Mass Spectrometry-based Multi-Omics: Combinations of Proteomics, Metabolomics, and/or Lipidomics

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Abstract

Introduction

Here is where we briefly go over the following:

- 1. Cover other reviews
- 2. What is proteomics
- 3. what is metabolomics
 - polar metabolomics
 - lipidomics
- 4. what does multi-omic integration mean?

Test adding citation [1]

Test adding citation by PMID [2]

Sample Preparation for Multi-Omic Analysis

Integrative multi-omics analysis is a powerful approach to study complex biological responses and has gained popularity in recent years. To avoid the potential

- 1, Sample preparation for proteomics
- 2, Sample preparation for metabolomics
- 2.1 non-targeted metabolomics

<u>3</u>

- 2.2 targeted metabolomics
- 2.3 lipidomics

https://www.nature.com/articles/nprot.2016.156

3, Integrative sample prepatation for multi-omics

In the context of multi-omics analyses, being able to perform multiple measurements on the same sample can also decrease experimental variation.

https://pubs.rsc.org/en/content/articlelanding/2020/an/d0an01149e/unauth

https://journals.asm.org/doi/10.1128/mSystems.00043-16

References

1. Quantitative shotgun proteome analysis by direct infusion

Jesse G Meyer, Natalie M Niemi, David J Pagliarini, Joshua J Coon *Nature Methods* (2020-12) https://www.nature.com/articles/s41592-020-00999-z DOI: 10.1038/s41592-020-00999-z

2. Charge state coalescence during electrospray ionization improves peptide identification by tandem mass spectrometry.

Jesse G Meyer, Elizabeth A Komives *Journal of the American Society for Mass Spectrometry* (2012-05-18)

https://www.ncbi.nlm.nih.gov/pubmed/22610994

DOI: <u>10.1007/s13361-012-0404-0</u> · PMID: <u>22610994</u> · PMCID: <u>PMC6345509</u>

3. Development of a plasma pseudotargeted metabolomics method based on ultra-high-performance liquid chromatography-mass spectrometry

Fujian Zheng, Xinjie Zhao, Zhongda Zeng, Lichao Wang, Wangjie Lv, Qingqing Wang, Guowang Xu

Nature Protocols (2020-08) https://www.nature.com/articles/s41596-020-0341-5

DOI: <u>10.1038/s41596-020-0341-5</u>