

Rapid discovery of natural product medicines and agrochemicals

Background

Identifying novel bioactive compounds is hard, which makes discovering new medicines and crop protection chemicals slow and expensive. Erebagen has developed a platform that enables it to engineer soil bacteria to produce new bioactive natural products with hit-rates 20x-better than synthetic chemicals currently being used in industrial screens.



The Invention

Erebagen's Gen2NCE platform combines bioinformatics and synthetic biology techniques which overcome the two major challenges of traditional natural product discovery - rediscovery and developability. The platform has two offerings:

- i) Induce production of novel compounds which can't be found through culturing alone ("**Discover**")
- ii) Create modified biosynthetic pathways which deliver structural variants of these natural products. ("**Diversify**")

A range of organisations exist who supply chemical libraries, but hit rates are typically very low. Through ICURe, the team had detailed discussions with Lodo and other NP discovery specialists, confirming that their approach is different and has the potential to overcome some of the key bottlenecks in their discovery process.

The Market

Recent market comparables indicate that natural product discovery is undergoing a resurgence and that significant value can be obtained through partnerships with large pharma partners who are seeking privileged access to new natural products to feed into their drug development pipelines, e.g.

- Lodo Therapeutics partnership with Genentech (\$969m, 2018)
- WarpDrive Bio partnership with Roche (\$387m, 2019)
- Adapsyn partnership with Pfizer (\$160m, 2018)

The company identified five early-adopters through ICURe who want to engage in screening partnerships using their existing compound collection and a longer list of larger partners from both the pharma and agrochemical sectors that have indicated interest in partnering as the library grows.

Next Steps

The company has created a strong proprietary position surrounding the Gen2NCE platform through a combination of analytical software, confidential know-how, proprietary materials (strains, vectors and chemical libraries) and patent filings on specific lead molecules.

In combination, Erebagen's platform offerings open up revenue streams from i) chemical library sales; ii) co-discovery and development partnerships with pharmaceutical and agrochemical companies.

They have already demonstrated the ability to generate novel, patentable, compounds as they have 2 existing patents for novel antimicrobials which are currently in late stages of national examination in Europe and the US

For further information contact James Lapworth, Business Development Manager J.Lapworth@warwick.ac.uk