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## The synthesis of adenine in interstellar space

Found in both DNA and RNA, adenine is one of the most important biological molecules. As critical as it is, though, adenine is simply a pentamer of hydrogen cyanide. It could possibly be synthesized in space from naturally occurring compounds. Since it is already known that HCN is present in interstellar space, the synthesis of adenine is dependent on finding the mechanism that is most probable. Early work on the subject found that when HCN was exposed to ultraviolet light, adenine and over a hundred other organic compounds were formed.

Work done by the Glaser group has raised the possibility of an alternate synthesis of Adenine from interstellar space. Starting with the molecule dicyanocarbene, a preliminary pathway has been found that would make it much more likely that biological molecules could be formed in interstellar space. If this mechanism is found to occur, it would constitute a significant step toward establishing that adenine can be found throughout the universe. And if we can synthesize adenine, why not guanine, or many other molecules of life? Our research can add greatly to discussions of the possibility of life elsewhere.