## Introduction

Carbonaceous chondrites are a specific class of meteorites that contains a high organic content. Examining organic molecules of these astromaterials provides insights into the early solar system’s prebiotic organic budget and their potential contribution to an origin of life on Earth or elsewhere. However, extraterrestrial samples reaching the Earth’s surface are vulnerable to terrestrial organic contaminants due to the presence of life and its derives.

In the present work, we outline a comprehensive approach for analysis of soluble organic compounds in carbonaceous chondrites, with an emphasis on mitigation and monitoring of sample contamination.

## Laboratory Requirements

The delicacy of the material requests a special care prior to and during organic analyses.

- Work in clean room laboratory conditions
- Glassware and tools are heat-sterilized (at ≥500°C) and solely used for meteoric sample handling
- Removal of the fusion crust of meteorites
- Use of high purity solvents & ultrapure water
- Measurement of background levels of organics present in chemical reagents
- Analysis of procedure blanks in parallel with samples

## Preliminary Trials

- In depth analyses of soluble organics in carbonaceous chondrites Allende, Tarda, NWA 10834, Aggas Zarcas
- Liberation of organic compounds into primordial Earth’s environments
- Spatial analyses of minerals-organics associations within carbonaceous chondrites

## Sample Extraction Protocols

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<th>Description</th>
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<td>2.</td>
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<td>Vacuum Concentrator</td>
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<td>Acid-Hydrolyzed &quot;Total&quot;</td>
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## Intrinsicality Monitor

- Molecular characteristics (e.g., chirality)
- Isotopic signatures (δ13C and δD)

## References


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**Abbreviations**:
- Pr – pristine
- Ph – phenyl
- B – benzene
- T – toluene
- TH – thiophene
- ST – styrene
- N – naphthalene
- BT – benzothiophene
- MN – methylnaphthalene
- BP – biphenyl
- DBT – dibenzothiophene
- P – phenanthrene
- Py – pyrene
- S8 – octasulfur

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