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**Novel metalorganic compounds revealed in meteorites**

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Only few metalorganic compounds have hitherto been described in the meteoritic context to date. Ultrahigh-resolving analytics, like FT-ICR-MS, enables to probe holistically the complex chemical space to likely millions of diverse structures [1].

Here, we demonstrate the occurrence and remarkable diversity of previously unrecognized organomagnesium (CHOMg) compounds within meteoritic soluble organic matter [2]. Specifically, dihydroxymagnesium carboxylates represent a previously unreported chemical class. Its chemical properties and reactivity are discussed. A connection between the evolution of organic compounds and minerals is made, as Mg released from minerals gets trapped into organic compounds. These CHOMg metalorganic compounds and their relation to thermal processing in meteorites might shed new light on our understanding of carbon speciation at a molecular level in meteorite parent bodies.

[1] Schmitt-Kopplin et al. (2010) PNAS 107, 2763–2768.

[2] Ruf et al. (2017) PNAS 114, 2819–2824.

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