What comes to my mind?
How do I feel?

A protein tale from nature: Cryptochrome

EMBL 50 YEARS | 1974–2024

Read the short facts and note down anything you find interesting and inspirational. Using these, you will create your artwork.

To learn more about Cryptochrome, explore it in the PDBe databank by searching "cryptochrome" or using the PDB id: pdbe.org/6pu0

Before creating artwork, consider and pick...

its form

2D 3D

different colours

various shapes

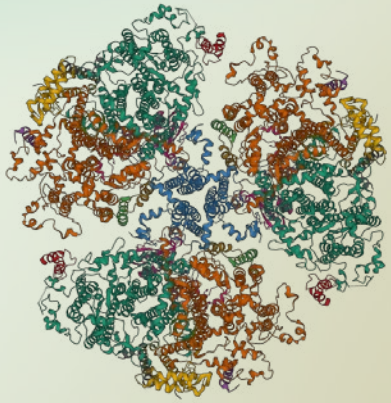
and sizes

More proteins from nature

EMBL 50 YEARS | 1974–2024

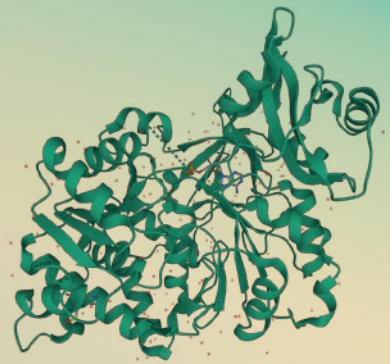
From photosynthesis to movement, from producing light to infecting other organisms, there are many proteins in nature that play crucial roles for the individual organisms and the overall health of the planet. Here are some of them and their structures for you to explore at the PDBe databank and be inspired to create your artworks.

Alpha-bungarotoxin from snake PDBe id:pdbe.org/1abt
A neurotoxin from snakes that can lead to paralysis

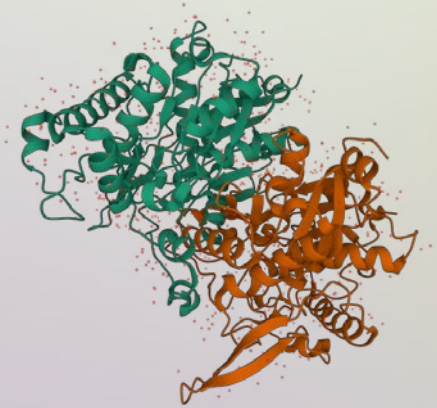


Photosystem I from cyanobacteria PDBe id: pdbe.org/1jb0
A protein complex that absorbs light energy for photosynthesis

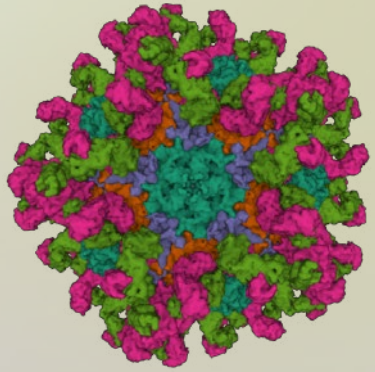
Green fluorescent protein from jellyfish PDBe id: pdbe.org/1gfl
Plays a role in bioluminescence and widely used in genetic engineering



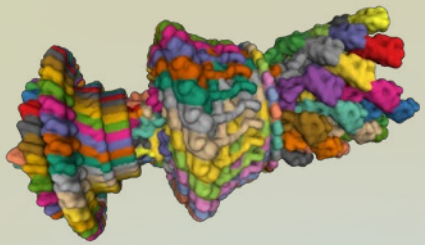
Luciferase from firefly PDBe id: pdbe.org/2d1q
Plays a role in communication and mating



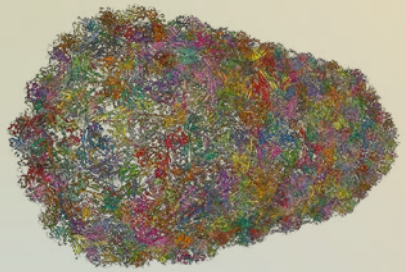
Thiolase from Sunflower PDBe id: pdbe.org/2wua
Energy production during germination



Human Hepatitis A Virus bound to antibodies PDBe id: pdbe.org/6jhs
Antibodies play crucial roles detecting pathogens in the body



Partial tail of Salmonella bacterium PDBe id: pdbe.org/7cgo
Tail motor proteins spin and push bacteria forward



Bacteriophage PDBe id: pdbe.org/8qo0
A type of virus that infects bacteria

What comes to my mind?
How do I feel?

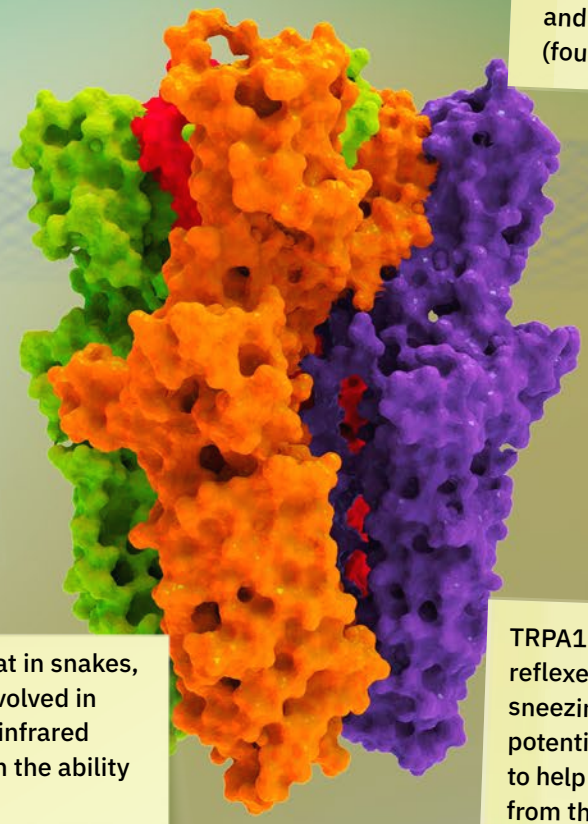
A protein tale from within us: Wasabi Receptor

EMBL 50 YEARS | 1974–2024

Read the short facts and note down anything you find interesting and inspirational. Using these, you will create your artwork.

Also known as the wasabi receptor, this protein functions as a sensor for pain, cold and itch in humans and other mammals.

TRPA1 is sensitive to a wide range of chemicals, including irritants like allicin (found in garlic), and isothiocyanates (found in wasabi).



There is active research in the field to identify drugs that can target TRPA1 and treat chronic pain.

It is also activated by temperature, particularly by cold temperatures below 17 °C, making them key players in cold sensation and cold-induced pain.

Did you know that in snakes, this protein is involved in the detection of infrared light, giving them the ability of “heat vision”?

TRPA1 triggers protective reflexes such as coughing, sneezing and tearing against potentially harmful chemicals to help expel the chemical from the body.

To learn more about TRPA1, explore it in the PDBe databank by searching “TRPA1” or using the PDB id: pdbe.org/3j9p

Before creating artwork, consider and pick...

its form

2D 3D

different colours

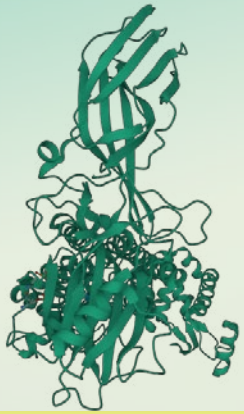
various shapes

and sizes

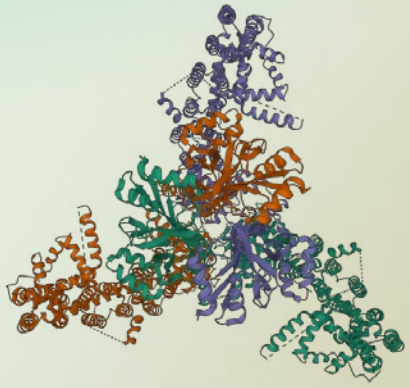
More proteins from within our bodies

EMBL 50 YEARS | 1974–2024

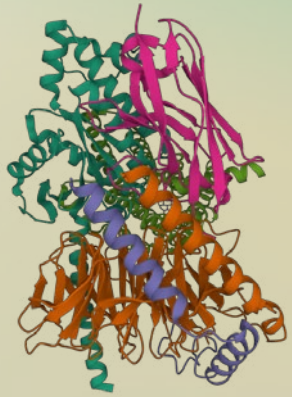
Our body produces more than 20.000 different types of proteins. Here are some of them and their structures for you to explore at the PDBe databank and be inspired to create your artworks.



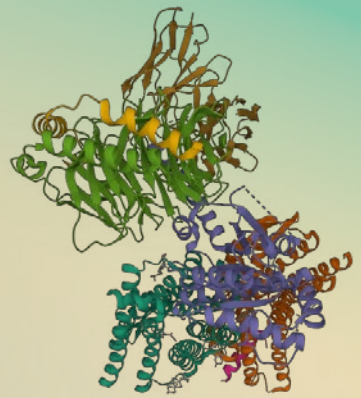
Light receptor from humans
PDBe id: pdbe.org/5w0p
Detects light and contributes to formation of vision



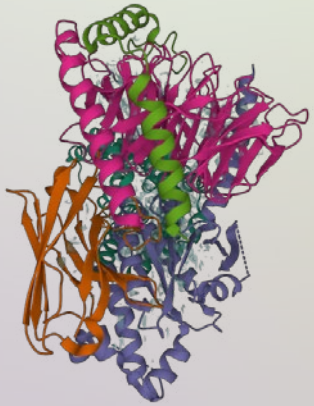
PIEZO receptor from mouse
PDBe id: pdbe.org/6bpz
Important for touch perception in mammals



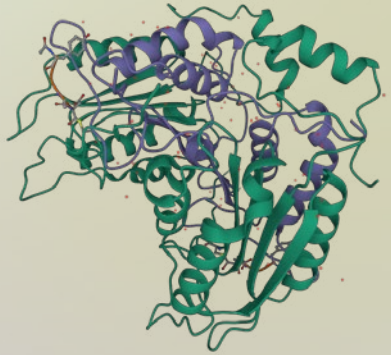
Bitter taste receptor from humans PDBe id: pdbe.org/7xp6
Detection of bitter tasting compounds in the tastebuds



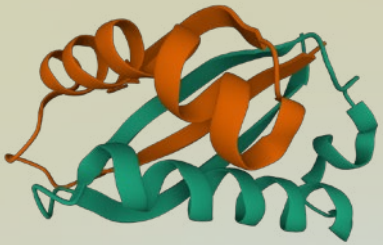
Beta endorphin from humans
PDBe id: pdbe.org/8ef5
Involved in pain relief, relaxation and feeling of happiness



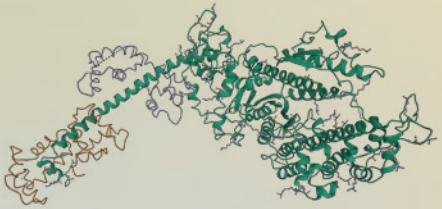
Olfactory receptors from humans PDBe id: pdbe.org/8f76
Gives us the ability to sense smell and differentiate between odors



Caspase 1 from humans
PDBe id: pdbe.org/1ice
Plays crucial roles in cell death and inflammation



Mucin 1 from humans
PDBe id: pdbe.org/2acm
Forms a gel-like protective layer in our body



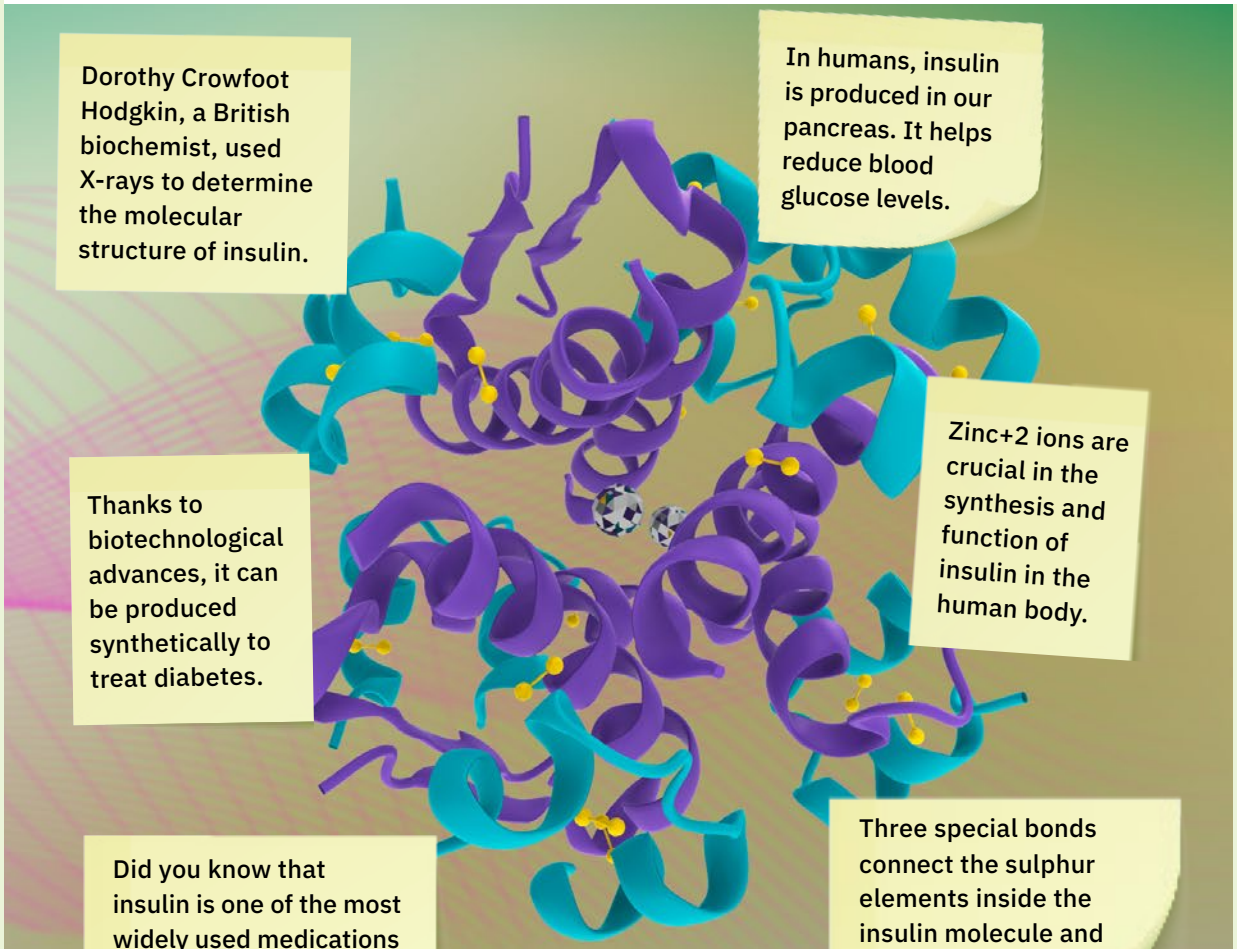
Myosin from humans
PDBe id: pdbe.org/2mys
Important for muscle contraction

What comes to my mind?
How do I feel?

A protein tale from Women in Science: Insulin

EMBL 50 YEARS | 1974–2024

Read the short facts and note down anything you find interesting and inspirational. Using these, you will create your artwork.



Dorothy Crowfoot Hodgkin, a British biochemist, used X-rays to determine the molecular structure of insulin.

In humans, insulin is produced in our pancreas. It helps reduce blood glucose levels.

Zinc+2 ions are crucial in the synthesis and function of insulin in the human body.

Thanks to biotechnological advances, it can be produced synthetically to treat diabetes.

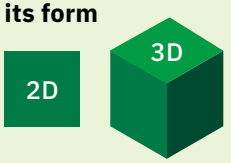
Did you know that insulin is one of the most widely used medications in the world?

Three special bonds connect the sulphur elements inside the insulin molecule and stabilise its 3D structure.

To learn more about insulin, explore it in the PDBe databank by searching “insulin” or using the PDB id: pdbe.org/1znj

Before creating artwork, consider and pick...

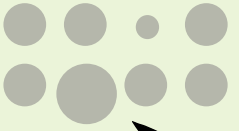
its form

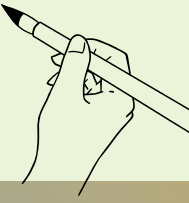


different colours

various shapes

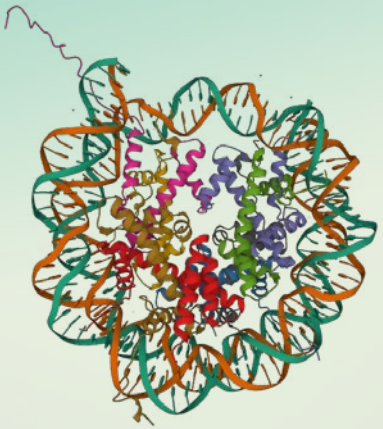
and sizes





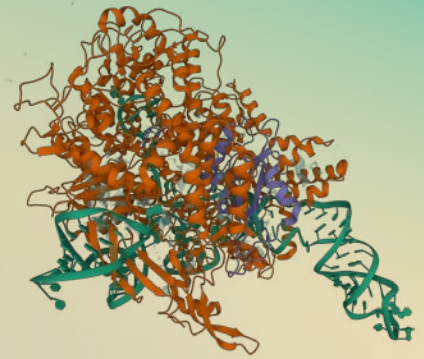
More proteins on which women scientists did groundbreaking discoveries

Because proteins play a crucial role, it is no surprise that scientists kept studying them and discovering something new about them. Here are some of the proteins women scientists worked with and made groundbreaking discoveries.

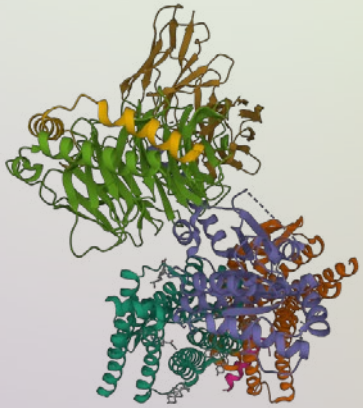


Karolin Luger and nucleosome.
Visit the protein at pdbe.org/1aoi
Packaging DNA into condensed units

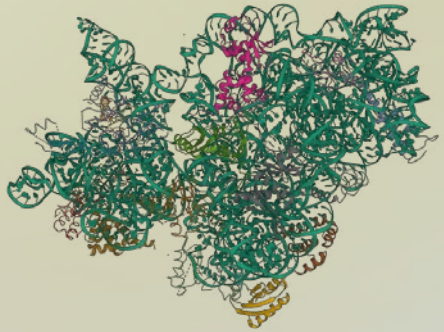
Rita Levi-Montalcini and nerve growth factor.
Visit the protein at pdbe.org/4eax
Important for the growth and health of nervous system



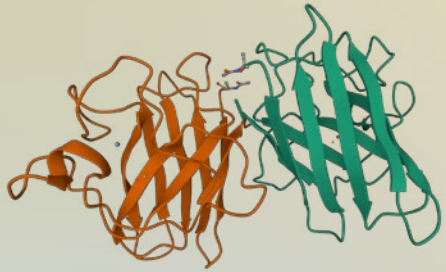
Emmanuelle Charpentier and Jennifer Doudna and CRISPR-Cas9.
Visit the protein at pdbe.org/6mcb
Adding, removing or modifying DNA information in cells



Elizabeth Blackburn and Carol Greider and telomerase.
Visit the protein at pdbe.org/7v99
Important for determining the life-span of cells in our bodies



Ada Yonath and ribosomal proteins.
Visit the protein at pdbe.org/1fka
A crucial component of protein synthesis in cells



Jane Richardson and copper, zinc superoxide dismutase.
Visit the protein at pdbe.org/2sod
Protects cells against UV and chemicals