Bionanotechnology

Bionanotechnology is a subset of nanotechnology: atom-level engineering and manufacturing using biological precedents for guidance. It is also closely married to biotechnology, but adds the ability to design and modify the atomic-level details of the objects created.

In a wider sense, bionanotechnology refers to synthetic technology based on the principles and chemical pathways of living organisms. It encompasses the study, creation, and illumination of the connections between structural molecular biology and nanotechnology, since the development of nanomachinery might be guided by studying the structure and function of the natural nano-machines found in living cells.

An example is DNA nanotechnology which uses self-assembling nucleic acid structures to control matter at the nanoscale. Recombinant DNA-based biological life forms are still considered natural insofar as they only use nature's tools to mix and match biological components, albeit at a much faster rate than can be achieved by evolution. This would include cell biology methods, viz., somatic nuclear transfer and stem cell technology.