

Synthetic Genetic Platform in Yeast and Methods of Use

This technology offers engineered signaling of the auxin response from the plant Arabidopsis into yeast called AuxInYeast. This device can rapidly quantify auxin and the impact of a given sequence on transcription where inventors can “humanize” the circuit. AuxInYeast can mitigate the slow and high throughput of small molecule testing for drug candidates.

What is the Problem?

Auxin is a small signaling molecule in plants and plays a central role in almost every plant process from growth to development. However, it is difficult to study the auxin signaling network due to a high level of redundancy and co-expression of a large gene family, and interference from other signaling pathways. Functionalizing this could allow for high throughput testing of drug candidates, which is currently a time intensive and high-cost process.

What is the Solution?

The solution is based on one core enabling technology, which the inventors call ‘AuxInYeast’, has been used in defining and engineering signaling logic has been the systematic transplantation of the auxin response pathway from the plant Arabidopsis into yeast. ‘AuxInYeast’ has been modified to make it possible to rapidly quantify the impact of a given sequence on transcription. The inventors have already shown that they can “humanize” the circuit with sequences from the human TBL1 protein, part of the NCoR/SMRT regulatory complex and an oncogene. This approach will enable functional assignment of a large number of human proteins, currently lacking well-supported annotations, as well as allow rapid functional classification of cancer associated variants. This platform will enable high throughput testing of small molecule libraries to identify drug candidates.

What Differentiates it from Solutions Available Today?

Current approaches to testing of small molecules for drug candidates are slow and high cost. This approach will enable high throughput testing. The technology is the first to “humanize” the “AuxInYeast” circuit with human TBL1 protein.

Patent Information:

[WO2023215800A1](#)

Technology ID

BDP 8494

Category

Selection of Available
Technologies
Diagnostic

Authors

Jennifer Nemhauser

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References

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