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Shedding Light on Isolated Biomolecular Building Blocks

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We investigate biomolecular building blocks and their clusters with each other and with water on a single molecular level. The motivation is the need to distinguish between intrinsic molecular properties and those that result from the biological environment as well as understanding interactions that may have played a role in prebiotic chemistry. We use a combination of laser desorption and double resonant laser spectroscopy, applied to small peptides, DNA bases and nucleosides. We compare experimental results with *ab initio* calculations, in order to identify structural motifs and to study the role of individual solvent molecules in hydration of individual building blocks of life.