



Innovative Lipidomics Technology for Biomarker Identification and Precision Medicine

Dr. Oliver Uecke

Head of Business Development and Finance

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Spin-off from



Awards



1st Price of
Innovation
Competition:
"C3 Emerging
Industries 2015"

Lipotype – Lipidomics for a better life



- Max-Planck spin-off company from Dresden, Germany
- Lipotype MS-Shotgun Lipidomics Technology
- Lipid analysis: high-throughput, broad coverage of lipids, absolute quantitation

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Blood lipid analysis



Today

2 Parameters:

- Triglycerides
- Cholesterol: LDL ("bad") and HDL ("good") cholesterol

Future

100s of Parameters:

- Many Triglyceride molecules
- Many esterified cholesterol
- Glycerophospholipids
- (Glyco-)Sphingolipids

Lipids in diseases: Diabetes



Research article



Lipid profiling identifies a triacylglycerol signature of insulin resistance and improves diabetes prediction in humans

Eugene P. Rhee,^{1,2} Susan Cheng,^{3,4,5} Martin G. Larson,^{3,6} Geoffrey A. Walford,^{7,8}
Gregory D. Lewis,^{2,5} Elizabeth McCabe,^{3,5} Elaine Yang,² Laurie Farrell,⁵ Caroline S. Fox,^{3,9,10}
Christopher J. O'Donnell,^{3,5,10} Steven A. Carr,² Ramachandran S. Vasan,^{3,11}
Jose C. Florez,^{2,7,8} Clary B. Clish,² Thomas J. Wang,^{3,5,12} and Robert E. Gerszten^{2,5,12,13}

Lipids in diseases: Alzheimer's



LETTERS

nature
medicine

Plasma phospholipids identify antecedent memory impairment in older adults

Mark Mapstone¹, Amrita K Cheema^{2,3}, Massimo S Fiandaca^{4,5}, Xiaogang Zhong⁶, Timothy R Mhyre⁵, Linda H MacArthur⁵, William J Hall⁷, Susan G Fisher^{8,14}, Derick R Peterson⁹, James M Haley¹⁰, Michael D Nazar¹¹, Steven A Rich¹², Dan J Berlau^{13,14}, Carrie B Peltz¹³, Ming T Tan⁶, Claudia H Kawas¹³ & Howard J Federoff^{4,5}

Lipotype ShotgunLipidomics



The Lipotype Shotgun Lipidomics workflow



Our lipid analyses provide:

- › high-throughput (200 samples per day)
- › broad coverage of lipids (more than 2,300 individual lipids)
- › absolute quantification of lipids
- › robustness of results

- **Broad coverage and absolute quantitation:**
 - Blood plasma: Quantification of 19 lipid classes, comprising >400 individual lipid molecules
- Sensitivity: sub- μ M
- Technical variation < 15%
- **High-Throughput:** 200 samples per day
- 5 minutes per sample MS time

Eur. J. Lipid Sci. Technol. 2015, 117, 0000–0000

Research Article

An automated shotgun lipidomics platform for high throughput, comprehensive, and quantitative analysis of blood plasma intact lipids

Michal A. Surma¹, Ronny Herzog¹, Andrej Vasilj¹, Christian Klose¹, Nicolas Christinat², Delphine Morin-Rivron², Kai Simons¹, Mojgan Masoodi² and Julio L. Sampaio¹

¹ Lipotype GmbH, Dresden, Germany

² Nestlé Institute of Health Sciences S.A., Lausanne, Switzerland

Broad applicability



- Automated sample extraction for:
 - Blood plasma/serum
 - Erythrocytes
 - Cerebrospinal fluid
 - Urine
 - Tissues:
 - Muscle
 - Brain
 - Kidney
 - Liver
 - Cell culture
 - Model organisms

Customers



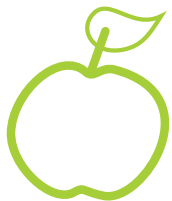
Biotech and pharma industry, clinical research

clinical screening and diagnostics, biomarkers



Academic research

lipid analysis of various model organisms



Food industry

proof of efficacy of functional food/nutraceuticals

Customers



Biotech &
pharma
industry

Pharma and biotech companies (under NDA)

Food
industry

**Nestlé Institute of
Health Sciences**



Academia



Max-Planck-Institut
für Experimentelle Medizin



Yale University
School of Medicine

Universitätsklinikum
Carl Gustav Carus
DIE DRESNER.



DZD
Deutsches Zentrum
für Diabetesforschung

Paul Langerhans Institute Dresden of Helmholtz Center Munich
at the University Clinic Carl Gustav Carus of TU Dresden



CBG
Max Planck Institute
of Molecular Cell Biology
and Genetics



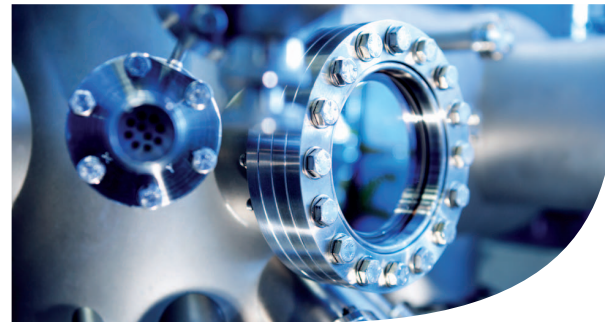
Clinical research, pharma, biotech – biomarker discovery



CUSTOMER REFERENCE

Biotech and pharma industry, clinical research: *clinical screening and diagnostics, biomarkers*

Lipotype GmbH and Lund University perform study with blood samples of 2000 patients to identify disease related lipid biomarkers



- Analysis of 2000 blood samples for lipid biomarker identification

We are looking for:



Customers & collaboration partners:

- R&D collaborations (e.g. within IMI2 grant) for biomarker identification
- Service provider relationship
- Licensing of Lipotype technology platform

Investors

- To fund our R&D to enter the clinical diagnostics market

Do you want
to raft
with us



**Lipids, lipidomics and rafting
belong together!**

Thank you!

Dr. Oliver Uecke
uecke@lipotype.com
Tel: 0049-351-7965344

www.lipotype.com

