


mRNA vaccines and therapeutics

Solutions guide

The background features a stylized DNA double helix structure. The two strands are rendered in a light blue, semi-transparent, fibrous texture. Between the strands, various colored spheres (purple, yellow, green, and blue) represent the base pairs. The helix is oriented vertically, starting from a more complex, multi-stranded structure at the top and tapering down towards the bottom. A thick, solid red diagonal line runs from the bottom left towards the top right, cutting across the lower portion of the image.

Connect to the future of vaccines and therapeutics

There's a bright future for mRNA vaccines and therapeutics. Thermo Fisher Scientific is dedicated to helping you bring the next milestone in mRNA to the world and make that bright future a reality. We have a demonstrated history of helping our partners overcome obstacles and capitalize on opportunities during the development and production processes—and we can help you on your journey, too.

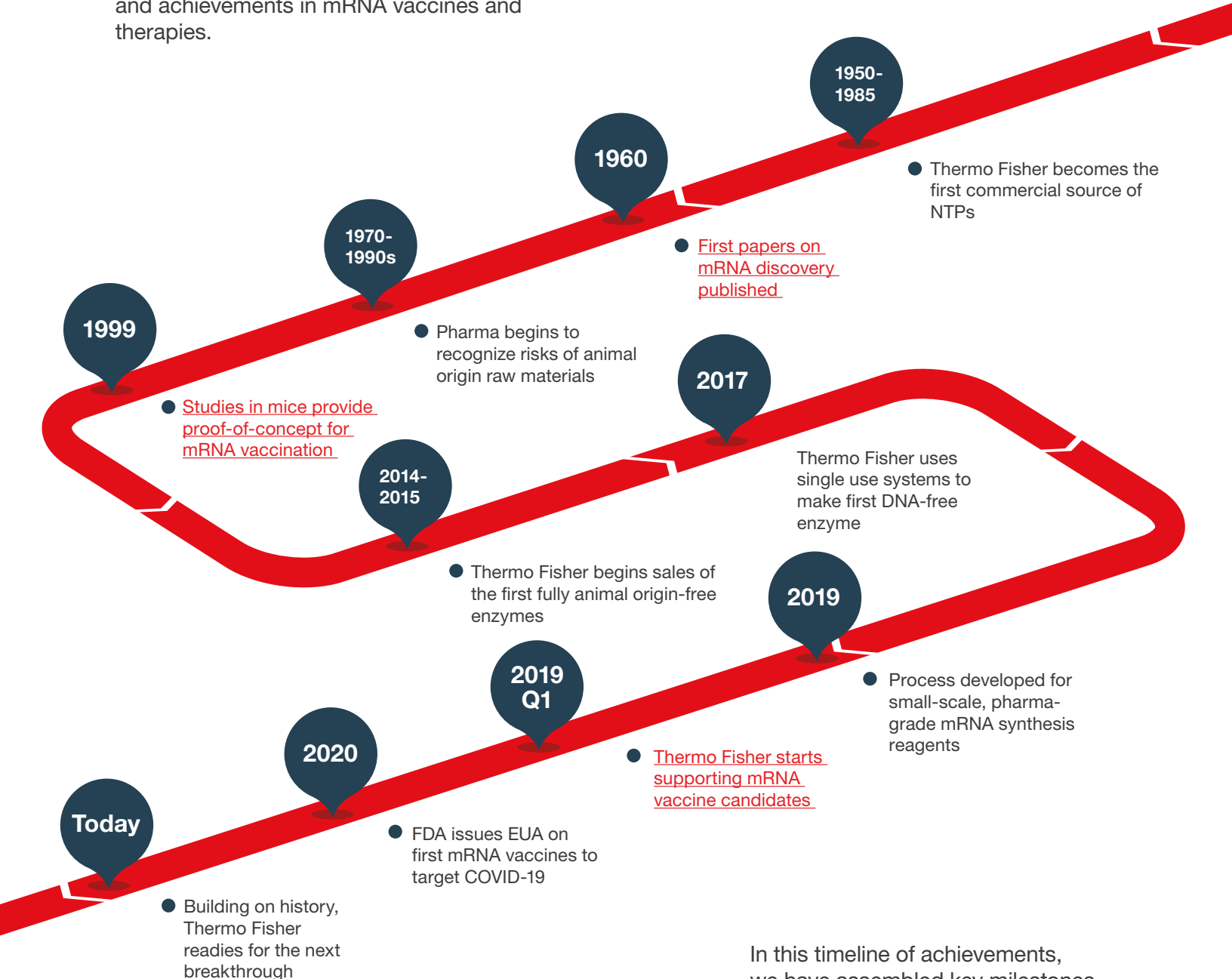
Thermo Fisher's mRNA vaccine and therapeutics workflow solutions—including raw and starting materials, equipment, and services—are specifically tailored to meet your development needs, helping you move seamlessly from research to clinical trials, to commercial manufacturing. We are committed to providing high quality raw materials coupled with unparalleled expertise, experience, and reliability to support you at every stage of your mRNA journey.

Thermo Fisher connects you to everything you need to help you accelerate your mRNA innovation forward with a comprehensive portfolio of products and services proven to meet critical process, scale, quality, and regulatory needs.

Explore the Thermo Fisher mRNA vaccines and therapeutics solutions and connect to the future.

Connect to our long history of innovation

While mRNA has come into the spotlight in recent years, Thermo Fisher has a long history of contributing to key breakthroughs and achievements in mRNA vaccines and therapies.



In this timeline of achievements, we have assembled key milestones and events from nucleic acid therapeutic research and industry and how Thermo Fisher and our manufacturing sites have contributed along the way, especially for breakthrough mRNA therapies.

Achieve the next major milestone in mRNA

mRNA vaccines and therapeutics are poised for significant breakthroughs in the coming years, with many exciting and groundbreaking applications already in progress. The potential breakthroughs in mRNA could help change the face of medicine as we know it and bring new hope and treatment options to people suffering from a wide range of diseases and conditions. Thermo Fisher can help support you in bringing these innovations from discovery to commercialization. Explore the applications where we can support you.



Achieve the next major milestone in mRNA

mRNA vaccines have several advantages, including the ability to rapidly update the vaccine as new variants emerge. This is because it's relatively easy to modify the RNA sequence as needed. Additionally, they provide the opportunity to develop combination vaccines to fight several variants (and pathogens) simultaneously—such as influenza and RSV—and they are scalable to serve a global population.



Vaccines for non-infectious diseases

mRNA vaccines can provide protection against practically any viral or bacterial infection. Unlike traditional vaccines, mRNA vaccines enable the patient's own cells to “train” the immune system to recognize a pathogen by producing the invader proteins the immune system will need to attack.



Oncology

Synthetic mRNA has emerged as a powerful tool to transfer genetic information, targeting exploration into using mRNA for many “undruggable” diseases, like cancers.

Technological advances have made it possible to create engineered mRNA that mimics natural mRNA through in-vitro transcription (IVT). This can be used as a medical tool to target certain cancers and muscular dystrophies caused by genetic defects or mutations.



Protein replacement therapies

An mRNA vaccine enables the patient to produce proteins to stimulate the immune system, but these proteins aren't exclusive to fighting disease. mRNA vaccine technology can be used to replace missing proteins in patients suffering from inherited metabolic disorders.



Cell therapies

Synthetic mRNA has solved the issue of generating small molecules to enhance enzyme activity. Since mRNA can encode the wild-type enzyme, it can replace deficient enzymes when delivered to the right cell type. Compared to DNA-delivered gene vectors, RNA does not need to enter the cell nucleus to generate its therapeutic effect and poses no risk of altering the host genome.



Gene therapies

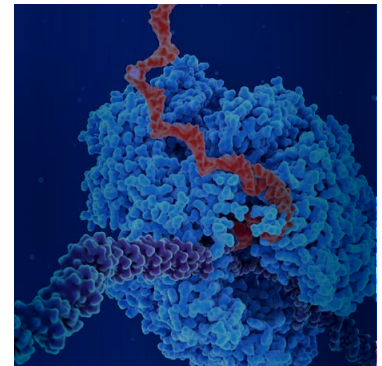
mRNA-based gene therapies are gaining more attention as mRNA is short lived, less stable, and does not induce permanent genetic changes. mRNA makes it possible to deliver all epitopes of entire antigens in one step and makes tasks like manipulation and purification simple.

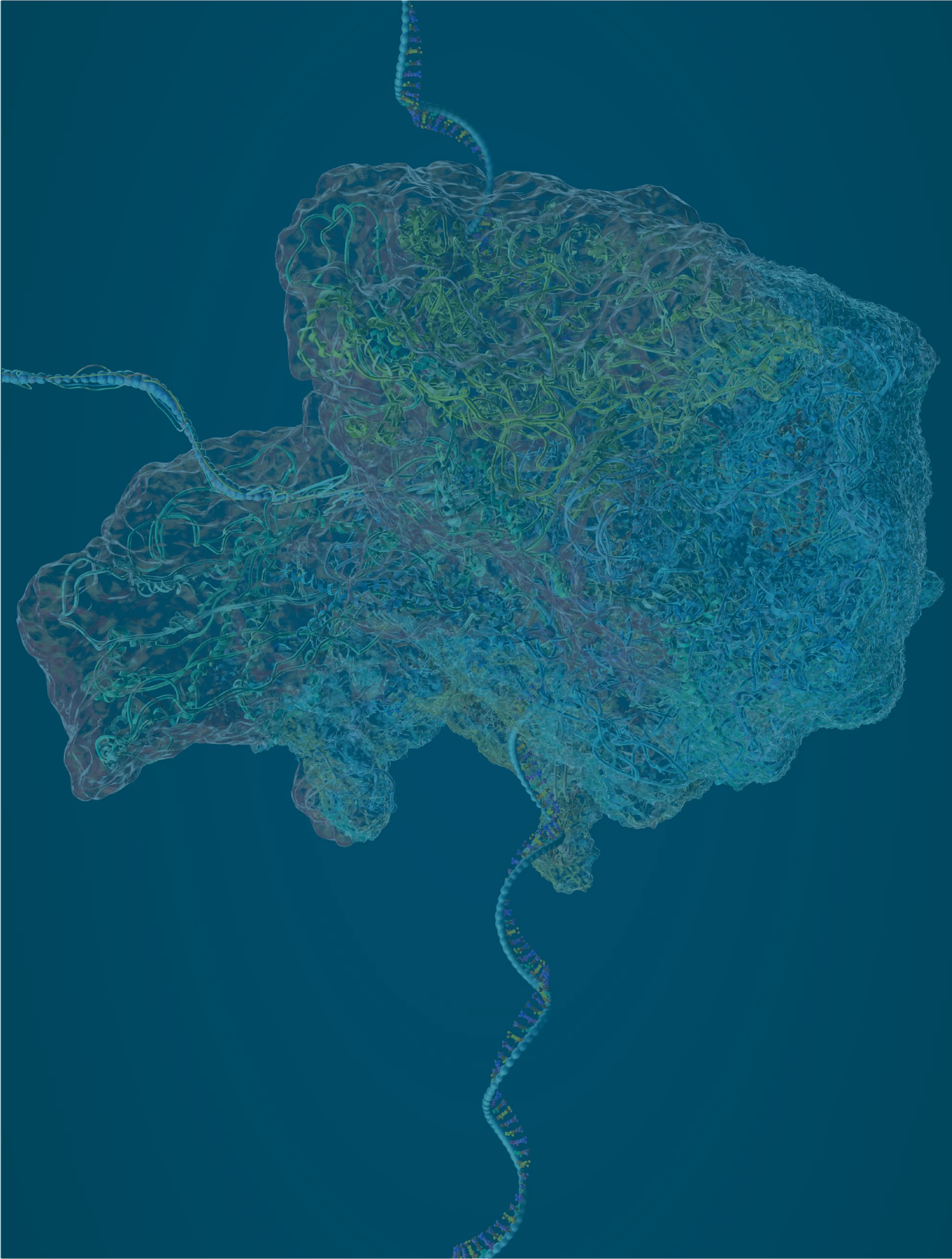
For example, mRNA encoding versatile antigens and delivering them to dendritic cells (DCs) has been found to be a strong and promising approach to induce immune response in cancer patients.

A proven, end-to-end portfolio

At Thermo Fisher, we believe in supporting the entire mRNA workflow from start to finish. That's why we offer a comprehensive end-to-end portfolio for mRNA from research and discovery to commercial manufacturing. Our flexible products and technologies are designed to meet an array of needs. From target gene identification and synthesis to plasmid production, in vitro transcription, and measuring protein expression and immune response, we have the expertise and experience to help you succeed.

With our portfolio of products and services, you can accelerate your mRNA vaccine and therapeutics projects from pre-clinical development to commercialization with confidence. Our solutions are proven to meet critical process, scale, quality, and regulatory needs, while giving you the peace of mind you need to focus on what matters most—making a difference in the world of mRNA vaccines and therapeutics.







Connect with Thermo Fisher Scientific

With Thermo Fisher, you have the support you need to accelerate mRNA process development and vaccines/therapeutics from discovery to commercialization. Set yourself up for success with our comprehensive portfolio of products and services proven to meet critical process, scale, quality, and regulatory needs.

Contact us at thermofisher.com/mrnasolutions

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