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Unlocking the Transformative Power of Synthetic Biology

Artificial Intelligence (AI) combined with Synthetic Biology has the potential to change the way we approach medicine, agriculture, and manufacturing. AI automates tasks, optimizes experimental designs, and predicts biological behaviours, resulting in more efficient design and engineering of biological systems. However, there are challenges such as data limitations, interpretability issues, and ethical considerations like biosafety and biosecurity concerns that need to be addressed. AI can be used to analyze vast amounts of data and identify patterns. This has led to successful applications of AI in high-throughput screening and biomanufacturing, which can drive innovation and address critical challenges. AI-powered closed-loop systems for real-time monitoring and control of biological processes also show promise in providing real-time feedback and optimizing systems on the fly. Despite these advancements, it's important to consider ethical implications to ensure the responsible development and application of AI in synthetic biology. Proper consideration of challenges and ethical considerations can help leverage the power of AI to drive innovation and tackle pressing societal challenges. Overall, the potential of AI in synthetic biology is significant. By addressing challenges and ethical considerations, we can use them effectively to solve pressing problems.

Research Article **Published Date:-2024-04-08 10:17:36**

Effect of Methyl Jasmonate on the Expression of Transcription Factors in Wild Jujube Seedlings under Salt Stress

Methyl Jasmonate (MeJA) can be used as a signal molecule to regulate the expression of resistance genes in the resistance to abiotic stress, thus improving the salt tolerance of wild jujube. Among the resistance genes combined with methyl jasmonate, transcription factors play an important role in response to salt stress. However, the interaction of transcription factors in different tissues under salt stress and the regulation of transcription factors by MeJA remain unclear. In this study, the effects of MeJA on transcription factor expression in wild jujube under salt stress were investigated, and the differences in transcription factor expression among different tissues were compared. It was found that MeJA could increase the type and quantity of transcription factors responding to salt stress. The types of transcription factors responding to salt stress were roughly the same among different tissues, but the quantity and expression of the transcription factors were significantly different. The results of transcription factor co-expression analysis showed that transcription factors play synergistic roles in the face of abiotic stress, which can provide preferable genes for subsequent transgenic work.

Short Communication **Published Date:-2024-01-18 11:21:37**

Computational Models in Systems and Synthetic Biology: Short Overview

Computational models used in specifying biological systems represent a complement and become an alternative to more widely used mathematical models. Amongst some of the advantages brought by these computational models, one can mention their executable semantics and mechanistic way of describing biological system phenomena. This short overview report enumerated some of the computational models utilised so far in systems and synthetic biology, the associated analysis and formal verification methods and tools, and a way of facilitating a broader use of this alternative approach.
