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copyright, DNA, gene, nucleotide, synthetic biology, synthetic DNA, synthetic gene, recombinant DNA, intellectual property, IP, patent, biotechnology, author, authorship, expression, expressive, functionality, functional, useful, fair use, software, literary, literary work

**Abstract:**

Copyright law has traditionally afforded protection to works of authorship such as books, magazines, photographs, paintings, music, and sculpture. The Copyright Act has proved admirably flexible at accommodating novel categories of authorship, specifically contemplating future developments by covering “original works of authorship fixed in any tangible medium of expression, now known or later developed.” This has led to explicit copyright protection for nontraditional subject matter, such as works of architecture and computer software. Sequences of DNA should also be acknowledged as eligible for copyright protection. Unaltered genomic DNA sequences would seem poor candidates for copyright protection. The case is stronger for copyright protection of recombinant DNA sequences. Strongest is the case for the copyright eligibility of synthetic DNA sequences designed nucleotide by nucleotide and chemically constructed de novo. Whereas DNA copyright has previously remained a largely hypothetical prospect, advances in synthetic biology may now force recognition of copyright protection as an alternative (or complement) to patent protection. A DNA copyright regime would differ substantially from the current DNA patent regime. Notably, acquiring copyright protection for DNA would be less expensive and much more rapid than pursuing patent protection. While patent law recognizes few and weak exceptions to infringement, copyright law offers a robust fair use exception for copying done in contexts such as scholarship and research. Furthermore, copyright protection would be limited in the case of DNA molecules whose structures are dictated by functional constraints, thus providing the public greater and salutary access to useful genes. Copyright protection for DNA lies pregnant within current copyright law. What is required is an effort to make use of this existing protection. A DNA copyright regime would not only allow a more robust set of safe harbors for use of particular DNA sequences, especially in genetic research, it would also facilitate the possibility of an open source biology movement. Finally, just as the prospects of patent protection for at least some forms of DNA have become uncertain, copyright protection could fill any resulting gap by affording a reasonable level of intellectual property protection, while simultaneously allowing society to enjoy some of the benefits of genetic knowledge more freely than patent protection currently allows.