Press release

MONTPELLIER
JUNE 24, 2019
6:00 PM CEST

DEINOVE

DNV3681's exceptional activity against bioterrorist threats presented at ASM Microbe 2019

- **Major Steven Zumbrun (USAMRIID[1], U.S. Department of Defense) presented data on the *in vitro* assessment of DNV3681 against pathogens classified as "high priority" bioterrorist threats, last week in San Francisco.**
- **DNV3681 has demonstrated exceptional activity against *Bacillus anthracis*, superior to that of Ciprofloxacin, one of the reference treatments.**
- **On the basis of these data, USAMRIID intends to conduct the *in vivo* assessment of DNV3681 against *Bacillus anthracis*, the bacterium that causes anthrax.**

DEINOVE (Euronext Growth Paris : ALDEI), a French biotech company that uses a disruptive approach to develop innovative antibiotics and bio-based active ingredients for cosmetics and nutrition, **disclosed the details of the paper presented last Friday at the ASM Microbe 2019 congress by Major Steven Zumbrun, PhD in Microbiology at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID).**

Major Steven Zumbrun presented the results of the *in vitro* evaluation of DNV3681 against *Bacillus anthracis* and *Francisella tularensis*. He concluded that DNV3681 has "exceptional activity" against these two bio-threat agents. The USAMRIID team determined the efficacy of DNV3681 by measuring its MIC_{90}, the minimum concentration necessary to inhibit the growth of 90% of a panel of test bacterial isolates. This value is 0.015 µg/ml against *Bacillus anthracis*, making it a more effective molecule than Ciprofloxacin.

Bacillus anthracis and *Francisella tularensis* are classified as two of the most dangerous possible biological weapons. The standard of care against *Bacillus anthracis* and *Francisella tularensis* is currently Ciprofloxacin, a synthetic large spectrum antibiotic from the fluoroquinolones' family. Several pathogenic bacterial species have already developed a resistance against this family of antibiotics and the long treatment needed for Post-exposure Prophylaxis of Anthrax very often triggers a major intestinal microbiota imbalance leading to likely *Clostridioides difficile* infections. Therefore, there is an urgency to make efficient and validated alternatives available. The fact that the DNV3681 is precisely very active against both *Bacillus anthracis* and *Clostridioides difficile* makes it an ideal candidate to fulfill that need.

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[1] The USAMRIID (U.S. Army Medical Research Institute of Infectious Diseases) is the U.S. Army's main institution and facility for defensive research into countermeasures against biological warfare.

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Dr Georges Gaudriault, Scientific Director of Deinove and co-author of the study, said: *"In addition to its superior in vitro efficacy to current treatments, the results of the clinical trials that we are currently conducting for the treatment of Clostridioides difficile infections have shown that DNV3681 also has the advantage of having a limited impact on the intestinal microbiota in healthy volunteers, thus limiting the risks of associated complications. We closely follow the research conducted by USAMRIID, who is considering, on the basis of the results presented at ASM Microbe 2019, an in vivo evaluation of our antibiotic candidate. »*

The poster *"DNV3681 is a Novel Quinolonyl-Oxazolidinone Antibacterial with Potent Activity against Biothreat Pathogens"* is available by clicking here.

ABOUT USAMRIID

USAMRIID is celebrating its 50th year of providing leading edge medical capabilities to deter and defend against current and emerging biological threat agents. The Institute is the only laboratory in the Department of Defense equipped to safely study highly hazardous viruses requiring maximum containment at Biosafety Level 4. Research conducted at USAMRIID leads to medical solutions—vaccines, drugs, diagnostics, and information—that benefit both military personnel and civilians. Established in 1969, the Institute plays a key role as the lead military medical research laboratory for the Defense Threat Reduction Agency's Joint Science and Technology Office for Chemical and Biological Defense. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command.

For more information, visit www.usamriid.army.mil.

[The information contained in this press release does not necessarily reflect the position or the policy of the Government and no official endorsement should be inferred.]

ABOUT DEINOVE

DEINOVE is a French biotechnology company, a leader in disruptive innovation, which aims to help meet the challenges of antibiotic resistance and the transition to a sustainable production model for the cosmetics and nutrition industries.

DEINOVE has developed a unique and comprehensive expertise in the field of rare bacteria that it can decipher, culture, and optimize to disclose unsuspected possibilities and induce them to produce biobased molecules with activities of interest on an industrial scale. To do so, DEINOVE has been building and documenting since its creation an unparalleled biodiversity bank that it exploits thanks to a unique technological platform in Europe.

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DEINOVE is organized around two areas of expertise:

- **ANTIBIOTICS, New-generation anti-infective agents**: DEINOVE is preparing to enter a first antibiotic candidate into Phase II. The Company is also pursuing the systematic exploration of biodiversity to supply its portfolio with new leads, drawing notably on partnerships with bioMérieux and Naicons (AGIR program supported by Bpifrance).
- **BIOACTIVES, Active ingredients of natural origin** with cosmetics as the first market and potential in nutrition and health: DEINOVE already markets a first innovative active ingredient, a second in partnership with Greentech, while others are in development with Dow and Oléos (Hallstar Group). It also runs a program in animal nutrition with Groupe Avril.

Within the Euromedecine science park located in Montpellier, DEINOVE employs 62 employees, mainly researchers, engineers, and technicians, and has filed more than 300 patent applications internationally. The Company has been listed on EURONEXT GROWTH® since April 2010.

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