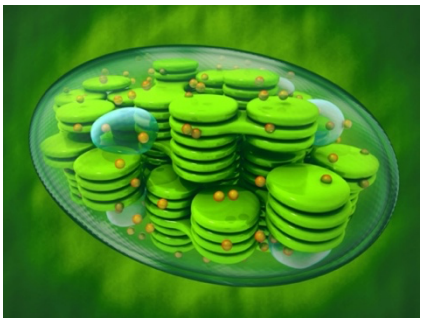
PRESS RELEASE

A WORLD'S FIRST FOR ALGENTECH:

HIGH-YIELD MOLECULAR FARMING OF INDUSTRIAL INGREDIENTS IN PLANT CHLOROPLASTS

Genopole (Évry-Courcouronnes), 22 June 2021

Algentech, a Genopole-accredited French company, has achieved a world's first with its disruptive technology described in an article published 21 June 2021 in *Nature Plants* (https://doi.org/10.1038/s41477-021-00940-y). The company's patented method enables the production of proteins and nucleic acids in plant chloroplasts. It represents a technological breakthrough of great interest for numerous industrial sectors seeking novel possibilities for biological production.



Yesterday, the journal *Nature Plants* published an article on an unprecedented chloroplast-based molecular farming system developed and patented by Algentech. The article presents the company's novel autonomous expression system wherein the gene of interest does not need to be integrated into the chloroplast genome. Instead, it is amplified as a "minichromosome," an independent entity that yields expression rates for proteins or nucleic acids five to ten times those of genome-integrated genes of interest.

Plants—and potentially algae—transformed into green factories

Beyond its production yield, which can reach 70% of total soluble proteins, this new system also offers the possibility of transferring the integrality of biosynthesis pathways: there where current technologies are limited to the integration of several genes, the Algentech technology is able to express 15 to 20 genes simultaneously in plant cells. Algentech's disruptive technology will become a tool of choice for synthetic biology and green chemistry applications, particularly the production of peptides, nucleic acids, enzymes, therapeutic compounds and other molecules of interest for such sectors as pharmaceuticals, cosmetics, food & agriculture, energy and more.

Algentech's propriety technology can be compared to microorganism-based production systems but it has a notable advantage over them: by using chloroplasts, the organelles responsible for photosynthesis in plant cells, Algentech's method uses sunlight as its energy source while consuming CO^2. The company's technology turns plants into truly green factories, both sustainable and environmentally friendly. Tested in tobacco, soybean, carrot and duckweed, the system can be deployed in a plethora of land plant species and potentially in algae, which are also photosynthetic organisms with cellular chloroplasts.

Algentech: a bioproduction actor open to industrial partnerships

The company currently has several industrial and academic partnerships. Its platform will be used for the production of natural biopesticides for the agrochemistry industry and for the production of enzymes for the biofuels sector. Algentech is also seeking additional partnerships to extend its

application reach and increase its production capacities. For example, the company's technology holds promise for the biological production of squalene, an oil used in cosmetics and as an adjuvant in vaccines. It can also produce enzymes used in the production of biohydrogen, an energy with promise for the renewable energy transition.

"*With this technological breakthrough, Algentech has positioned itself as an actor in French bioproduction within a context of changing European industrial production policies that showed several shortcomings with the COVID-19 pandemic*," comments Algentech Executive Director and CSO Isabelle Malcuit. "*Our technology addresses the need to strengthen and diversify France's industrial capacities in a sustainable and environmentally friendly manner*."

Press contact

Genopole: Véronique Le Boulc'h – veronique.leboulch@genopole.fr - +33 (0)1 60 87 44 98

Algentech: Isabelle Malcuit – imalcuit@algentech.com - +33 (0)1 30 21 90 38 - +33 (0)6 88 26 50 61

About Algentech

As a service provider or via licensing partnerships, Algentech supplies its clients with unique plant-cell synthetic biology technologies tailored to their specific applications. Algentech is supported by Bpifrance and has received financing from Scientipôle IDF Capital (Auriga Partners) and the business angel networks BADGE, Hedera and Investessor.
https://algentech.com/

About Genopole

Genopole is a French biocluster dedicated to research in genetics and biotechnologies in healthcare and the environment. It unites 77 biotech companies, 18 research laboratories and 26 technological platforms, as well as a range of tertiary-level training programs with the University of Évry-Paris Saclay (Data as of end December 2020). Genopole's objectives are to create and support biotech companies and the transfer of technologies to the industrial sector, favor the development of life sciences research, and promote advanced training programs for those domains. Headed by Gilles Lasserre, Genopole is funded primarily by the French State, the Île-de-France Administrative Region, the Essonne Administrative Department, the Grand Paris Sud Urban Area, the city of Évry-Courcouronnes and the AFM-Téléthon.
www.genopole.fr