DEINOVE
The deinococcus way

Press release

DEINOVE INCREASES ITS MOMENTUM BY OBTAINING SIX NEW PATENTS IN THE UNITED STATES

- **These six new patents awarded in the United States reinforce Deinove's worldwide leadership in the industrial exploitation of *Deinococcus* bacteria.**
- **Deinove strengthens its intellectual property and its capacity to create value in the American market, one of the leading bio-economy markets.**

Montpellier, November 12, 2015 – DEINOVE (Alternext Paris: ALDEI), a biotech company developing innovative processes for producing biofuels and bio-based chemicals by using *Deinococcus* bacteria, announced today that it has been granted six new patents in the United States:

- *"Process for chromosomal engineering using a novel DNA repair system"*[1], Deinove's founding patent, already registered in Europe. It describes the mechanism behind the biodiversity and resistance of *Deinococcus* bacteria, a major discovery made by Prof. Miroslav Radman's team and which led to the launch of Deinove.
- *"Methods for isolating bacteria"**[2] protects a method for selecting and identifying bacteria that has enabled the company to build a strain library with over 6,000 bacterial strains, all resistant to UV radiation.
- Four other patents grant Deinove with a clear leading edge over the exploitation of *Deinococcus* bacteria in view of producing biofuels as part of the Deinol program:
  - *"Use of bacteria for the production of bio-energy"**[3], already issued, notably in Europe, Eurasia and Australia, protects the production of biofuel from lignocellulosic biomass by using *Deinococcus* bacteria.
  - *"Compositions and methods for degrading lignocellulosic biomass"**[4], already issued, notably in China, extends the previous patent to other bacteria related to *Deinococci* and which are present in the Deinove strain library.
  - *"Recombinant bacteria and the use of thereof for producing ethanol"*[5] protects *Deinococci* that have undergone genomic modifications in view of bioethanol production.
  - *"Laccases and uses of thereof"*[6] protects enzymes involved in degrading lignin, namely *Deinococcus* laccases, as well as their use in degrading or modifying biomass.

These patents were issued following the "*High-performance metabolic bacteria"*[7] patent issued at the end of 2014 and dealing with the method of biofuel production from cellulosic or hemicellulosic raw materials using an integrated process for degradation and fermentation based on *Deinococcus* bacteria.

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[1] Number and date of issue: 9193974, 24/11/15
[2] Number and date of issue: 9005954, 14/04/15
[3] Number and date of issue: 9181564, 10/11/15
[4] Number and date of issue: 9102926, 11/08/15
[5] Number and date of issue: 9034619, 19/05/15
[6] Number and date of issue: 9068161, 30/06/15
* Inventions resulting from cooperation with the CNRS and the University of Montpellier
[7] Press release dated 25 February 2015

Deinove now holds a portfolio of 170 patents internationally, divided into 19 families, representing a strategic asset for signing partnerships. With these patents, Deinove is pursuing a strategy of protecting its intellectual property, notably in the key market of the United States.

The United States is the leading producer of ethanol in the world, with 51 billion liters produced in 2013 vs. 40.7 billion liters in Brazil and only 6.7 billion liters in Europe[8]. The main producers of ethanol have operations in the United States and are actively involved in developing 2nd generation ethanol production processes. Over the last two years, at least eight 2G production units have been inaugurated in the country with an annual capacity of over 500 billion liters.

Emmanuel Petiot, CEO of Deinove, said, "*After our first American patent announced at the start of the year, the new patents granted reinforce our competitive position in the United States. Intellectual property is a significant investment for a company of our size; it is also a strategic area of work creating value for Deinove and its shareholders.*"

Philippe Becker, founder of Becker & Associés, a consulting firm specialized in Industrial Property in the fields of pharmacy, chemistry and biotechnologies, a Deinove consultant, added, "*It is remarkable to get such a large number of patents granted in the United States over such a short period of time. This is a definite recognition of the innovative character of Deinove's technologies and reinforces the proactive patent strategy followed by the company."*

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 almost 50 people in its offices and laboratories located in Montpellier, France.

More information at www.deinove.com

[8] Source: *State of the Industry Report 2014* – ePURE

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