

Quantitation Analysis of SAM and SAH Levels in Rodents and Humans

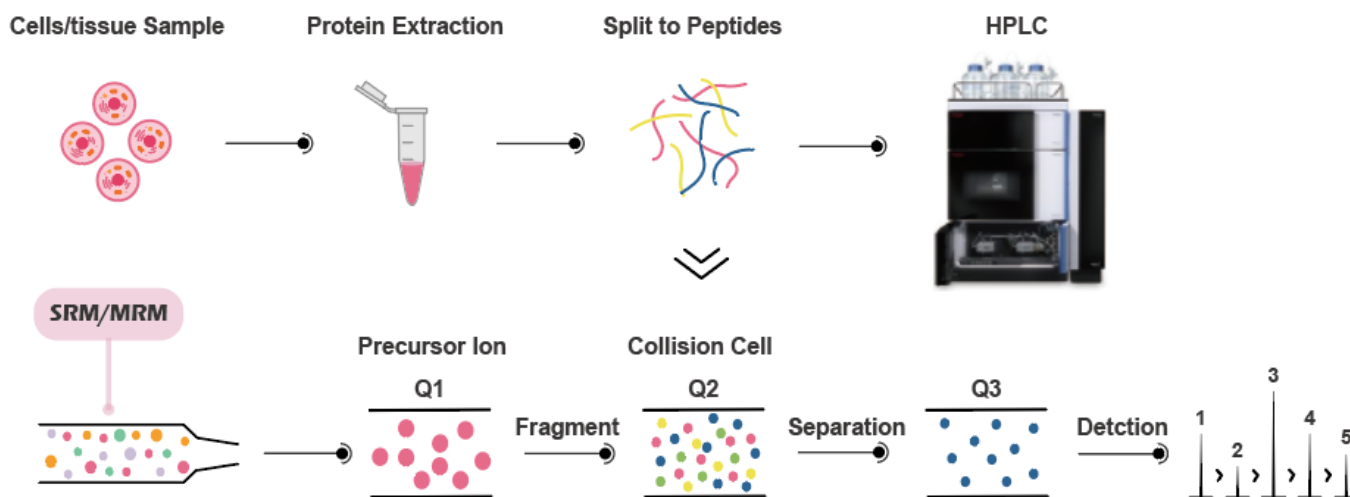
In many organisms, SAM and SAH are widely distributed and participate in the methylation of body's metabolism as an important physiologically active substance. Creative Proteomics provides reliable, fast and cost-effective services to quantify SAM and SAH levels to help accelerate your research progress.

METABOLIC PROFILING

Quantitative Targeted Metabolomics

Met is an essential precursor to SAM. SAM is converted to SAH by the enzyme glycine N-methyltransferase (GNMT) to produce sarcosine. In a study to determine the SAM methyl cofactor and SAH methyltransferase product in rat plasma, the SAM/SAH ratio was calculated after quantifying levels of SAM and SAH to analyze the MET metabolic pathway and explore the relationship among sarcosine, aging, and dietary restriction.

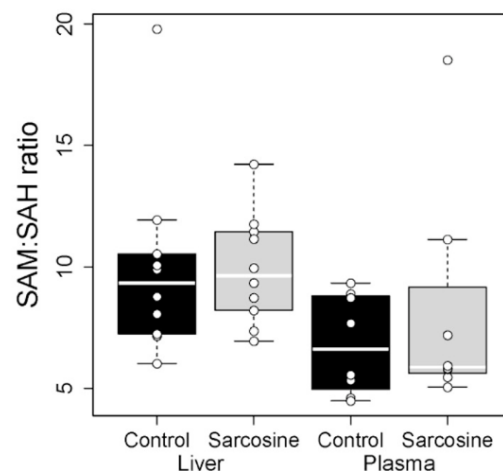
ASSAY OVERVIEW



The SAM methyl cofactor and its SAH methyltransferase product were analyzed in plasma. In brief, plasma samples were spiked with internal standard solution in 0.1% formic acid and then treated with 70% perchloric acid. Following acid extraction, supernatants were analyzed by HPLC-tMS in the multiple reaction monitoring (MRM) setting. Liver SAM and SAH were analyzed by HPLC from acid extracted rat liver samples. Both SAH and SAM were characterized by a maximum absorption at 256 nm and eluted at 11.39 and 12.76 min, respectively. Detection was linear across a 5–140 pmol range.

DATA OVERVIEW

While sarcosine feeding in this study did not alter energy balance or endocrine status in aged rats, it did lead to discrete changes in rats metabolome, including a reduction in plasma Met and a tendency toward boosting glycine pools. Sarcosine is also positively correlated with glutamic acid, arginine and arginine, and SAM is involved in the biosynthesis of these polyamines. The SAM/SAH ratio of the aged rats fed with sarcosine did not change significantly. Plasma SAM and SAH levels were measured by single detection, and liver SAM and SAH levels were measured in duplicate.



Features

- Quantitatively analyze SAM and SAH simultaneously.
- Q Exactive™ Hybrid Quadrupole-Orbitrap Mass Spectrometer.
- Quick turnaround time.

Applications

- Biomarkers Discovery
- Disease-Related Research
- Drug Mechanism Research

What We Do:

We provide the [targeted metabolomics service](#) using our cutting-edge separation and analytical platforms. Our experienced technicians and the optimized protocols will meet your requirement.

Reference

Walters R O, Fontana L, Kurland I, *et al.* Sarcosine is uniquely modulated by aging and dietary restriction in rodents and humans. *Innovation in Aging*, 2017, 1(suppl_1): 1208-1209.