



Olga Markova

from **3** years

Cadherin is looking for a friend

a story about a protein

LE BUVEUR
D'ENCRE

Esprits
Curieux



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A story
about a protein



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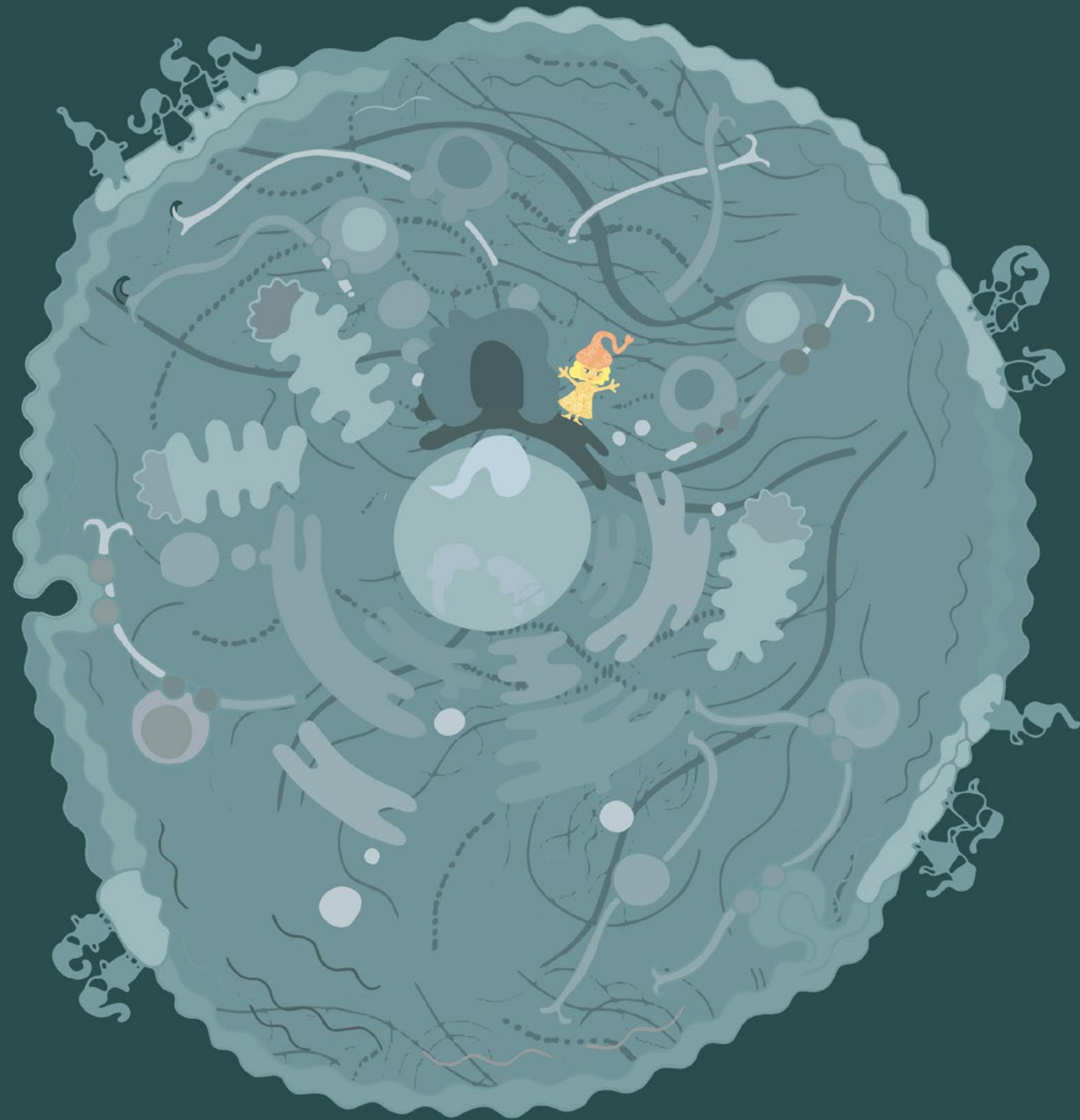
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In the middle of the Big Cell, a little protein called Cadherin is born.

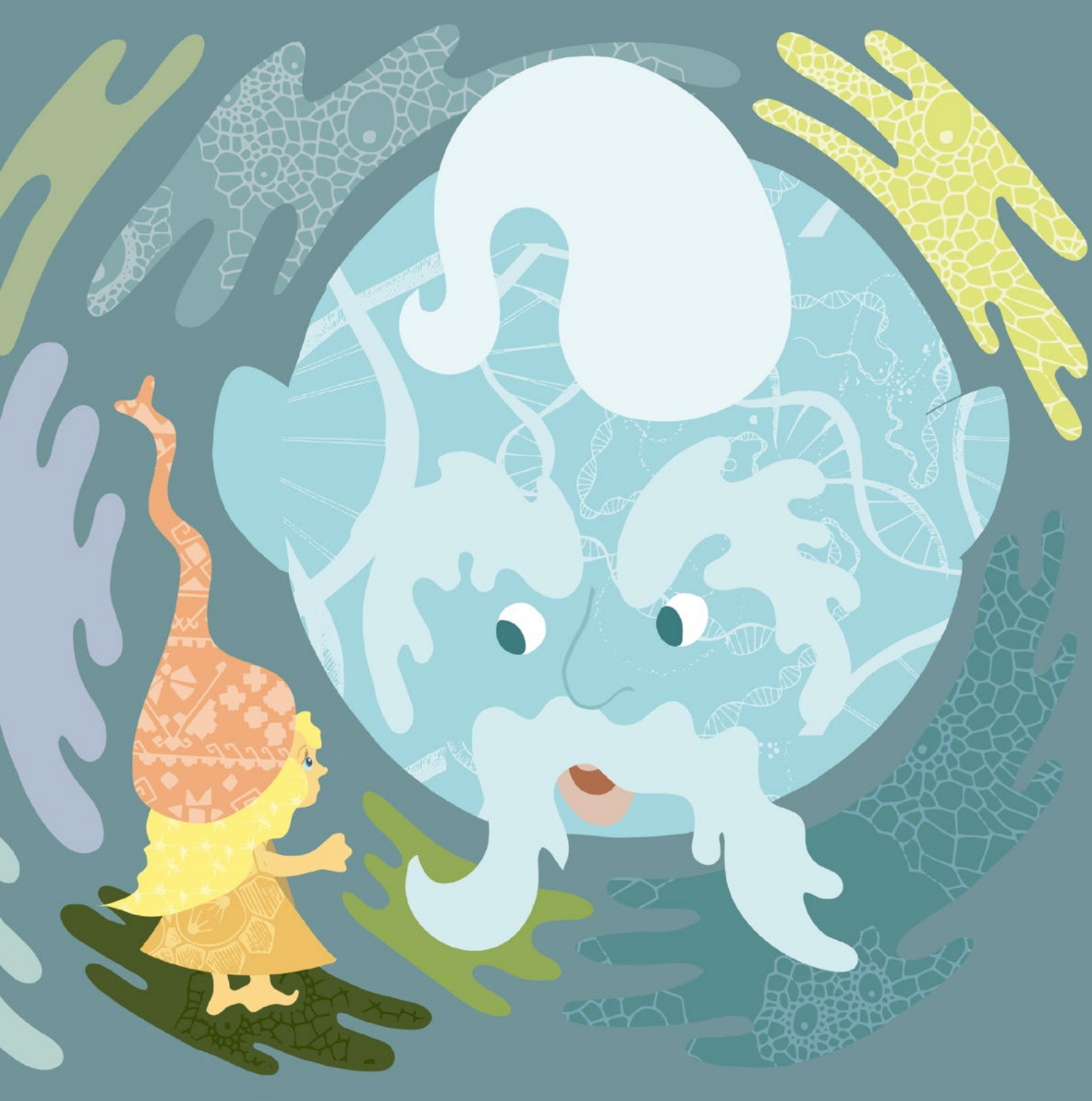


When Cadherin leaves her Golgi house,
she realizes she's all alone.
She is very sad. She would like to have a friend.



In front of her Golgi house, Cadherin thinks:
“Perhaps there is someone in the Cell who would
like to be my friend? I’m going to look for them!”

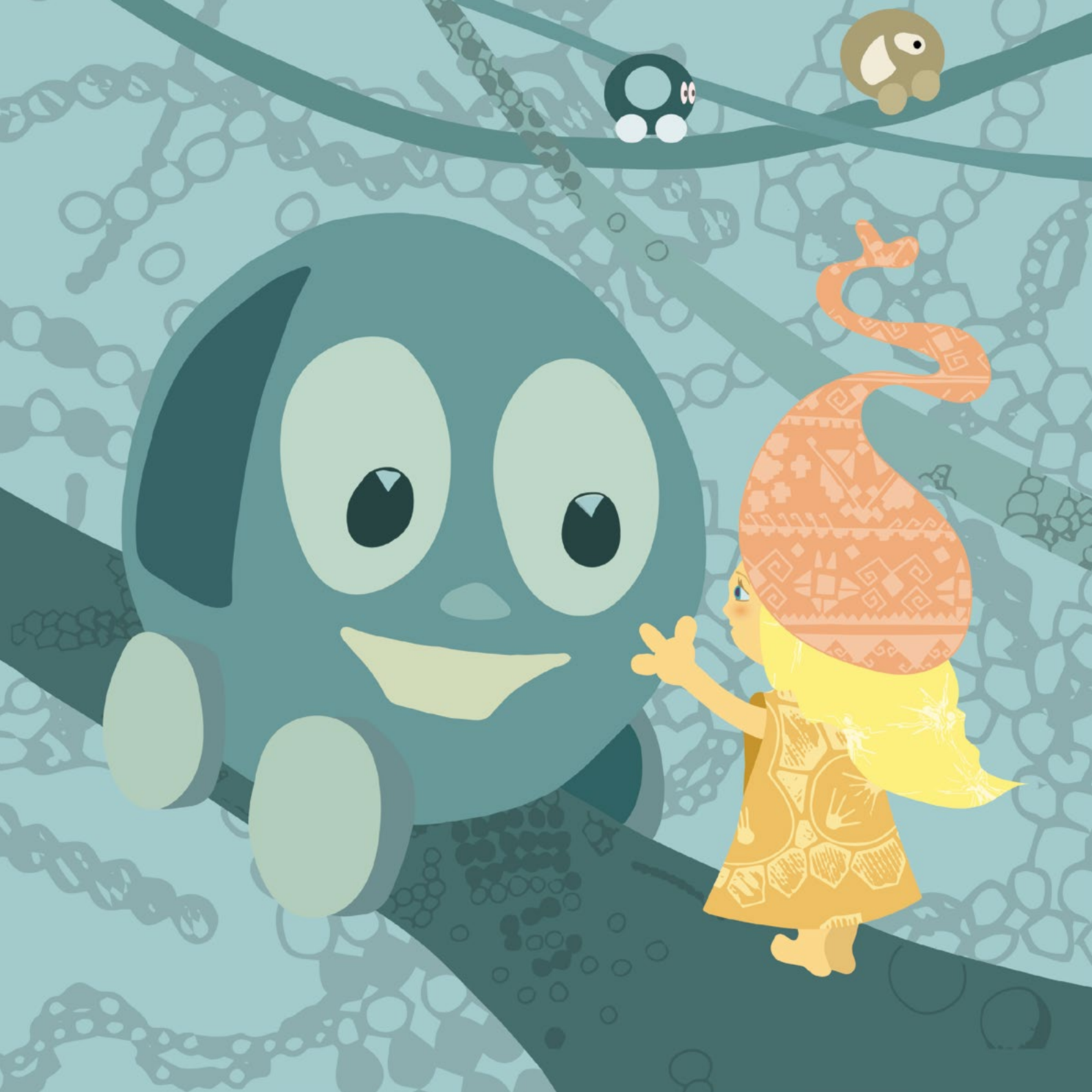




A few steps from the Golgi house, Cadherin sees a big balloon. He looks very clever!

- "Hello, I'm Cadherin. What is your name?"
- "I am the Wise Nucleus."
- "Do you want to play with me Wise Nucleus?"
- "I'm sorry but I'm too busy! However, if you travel to the surface of the Cell, you will find plenty of creatures like yourself to play with."



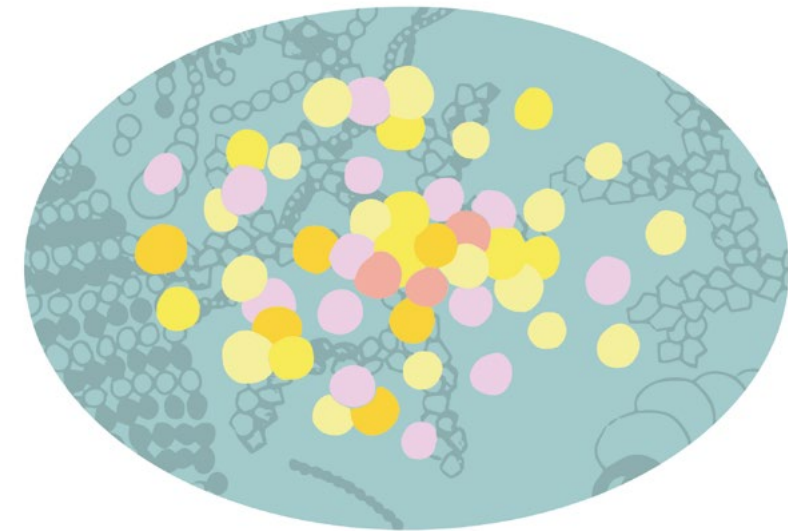


Cadherin goes out to meet them.

On her way, she meets a Vesicle-Car.

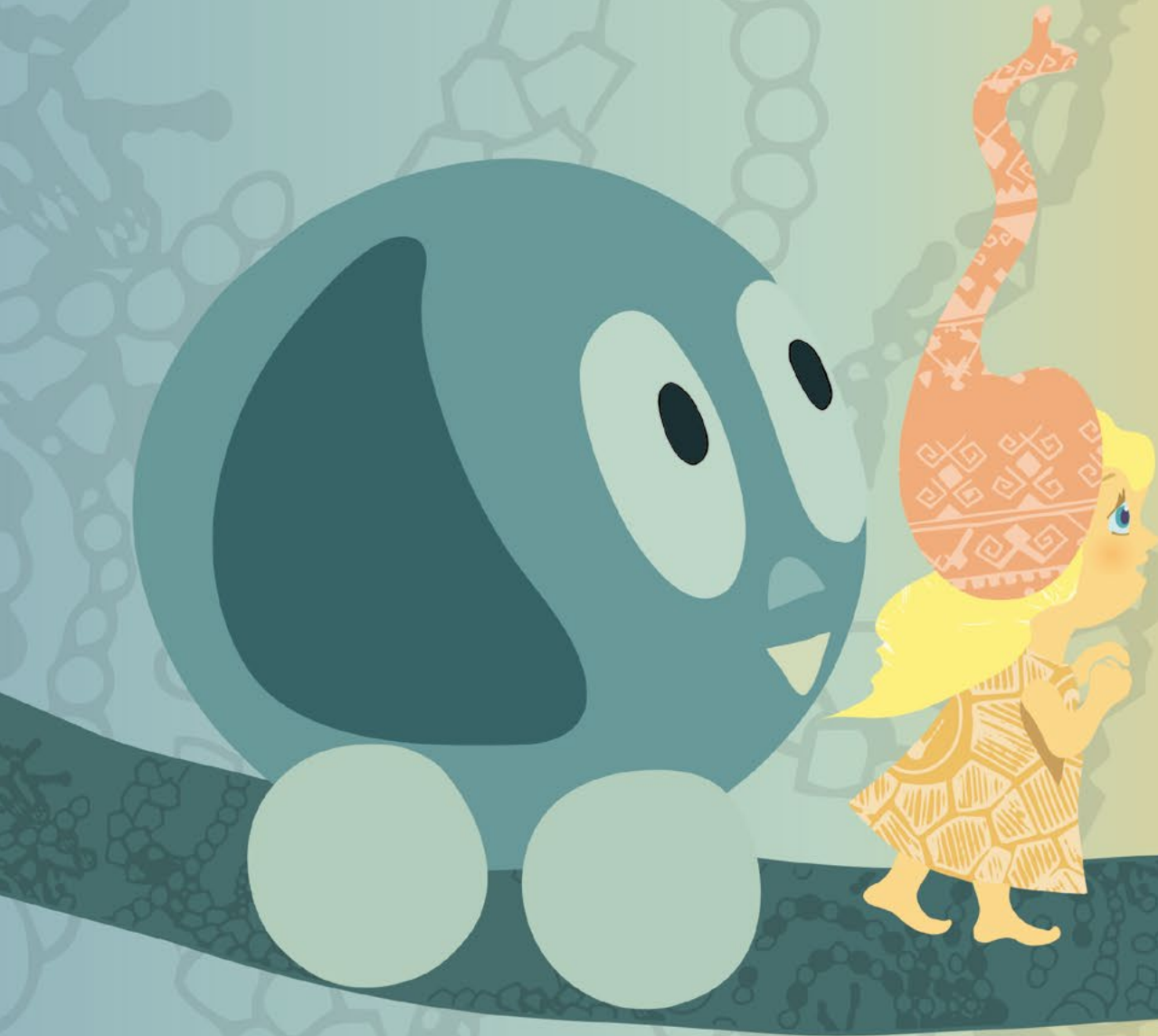
- “Hello, could you bring me to the surface of the Cell?” she asks Vesicle-Car.

- “I would love to, but I have run out of fuel, and I cannot travel far.”



Cadherin and Vesicle-Car seek a solution when Mrs. Mit of Chondria approaches.

- “Hello Cadherin, Wise Nucleus told me about you. How can I help you?”

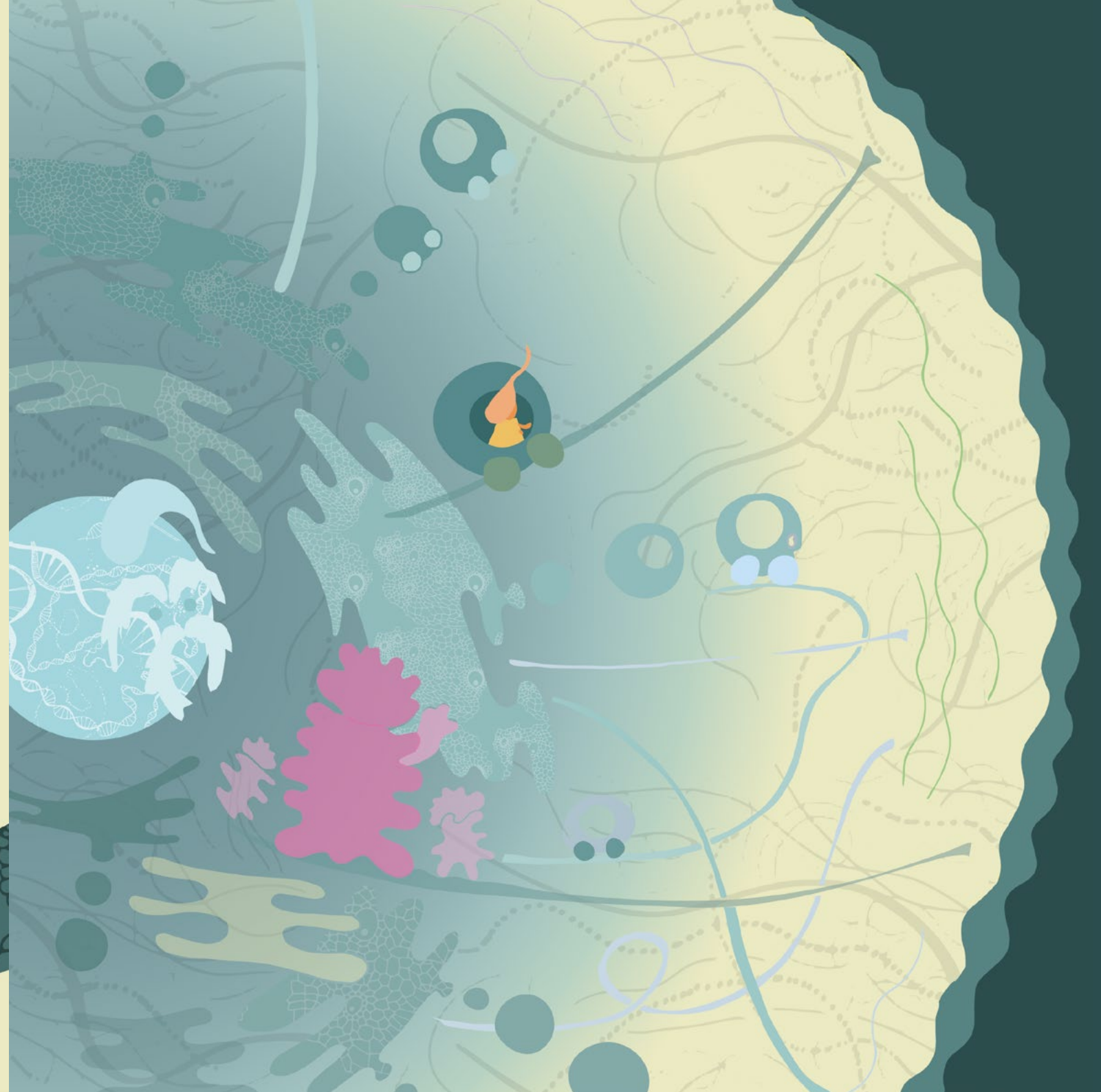


“Hello, I am looking for some fuel for Vesicle-Car so that he can bring me to the surface of the Cell.”

- “You’re in luck! I have lots of fuel!” said Mrs. Mit of Chondria, smiling.



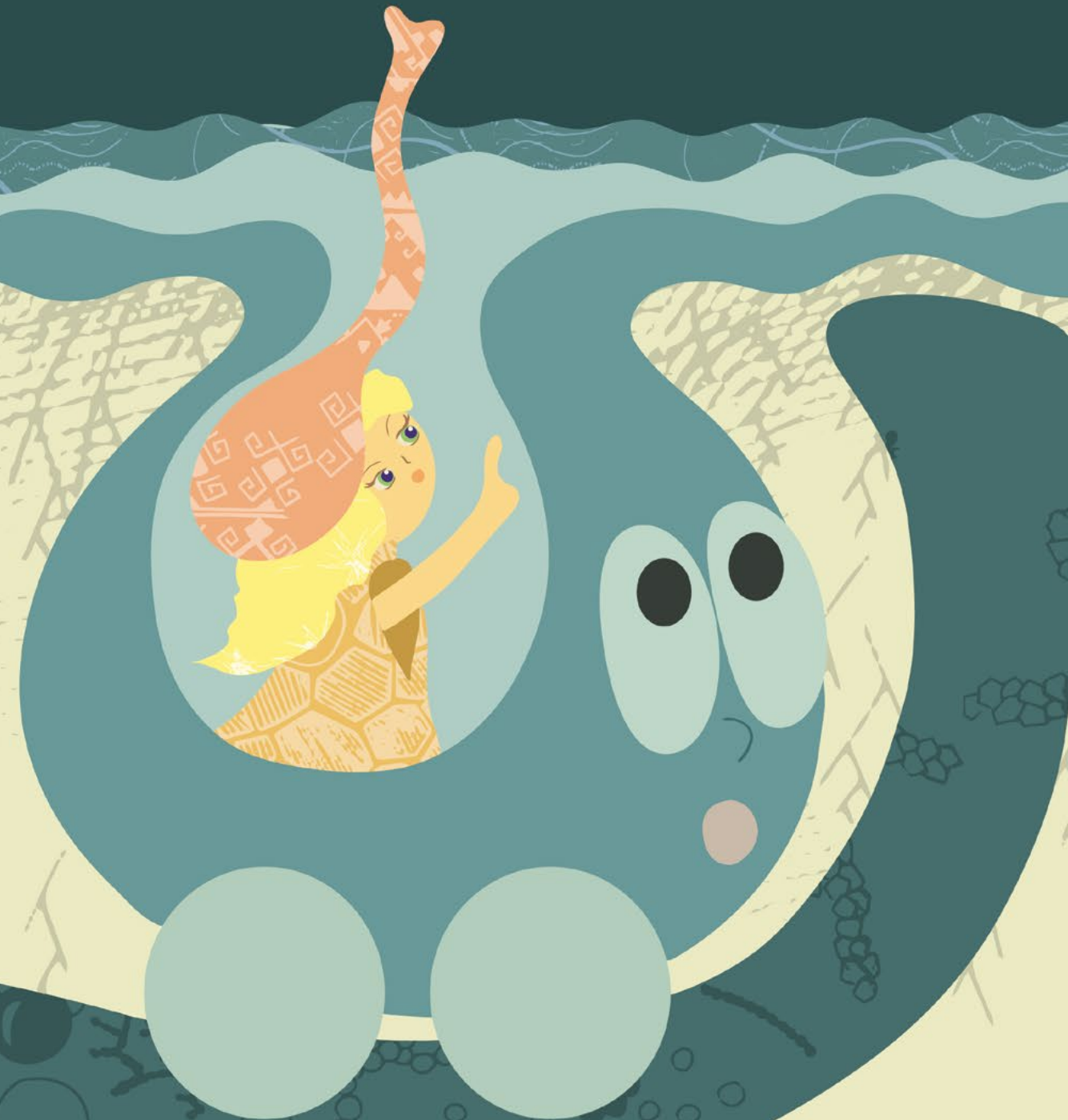
Vesicle-Car, with a tank full of fuel, is in great shape:
- “Now, we take the Microtubule route to the surface
of the Cell. Hang on Cadherin!”



Having arrived at the Cell's edge, Cadherin and Vesicle-Car think about how to pass through to the other side.

The roof of Vesicle-Car suddenly touches the Cell's surface, which opens slightly.

- "Don't be afraid Cadherin, you can leave through the roof!"



- Wow !!!



Cadherin arrives in the middle of a huge sea of lipids. In the distance, she sees other creatures who, like her, seem to be very eager to play.

- “Come play with us, we will stay together!” shout out the other creatures as they see Cadherin.
Without hesitation, Cadherin swims to them.



Cadherin is now happy,
she has finally found friends.



[illegible]

- # Maze Game
- Find the path that can lead her
to the treasure.
What obstacles cross in her path?
-

[illegible]

Glossary

• Cadherins

Are molecules situated on the surface of cells. Cadherins from neighboring cells physically attach to one another. This physical link keeps the cells together, and ensures transmission of important cellular signals.

• Mitochondria

Is a cellular structure that makes cellular energy from the food we eat.

• Nucleus

Contains genetic information.

• Golgi apparatus

Looks like a cell-based manufacturing plant in which glycoproteins are created.

• Cellular transport.

Every cell in the human body produces a variety of molecules. To ensure the normal functioning of the cell, many of these molecules must be exposed on the surface of cells (as is the case for cadherins) or be transported outside the cell (as is the case for hormones). This cellular transport is possible thanks to organelles (sort of small compartments) called vesicles.

• Vesicle

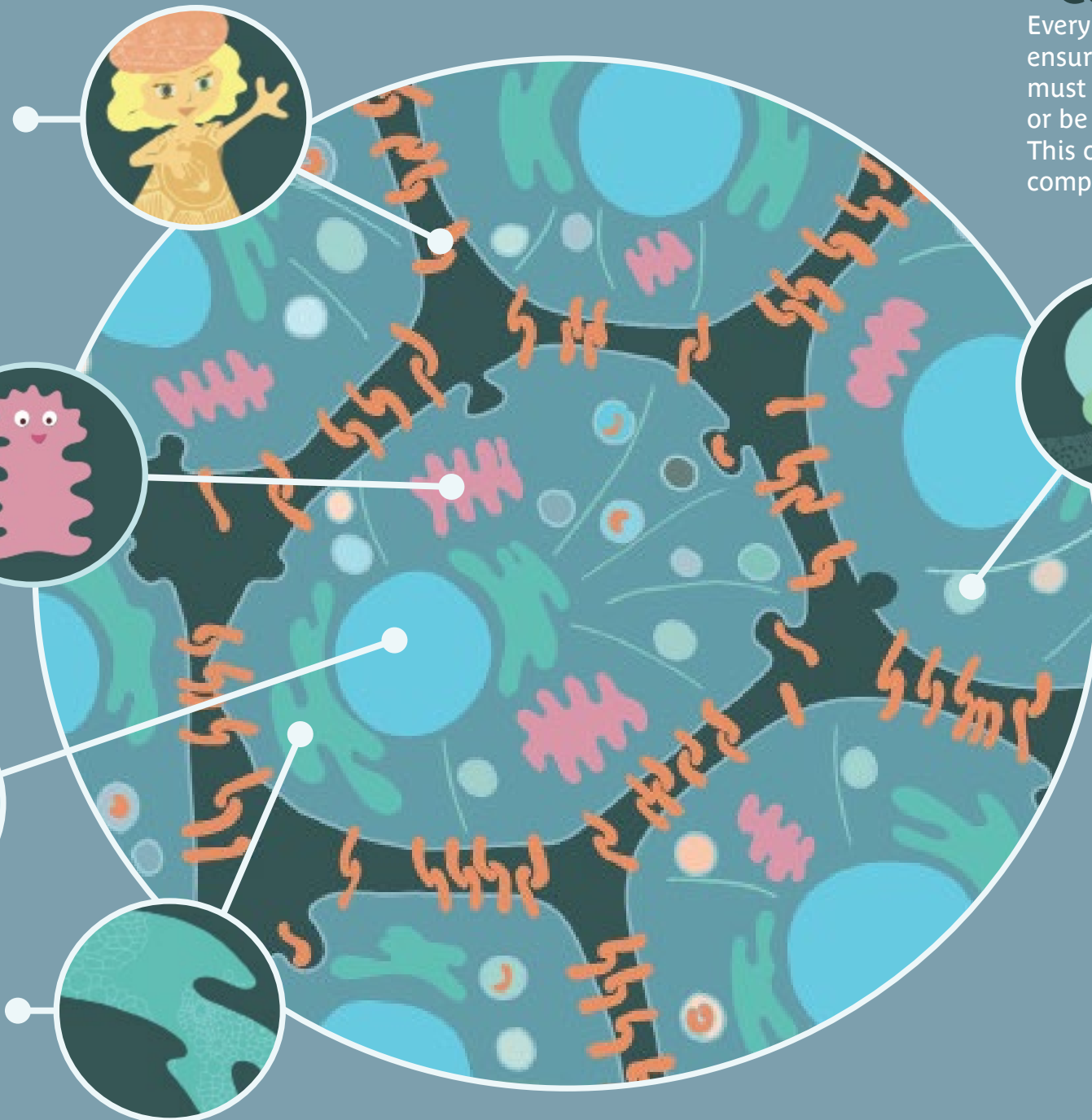
Measures a hundred nanometers across. Each vesicle is composed of lipids (similar to soap bubbles). It surrounds molecules, stores them and transports them to a defined destination inside the cell.

• Microtubules

Are constituent fibers of the cell. Vesicles can cling to microtubules and move along them (like a train following rails).

• Today in science

- In some cases of malignant cancers, researchers observed a loss of cadherins. Ongoing work hopes to address the role cadherins could play in preventing cancer metastasis.
- Cellular transport occurs in a large number of human body functions, including neuronal, hormonal and immune system activity. Scientists seek to understand how cell transport works in each of these cases. A major breakthrough in this field of research was awarded a Nobel Prize in Medicine in 2013.



The «Esprits Curieux» collection invites readers to discover current scientific knowledge.

Each album within the collection is written by a specialist.

Illustrations are inspired by scientific data.

Cadherin is alone inside the cell. She would love to find someone to play with, so she goes on an exciting adventure to find a friend!

Olga Markova

is a biophysicist working at the interface of physics and biology. She works on cell functioning at Institut Curie. She graduated from the Kiev Art School, and has exhibited her paintings in France and Ukraine.

