled Breath Condensate Compared with On-Line Breath Analysis Using SIFT-MS - *Patrik Spanel*

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Exhaled Breath Condensate Chair: *Benjamin Gaston*

3:45 pm Clinical Applications of EBC Testing - *John Hunt*

4:10 pm EBC in Children: Present Knowledge and Future Perspectives - *Silvia Carraro*

4:30 pm Differentiation of Origin of Markers in Exhaled Breath Condensate by Fractionated Sampling - *Gunther Becher*

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Electronic Nose and Sensor Arrays Chairs: *Alan Gelperin, C. William Hanson, Erica Thaler*

4:45 pm Nanotube-Based Sensor Arrays for Clinical Breath Analysis - *Alan Gelperin*

5:15 pm E-Nose, E-Ear, E-Eye: Imaging with Chemical Sensors for Disease Diagnosis and Treatment - *Joseph Stetter*

Selected Abstract Presentations (non-CME) Technical and Clinical Aspects of Sensor Arrays

- 5:45 pm Chemical Microsensor Arrays for Trace Analytes in Complex Gas Mixtures - *Kurt Benkstein*

- 5:55 pm Diagnosis of Sinusitis using a Colorimetric Electronic Nose - *Erica Thaler*

- 6:05 pm A Longitudinal Study of Healthy Individuals to Assess the Variation in the Simple Breath Gases Hydrogen, Hydrogen Sulphide, Ammonia, Ethanol and Carbon Monoxide - *Ben de Lacy Costello*

- 6:15 pm The Characteristics of Novel Low Cost Sensors for Volatile Biomarker Detection - *Norman Ratcliffe*

- 6:25 pm Recognition of Biofilm-Forming versus Non-Biofilm-Forming Bacteria using Electronic Nose - *Dan Huang*

- 6:35 pm Closing Remarks - *Raed A. Dweik and Gary Hunter*

- 6:50 pm Adjourn

- 7:00 pm Reception and Poster Session
Chairs: *Marco Freek, Daniel Laskowski, Metin Aytekin*

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FRIDAY, NOVEMBER 2

- 7:00 am Registration, Continental Breakfast & Exhibits
MBNA Conference Center, 3rd Floor

- 8:00 am Standardization Issues: Sampling, Quantification, Background Subtraction, and Standards
Chair: *Terence Risby*

- Standardization Issues: Sampling, Quantification, Background Correction, and Units
Terence Risby

- 8:30 am Panel Discussion: Standardization Issues
Moderator: *Terence Risby*
Panel: *Nandor Marczin, Jochen Schubert, Joachim Pleil*

- Selected Abstract Presentations (non-CME)**

- 8:50 am Online-Monitoring of Lipid-Peroxidation Markers in Exhaled Breath by Mass Spectrometry - *Michael Dolch*

- 9:00 am Implementation of Fowler's Method for Alveolar Air Sampling - *Fabio Di Francesco*

- 9:10 am Variability Issues in Determining Concentration of Isoprene in Human Breath by PTR-MS - *Svorad Stolc Jr.*

- 9:20 am Comparison of the Levels of some Breath Gases Originating Systemically and in the Mouth And Airways - *Tianshu Wang*

9:30 pm Detection of Monobromamine, Monochloramine, and Dichloramine using selected Ion Flow Tube - Mass Spectrometry (SIFT-MS) - *Michael Epton*

9:40 am Refreshment Break, Exhibits, Posters

Poster Session

Measurement of Volatile Organic Compounds in Expiratory Air Generated during Electrocautery - *Michael Dolch*

Real-Time Monitoring of Propofol in Expiratory Air in Children during Total Intravenous Anesthesia - *Michael Dolch*

Real-Time Monitoring of Propofol in Expiratory Air using Ion-Molecular-Reaction Mass Spectrometry - *Michael Dolch*

Fractionated Collection of Exhaled Breath and; Analysis of Exhalable Metabolites by Using IMS - *Gunther Becher*

Different Ion Mobility *Spectrometers* as Detectors of Breath Volatiles - *Veronika Ruzsanyi*

Reproducible Measurement of Acetone in Breath using Selected Ion Flow Tube-Mass Spectrometry - *Michael Epton*

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Environmental Considerations

Chairs: Joachim Pleil

10:00 am Role of Exhaled Breath Biomarkers in Environmental Health Science - *Joachim Pleil*

Selected Abstract Presentations (non-CME)

10:30 am Quantitation of 1,3-Butadiene Kinetics using Exhaled Breath Concentrations as a Biomarker of Exposure - *David Kim*

10:45 am Measurements of Air Pollutant Biomarkers with Exhaled Breath Techniques - *Michael Madden*

11:00 am Recent Developments in Human Biomonitoring: Non-Invasive Assessment of Target Tissue Dose and Effects of Pneumotoxic Metals (Review) - *Antonio Mutti*

11:15 am Exhaled Nitric Oxide as Noninvasive Marker of Airway Inflammation in Occupational Settings - *Massimo Corradi*

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Mass Spectrometry and Benchtop Instrumentation II Clinical Application of Mass Spectrometry Technologies

Chair: Hideo Ueda

11:30 am Overview of Mass Spectrometry and Clinical Applications - *Hideo Ueda*

12:00 pm Absolute Levels of some Trace Metabolites in Human Breath and their Distributions - *David Smith*

12:30 pm Lunch, Exhibits, Posters

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Clinical Application of Mass Spectrometry Technologies
Chair: Hideo Ueda

Selected Oral Presentations

- 1:30 pm A Breath Test to Determine Total Body Water from Deuterium Dilution: Does It Add Value in the Assessment of Fluid Status in Haemodialysis Patients? - *Simon Davies*
- 1:40 pm Analysis of the Breath of Children with Cystic Fibrosis and Asthma - *Beth Enderby*
- 1:50 pm ¹³C/¹²C-Stable Isotope Breath Tests -The Different and Successful Concept of Breath Testing! - *Guenter Wagner*

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Selected Topics in Clinical Breath Testing
Lung Cancer screening: Can breath analysis meet the Challenge?
Chairs: Peter Mazzone, Anton Amann, Raed A. Dweik

- 2:00 pm Overview of Screening for Lung Cancer and the Role of Breath Analysis - *Peter Mazzone*
- 2:30 pm Detection of Lung Cancer by Analysis of Exhaled Breath - *Anton Amann*

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Breath Testing in the Critically Ill: Achievements and Challenges
Chairs: Jochen Schubert, Nandor Marczin

- 3:00 pm Crescendo or Diminuendo for Exhaled Breath Monitoring of Acute Lung Injury?: From Exhaled Nitric Oxide to Gas Phase Metabolomics - *Nandor Marczin*
- 3:30 pm Refreshment Break, Exhibits, Posters

Poster Session

Early Lung Cancer Detection using Ion Mobility Spectrometry Data of Human Breath - *Jörg Ingo Baumbach*

Detection of 2-Pentylfuran in the Breath of Patients with Chronic Lung Disease Who Have Been Colonised or Infected with *Aspergillus Fumigatus* - *Mona Syhre*

Breathhydrogen Gas for Monitoring Movement of Intestinal Gas in Patients with Small-Bowel Pseudo-Obstruction - *Yoshihisa Urita*

Delayed Appearance of Ethanol and Acetaldehyde in the Skin Gas after Alcohol Ingestion - *Akito Shimouchi*

Release of Volatile Organic Compounds (VOCS) from the Lung Cancer Cellline A549 in Vitro: Possible Use as Tumor Markers - *Anton Amann*

Measurement of Acetone and Isoprene in Exhaled Breath and its Significance - *Hideo Ueda*

Selected Abstract Presentations (non-CME)

Chair: *Anton Amann*

- 4:00 pm Early Volatile Organic Compounds in the Diagnosis of Necrotizing Enterocolitis - *Katu*

- 4:00 pm Faecal volatile Organic Compounds in the Diagnosis of Necrotising Enterocolitis - *Katy Garner*
- 4:15 pm Analysis of Volatile Organic Compounds in Exhaled Breath from Liver Disease Patients - *Tanzeela Khalid*
- Breath Analysis - *Makoto Sawano*
- 4:45 pm Selected Ion Flow Tube-Mass Spectrometry (SIFT-MS) Measurement of Breath Ammonia Reduction Ratio (ARR) Measures Dialysis Efficacy - *Jenny Scotter*
- 5:00 pm Volatile Analyses of the Headspace of Urine for the Diagnosis of Disease in Humans - *Steve Smith*
- 5:15 pm Changes in the Mass Spectrums of Breath and Skin Gas during Exercise - *Akito Shimouchi*
- 5:30 pm Gastric Air Bubble may Reflect Functional Disorder of Lower Esophageal Sphincter - *Yoshihisa Urita*
- 5:45 pm Closing Remarks - *Raed A. Dweik and Gary Hunter*
- 6:00 pm Reception of the Austrian Federal Ministry of Economy

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SATURDAY, NOVEMBER 3

- 7:00 am Continental Breakfast & Exhibits
MBNA Conference Center, 3rd Floor

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New and Cutting Edge Sensor Technologies Moderator: *Gary Hunter*

- 8:00 am Overview - *Gary Hunter*

Selected Abstract Presentations (non-CME)

- 8:30 am Online Measurement of Acetone in Expiratory Air by Mass Spectrometry during Cardiac Surgery - *Michael Dolch*
- 8:45 am PTR-MS Analysis of Microbial VOCS for the Detection of Pathogens - *Michael Bunge*
- 9:00 am Novel Microfabricated Sensors for Real-Time Breath Analysis - *Cristina Davis*
- 9:15 am Breath Biomarker for Infectious Disease Measured using a Laser Based Sensor - *Chad Roller*
- 9:30 am Development of a Compact Optical Sensor for Real-Time, Breath-by-Breath Detection of Oxygen - *Conor Burke*
- 9:45 am Chemical Sensors based on Nanowires of Discotic Molecules - *Yael Zilberman*
- 10:00 am Refreshment Break & Exhibits

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Selected Topics: Society and Applications
Chairs: Anton Amann, Raed A. Dweik, Gary Hunter

Selected Abstract Presentations (non-CME)

- 10:20 am Breath Tests in Personalized Medicine: A Comprehensive Overview - *Anil Modak*
- 10:35 am Relationship between Expiratory Gases and Obesity in a Japanese Population - *Yamai Kiyonori*
- Relationship between Expiratory Carbon Monoxide and Irritable Bowel Syndrome Species in a Japanese Population - *Yamai Kiyonori*
- Relationship between Expiratory Carbon Monoxide and Diabetes Mellitus in a Japanese Population - *Yamai Kiyonori*
- Relationship between Expiratory Gases and Habitual Physical Activity in a Japanese Population - *Yamai Kiyonori*
- 10:55 am What is Needed to Take an Innovation into Clinical Practice? - *Mats Carlson*
- 11:10 am A Portable Unit for Metabolic Analysis (PUMA) - *Daniel Dietrich*
- 11:25 am Breath Analysis of Tuberculosis with Differential Mobility Spectrometry - *Jose Trevejo*
- 11:40 am Panel Discussion: Future Directions
Moderators: *Gary Hunter, Raed Dweik and Anton Amann*
Panel: *Serpil C. Erzurum, Benjamin Gaston, Alan Gelperin, Gary Hunter, Nandor Marczin, Joachim Pleil, Terence Risby, Jochen Schubert, David Smith, Patrik Spanel, Hideo Ueda*
- 12:15 pm Closing Remarks
- 12:30 pm Adjourn

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