

DNA compaction find may help treat genetic disorders

Professor at School of Chemical Sciences, NISER Himansu Sekhar Biswal said ionic liquids were found to be an alternative green solvent for the storage and stability of DNA.



Ionic liquid and DNA interactions Photo | Express

BHUBANESWAR : In a path-breaking discovery, scientists from Odisha have unearthed some unique physio-chemical properties in ionic liquids (organic salts in liquid state) that can be better alternatives for compaction of DNA to help treat genetic disorders.

After a series of experiments, researchers from National Institute of Science Education and Research (NISER) and Indian Institute of Science Education and Research (IISER) claimed the structure of DNA bends or becomes more spherical as compared to its initial form after molecular interactions with magnetic ionic liquids.

The scientists also found that de-compaction of DNA can be easily achieved by adding NaCl (sodium chloride), also known as salt or common salt, and it has far reaching implications in biomedical applications. The findings on compaction and de-compaction of DNA will help treat genetic disorders such as albinism, Angelman syndrome, ankylosing spondylitis, apert syndrome, congenital adrenal hyperplasia, Huntington's disease, neurofibromatosis and haemochromatosis besides haemophilia, thalassaemia and several other genetic diseases.

Professor at School of Chemical Sciences, NISER Himansu Sekhar Biswal said ionic liquids were found to be an alternative green solvent for storage and stability of DNA. "There are thousands of ionic liquids available. During experiments, we came across some astonishing results involving cholinium-based ionic liquids, which can be better alternatives for DNA compactions," he said.

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