

By: ~~Galactic~~ ~~2007~~, Science News Editor

## [Life Could be Present all Over the Universe](#)

### *Life-forming matter detected in nearby galaxy*

Evidence of the same chemicals that represent the building blocks of life on Earth has been found in nearby galaxies, but to identify the exact identity of these molecules and when they became abundant is no easy task. Scientists think that organic molecules were present in the cloud of gas out of which the solar system formed, providing the organic material for life to appear on Earth. Similar molecules have been detected through the Milky Way and present astronomers with a reason to believe that life might also exist in other parts of our galaxy and maybe in other galaxies. So the search began to find these molecules in nearby galaxies, similar to our own. Looking at galaxies that are in their infancy, scientists hope to calculate for how long these organic materials have been abundant in the universe and how long it takes for conditions suitable for life to appear. They can be identified by doing a spectroscopy analysis of the light filtered by the clouds of gas, present in the galaxy. The class of organic compounds that astronomers are looking for are the polycyclic aromatic hydrocarbons, which is thought to leave a complex pattern of dark bands in the spectrum of analyzed light, called diffuse interstellar bands or DIBs. They have found this pattern while analyzing a galaxy situated about 5.5 billion light years away, in 2004, suggesting that there were large amounts of organic molecules. Two years later an astronomer Brandon Lawton from New Mexico State University in Las Cruces, US did a survey on six distant galaxies in the hope that he would also observe the DIB signature, but was disappointed to find that organic molecules were not present in any of the studied galaxies. Nevertheless, there is evidence that while some areas do not have organic molecules, they are common elsewhere in the universe. By studying light coming from another galaxy, situated 2 billion light years away, a team led by Sara Ellison of the University of Victoria, Canada, has detected using the VLT in Chile, DIBs signature. The team now hopes to be able to determine the abundance of organic material in the galaxy. Focusing on dustier galaxies, where organic molecules seem to form in greater abundance, Chris Churchill of New Mexico State University hopes to find the ingredients needed for the first life that existed in the universe. Finding the DIB signature in other galaxies could show where these organic molecules first become most abundant in a galaxy's evolution. So far multiple interstellar bands have been found, but nobody knows exactly what kind of molecules contribute to their composition. Further studying of the galaxies will pin down the exact molecules present in these organic materials. Though the materials to create life may exist in many places of the universe, the actual probability for life to exist and to evolve is extremely small and based on certain conditions, there could be no other life in the universe except on Earth, or there could be billions of places with other forms of life.