

## CRYOGENIC ION SPECTROSCOPY OF VALINE AND CHEMICAL ANALOGS

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The success of future missions to search for life on ocean/icy worlds or investigate organic molecule rich planetary atmospheres depends on the ability to accurately identify and quantify biomarkers in the presence of a mixture of molecules.<sup>a</sup> Mass spectrometry alone is insufficient to unambiguously identify biomarkers due to the existence of isomers, but combined with infrared spectroscopy additional information can be extracted.

Amino acids are a prime target in the search for biomarkers due to their importance in terrestrial biology. Here, we present cryogenic gas-phase infrared spectra of protonated valine and some chemical analogs. We assign spectral features using density functional theory calculations, and we discuss prospects for chemical identification.

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