Sustainable and Scalable Production of Triptolide

Triptolide: A high-value natural plant product ($900/g sales price)

Problem: Applications restricted by cost of compound

Current method: Plant extraction

Scientific breakthrough: Enzymatic process

New method: Fermentation

Business opportunity: Growing pest market and great future potential

$50mil. growth market: Nonlethal rodent pest control (approved)

Future market: Treatment of SARS-CoV-2 (pre-clinical)

10X Future market: Male contraceptive (pre-clinical)

Leading provider of contraceptive rodent pest control. Committed as customer when triptolide production is initiated.

Drug developer using triptolide based analogs to develop treatments against SARS-CoV-2. Expression of interest.

Research institute initiating male contraceptive clinical trials using a triptolide analog. Dialog initiated.

Technology Description

The Chinese medicinal plant *Tripterygium wilfordii* produces the complex natural compound triptolide in minute amounts. Due to its complexity no economically viable synthetic route has been established and cost associated with production from plant extraction are very high.

With state-of-the-art genome engineering we have established a microorganism that has the potential to produce triptolide in a cost-effective manner. A proof-of-concept strain has been established and the imminent technology development awaiting includes scaling and optimization of triptolide from the established microorganism strain.

Intellectual Property Rights

International PCT application filed. P024260DK1. Priority date: 27th of August 2020

The PCT covers the method for cost effective triptolide production in our engineered microorganism strain used.

Current State

Proof-of-concept microbial strain for triptolide production established. Pilot scale production fermentation tested. Current activities include:

1) Optimization via genetic engineering of the microbial production strain
2) Identification of suitable fermentation parameters for pilot scale production
3) Development of cost-efficient downstream processes to meet required product specifications

Business opportunity and Call to action

With a strong team of diverse skillsets in place, we aim to establish the company TriptoBIO. Using the patented technology developed at University of Copenhagen TriptoBIO will produce triptolide at scale for identified and future customers. Three costumers for fermentation based triptolide have been identified, whereof two have expressed intent to purchase when product meet their target specification e.g. purity.