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Press Release

15 January 2018

CNES and bioMérieux extend their collaboration on Aquapad, a unique water quality testing tool

Monday 15 January in Marcy l'Étoile (near Lyon), Proxima mission astronaut Thomas Pesquet detailed, during a conference, lessons learned from the Aquapad experiment he performed on the International Space Station (ISS). Developed jointly by CNES and bioMérieux, a world leader in *in vitro* diagnostics, Aquapad is an innovative device for conducting microbiological diagnostics on a space crew's drinking water. On this occasion, bioMérieux's Chairman & CEO Alexandre Mérieux and Gilles Rabin, CNES's Director of Innovation, Applications and Science, signed a joint statement of interest with a view to pursuing this partnership.

Aquapad is based on a dry microbiology technology patented by bioMérieux called a PAD (Paper-based Analytical Device), capable of detecting and counting bacterial microflora in just one millilitre of water. In presence of bacteria, the astronaut can see colour spots appearing. Then, he simply takes a picture of the PAD with the "EveryWear" mobile application to automatically count bacteria colonies present in the water sample. Because the result of the test is so easy to interpret, the astronaut can tell if the water is drinkable.

After four sessions accomplished during the Proxima mission by Thomas Pesquet, the experiment is being pursued by other astronauts, among them ESA's Italian astronaut Paolo Nespoli, who completed several sessions for the experiment before returning to Earth from the ISS last 14 December. A new, more-ergonomic and more-effective version of Aquapad has also been tested in NASA's laboratories. CNES has acquired significant expertise with Aquapad and a cooperation agreement with NASA is now in the final stages of drafting. Results are very good and the system has entered its qualification phase. Aquapad is seen as the device that will be used systematically aboard the ISS and future space exploration vehicles. Its use is also envisioned here on Earth, with tests planned at the Concordia research base in Antarctica in partnership with the Paul Émile Victor institute (IPEV).

Functional extensions of the technology on which Aquapad is based are also under study to offer a co-innovation, not only for the space sector but also for public health applications. The ability to detect and identify different bacteria and analyse different liquids are cases in point.

On the strength of the experiment's very promising results, CNES and bioMérieux have signed a joint statement of interest on Aquapad. This statement aims to pursue their partnership to improve and extend microbial detection processes for testing water, surfaces, air and biological fluids, and to automate sampling and processing. It also paves the way for development of other microbial detection techniques, notably for diagnosing clinical syndromes (respiratory, gastro-intestinal and others) and for environmental testing.

ABOUT CNES

CNES is the government agency responsible for shaping France's space policy and executing it in Europe. Its task is to conceive and orbit satellites, invent the space systems of the future and nurture new services to aid us in our daily lives.

Founded in 1961, it is the initiator of major space projects, launch vehicles and satellites, and the partner of choice for industry, supporting exports and fuelling innovation. CNES is working to further applications in five core areas of focus: Ariane, science, Earth observation, telecommunications and defence.

CNES is a key player driving technology research, economic development and industrial policy for the nation. It also fosters scientific collaborations and has forged numerous international partnerships.

France, represented by CNES, is the leading contributor to the European Space Agency (ESA), which conducts Europe's space policy on behalf of its 22 member states.

ABOUT BIOMÉRIEUX

Pioneering Diagnostics

A world leader in the field of in-vitro diagnostics for more than 50 years, bioMérieux is present in more than 150 countries through 42 subsidiaries and a large network of distributors. In 2016, revenues reached €2,103 million, with more than 90% coming from international sales.

bioMérieux provides diagnostic solutions – systems, reagents and software – which determine the source of disease and contamination to improve patient health and ensure consumer safety. Its products are mainly used for diagnosing infectious diseases. They are also used for detecting microorganisms in agri-food, pharmaceutical and cosmetic products.



bioMérieux is listed on the Euronext Paris market.

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Website: www.biomerieux.com

CNES PRESS CONTACTS

Pascale Bresson Press Officer
Raphaël Sart Press Officer

Tel. +33 (0)1 44 76 75 39

Tel. +33 (0)1 44 76 74 51

pascale.bresson@cnes.fr

raphael.sart@cnes.fr

BIOMÉRIEUX PRESS CONTACTS

Aurore Sergeant
Laurence Heilbronn, Image Sept
Claire Doligez, Image Sept

Tel. +33 (0)4 78 87 20 53

Tel. +33 (0)1 53 70 74 64

Tel. +33 (0)1 53 70 74 48

media@biomerieux.com

lheilbronn@image7.fr

cdoligez@image7.fr

presse.cnes.fr