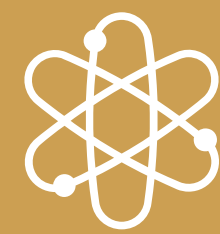


THE
NOBEL
PRIZE

ALL NOBEL PRIZES 2024

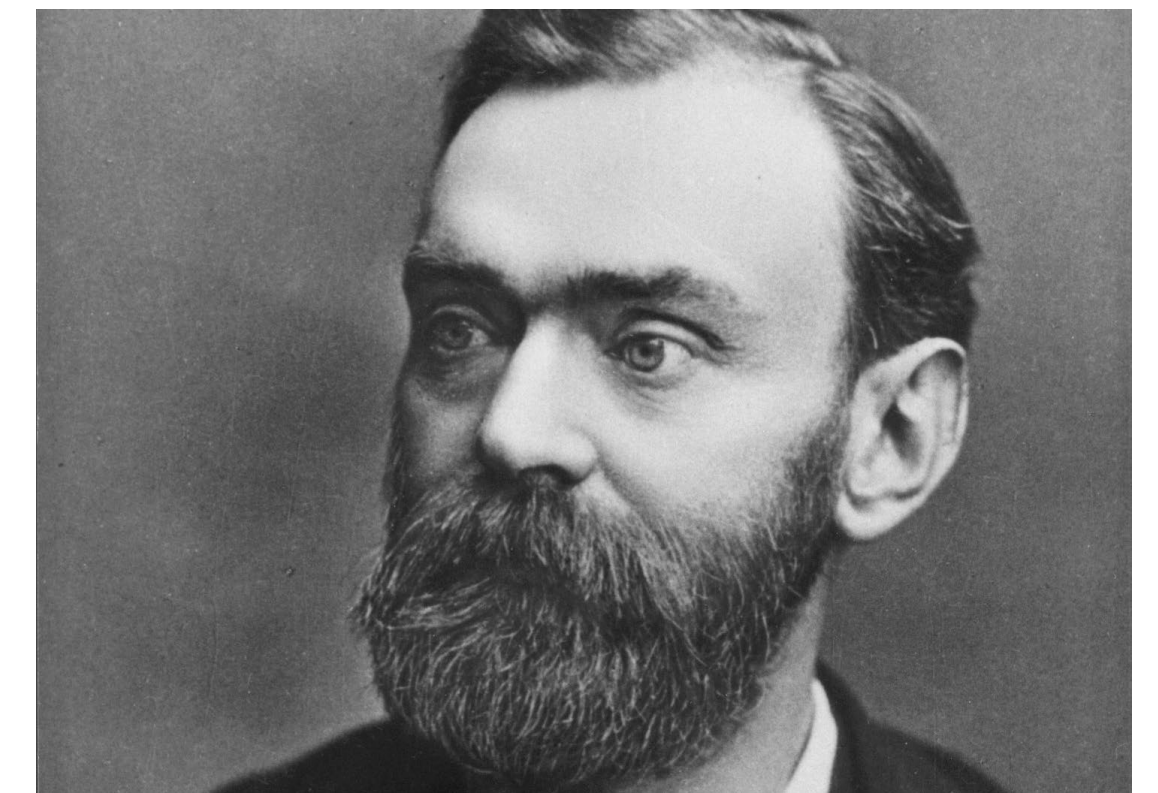
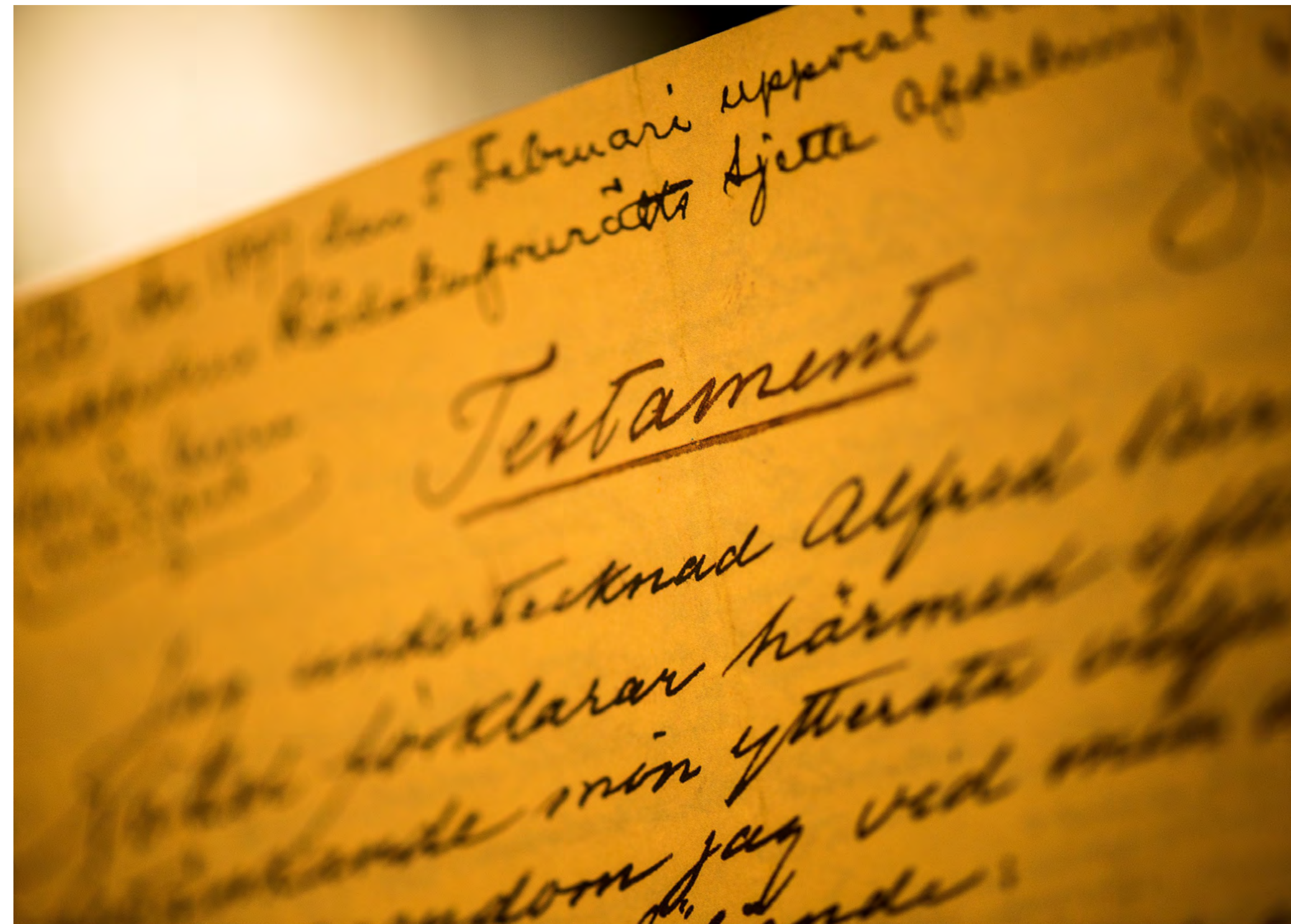


Nobel Prize lessons

The Nobel Prize

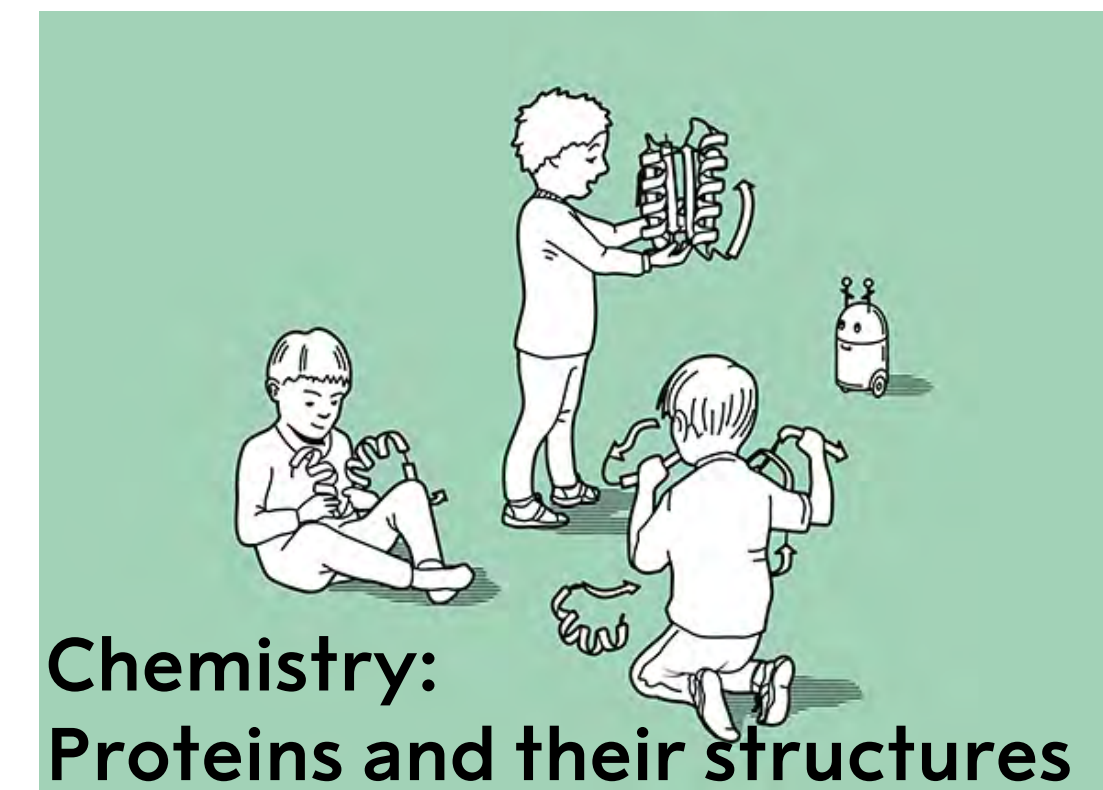
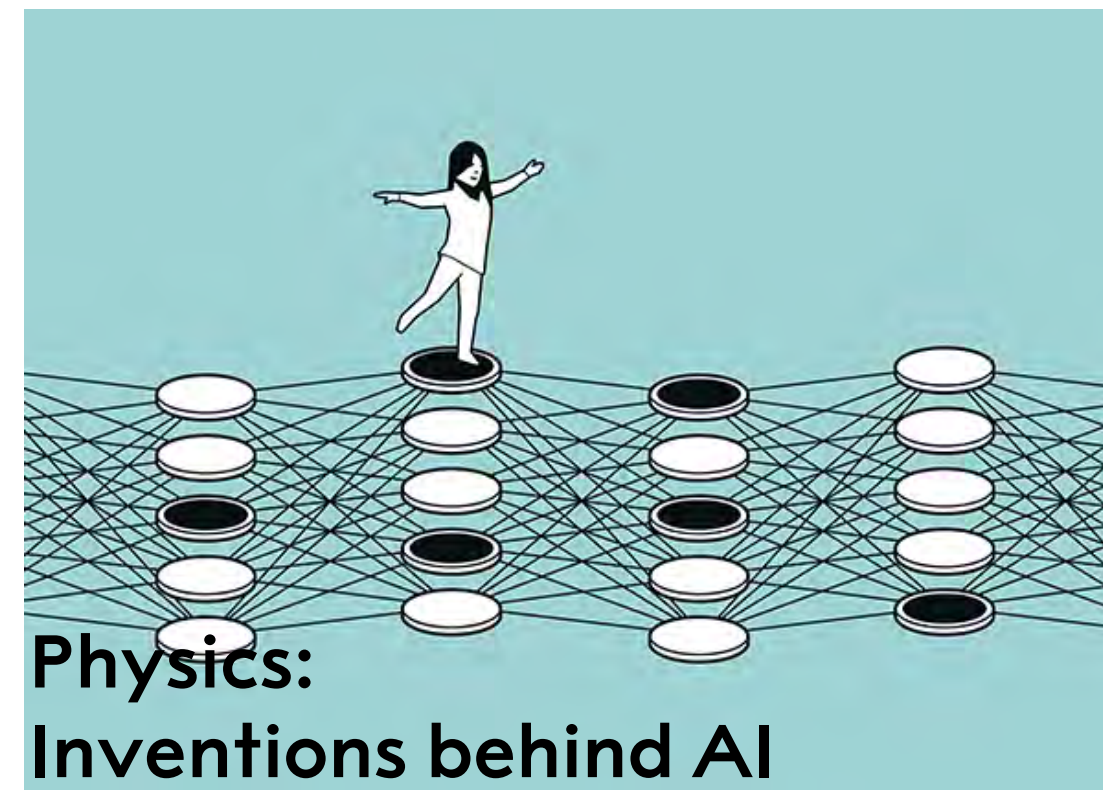
“to those who, during the preceding year, shall have conferred the greatest benefit to humankind”

Alfred Nobel
(1833–1896)

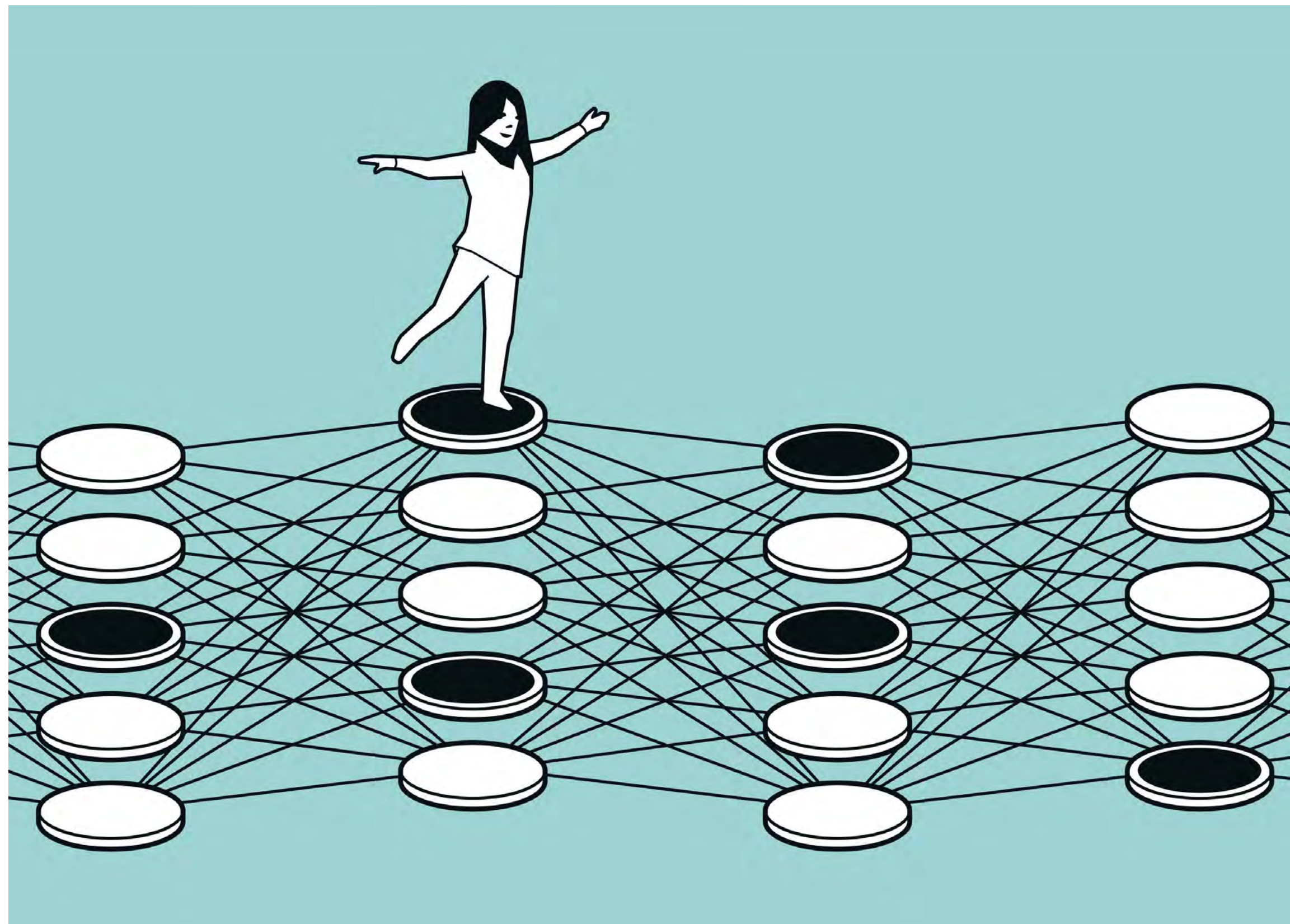


What are the 2024 Nobel Prizes about?

The Nobel Prizes are announced every year in the beginning of October.



The physics prize 2024: Inventions behind AI



The Nobel Prize in Physics 2024 recognises methods that lay the foundation for the development of artificial intelligence (AI).

The 2024 physics laureates

“for foundational discoveries and inventions that enable machine learning with artificial neural networks”

The laureates built computer systems that lay the foundation that made it possible to train computers to do things like chatting or driving a car.



John Hopfield
Born: 1933, USA



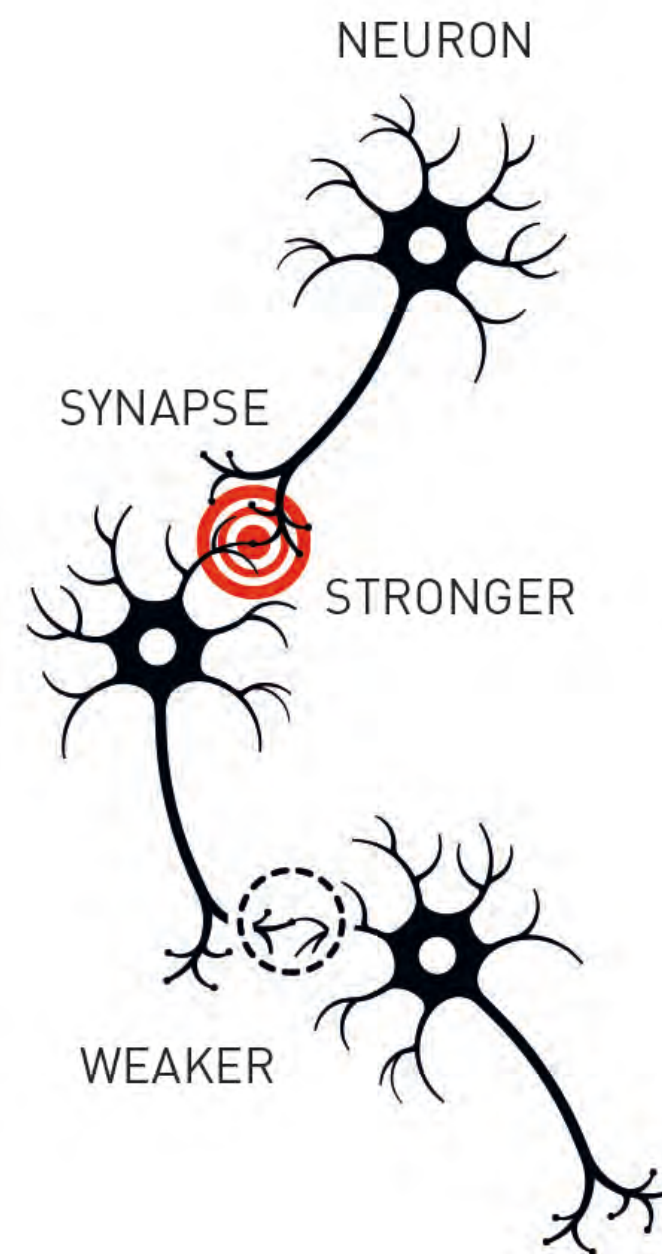
Geoffrey Hinton
Born: 1947, United Kingdom

ILL. NIKLAS ELMHED © NOBEL PRIZE OUTREACH

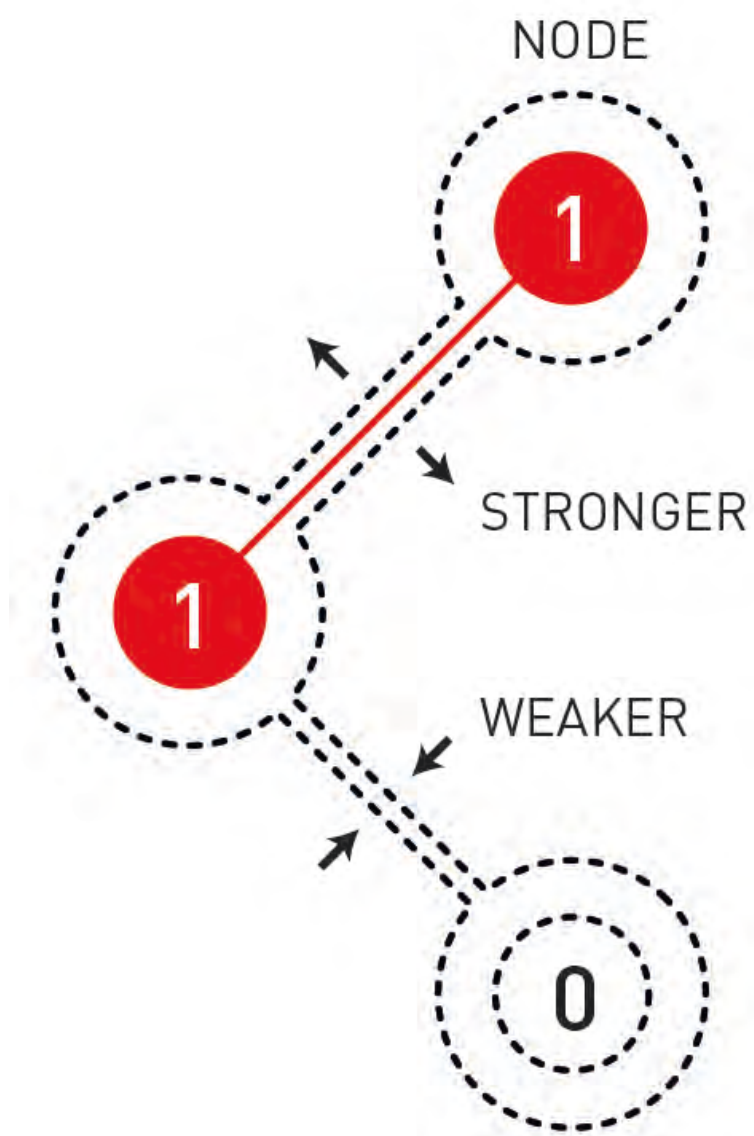
Natural and artificial neurons

When you learn something, the connections between certain neurons in your brain are strengthened, while others weaken.

Scientists have tried to mimic this process using artificial neurons in computer systems.



Natural neurons.



Artificial neurons.

Chemistry prize 2024: Proteins and their structures



The chemistry prize rewards discoveries that make it possible to predict how proteins are structured and to design new variations of proteins that have never existed before.

The 2024 chemistry laureates

David Baker is awarded “for computational protein design” and Demis Hassabis and John Jumper are awarded “for protein structure prediction”

The laureates’ discoveries are about the form, or three-dimensional structure, of proteins.



David Baker
Born: 1962, USA



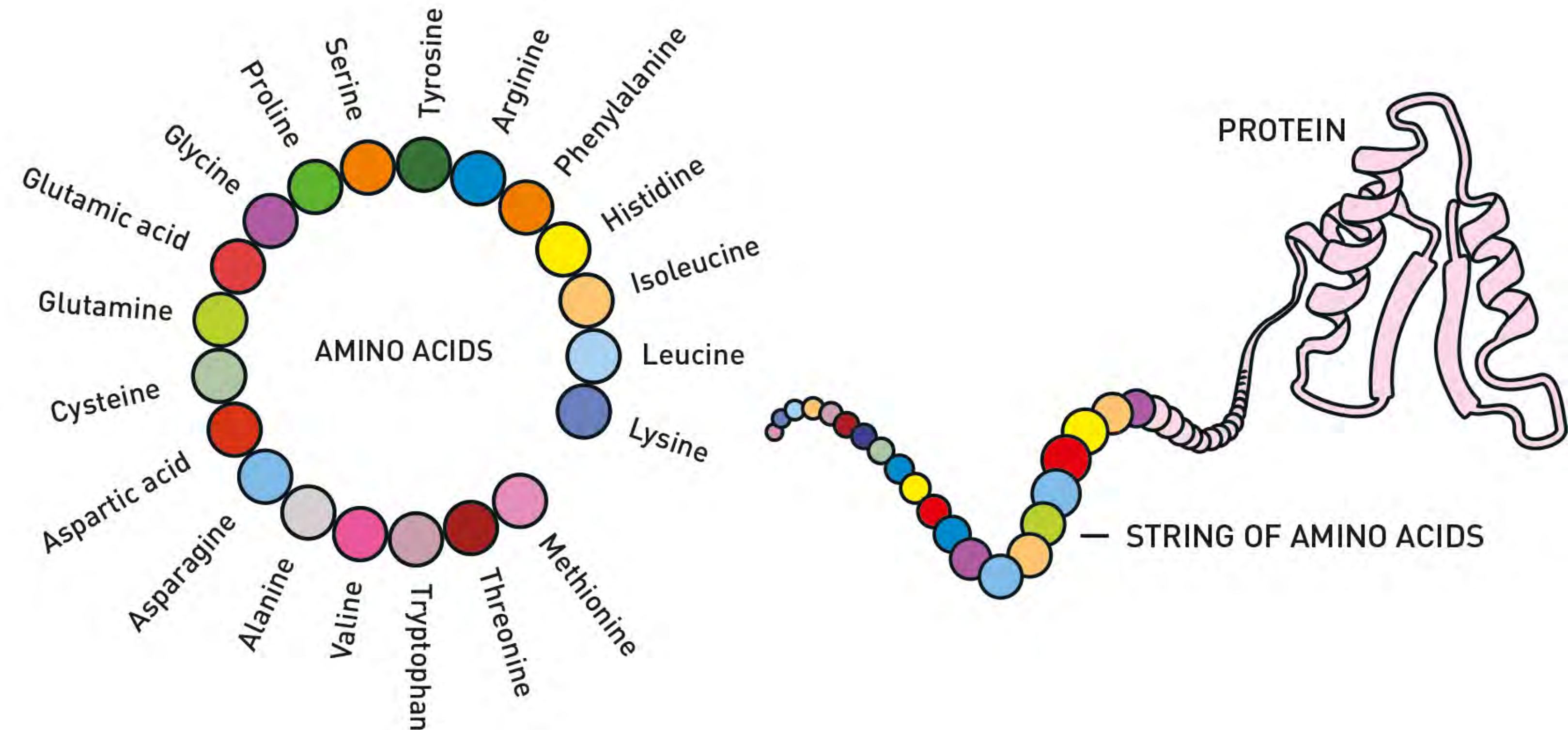
Demis Hassabis
Born: 1976, United Kingdom



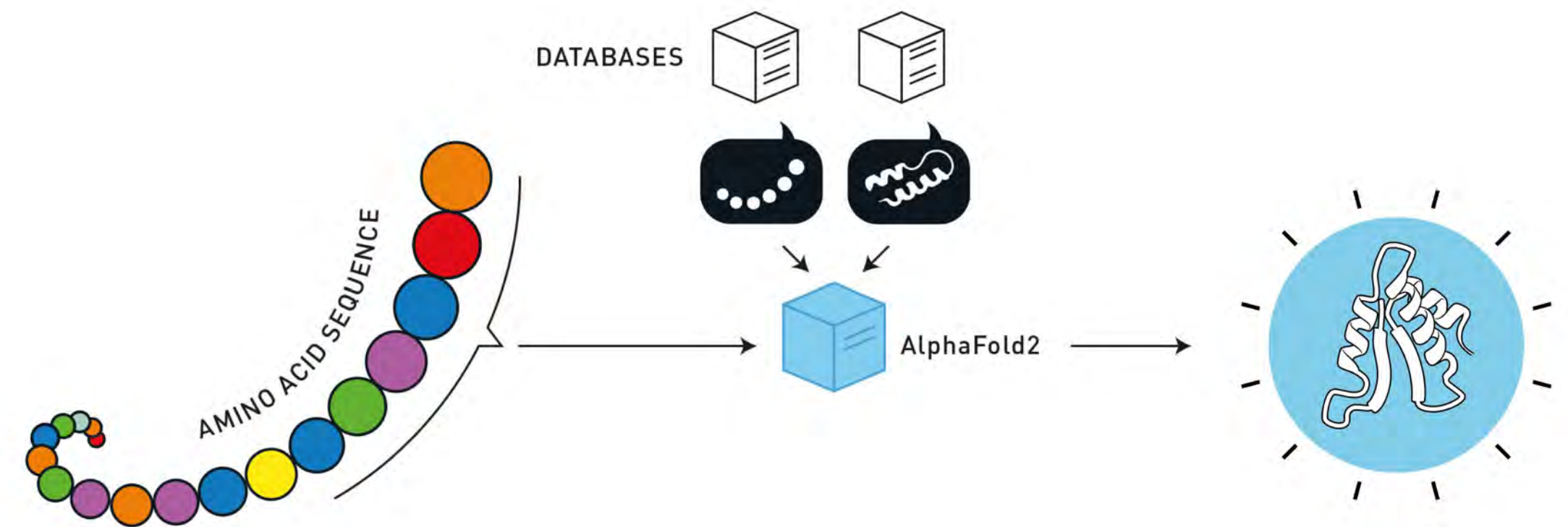
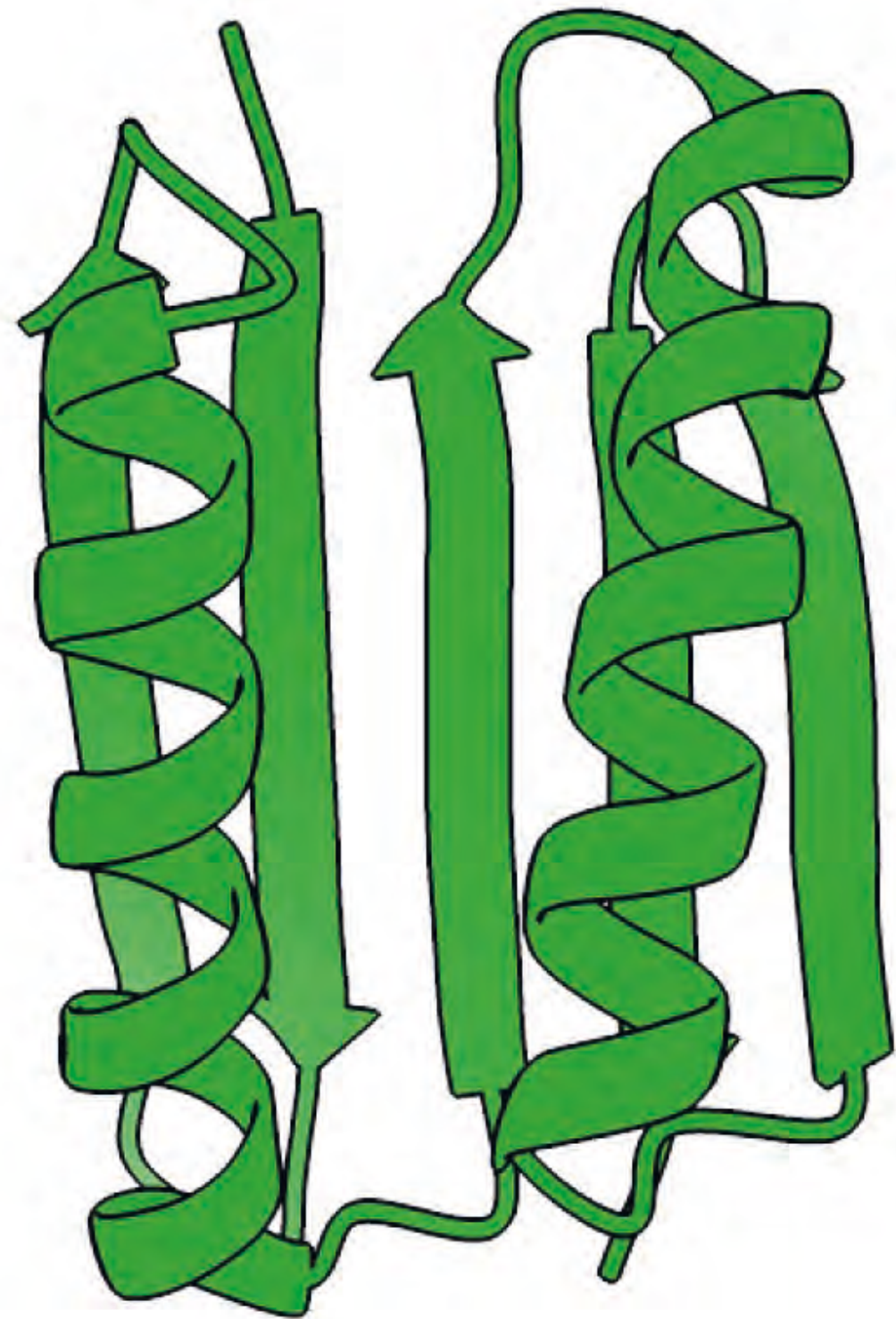
John Jumper
Born: 1985, USA

Amino acids make up proteins

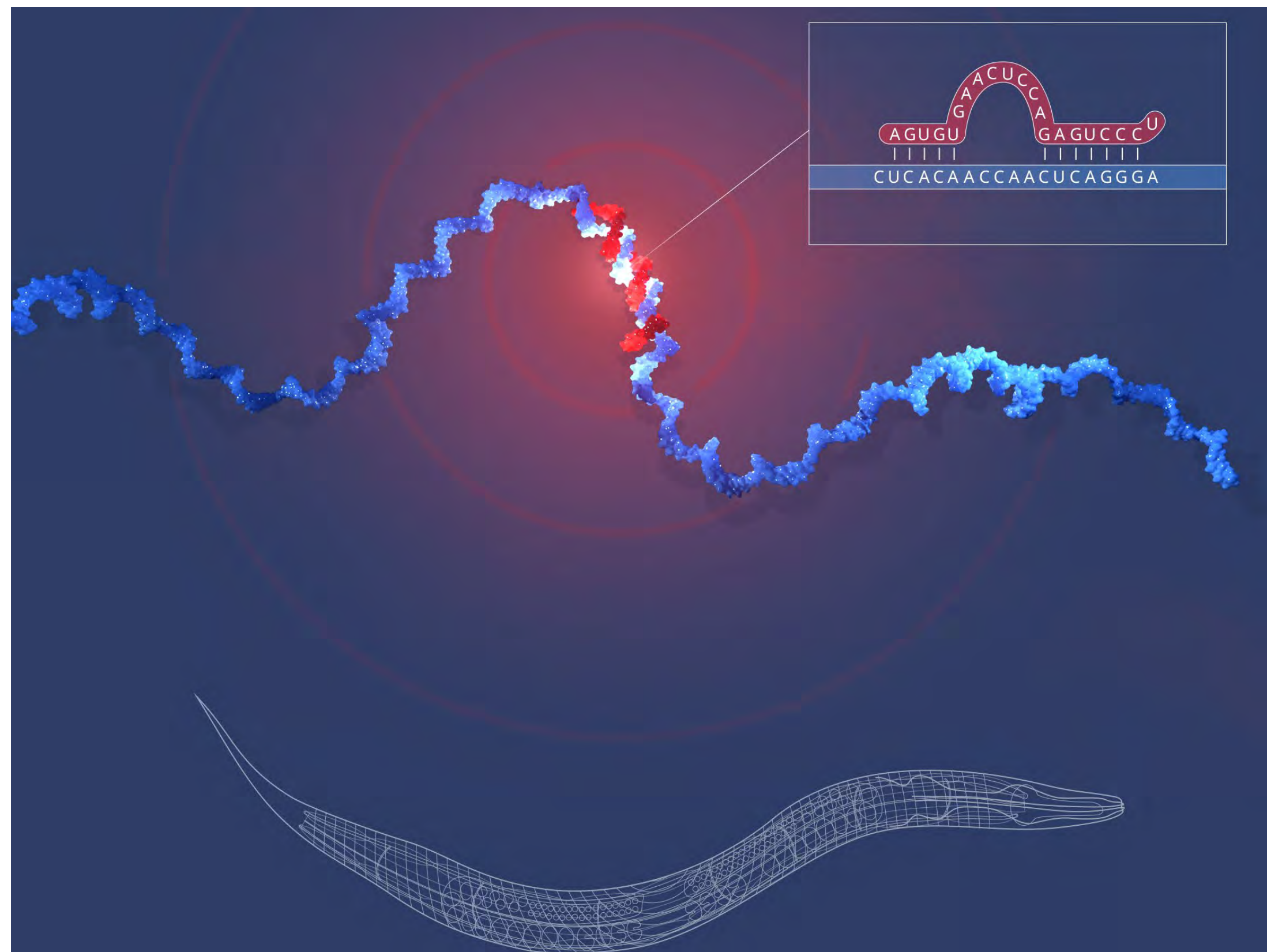
Proteins are built from combinations of 20 different amino acids.



The computer programme Rosetta and the AI model AlphaFold 2



The medicine prize 2024: MicroRNA and its function



The 2024 medicine prize recognises the discovery of microRNA and research that demonstrates how cells regulate the activity of their genes.

The 2024 medicine laureates (and a worm)

“for the discovery of microRNA and its role in post-transcriptional gene regulation”

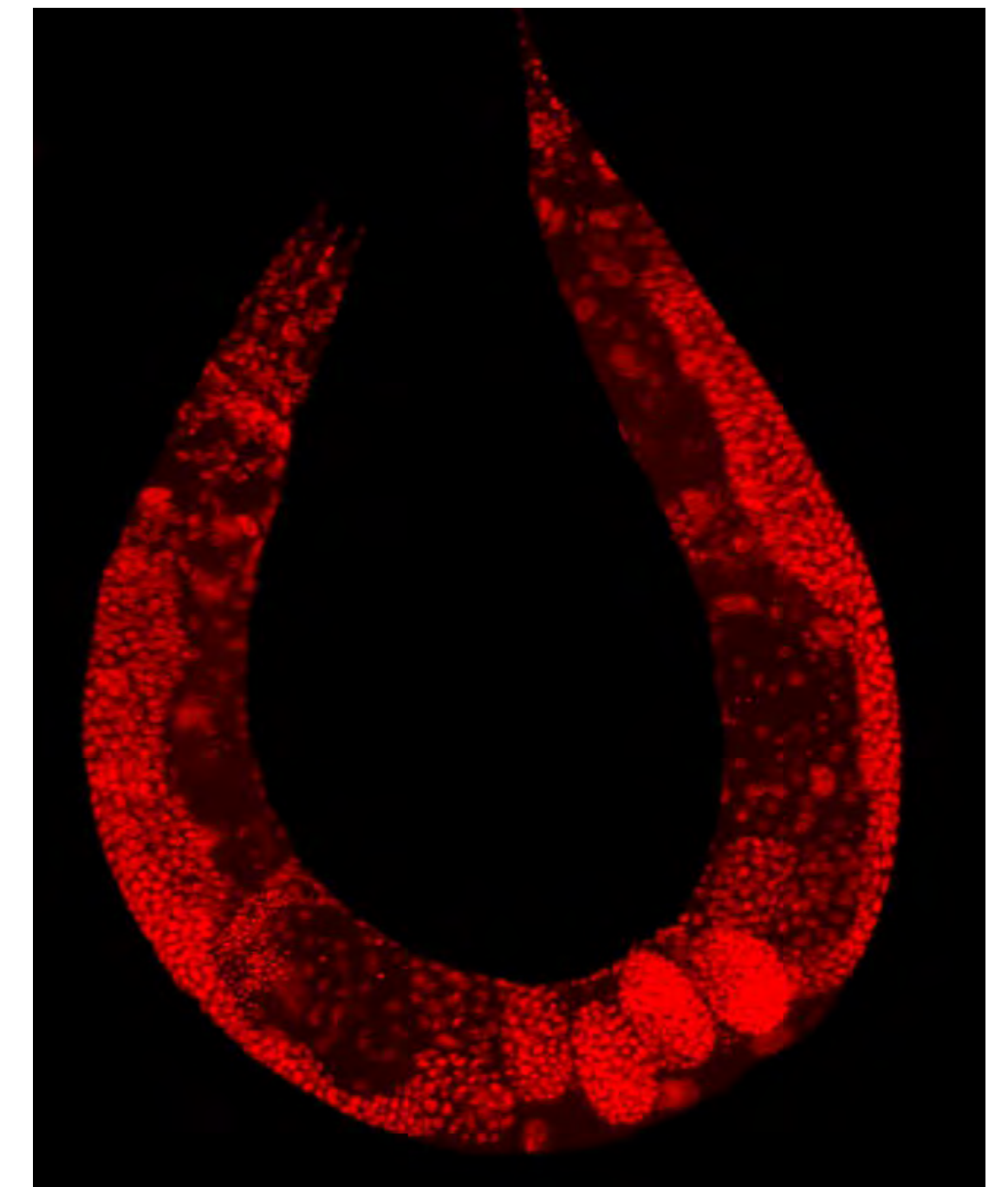
The laureates are geneticists who are interested in how cells form and develop. When they studied a worm called *C. elegans*, they discovered something known as microRNA.



Victor Ambros
Born: 1953, USA



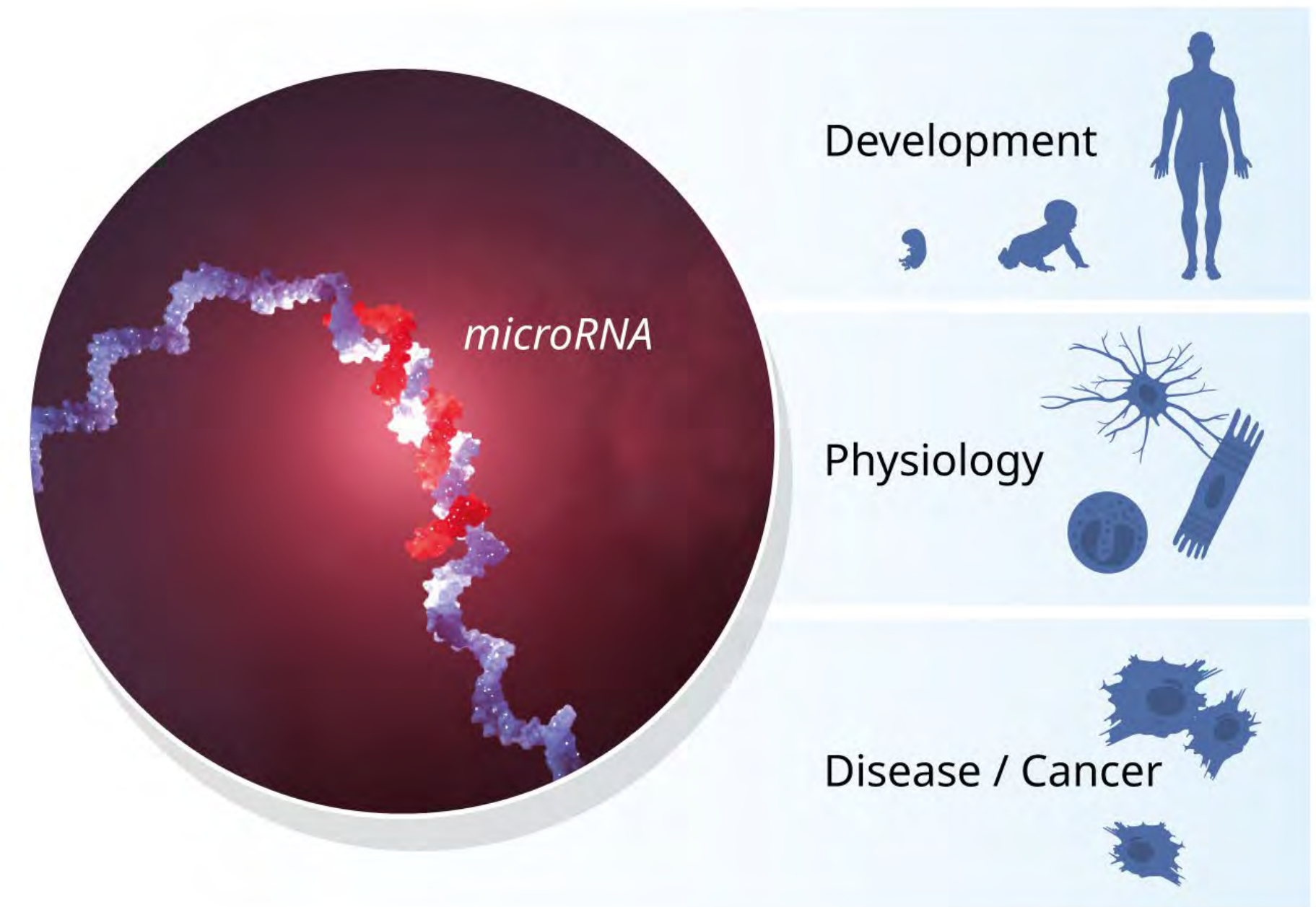
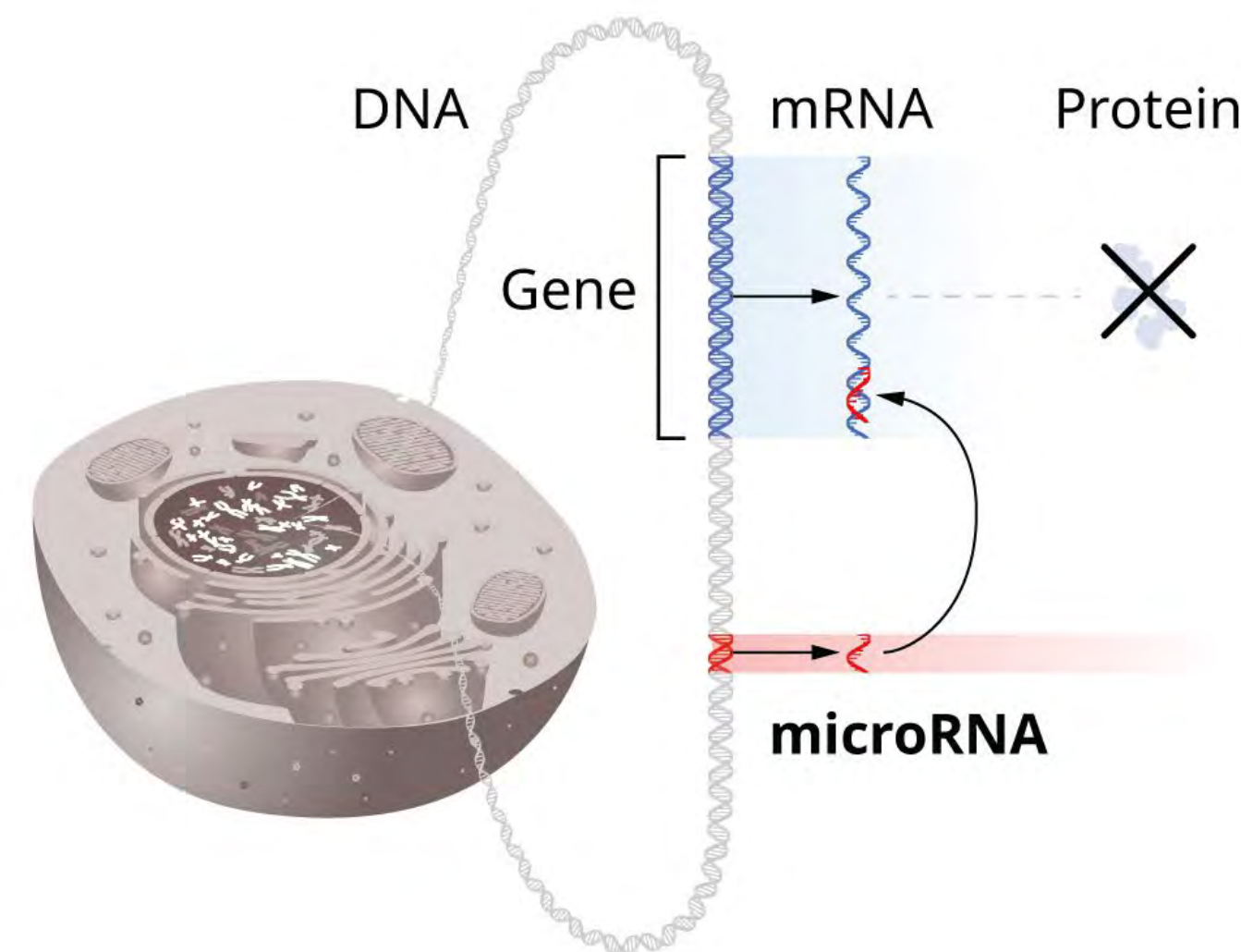
Gary Ruvkun
Born: 1952, USA



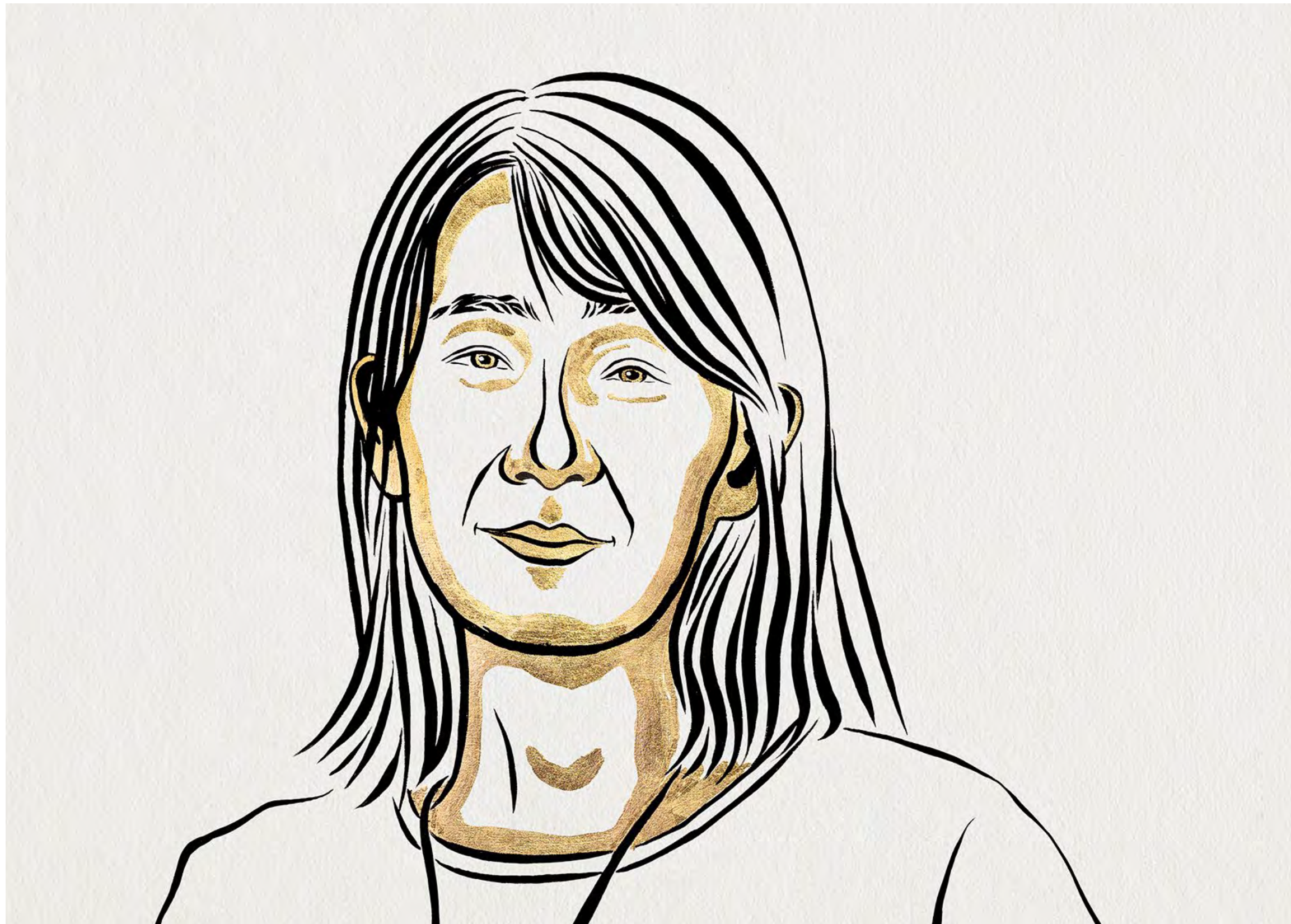
The worm *C. elegans* stained to highlight the nuclei of all cells.

The groundbreaking discovery

The microRNA molecule acts as a kind of brake that can regulate the synthesis of proteins in a cell.



Literature prize 2024: The author Han Kang



Name: Han Kang
Born: 1970, Syd Korea

“for her intense poetic prose that confronts historical traumas and exposes the fragility of human life”



Excerpt from *The Vegetarian*

“Eat it! Listen to what your father’s telling you and eat. Everything I say is for your own good. So why act like this if it makes you ill?”

The fatherly affection that was almost choking the old man made a powerful impression on me, and I was moved to tears in spite of myself. Probably everyone gathered there felt the same. With one hand my wife pushed away his chopsticks, which were shaking silently in empty space.

“Father, I don’t eat meat.”

In an instant, his flat palm cleaved the empty space.

The Vegetarian (2007)
Hogarth, 2015, translated by Deborah Smith



The 2024 literature laureate

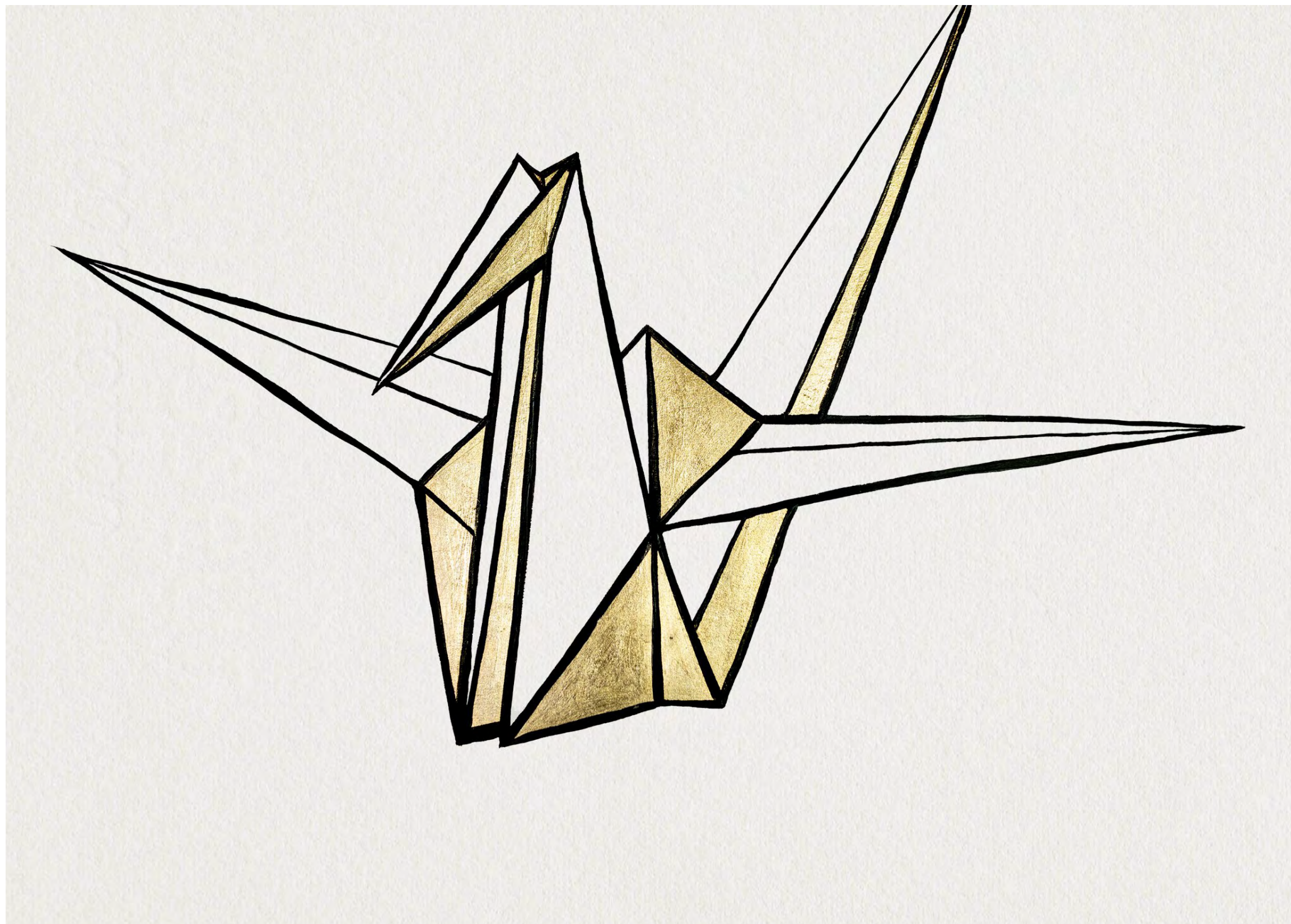
Han Kang debuted with a collection of poems. Her breakthrough as an author came in 2007 with the novel *The Vegetarian*.

Peace prize 2024: The fight against nuclear weapons



The peace prize 2024 is about the fight against nuclear weapons. The prize is awarded to a Japanese organisation made up of survivors of the atomic bombs dropped on Hiroshima and Nagasaki.

The 2024 peace laureate



Name: Nihon Hidankyo

The organisation was founded in 1956 in Japan.

“for its efforts to achieve a world free of nuclear weapons and for demonstrating through witness testimony that nuclear weapons must never be used again”

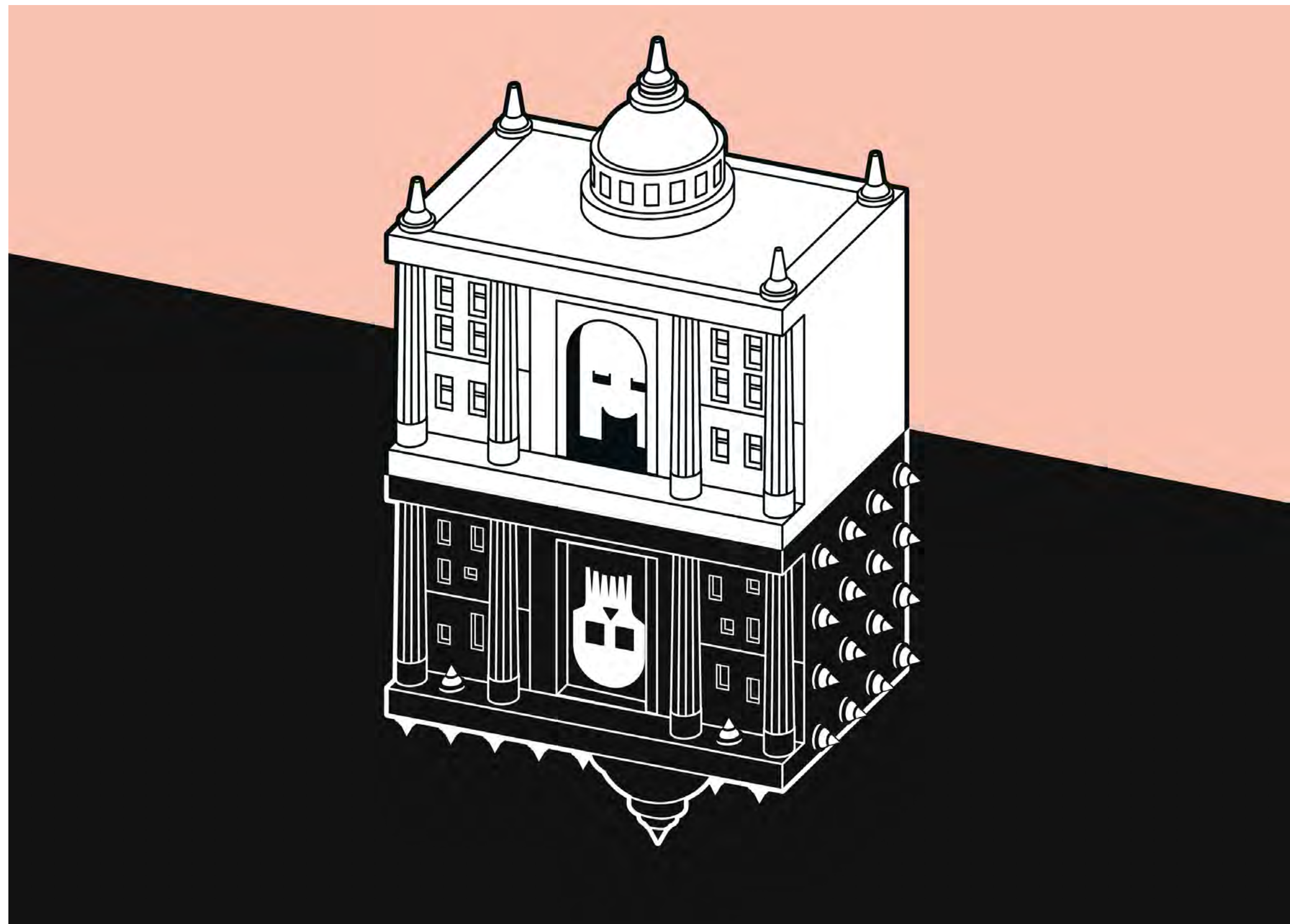


A powerful witness testimony

"I still vividly remember that morning. At 08:15, I saw a blinding bluish-white flash from the window. I remember having the sensation of floating in the air. As I regained consciousness in the silence and darkness, I found myself pinned by the collapsed building. I began to hear my classmates' faint cries: 'Mother, help me. God, help me.' Then, suddenly I felt hands touching my left shoulder, and heard a man saying: 'Don't give up! Keep pushing! I am trying to free you. See the light coming through that opening? Crawl towards it as quickly as you can.' As I crawled out, the ruins were on fire."

Quotation from Setsuko Thurlow's Nobel Peace Prize lecture at the 2017 Nobel Peace Prize Award Ceremony.

Economic sciences prize 2024: Rich and poor countries



The 2024 economic sciences prize is about why some countries are rich and others are poor.

2024 economic sciences laureates

“for studies of how institutions are formed and affect prosperity”

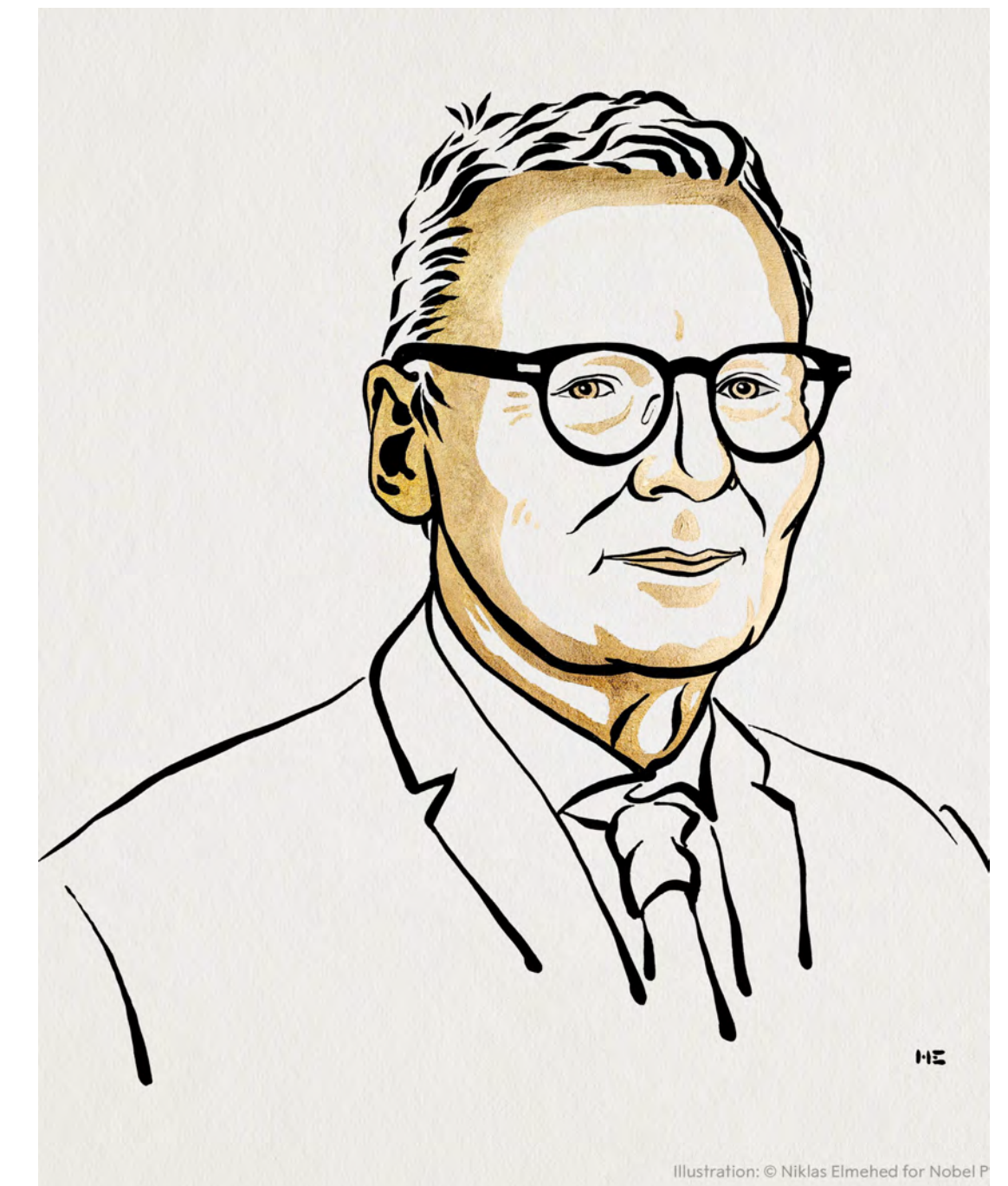
The laureates have demonstrated that the prosperity of a country today depends on the form of governance and the laws imposed on it by European colonisers from the sixteenth century onward.



Daron Acemoglu
Born: 1967, Turkey



Simon Johnson
Born: 1963, United Kingdom

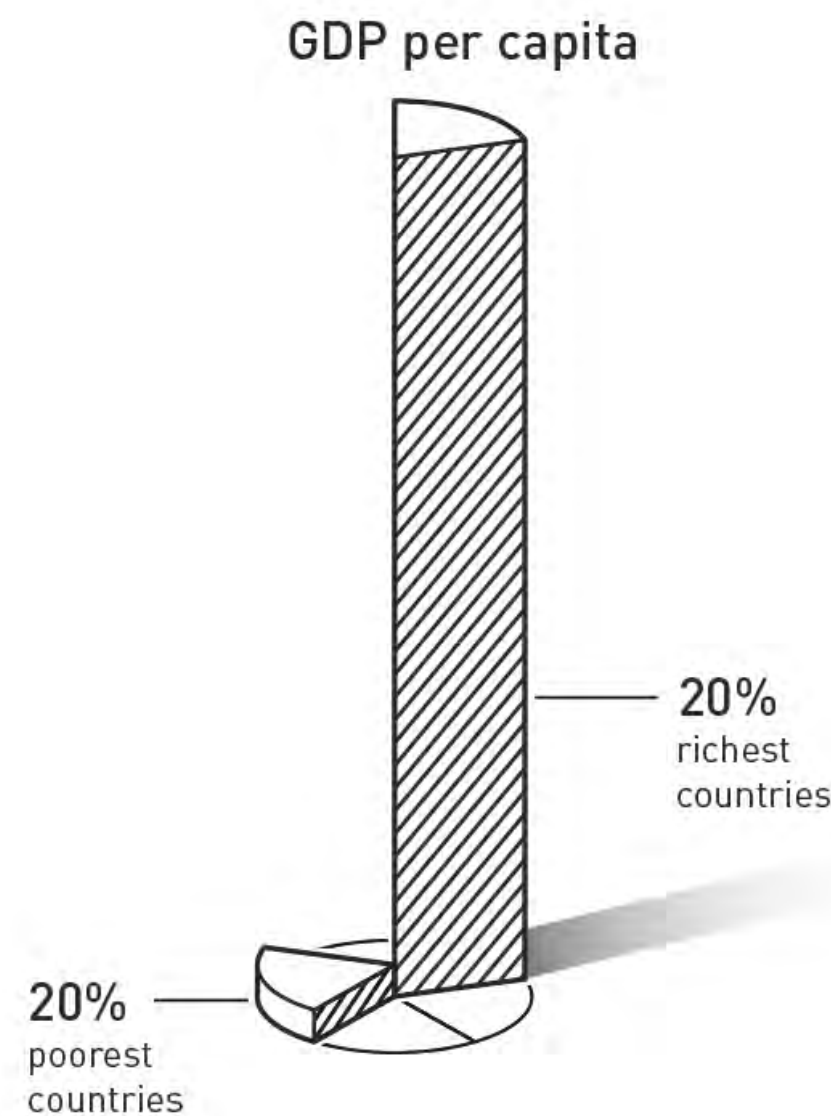


James Robinson
Born: 1960, United Kingdom

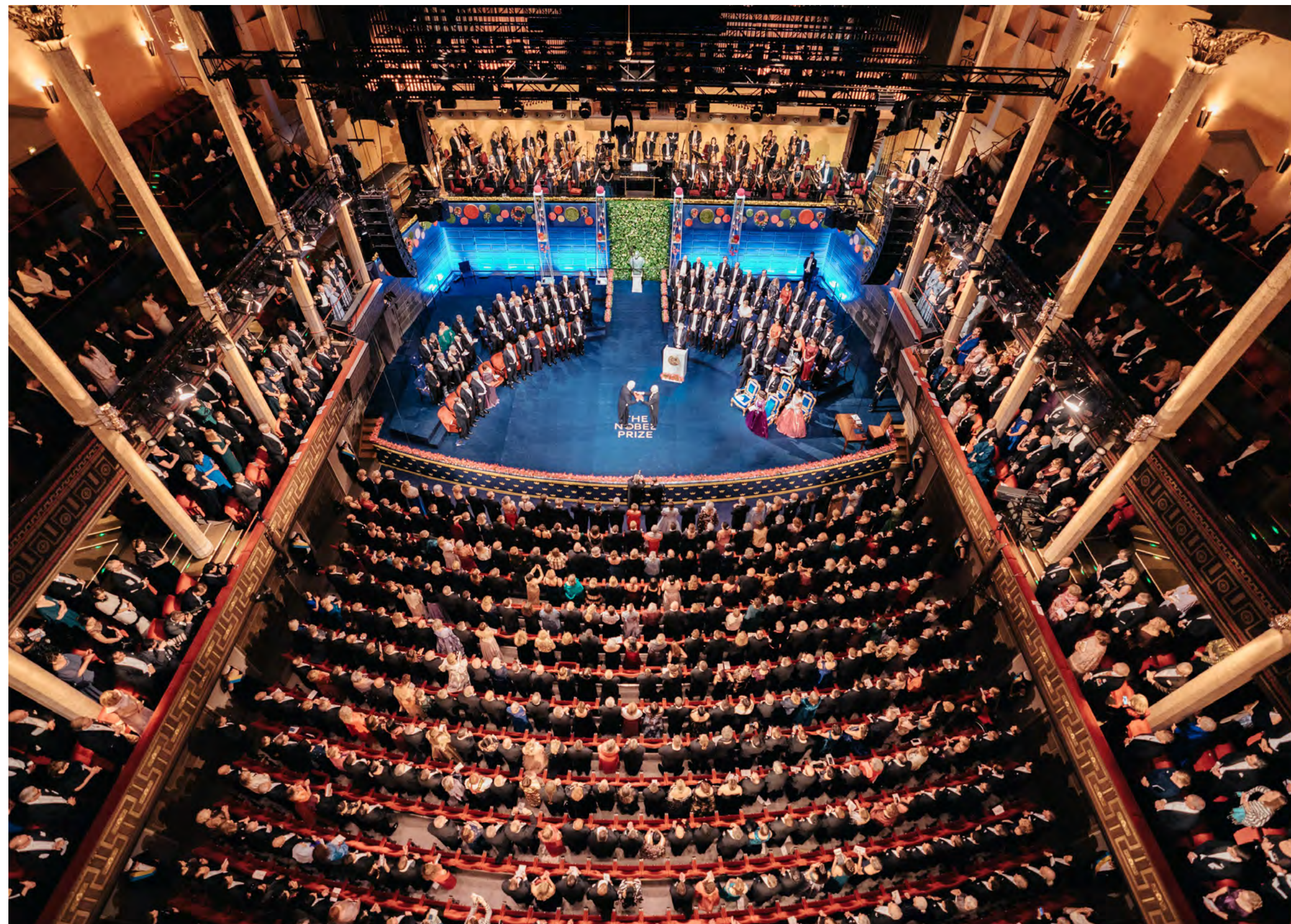
More democratic systems are the solution

The richest 20 per cent of the world's countries are about 30 times richer than the poorest 20 per cent today.

The laureates' research shows that we can change this if the poor countries transition to more democratic systems.



The Nobel Prize Award Ceremony



The Nobel Prizes are awarded on 10 December every year.

PHOTO: CLÉMENT MORIN

THE
NOBEL
PRIZE

FOR THE GREATEST
BENEFIT TO
HUMANKIND

Nobel Prize lessons