

# HUMAN METABOLOME TECHNOLOGIES, INC.

## INTRODUCTION TO HMT'S METABOLOMICS



HMT'S HQ is located in the northern Japan.

# INTRODUCTION TO WHO WE ARE



Sakura in full bloom in April

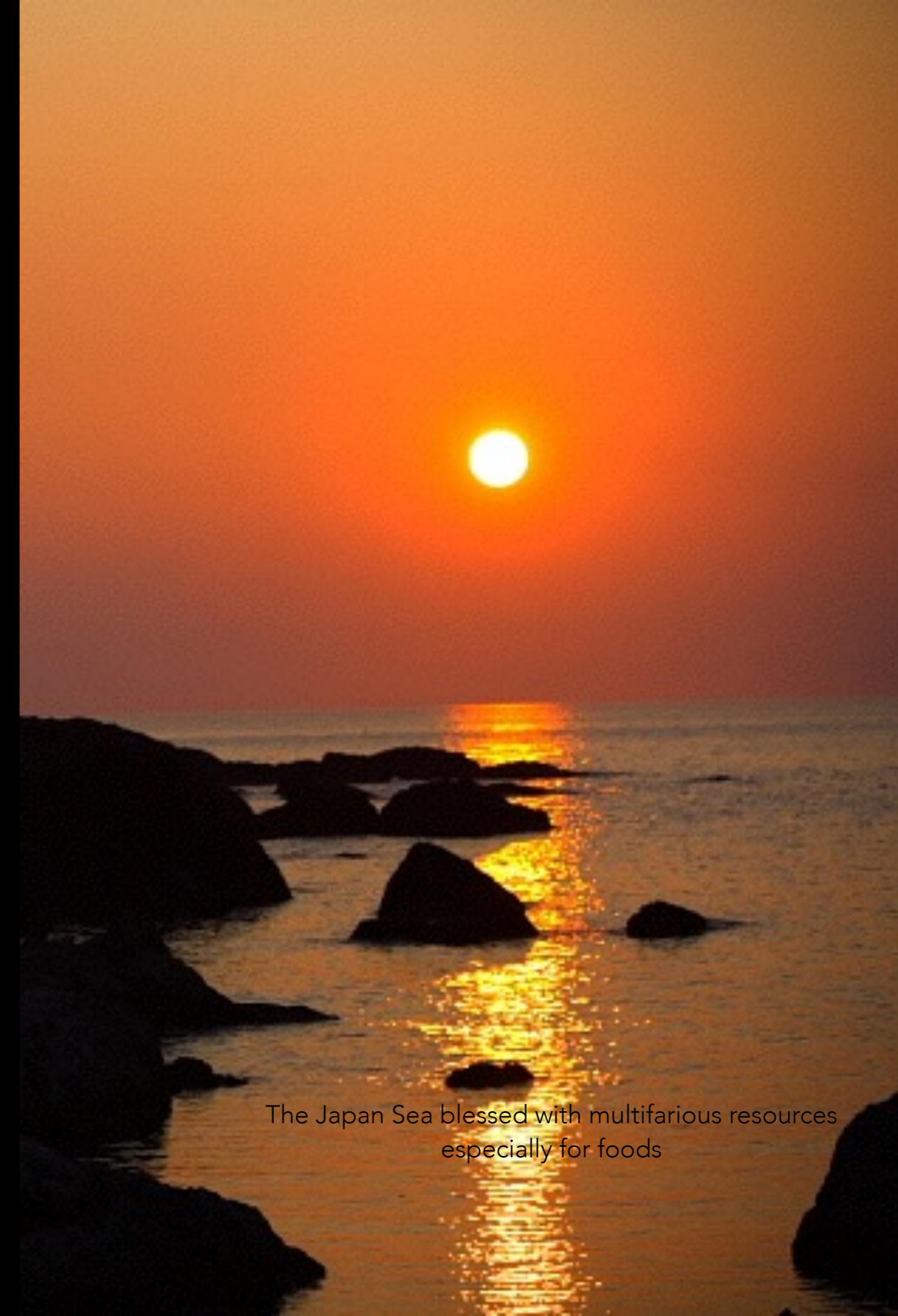
# HUMAN METABOLOME TECHNOLOGIES

- **BUSINESS**  
COMMISSIONED METABOLOME  
ANALYSIS  
BIOMARKER DEVELOPMENT
- **HISTORY**  
FOUNDED ON JULY 1, 2003  
IPO (TSE MOTHERS) ON  
DECEMBER 24, 2013
- **OFFICES**  
TSURUOKA, YAMAGATA, JAPAN  
(HQ)  
TOKYO & KYOTO, JAPAN  
BOSTON, MA, USA (AFFILIATE)
- **CLIENTS**  
COMPANIES (PHARMACEUTICAL,  
FOOD, CHEMICAL, COSMETIC)  
RESEARCH INSTITUTIONS  
UNIVERSITIES
- >350 PROJECTS/YR IN 2013



Heavy snow around the HQ

# WHAT IS METABOLOMICS?



The Japan Sea blessed with multifarious resources  
especially for foods

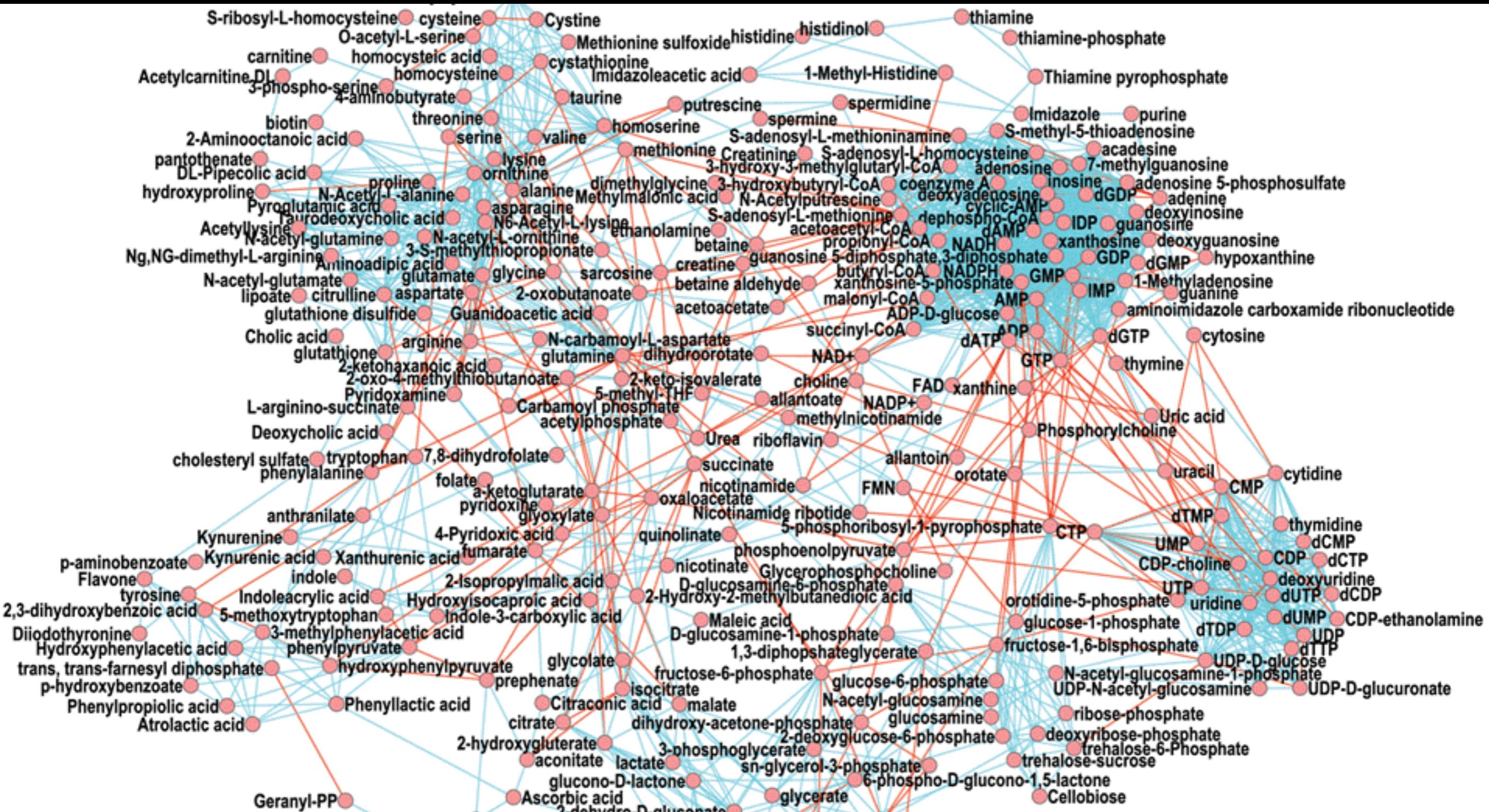
“Metabolomics is the scientific study of chemical processes involving metabolites. ”

-WIKIPEDIA

UNDERSTANDING

# HOW METABOLOME WORKS

AMINO ACIDS, ORGANIC ACIDS, NUCLEOTIDES, VITAMINES, PHOSPHATE COMPOUNDS, PEPTIDES, FATS, SUGARS AND SO ON



METABOLOME EXISTS IN EVERYWHERE AROUND US  
HUMAN, ANIMAL, PLANT,  
FOOD, DRINK, INSECTS, SOIL



# KEY APPLICATIONS

- BIOMARKER SEARCH
  - DRUG EFFICACY
  - FUNCTIONAL COMPOUND SEARCH
  - FOOD RESEARCH
  - COSMETICS RESEARCH
- QUALITY CONTROL
- PRODUCTION OPTIMIZATION



Disguise costume for the Tsuruoka Tenjin Festival

WHAT IS HMT'S  
TECHNICAL  
ADVANTAGE?

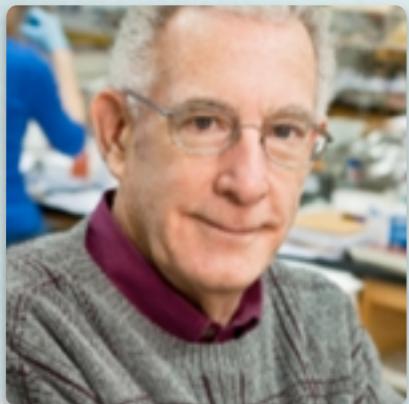


BEST SUITED FOR IONIC COMPOUNDS  
CAPILLARY ELECTROPHORESIS-MASS  
SPECTROMETRY

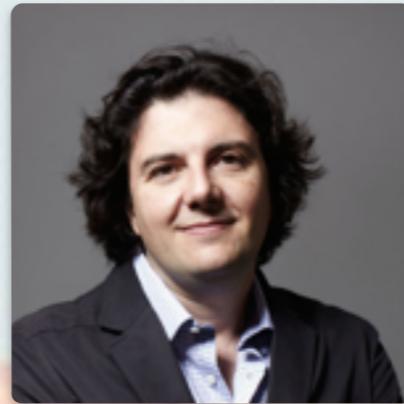
1. GOOD SEPARATION & RESOLUTION
2. EXCELLENT ANALYTICAL SENSITIVITY
3. IMPROVED REPRODUCIBILITY AND LOW RSD
4. MINIMUM SAMPLE REQUIREMENTS

# "Alone we can do so little; together we can do so much"

-HELEN KELLER



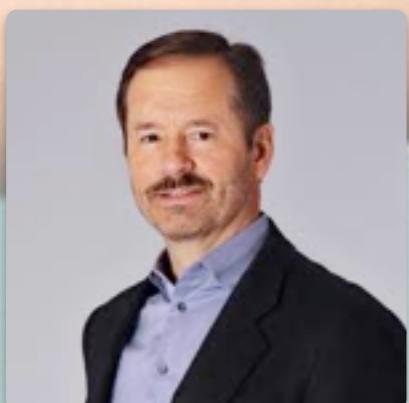
Prof. Thomas Seyfried,  
Boston College  
Famous for his book,  
"Cancer as a Metabolic Disease."



Prof. David Sabatini,  
Whitehead Institute, MIT  
Famous for his discovery  
in mTOR and its pathway.



Prof. Joan Brugge,  
Harvard Medical School  
Famous for her carcinogenesis research  
with 3D culturing.



Prof. Lewis Cantley,  
Weill Cornell Medical College, Cornell University  
Famous for his discovery in PI3K and its pathway.



Prof. Gregg Semenza,  
Johns Hopkins University  
Famous for his discovery in HIF.

WITH HMT'S ANALYSIS

# RECENT PUBLICATIONS

- Makinoshima H et al., *J. Biol. Chem.*, 2014, June 13. '**Epidermal Growth Factor Receptor (EGFR) Signaling Regulates Global Metabolic Pathways in EGFR-mutated Lung Adenocarcinoma.**'
- Baba T et al., *Nat. Commun.*, 2014, 5:3634. '**Glycolytic genes are targets of the nuclear receptor Ad4BP/SF-1.**'
- Koike S et al., *Transl. Psychiatry*, 2014, 4:e379. '**A snapshot of plasma metabolites in first-episode schizophrenia: a capillary electrophoresis time-of-flight mass spectrometry study.**'
- Kibe R et al., *Sci. Rep.*, 2014, 4:4548. '**Upregulation of colonic luminal polyamines produced by intestinal microbiota delays senescence in mice.**'
- Hosoda F et al., *Oncogene*, 2014, 10.1038 '**Integrated genomic and functional analyses reveal glyoxalase I as a novel metabolic oncogene in human gastric cancer.**'
- Tsuno S et al., *Sci. Rep.* 2014, 4:3852. '**Hsa-miR-520d induces hepatoma cells to form normal liver tissues via a stemness-mediated process.**'
- T Takebe et al., *Nature*, 2013, 499(7459) 481-484 '**Vascularized and functional human liver from an iPSC-derived organ bud transplant.**'
- S Yoshimoto et al., *Nature*, 2013, 499(7456) 97-101 '**Obesity-induced gut microbial metabolite promotes liver cancer through senescence secretome.**'

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Metabolomics using CE-MS



AgilentLife's channel

チャンネル登録 1,467

1,209



Learn about metabolomics

再生回数 331 回

SM-CE がんしをシモロドセテム

0:03 / 18:58

0:05 / 18:58

1:28 / 10:04

A screenshot of a news article from NIH News. The title is "NIH announces Metabolomics Initiative". Below the title, it says "\$51.4 M (2012-2017)". The article discusses the investment of \$51.4 million over five years to accelerate the field of metabolomics. It mentions that metabolomics is the study of small molecules called metabolites found within cells and biological systems. The text also highlights the potential of metabolomics technologies for diagnosis, environmental exposures, and nutrition. At the bottom, there is a video player showing a graph with the label "HMT".

NIH announces Metabolomics Initiative

\$51.4 M (2012-2017)

U.S. Department of Health and Human Services  
**NIH News**  
National Institutes of Health

For Immediate Release  
Wednesday, September 19, 2012

Contact:  
Edward Burns, DDCPS/DASC (Common Fund)  
301-435-6869

NIH Office of Communications  
301-435-6767

**NIH announces new program in metabolomics**  
Awards given to support research centers in an emerging field of research

The National Institutes of Health will invest \$51.4 million this year, potentially investing more than \$51.4 million over five years, to accelerate an emerging field of biomedical research known as metabolomics. Metabolomics is the study of small molecules called metabolites, found within cells and biological systems. Metabolites are produced or consumed in the chemical reactions that take place in the body to sustain life. The awards are supported by the [NIH Common Fund](#).

The sum of all metabolites at any given moment — the metabolome — is a form of chemical readout of the state of health of the cell or body, and provides a wealth of information about nutrition, infection, health, and disease status. Metabolomics technologies have the potential to measure hundreds to thousands of unique metabolites, which can change as the result of disease, environmental exposures, or nutrition. In a clinical setting, metabolomics technologies can be powerful tools for diagnosis and disease follow-up. In basic research, these technologies will transform the ability of investigators to define the mechanisms underlying disease and to develop new strategies for treatment.

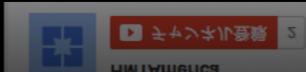
HMT technology and services



HMT America

チャンネル登録 2

再生回数 331 回



Learn about metabolomics

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services busylgolondreft TMH

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# INSPIRATION!

Our interpretive metabolomics sheds light on your question

