

AMOÉBA PUBLISHES A NEW SCIENTIFIC ARTICLE IN THE PATHOGENS JOURNAL

Chassieu (France), June 05, 2020 - AMOÉBA (FR0011051598 - AMEBA), producer of a biological biocide, capable of eliminating bacterial risk in water and human wounds, and a biocontrol product for plant protection, still in the testing phase, announces the publication of a major new scientific paper (<https://www.mdpi.com/2076-0817/9/6/447/pdf>). This work, jointly carried out by the Centre de Recherche en Neurosciences de Lyon and Amoéba, was published in the special issue of Pathogens, a journal of the MDPI group, entitled "Legionella Contamination in Water Environment". It provides additional proof of the harmlessness of *Willaertia magna* C2c Maky when used to fight the legionellosis risk.

A first article published in 2019 (DOI: 10.1038/s41598-019-54580-6) showed that the *Willaertia magna* C2c Maky amoeba does not present any toxicity to human cells. This new scientific article shows that, in addition to being safe, *Willaertia magna* C2c Maky does not allow legionellae to become more virulent, unlike to what happens in the *Acanthamoeba castellanii* Douglas amoeba. Indeed, the expression of the virulence genes of the legionellae does not increase, and even tends to decrease by a factor of 2, after 3 days of presence of the legionellae in *Willaertia magna* C2c Maky, whereas it increases significantly and very strongly, by a factor of 9, in the legionellae present in *Acanthamoeba castellanii* Douglas. This study therefore confirms that *Willaertia magna* C2c Maky has a unique behaviour, and demonstrates the safety of the amoeba when used as a natural biocide in cooling tower water.

"We were appointed to carry out this study, not for our expertise in microbiology, but for our expertise in the indisputable method of quantification that was used to measure the level of gene expression. When we observe how individual variations of several genes involved in the same function (here, virulence) evolve, it is often difficult to conclude, because of strong variations for some genes, and weak variations for others, sometimes even with opposite directions, either upwards or downwards. In order to be able to draw a clear, unequivocal conclusion, we have developed for this study a virulence index that integrates all individual variations. The results obtained allow us to conclude indisputably that legionellae do not "react" to being present in *Willaertia magna* C2c Maky, keeping the expression of their virulence genes at a low level, unlike legionellae present in other amoebae, such as *Acanthamoeba castellanii* Douglas, which see this expression explode." says Dr Laurent BEZIN, Deputy Director of the Lyon Neuroscience Research Centre and co-leader of the team behind these results.

"This 4th paper shows once again that the *Willaertia magna* C2c Maky amoeba is a very good candidate for use as a biocidal agent. We are continuing our R&D operations, the results of which will also be the subject of new publications." says Sandrine DEMANECHÉ, scientific manager of Amoéba.



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About AMOEBA:

Amoéba's ambition is to become a major player in the treatment of bacterial risk in the fields of water, healthcare and plant protection. Our biological solution is an alternative to chemical products widely used today. Amoéba is currently focusing on the market of industrial cooling towers estimated at €1.7Bn ⁽¹⁾ on a global chemical biocide market for water treatment, evaluated at €21Bn ⁽²⁾ and on the biocontrol market for plant protection estimated globally at €1.6Bn ⁽⁴⁾. In the future, the Company is looking at developing new applications such as chronic wound care, estimated at € 751 million ⁽³⁾ in the USA. Sales of associated products with healthcare, biocides and crop protection are subject to the Company being granted local regulatory market authorizations. The Company is currently in a trial phase for biocidal and plant protection applications and does not market any products.

Created in 2010, based in Chassieu (Lyon, France) with a subsidiary in Canada and in the United States, Amoéba is quoted on the compartment C of Euronext Paris. The Company is a member of the BPIfrance Excellence network and is eligible for the PEA-PME SME equity savings plan setup. More information on www.amoeba-biocide.com.

(1): Amoéba data combined from sources: DRIRE 2013, Eurostat, ARHIA 2013

(2): Sources combined by Amoéba from water treaters, Freedonia, Eurostat et MarketsandMarkets

(3): BCC Research, "Markets for Advanced Wound Management Technologies," Wellesley, MA, 2017

(4): Biopesticides Worldwide Market 2013, CPL, Wallingford, UK

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