

## DEINOCHEM: A PROMISING START NOTABLY DUE TO WORK CARRIED OUT AT INRA AND PATENTED BY GENOPLANTE-VALOR

- In just a short time, the DEINOCHEM program has obtained highly promising results in the effective production of several key molecules.
- This performance is the result of the successful combination of DEINOVE know-how and a GENOPLANTE-VALOR patent.
- Consequently, DEINOVE has decided to exercise the option granted in November 2013 and acquire an exclusive license for improving isoprenoid biosynthesis pathways.

**Montpellier, June 16, 2014** - DEINOVE (Alternext Paris: ALDEI), a cleantech company that designs and develops a new generation of industrial processes based on *Deinococcus* bacteria, has announced that the highly satisfactory results obtained by adding GENOPLANTE-VALOR's patented technology to its proprietary technologies has led the company to confirm its acquisition of an exclusive operating license for the exploitation of this patent from GENOPLANTE-VALOR, through INRA TRANSFERT, the INRA (French National Institute for Agricultural Research) subsidiary responsible for valorizing innovations. This intellectual property was generated under an ANR (French National Research Agency) research program labelled "Genoplante" and covers the results obtained by INRA researchers.

In their own laboratory, DEINOVE's researchers have managed to produce significant concentrations of three molecules of industrial interest from the isoprenoid pathway. They were obtained from a *Deinococcus geothermalis* strain integrating the DXS key enzyme optimized with GENOPLANTE-VALOR technology, which has substantially improved the production of these compounds by the bacterium.

DEINOVE has therefore decided to exercise the option granted in November 2013 and to acquire an exclusive operating license for the patent, until the patent expires.

These results enable DEINOVE to confirm the convincing startup of the DEINOCHEM program. The early and effective production of these molecules underscores both the value of the GENOPLANTE-VALOR technology, and the power of the DEINOVE platform, backed up by the experience consolidated in recent years.

These bioproducts obtained with the *Deinococcus* bacteria are high-added-value industrial compounds, providing applications in cosmetics and food industry. Others can be used in the fragrance industry and in other everyday products, such as detergents, home and personal care products.

To date, these molecules have mainly been derived from oil or plant extracts, with low yield and high production cost.

This progress constitutes a major proof of concept, opening the way for the production of many chemical intermediates and speciality molecules. This represents a potential of several hundred million euros in turnover. Some of these compounds can be sold for up to 3,000 euros a kilo.

*"With this exclusive license, we have significantly consolidated the progress made in the DEINOCHEM program, on which we continue to focus our efforts,"* said Emmanuel Petiot, CEO of DEINOVE. *"We must continue along these lines and make significant investments to meet the economic and*

*technological challenges of the post-oil world. To do this, we benefit from government support and the backing of our founding shareholder, Truffle Capital, and we are considering, as announced on June 3<sup>rd</sup>, raising funds to finance, amongst others, this new crucial phase of our development.”*

Jean-François Rous, Chairman of GENOPLANTE-VALOR, said, *“This licensing agreement is a real opportunity to industrially showcase the excellence of French academic research and to forge contacts with a French SME whose technology is highly promising and can be rapidly produced industrially. It also demonstrates the potential for promoting work carried out in the plant biotechnology context in other fields such as industrial biotechnologies.”*

## ADDITIONAL INFORMATION

### The DEINOCHEM program

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The DEINOCHEM program aims to develop and market high performance and cost-effective production processes for bio-sourced molecules originating from biomass and based on the exploitation of *Deinococcus* bacteria. The compounds produced by these bacteria will be able to replace current compounds, which are traditionally petro-sourced.

DEINOCHEM’s priority target is isoprenoids, which are one of the most diverse families of natural substances (over 22,000 isoprenoid compounds listed to date). They are used in many industrial applications, as they are found in cosmetics, perfumes, home and personal care products, as well as food and feed.

*Deinococcus* bacteria are naturally endowed with capacities that make them ideal for this type of development – the natural expression of some isoprenoids, resistance to toxicity, adaptation to high-speed metabolic engineering, etc.

DEINOCHEM, for which the investment is estimated at €15.9 million by 2018, will receive over 3½ years €5.9 million as financial support from ADEME and CGI in the context of the “Investissements d’Avenir” (Investments for the Future) program.



## GENOPLANTE-VALOR

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The patent<sup>1</sup> covered by the licensing agreement concerns a key enzyme, DXS, involved in the isoprenoid biosynthesis pathway and whose optimization facilitates the hyperproduction of isoprenoids by bacteria and plants. This patent was filed by GENOPLANTE-VALOR and is the product of an ANR research program labelled Genoplante. This patent's promotion was entrusted to INRA TRANSFERT, the INRA subsidiary responsible for valorizing innovations.

GENOPLANTE-VALOR is a company involved in the Group of Scientific Interest "Green Biotechnology", which was set up under a wide-ranging public-private partnership bringing together research organizations, seed companies, representatives of subsidiaries, technical institutes and competitiveness clusters. GENOPLANTE-VALOR holds a portfolio of patents generated by research program labelled GENOPLANTE (a public-private partnership) and ensures their promotion.



*More information at [www.gisbiotechnologiesvertes.com](http://www.gisbiotechnologiesvertes.com)*

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## INRA TRANSFERT

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INRA Transfert, a INRA subsidiary, is a project management consulting company specialized in the field of innovative technologies arising from INRA research laboratories. INRA Transfert's team manages the technology portfolio of INRA and GENOPLANTE-VALOR through operating agreements with industrialists and supports the development of innovative young companies.



*More information at [www.inra-transfert.fr](http://www.inra-transfert.fr)*

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<sup>1</sup> Patent published under reference number WO2012/052171 and titled "1-Deoxy-D-xylulose 5-phosphate synthase alleles responsible for enhanced terpene biosynthesis"

### ABOUT DEINOVE

DEINOVE (Alternext Paris: ALDEI) is ushering in a new era of green chemistry by designing and developing new standards of production based on bacteria of untapped potential: the Deinococci. Taking advantage of the bacteria's unique genetic properties and unusual robustness, DEINOVE optimizes natural fermentation and metabolic capabilities of these bacterial "micro-factories" to produce high value-added products from non-food biomass. The Company's primary markets are 2nd-generation biofuels (DEINOL) and bio-based chemicals (DEINOCHEM). On these markets, the Company offers its technology to industrial partners globally.

Listed on NYSE Alternext since April 2010, DEINOVE was founded by Dr. Philippe Pouletty, General Partner of TRUFFLE CAPITAL, and Pr. Miroslav Radman, of the Faculty of Medicine of Paris Descartes University. The company employs over 40 people in its new offices and laboratories located in Montpellier, France.

*More information at [www.deinove.com](http://www.deinove.com)*

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