



# HMT Newsletter

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Friends and Colleagues,

Aside from monthly publications in this issue, we are announcing our attendance at two meetings in October to display our capabilities in cardiovascular and biomarker studies. If you or your colleagues are attending either of these conferences, please stop by and see what is new.

Sincerely,

Alexander Buko, PhD  
Vice President  
Human Metabolome Technologies America

## HMT Updates

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### Event information

#### **Cardiometabolic Health Congress 2017**

HMT will join CMHC 2017 Boston in October as an showcase exhibitor. Please drop by booth #320 and check out our applications of metabolomics in the field of cardiovascular research.

#### **10th World Congress on Biomarkers and Clinical Research**

Alexander Buko, PhD, Human Metabolome Technologies VP, will present at the 10th World Congress on Biomarkers and Clinical Research, Oct 18-20 in Baltimore MD on the development of Phosphoethanolamine as a clinical biomarker for the diagnosis of Major Depression Disorder. We also have booth exhibition and look forward to seeing you.

### Featured articles

#### *Cancer metabolism*

Metabolic heterogeneity and plasticity of glioma stem cells in a mouse glioblastoma model.

Recent evidence suggests that at least a subset of glioma cells with stem cell-like properties can thrive on oxidative phosphorylation. The authors established glioma stem cells (GSCs) from tumors and the metabolic characteristics of GSCs were determined by measurement of glucose, oxygen, and glutamine uptake, ATP content and lactate production. Both glycolytic and mitochondrial-type energy production can sustain tumor propagation by isogenic GSCs, suggesting that cells relying on oxidative phosphorylation can switch the phenotype to a more glycolytic phenotype in response to metabolic stress, which is a plasticity further characteristic of GSC metabolism.

### *Regenerative medicine*

## Metabolome Profiling of Partial and Fully Reprogrammed Induced Pluripotent Stem Cells.

Park S.J., et al., *Stem Cells Dev.*, 26, pp. 734-742.

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The metabolomic profile revealed the differences between the majority of induced pluripotent stem cells (iPSCs) and pluripotent stem cells, which underlies the reprogramming mechanisms. The authors characterized the metabolites of human fully reprogrammed iPSCs, partially reprogrammed iPSCs, and human ESCs (hESCs) and found that converting mitochondrial respiration to glycolytic flux is critical for reprogramming of somatic cells into fully reprogrammed iPSCs.


### *Infection and Immunology*

## Metabolome analysis reveals the association between the kynurenine pathway and human herpesvirus 6 encephalopathy in immunocompetent children.

Torii Y., et al., *Metabolomics*, 13: 126

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Identification of biomarkers associated Human herpesvirus 6 (HHV-6) is desirable to monitor disease severity, progression, and prognosis. Metabolome profiling of patient serum found that levels of KYN and QUIN, which belong to the tryptophan-KYN pathway, were significantly higher in the HHV-6 encephalopathy patients.



The banner features a dark blue background with a globe on the left and a molecular structure on the right. The text is arranged as follows:

- CARCINOSCOPE** (top left)
- E-SCOPE** (middle left)
- Absolute quantitation of 116 primary metabolites (bottom left)
- HMT target-based analysis** (center, in yellow)
- Quantitative profiling for essential metabolic pathways (bullet point)
- Glycolysis, TCA cycle, Pentose-P pathway, Amino acids, etc. (bullet point)
- Report with statistical analyses and interpretation by biochemist (bullet point)
- F-SCOPE** (top right)
- <sup>13</sup>C labeling analysis for metabolic flux (bottom right)

HMT is a leading company providing metabolomic profiling based on unique and high performance CE-MS technology. We complete over 400 projects a year and our technology has contributed to the advancement of research in a variety of scientific areas.

Edited by Takushi Oga, PhD



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