

TeachMe

STUDY NOTES

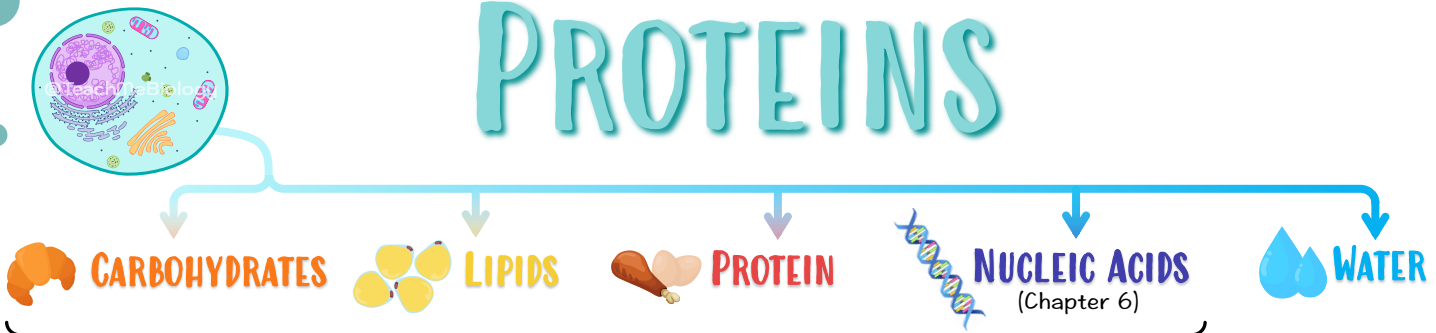
CHAPTER 2 – BIOLOGICAL MOLECULES PROTEINS

Last update: November 7th 2025

Teach Me

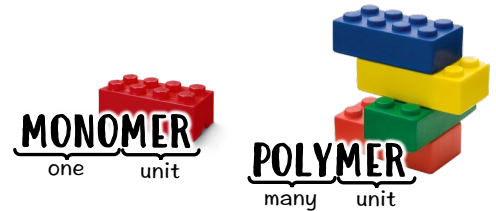
teachmebio.org

PROTEINS



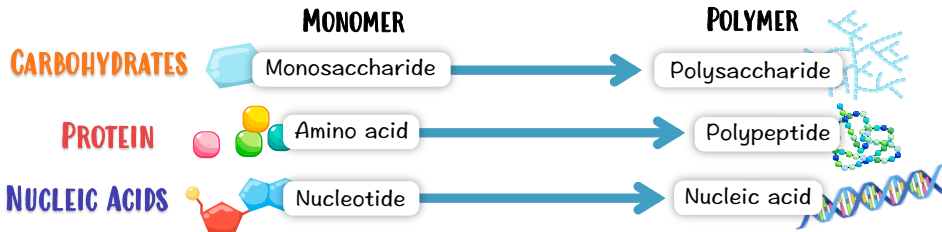
Macromolecules

Macromolecules are large molecules built from smaller, repeating subunits known as **MONOMERS**. By linking many monomers together, you form a **POLYMER**.

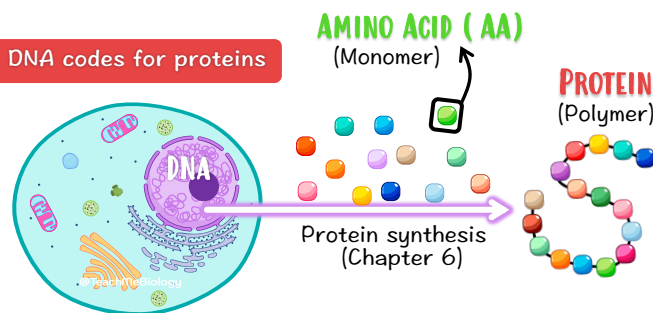


BIG BRAIN TIP!

You can think of a monomer as a single Lego piece, and when you join multiple together you get a large structure (polymer)



Most macromolecules (except lipids) follow this same principle, but each type uses different monomers. You should by now already be familiar with carbohydrates and lipids – now, let's focus on proteins!



There are **20** different types of amino acids

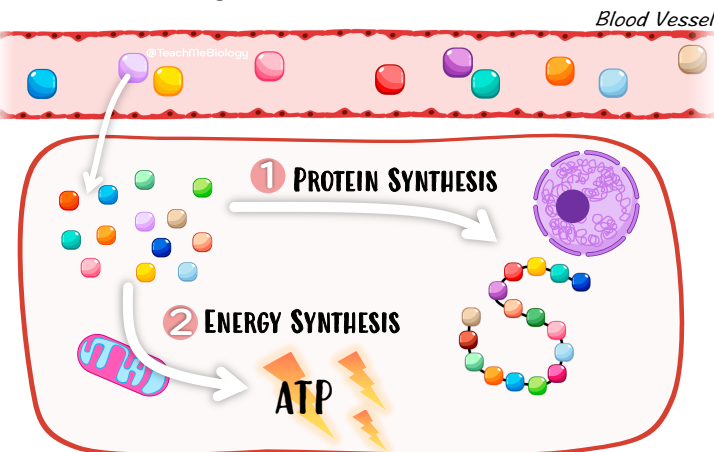
HUGE variety of proteins exist, differing in:

- Chain Length
 - AA sequence
- Influence Folding

Each protein will be able to carry out its own specific function.

What are Amino Acids used for?

When an animal (you!) eats food which contains protein, it gets digested in the **digestive tract** and absorbed as monomers – amino acids – into the blood stream. These monomers then enter the cells of the body to fulfil two main functions:



- 1 Amino acids can be used to build larger molecules: proteins. These molecules can then carry out many different functions (see on the right of the page).
- 2 Amino acids can get used by the mitochondria to generate ATP (energy).

HEMOGLOBIN
Oxygen-carrying protein found in red blood cells

MEMBRANE PROTEINS
Many functions; e.g., transport (Chapter 4)

HORMONES
E.g., Insulin & Glucagon. Regulate blood sugar (Chapter 14)

BIG BRAIN TIP!

Proteins are used as last resort for cellular energy generation, and do not produce as much energy as lipids and carbohydrates do.

COLLAGEN
Structural protein that adds strength. Found in bones, tendons, ligaments

ENZYMES
Catalyze chemical reactions (Chapter 3)

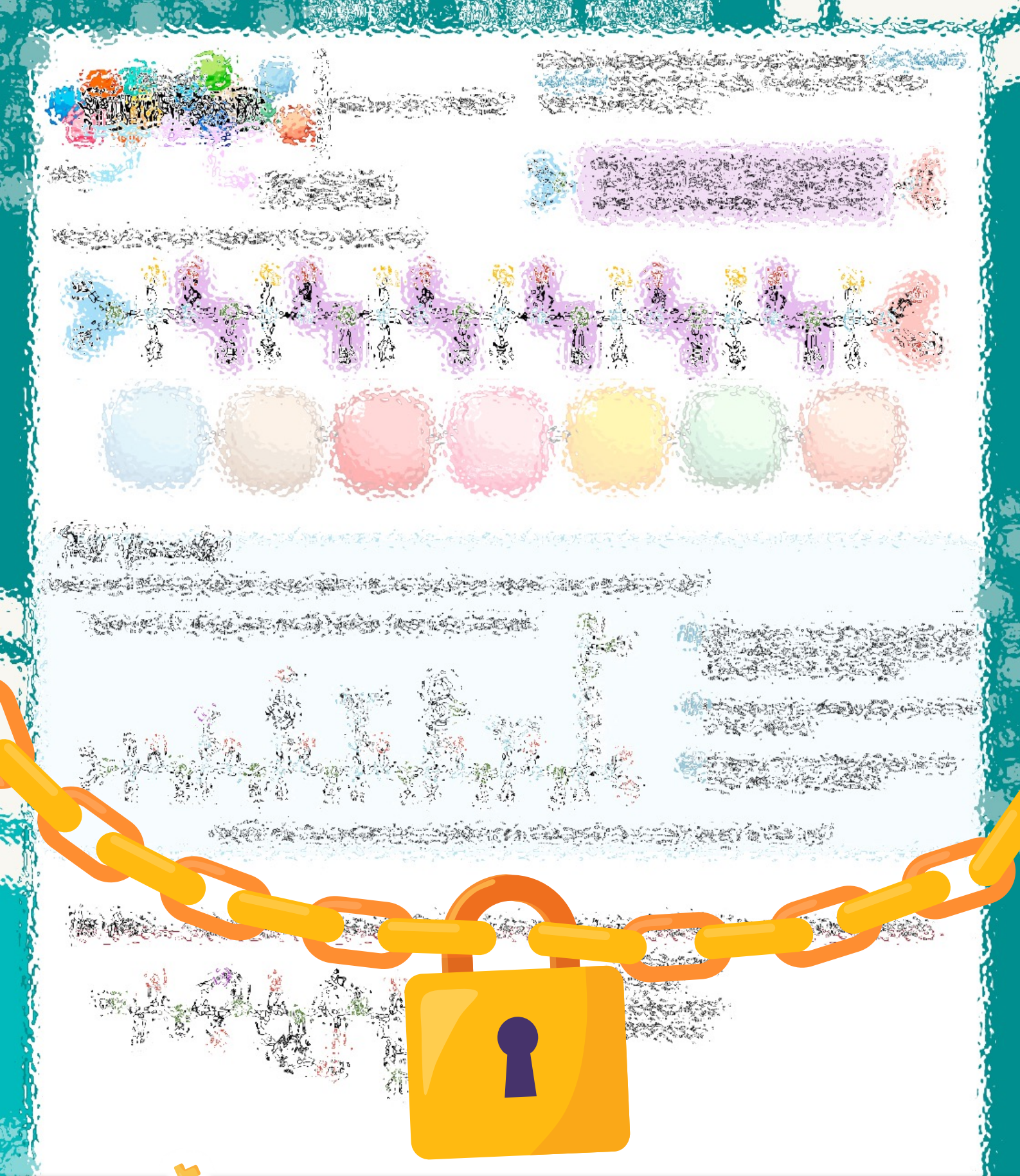
ANTIBODIES
Attack and destroy invading microorganism (Chapter 11)

ACTIN & MYOSIN
Responsible for muscle contraction (Chapter 15)

KERATIN
Hair, nails and surface layers of skin contain it



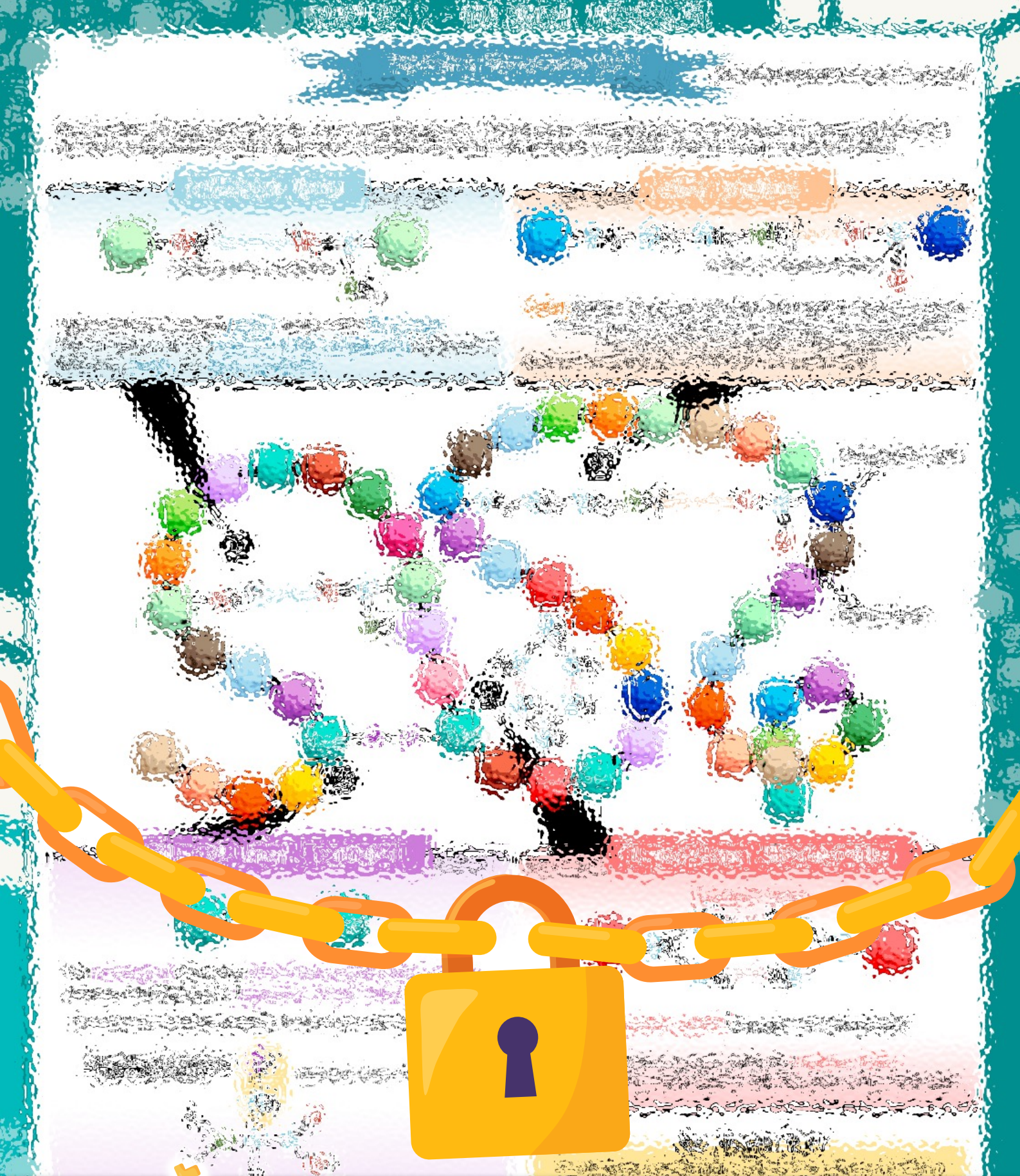
For full access → teachmebio.org



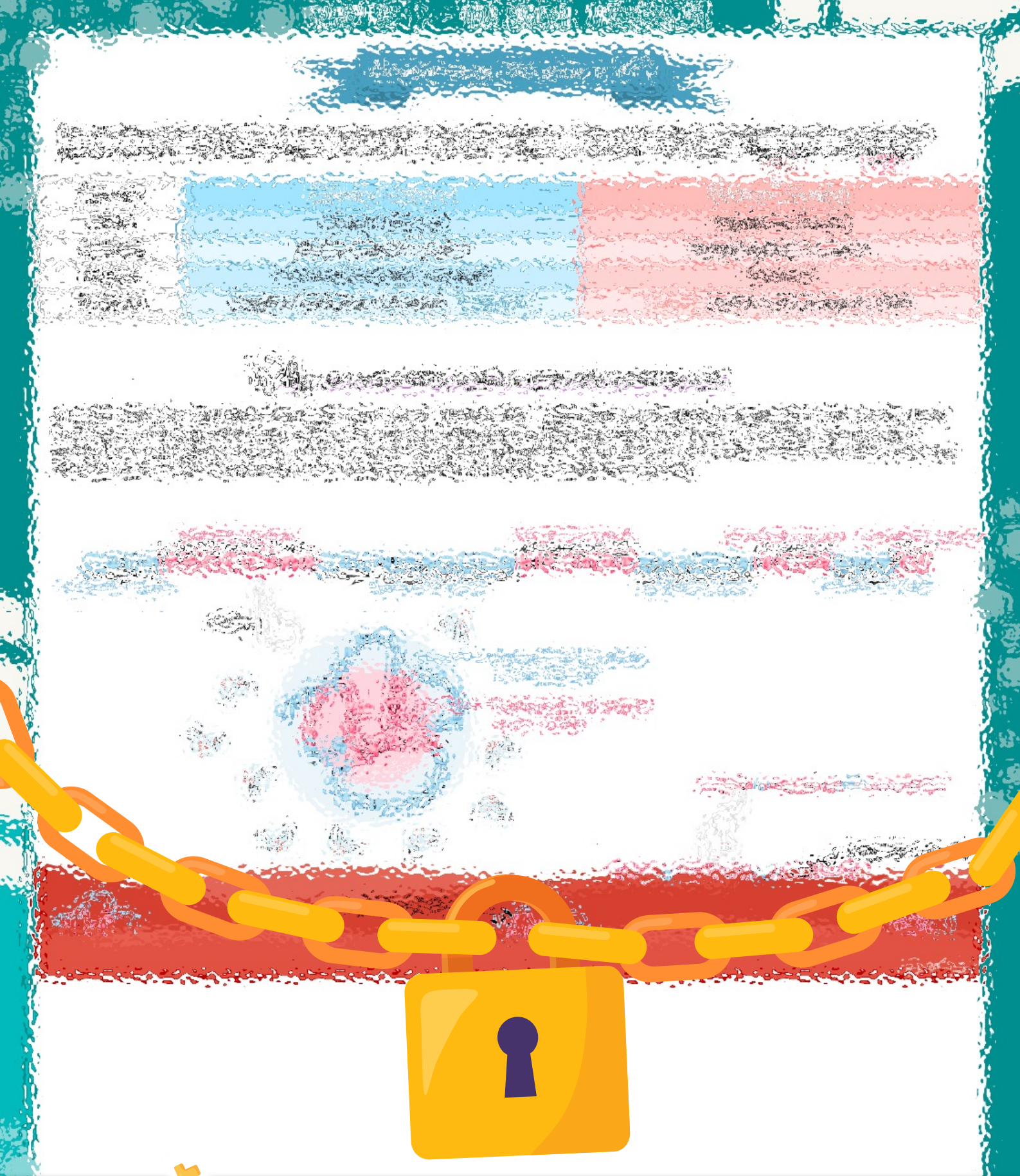
For full access → teachmebio.org



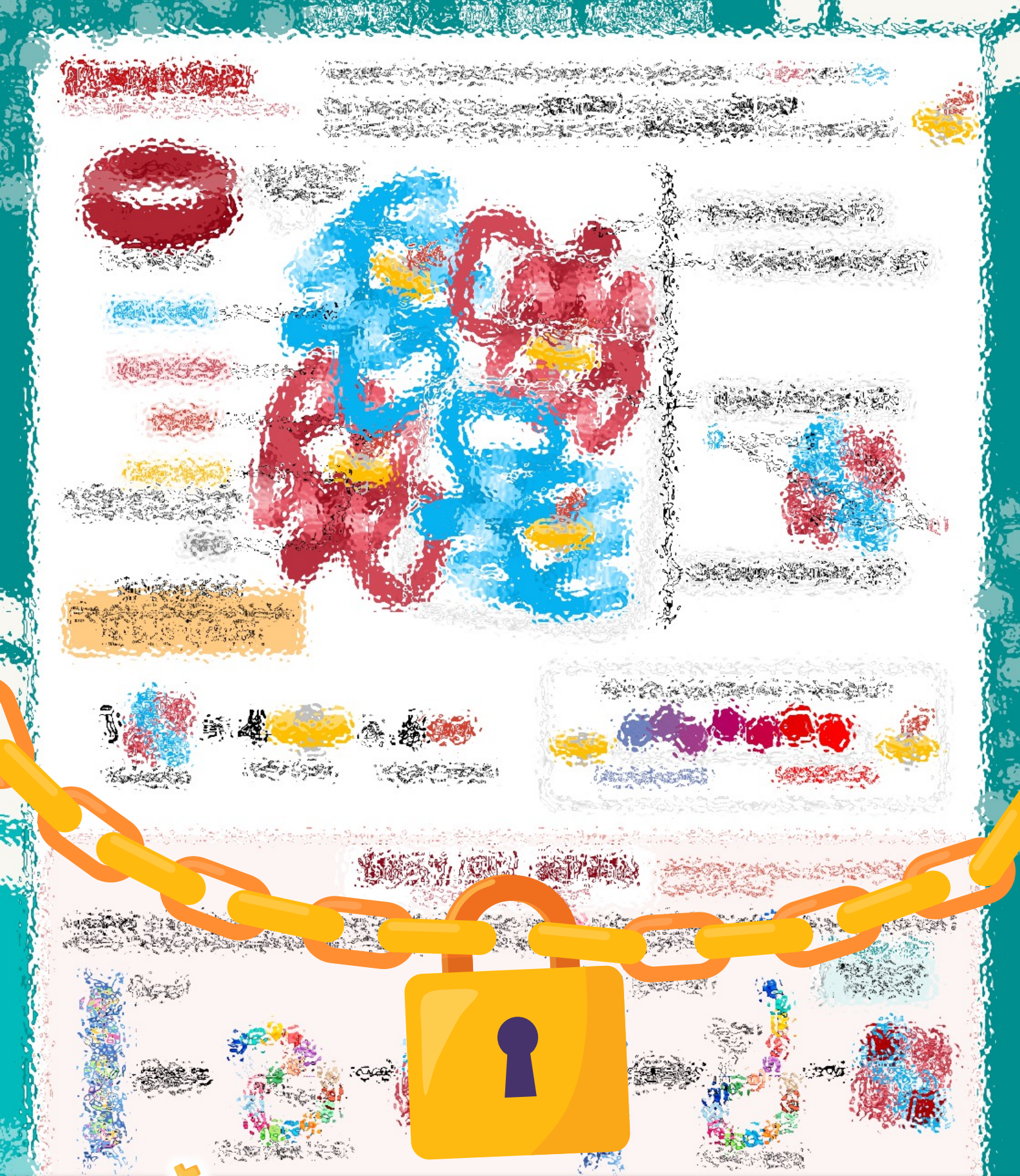
For full access → teachmebio.org



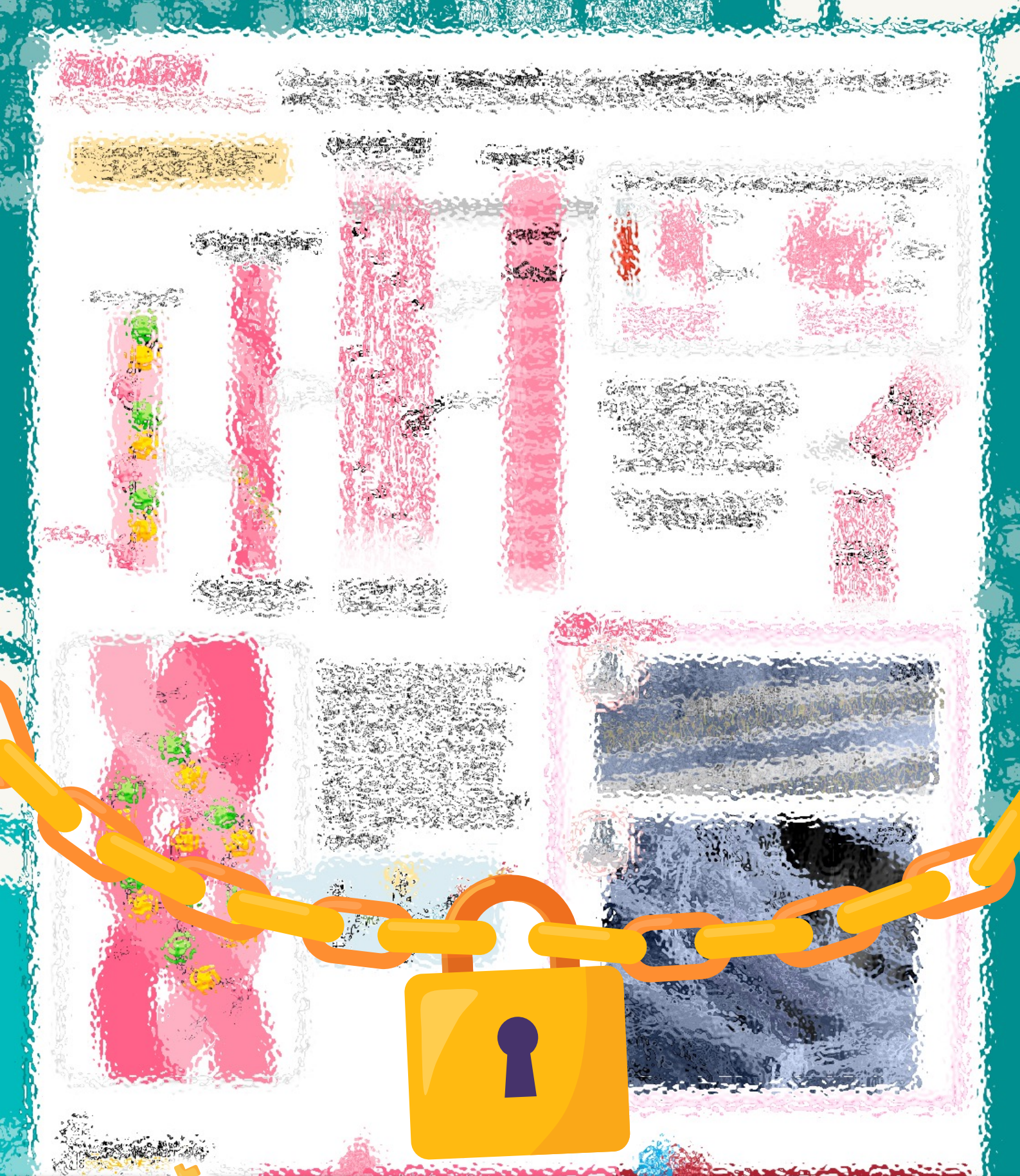
For full access → teachmebio.org



For full access → teachmebio.org



For full access → teachmebio.org



For full access → teachmebio.org



For full access → teachmebio.org

HOME



For full access → [teachmeanbio.org](https://www.teachmeanbio.org)