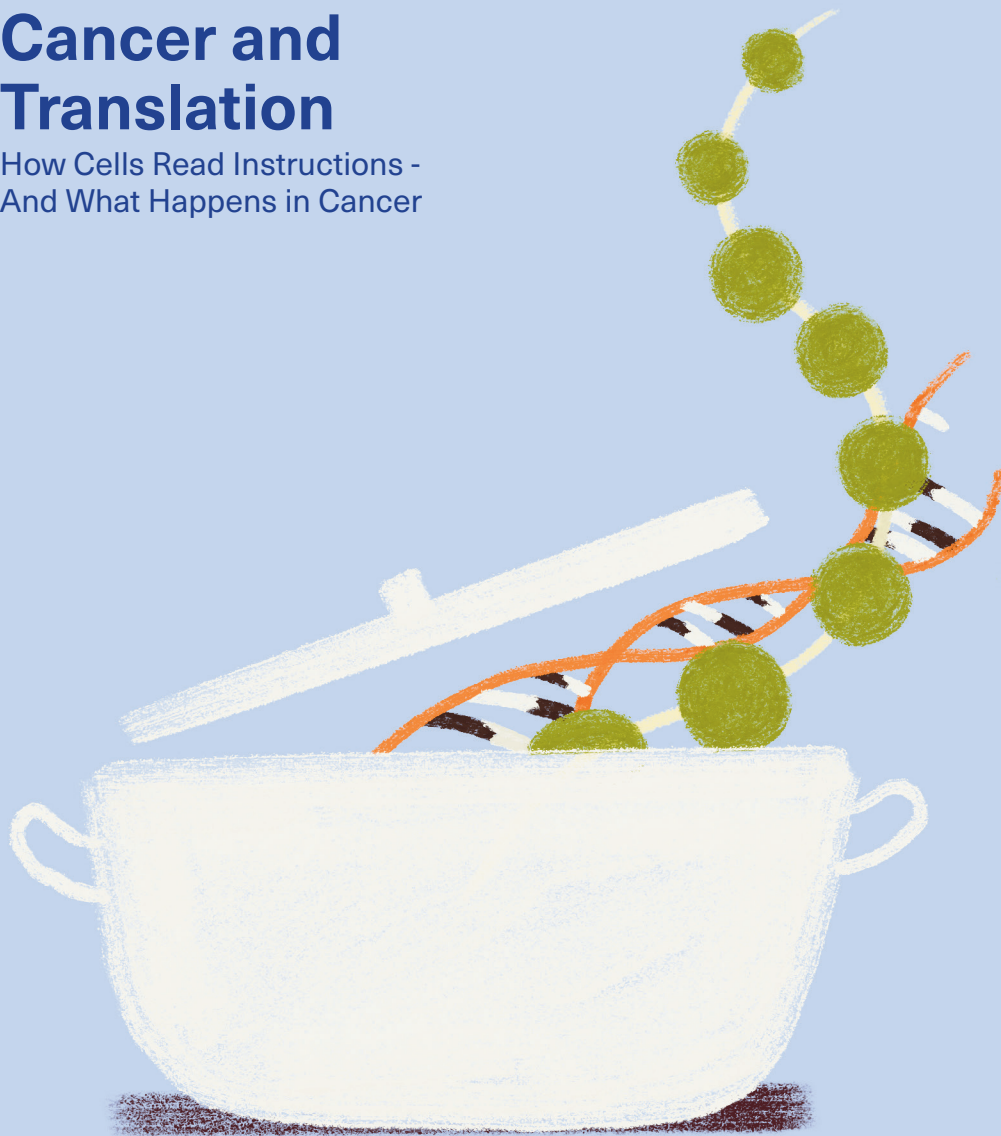


Cancer and Translation

How Cells Read Instructions -
And What Happens in Cancer



The cell's recipe

Inside every cell in your body is a set of instructions called **DNA**. You can think of DNA like a big recipe book that tells the cell what to do. Because the original recipe book stays protected inside the nucleus, a small copy of one recipe is first made. This copy is called **mRNA**.

The mRNA carries the instructions to tiny machines called **ribosomes**.

Ribosomes act like little cooks or factories inside the cell. They read the instructions and build **proteins**.

Proteins are important because they help build and maintain the structure of our cells and body, repair tissues, and support many essential functions that keep us healthy.

This process of reading instructions and making proteins is called **translation**.

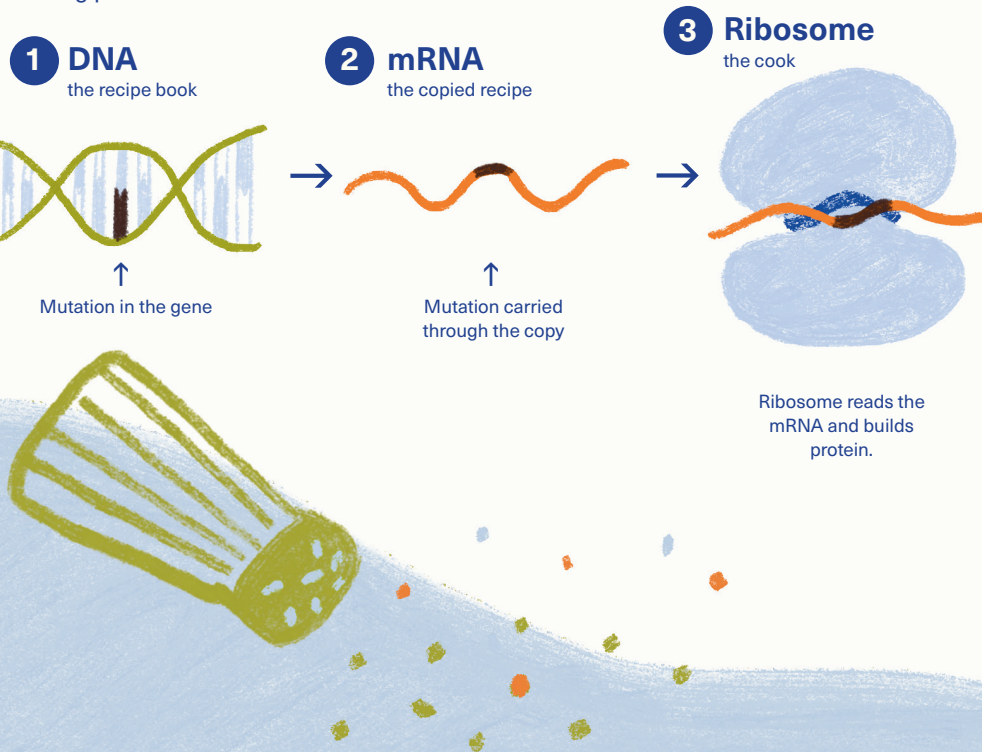
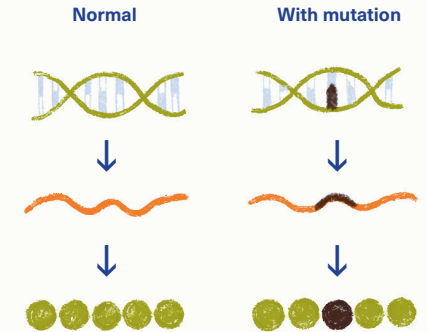
Key Words

-  • **DNA** = the body's recipe book
-  • **mRNA** = a copy of the recipe
-  • **Ribosome** = a tiny cook or machine that makes proteins
-  • **Proteins** = the final dishes. They are important for the body's different functions.
-  • **Translation** = the process of cooking/making proteins
-  • **Mutation** = a mistake in the recipe/ instructions

When recipes go wrong

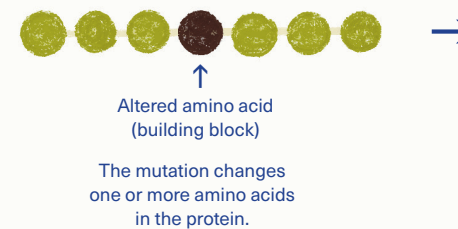
Most of the time, cells make proteins correctly. But mistakes happen. Sometimes the instructions contain mistakes. These mistakes are called **mutations**. When the recipe is wrong, or the ribosome does not read it properly, cells may produce the wrong proteins or too many. Some of these proteins can tell cells to keep multiplying even when they should stop. Over time, this can lead to **cancer**.

Mutation changes the recipe



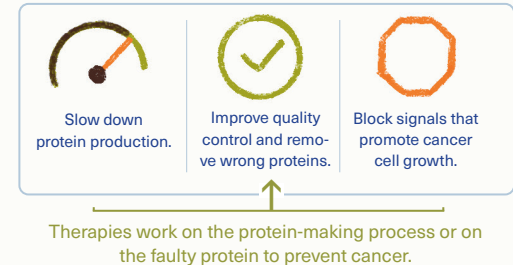
4 Protein

the finished dish



5 Translation-based therapies

help stop or correct the problem



Take-Home Message

Cells work like tiny factories that follow instructions to make proteins. Cancer can happen when the wrong proteins, or too many proteins, are made, but new treatments aim to slow down or correct this process.

Research on translation is helping doctors better understand cancer and develop new treatments for the future.

TRANSLACORE

is a European network of scientists, researchers, and doctors working together to better understand how cells make proteins and how this process changes in cancer. By sharing knowledge and developing new ideas across countries and disciplines, the network aims to support future discoveries and improve patient care.

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