Biotech Enters New Phase

In the 20th century, physics was the engine of innovation, it brought us computers, aeroplanes, but also the atomic bomb. We have now entered an era where biotech is as influential and interesting, but also terrifying.

Screening and editing the DNA of plants, animals, humans is happening on an ever-increasing scale.

We edit the DNA of plants to prevent disease or increase production.

We take cells from a patient to edit the DNA to later administer these cells as a medicine. In diseases where a DNA mutation is the cause, we even edit the DNA of cells in the patient.

Not Always with a Good Purpose

Biotech companies are rapidly developing technologies to treat previously incurable diseases. Artificial intelligence, machine learning and robots are further accelerating this process.

As always, new technologies are not only used for good purposes. For instance, the DNA of viruses can be edited to turn them into biological weapons and the DNA of embryos can be edited to create biological inequality.

Currently, many countries (US, China, and Europe largely) prohibit the creation of a child from an embryo whose DNA has been edited. In China, this has happened nonetheless. A medical doctor had edited the embryo immediately after IVF so that the twins to be born from it could not contract HIV infection. He did so because one of the parents had HIV infection. The action is deemed unethical because it was never investigated whether the treatment would be successful or could backfire. Besides, there are less invasive ways to prevent such an infection from parent to child. The doctor was sentenced to three years in prison.

Biotech enters Third Phase

The first phase in the medicine industry was represented by pharma medicines with a chemical basis. In the second phase, biotech medicines emerged, which are produced by living organisms such as bacteria and fungi, but also rabbits and cows. The third phase involves genetic medicines aimed at affecting the DNA or RNA in a cell.

The use of effective gene, RNA and cell therapies, and the insights gathered through 20 years of DNA sequencing, combined with big data, will generate big returns. Both in financial terms and in quality of life.

What makes Genetic Medicine Attractive?

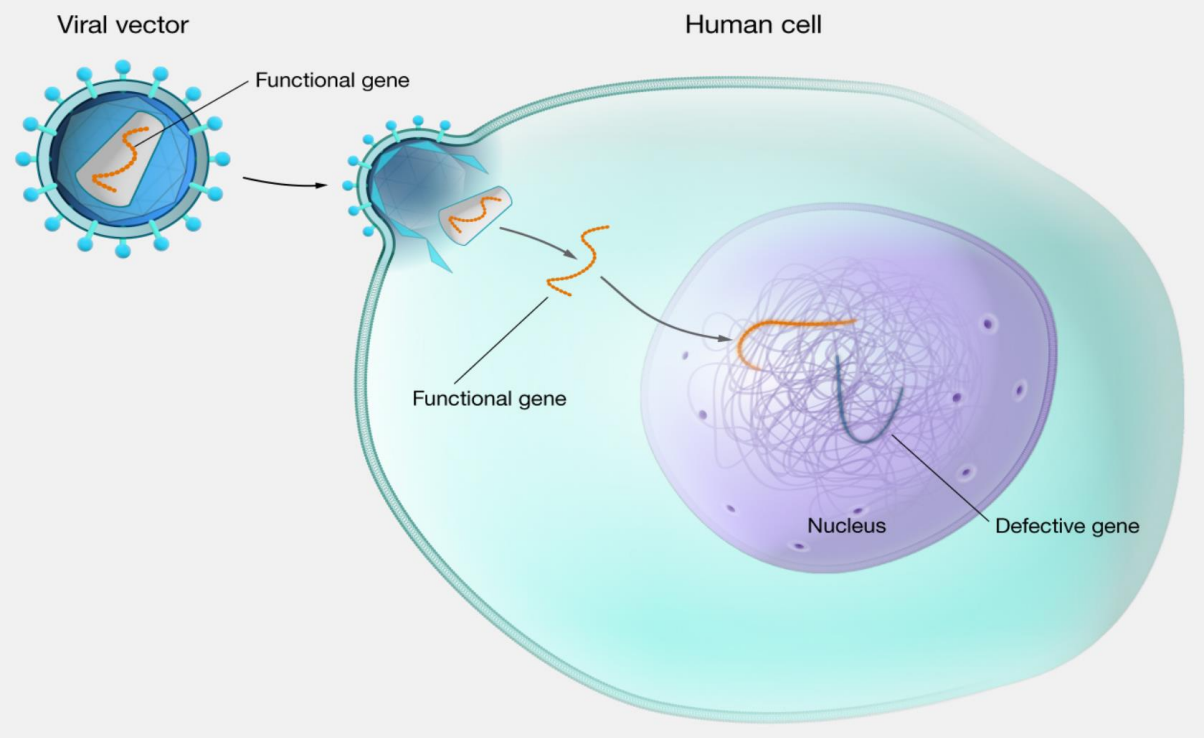
Genetic medicines typically treat the cause of a disease rather than the symptoms. For example, gene therapy involves inserting a missing gene into cells, allowing a particular protein to be made again. Mutated genes that cause diseases can also be corrected.

Since for many diseases it is now known what needs to be corrected (a missing or defective gene), the success rate of developing genetic medicines is much higher than for traditional medicines. As a result, a greater number of medicines came to market in the last five years than ever before in history.

New Treatment

Genetic medicines treat the cause of disease and can therefore treat diseases for which there was no treatment available yet. It also enables the development of better treatments.

Thanks to these new medicines, people will be able to return to work, experience fewer or no side effects, or leave hospital sooner. All this leads to a better quality of life for patients and their families and mostly a cost reduction for society.



Source: NIH

Gene therapy is a technique that uses a gene to treat, prevent or cure a medical condition. Both inherited genetic diseases and diseases resulting from a mutation (e.g. leukemia) can be treated with gene therapy. Besides gene therapy, gene editing also exists, a well-known example being CRISPR-Cas.

In the three biggest disease areas: cardiovascular disease, cancer and obesity, many advances are being made, and innovative medicines are coming to market.

Obesity

More than half a billion people worldwide suffer from obesity, which leads to cardiovascular disease, diabetes and kidney disease, among others. In the US, 60% of people are overweight or obese. Among young people, the percentage is 30%, about double the average of the rest of the world.

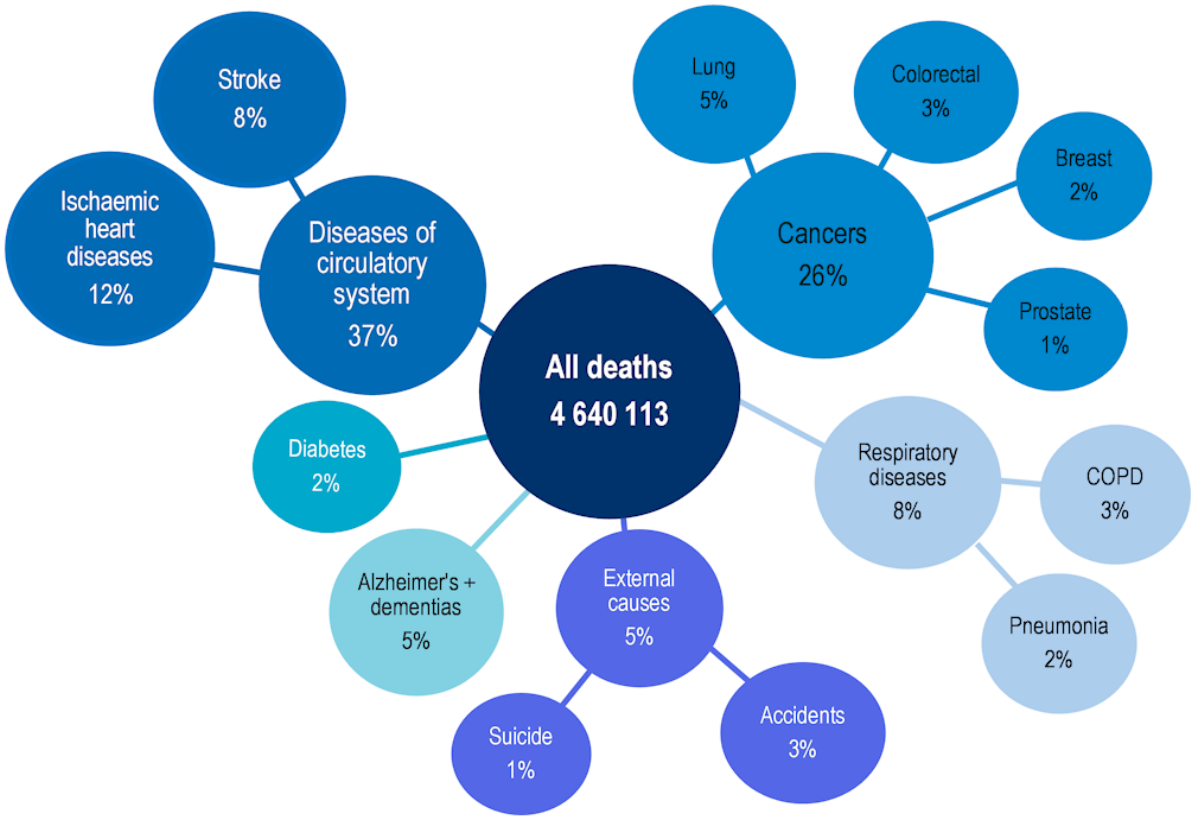
The new generation of anti-obesity medicines is making a big difference: in clinical trials, they reduce body weight by 15-20% in 1.5 years, versus 2-3% for those given a placebo.

These medicines slow down digestion, causing people to eat less. Many overweight people have diabetes, another positive effect of these medicines is that they help control blood glucose levels. The first product that is on the market, Wegovy from the company Novo Nordisk, is so popular that it already has supply problems due to high demand.

Diabetes

In the US, 62 million people have been diagnosed with diabetes and it is assumed that the actual number is much higher, as about 40% of people with diabetes are not yet aware that they have the condition. In the past 30 years, the number of people with diabetes has already tripled, and it is expected to reach 109 million by 2040 in the US alone. This rapid increase in diabetes is a direct result of the rapid rise in overweight people.

Main causes of death in the EU



Source: Eurostat Databank

Cardiovascular disease and cancer still Cause of Death Number 1

With the help of RNA and gene therapies, many better treatments for cardiovascular disease and cancer are entering the market. From better cholesterol-lowering medicines to highly effective individualized cancer therapies.

Genetic R&D also has a major impact on the diagnosis of cardiovascular disease. We already know of more than 150 different genes that can cause such conditions. Specific mutations link to a specific disease and allows doctors to minimize the risk of its occurrence. In addition, medicines are being developed to treat these mutation-induced diseases.

All forms of Cancer are Caused by Mutations in our Genes

In all cases, cancer stems from mutations in our genes that are congenital or arise spontaneously over the course of our lives from factors such as alcohol, smoking, chemicals, etc. Usually, mutations in several genes are needed before a normal cell turns into a cancer cell.

Only a small number of people who develop cancer are born with a mutation in a gene that predisposes them to develop certain cancers; as we see in breast and ovarian cancer.

Today, to determine the best possible treatment for a patient, doctors screen a patient's cancer cells to see which genes are mutated.

When using so-called CAR-T therapy, immune cells are taken from the patient and then genetically modified to target (better) the patient's tumor cells. These therapies are very effective, but still very expensive.

Reduction of Healthcare Costs

Our society as a whole will also benefit from accelerated biotech innovation. New medicines can significantly reduce healthcare costs. The cost of medicines is a popular topic for politicians; after all, all consumers want these prices to be lowered, which will also make health insurance more affordable.

However, medicine prices must be supported by so-called 'health economics' studies that show the added value of a medicine over existing therapies. Moreover, the final price paid is set by local governments or insurance companies.

The cost of medicines amounts to 5% - 12% of total healthcare costs. For a country like the Netherlands, we are talking about 6%, but in America it is double that percentage.

However, politicians also know that lowering medicine prices slows down the speed of innovation, and given the rapidly ageing society, new medicines to treat Alzheimer's, osteoarthritis, and Parkinson's, for example, are desperately needed.

Preventive DNA testing?

So-called sequencing of DNA has become much cheaper over the years and is offered by many parties. Among other things, it is used to detect a genetic cause of a disease. Healthy people who want to know whether they are at increased risk of certain diseases are also increasingly having their genetic profile examined. This test can help determine whether you are at an increased risk of developing a certain type of cancer or heart disease, for example. This allows you to monitor this better and, in some cases, make preventive changes to your lifestyle. You can also get tested to see if your future children have an increased risk of more than 100 diseases.

However, it is important to note, that having one or more genes that "code" for a specific disease does not mean that you will actually get that disease.

One Injection is Enough

When we write about innovation in biotech, we often talk about gene therapy, but RNA therapy and cell therapy are just as promising. An advantage with gene therapy is that one injection is enough for years of treatment, if not lifelong.

Positive Impact

When investors think of companies with a positive impact on society, they often refer to those that cooperate in a circular economy. However, biotech companies also belong in the upper league of impactful companies. For patients, their loved ones and for society. According to the WHO, Europe is heading towards a population in which 30% of people are expected to be 65 or older by 2050. To finance and manage that, new and better medicines are necessary.

Investing in Biotech

Global pharmaceutical sales measured by IQVIA were $1.07 trillion in 2021 and they expect it to grow to $1.6 trillion by 2028. As a result of the high rate of innovation in biotech, existing medicines, many of which have been on the market for 10-50 years, will be replaced faster. This makes the best-managed biotech companies a very interesting investment case. Also, because many of these companies are still trading at attractive valuations.

Several US banks expect the healthcare sector to play a leading role in the stock market this decade, with the biotech sector making a significant contribution, especially through companies working with RNA, gene and cell therapy technologies. One of the oldest and largest investment managers, Capital Group, even argues that biotech could well lead the next bull market.

About Aescap

The Aescap funds invest in innovative listed biotech / life sciences companies. The focus is on fast-growing companies developing and marketing ground-breaking medicines and sometimes medical devices. The funds are supervised by the AFM and managed by an experienced team with an excellent track record who themselves invest substantially in the Aescap funds. Aescap's strategy is to achieve excellent financial returns through the selection of a focused portfolio of around 20 companies per fund. The investment team has a high degree of commitment to the companies it invests in, acting like a private equity investor on the stock market. The name Aescap is derived from the Roman god of medicine 'Aesculapius' and 'Capital'.