

BIAL Award in Biomedicine distinguishes research which is the basis of two of the vaccines against covid-19



A team led by American scientist Drew Weissman won the second edition of the BIAL Award in Biomedicine with a work focused on mRNA technology, which is now used in the Pfizer-BioNTech and Moderna vaccines to prevent COVID-19.

The award, promoted by the BIAL Foundation, is worth 300,000 Euros and aims to distinguish a work in biomedicine of exceptional quality and scientific relevance.

The BIAL Award in Biomedicine 2021 was delivered in a ceremony held at the Rectory of the University of Lisbon on 18 February, and was attended by the President of the Republic, Marcelo Rebelo de Sousa, who chaired the session, the President of the BIAL Foundation, Luís Portela, jury member Menno Witter and award-winning authors Drew Weissman and Michael J. Hogan.

An important breakthrough of this technology for vaccine creation was published in 2017, even before the pandemic, in the research report [**“Zika virus protection by a single low-dose nucleoside-modified mRNA vaccination”**](#), published in *Nature*. The research report describes the complex work to engineer an mRNA vaccine to treat a disease and demonstrates its efficacy in mice and in monkeys.

The BIAL Award in Biomedicine 2021 distinguishes the **work of Weissman and 36 other co-authors**, researchers from the Universities of Pennsylvania, Duke and Kansas State (USA), Harvard Medical School (USA), National Institutes of Health (USA), Bioqual Inc. (USA), Acuitas Therapeutics (Canada) and BioNTech RNA Pharmaceuticals (Germany) at the time of publication of the research report.

The pandemic caused by SARS-CoV-2 has accelerated research in this area, but this work paves the way for a new generation of vaccines with the potential to revolutionize the treatment of a large number of diseases.

While traditional vaccines often use a modified virus to provoke a reaction in the immune system, the technology investigated by the BIAL Award in Biomedicine winning team uses a synthetic mRNA to allow the body to prepare itself against the disease. To do so, it uses an mRNA that makes the body's own cells synthesize a viral protein that stimulates the body's immune response.

Neuroscientist Ralph Adolphs, president of the jury of the BIAL Award in Biomedicine, considers that *“this work represents an extraordinary achievement. It is a tour de force in molecular biology aimed at human health, and achieved the technological leap in mRNA vaccines that is the basis for the vaccines currently administered against SARS-CoV-2 to deal with the COVID pandemic in countries around the world”*.

Adolphs emphasizes that *“there is now substantial evidence that mRNA technology has enormous applications: in addition to being used to deal with the current pandemic, mRNA vaccines are also being developed for infectious diseases such as malaria and influenza, and also for non-infectious diseases such as cancer”*.

The winning work was chosen from 47 papers nominated among the most important research reports in the last 10 years in biomedicine. Applications included basic research studies, clinical trials, work in neurodegenerative disorders, cancer, and infectious diseases.

The next edition of the BIAL Award in Biomedicine, promoted by the BIAL Foundation, will take place in 2023.

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