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Where were the molecules of life made?

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It is believed that some of the necessary organic molecules may have been formed in specific areas of space (namely dark molecular clouds, eg Horsehead nebula) and delivered on to the Earth during the early heavy bombardment period of its history, approximately 4.3-4.0 billion years ago. These organic molecules may have played a pivotal role in the formation of life on Earth. In addition, it is believed that life on Earth was formed within a very short geological time frame of only 200-300 million years. So, it is not unreasonable to suppose that these molecules were initially made in space which in effect could be, metaphorically speaking, a huge chemical laboratory.

The research (drawn from my own experimental astrochemistry) highlighted during this oral presentation focuses on the formation of molecules under a variety of simulated space conditions (eg different temperatures, levels of radiation energies and types of impinging radiations). There are two sorts of chemistry that take place in space, solid and gas phase, and although only 25% of the chemistry in space occurs in the solid phase, this will be the focus of my oral presentation.