

Abstract

A Study on Copyright Protection for Artificial Life: Focusing on the Copyrightability of Synthesized DNA

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In May 2010, Dr. Craig Venter and his research team at the Dr. J. Craig Venter Institute published results describing the successful synthesizing of artificial DNA and the successful construction of the first self-replicating, synthetic bacterial cell (i.e., artificial life). Synthetic biology, which has enabled the Craig Venter team to create the artificial life, is likely to not only bring evolution to bio-industries but also become a turning point for discussions on copyright protection for man-made DNA. Copyright protection for DNA fragments and DNA sequences has been discussed since the early 1980's, when recombinant DNA technologies became more popular. Some copyright law experts, based on the similarity between computer software and DNA, have argued that isolated and purified DNA fragments and DNA sequences are copyrightable subject matter and copyright protection should be expanded to recombinant DNA. However, most other copyright law experts have not yet agreed on the copyrightability of recombinant DNA because of the fact that it is created simply by copying or modifying DNA sequences existing in nature. In contrast to the case of recombinant DNA technologies, synthetic biology enables us to design DNA sequences from scratch and synthesize artificial DNA, and a synthetic cell created from synthesized DNA sequences is also distinguished from its counterpart existing in nature. This may implicate that synthesized DNA sequences and synthetic cells could be considered to be copyrightable subject matter. This article discusses in essence the copyright implications of synthetic biology based on reviewing and analyzing the existing discussions on copyright protection for recombinant DNA.

Keywords: Synthetic Biology, DNA Sequences, Synthesized Artificial DNA, Copyright Protection, Copyrightability, Craig Venter