



Cultured Meds: Next-Gen Pharma

Ever wondered how to produce essential pharmaceuticals more affordably and sustainably? acib is going to revolutionize the production of plant-derived bioactive molecules by developing a plant cell-based, bioreactor-compatible technology to defeat the limitations of traditional manufacturing approaches. Check it out...

BACKGROUND

Plant-derived small molecules, including alkaloids, are important active compounds in pharmaceutical products. Many of these molecules, such as the anticancer drugs paclitaxel and vinblastine, or the antimalaria medications artemisinin and quinine are listed as essential medicines by the World Health Organization (WHO).

Most industry-relevant alkaloids are exclusively produced through agricultural cultivation and chemical extraction with the former being heavily impacted by environmental factors like pests, diseases, weather, and drought. Political stability and transportation influence supply chain resilience, as alkaloid production is limited to regions optimal for host plant cultivation. Consequently, availability of plant alkaloid-based medication is severely limited in many developing countries.

To mitigate environmental and economic risks, farming-independent production approaches are investigated. For most alkaloids chemical synthesis is not an economically viable alternative due to their complex stereochemistry. Similarly, production in genetically modified microbial hosts (*E. coli*, yeast) failed economically for most alkaloids due to low product yield.

TECHNOLOGY

acib is developing a scalable, cost-effective approach to produce plant-derived alkaloids. It involves the contained cultivation of genetically improved plant cells which have been specifically activated for alkaloid biosynthesis using a disruptive technology. With this innovative approach acib is going to surpass the natural alkaloid production capacity of the host plant. The technology will provide a cheap, bioreactor-compatible production platform for numerous plant alkaloids and will eliminate supply chain risks through reproducible, global deployment of local production sites. It will drastically reduce the carbon and environmental footprint of the industry through reduced land, water, fertilizer, and pesticide use.

OFFER

We are looking for interested companies to develop a new type of alkaloid production by cultivated engineered plant cells. Intellectual property developed in such projects can be fully transferred to you as our investor/industrial partner. Reach out to explore partnership opportunities and be part of our innovative approach to plant-derived medicines.

acib-EXPERTS:

Prof. Dr. Dr. Johannes Buyel
Dr. Janos Bindics

AVAILABLE FOR:

- Investments
- Joint Research Projects
- Contract Research

DEVELOPMENT STATUS:

Technology Readiness Level 2
(Technology concept formulated)

IPR:

Will be generated for you as our industrial partner / investor

KEYWORDS:

Alkaloids
Anti-cancer compounds
Anti-malarial compounds
API - Active Pharmaceutical Ingredient
Bioreactor
Local production
Pharmaceuticals
Plant cell culture
Safe supply chains
Sustainable technology

CONTACT

acib GmbH
Krenngasse 37
8010 Graz
tel: +43 316 873 9316
e-mail: bd@acib.at
www.acib.at