

BioNTech | The History of BioNTech

 [biontech.com/int/en/home/about/who-we-are/history.html](https://www.biontech.com/int/en/home/about/who-we-are/history.html)

Our History

Based on profound scientific know-how, we are ushering in a new era of immunotherapy

For decades, most researchers overlooked messenger RNA (mRNA) because it was considered far too unstable, and no proper solution existed to administer or guide it to the right cells in the body. In early research, it was difficult to achieve the desired levels of immune response and the production of the targeted proteins was too low to make mRNA a suitable candidate for drug development and medical applications. Over more than 30 years, our co-founders defied conventional beliefs and achieved a series of scientific and technological breakthroughs to unlock the full potential of mRNA.

In 2020, we leveraged our mRNA technology to develop a COVID-19 vaccine which became the **first mRNA drug approved for human use** and the fastest vaccine developed against a new pathogen in the history of medicine.



Relentless scientific rigor driving innovation

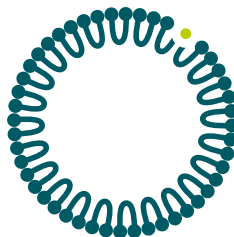
With their work, Ugur Sahin and Özlem Türeci solved the basic mRNA-associated problem, namely the issue of low and short-lived protein production. In parallel, Katalin Karikó approached the emerging technology from another angle and found that the immunogenicity of mRNA could be mitigated effectively by modifying the nucleotide uridine. Discovery by discovery, improvement by improvement, the company's scientific teams harnessed the power of mRNA while exploring new and exciting ways to deploy it.

To date, the scientists behind BioNTech have optimized the structural components of mRNA (cap, the poly-A tail and its untranslated regions) to achieve increased intracellular stability of synthetic mRNA and translation, especially in immune cells. The rapid development of our COVID-19 vaccine was only possible because we were able to build on the research, expertise and technology that we have accumulated over decades.

BioNTech was founded on the idea of using mRNA to activate the immune system against a patient's individual tumor – an approach that we believe can also be tailored to target several kinds of diseases. Through our groundbreaking R&D efforts, we have become a pioneer in many ways:



Developed the **first vaccines using non-nucleoside modified RNA for personalized cancer therapies targeting a patient's unique tumor**, with the first patient being dosed in a clinical trial in 2012.



Developed RNA vaccine nanoparticle **delivery strategies that target tissue-derived dendritic cells body-wide** to increase the immune response. We moved from animal studies to clinical trials in humans, **pioneering the first intravenous nanoparticle delivery of mRNA vaccines in humans in 2015.**

The groundbreaking scientific discoveries by Ugur Sahin, Özlem Türeci and their teams provided the basis to bring the first mRNA product to the market:

- Discovered and identified several fundamental approaches to induce a comprehensive immune response, improving the potency of mRNA technology by 1,000-fold.
- Developed a nanoparticle-based delivery strategy for mRNA vaccines targeting antigen-presenting cells body-wide, allowing intravenous administration.

- Advanced an individualized mRNA-based cancer immunotherapy into clinical trials.
- Established a proprietary, easily scalable manufacturing process for mRNA products.

The basis of the first mRNA vaccine

From the very beginning, our co-founders have been focused on building a fully-integrated immunotherapy leader deeply rooted in science.

Scientific Breakthroughs

2006

Improvements to the non-coding regions increasing the stability and translational efficiency of RNA molecules in dendritic cells

>

[Read the publication](#)

Scientific Breakthroughs

2008

Engineering RNA to route the encoded cargo to specific places within the cell which increases the CD8 and CD4 response significantly

>

[Read the publication](#)

Business Development

2008

BioNTech is founded by Prof. Ugur Sahin, M.D., Prof. Özlem Türeci, M.D., and Prof. Christoph Huber, M.D., to develop and produce treatments for individualized cancer immunotherapy. (Seed round 180m USD)

>

[View management](#)

Business Development

2009

BioNTech acquires EUFETS and JPT Peptide Technologies

>

Our manufacturing expertise

Scientific Breakthroughs

2012

Start of the first Phase 1 clinical trial with RNA immunotherapy in melanoma, today known as our FixVac approach

>

Our pipeline

Scientific Breakthroughs

2014

Start of the first Phase 1 clinical trial with a fully individualized RNA immunotherapy in melanoma, today known as the iNeST approach

>

Our pipeline

Business Development

2014-2018

Strategic collaborations across the pipeline (Bayer Animal Health, Genentech, a member of the Roche Group, Genmab, Siemens, Sanofi, Regeneron, Genevant, Pfizer, University of Pennsylvania)

>

Our collaborators

Scientific Breakthroughs

2015

RNA cancer immunotherapy data published in *Nature*.

In addition, we pioneered the first intravenous nanoparticle delivery of mRNA vaccines in humans



[Read more](#)

Scientific Breakthroughs

2016

First results of intravenous administered mRNA clinical trial published in *Nature*



[Read more](#)

Scientific Breakthroughs

2017

1. mRNA-encoded bispecific antibodies data published in *Nature Medicine*

2. iNeST clinical results published in *Nature*



[More publications](#)

Business Development

2018

Completion of 270 million USD Series A financing round



[Read more](#)

Business Development

2019

BioNTech becomes a publicly traded company on the NASDAQ Global Select Market under the ticker symbol BNTX

>
Read more

Business Development

2020

Beginning of “Project Lightspeed” to quickly develop a safe and effective vaccine to address the emerging SARS-CoV-2 pandemic. The Pfizer-BioNTech COVID-19 vaccine is the first vaccine to receive emergency use authorization following a worldwide Phase 3 trial

>
Project Lightspeed

Business Development

2020

Acquisition of Neon Therapeutics to bolster our global leadership position in T cell therapies and open US headquarters

>
Read more

Scientific Breakthrough

2020

Pfizer and BioNTech achieve first authorization in the world for a vaccine to combat COVID-19

Business Development

2020

Establishment of BioNTech Manufacturing Marburg to produce COVID-19 vaccine, which became one of the largest mRNA manufacturing facilities in 2021



Marburg Manufacturing Fact Sheet

Business Development

2021

BioNTech acquires Kite's neoantigen T cell receptor (TCR) R&D platform and clinical manufacturing facility in Gaithersburg, MD



Read more

Business Development

2021

BioNTech acquires PhagoMed BioPharma GmbH, an Austrian biotechnology company specialized in the development of a new class of antibacterials

Scientific Breakthrough

2021

The first colorectal cancer patient was treated with the individualized mRNA cancer vaccine candidate BNT122 in a Phase 2 clinical trial

Business Development

2022

Introduction of first modular mRNA manufacturing facility to promote scalable vaccine production in Africa, called BioNTainer



[Read more](#)

Scientific Breakthrough

2022

BioNTech presents positive preliminary Phase 1/2 data for first-in-class CAR-T program BNT211

Business Development

2022

Groundbreaking for BioNTech's first mRNA vaccine manufacturing facility in Africa

Scientific Breakthrough

2022

Phase 1 clinical trial for malaria vaccine program BNT165 initiated

Read also

Our Pipeline

We have built a unique pipeline of investigational immunotherapies and vaccines based on multiple drug classes aiming to achieve medical breakthroughs

>

Our pipeline



Scientific Publications

We maintain a culture of scientific excellence and drive future innovation by sharing our key findings in a peer reviewed format

>
Our publications

Our Team

Our team of first-movers and entrepreneurs in the fields of immunology and oncology is dedicated to ushering in a new era of immunotherapies

>
Our management
© 2024 BioNTech SE.
All rights reserved