

How Well Do You Know Your Cells?

Complete each sentence below with words from the box. One word will not be used.

cells

cell membrane

cell walls

chloroplasts

cytoplasm

Hooke

Leeuwenhoek

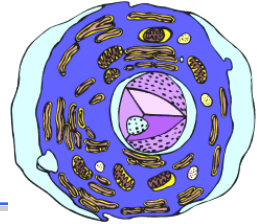
mitochondria

nucleus

organelles

ribosomes

vacuoles



1. All living things are made up of one or more _____.
2. In the 1660's, Robert _____ viewed cork through one of the first compound microscopes and gave the name "cells".
3. Around the same time, Anton van _____ used his own simple microscopes to view blood and microorganisms.
4. The structures that make up a cell are called _____.
5. The large, rounded "brain" near the center of the cell is the _____.
6. The jellyish substance inside the cell but outside the nucleus is the _____.
7. The cell's powerhouses which release energy from food are the _____.
8. _____ make most of the protein for the cell.
9. _____ act like storage areas within the cell.
10. Only plant cells have _____ and _____.



How Well Do You Know Your Cells? **KEY**

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cells	cytoplasm	nucleus
cell membrane	Hooke	organelles
cell walls	Leeuwenhoek	ribosomes
chloroplasts	mitochondria	vacuoles

1. All living things are made up of one or more **cells** .
2. In the 1660's, Robert **Hooke** viewed cork through one of the first compound microscopes and gave the name "cells".
3. Around the same time, Anton van **Leeuwenhoek** used his own simple microscopes to view blood and microorganisms.
4. The structures that make up a cell are called **organelles** .
5. The large, rounded "brain" near the center of the cell is the **nucleus** .
6. The jellyish substance inside the cell but outside the nucleus is the **cytoplasm** .
7. The cell's powerhouses which release energy from food are the **mitochondria** .
8. **Ribosomes** make most of the protein for the cell.
9. **Vacuoles** act like storage areas within the cell.
10. Only plant cells have **cell walls** and **chloroplasts** .



Cell Structure and Processes

The crossword puzzle grid consists of 13 numbered starting points for words:

- 1: Across, top row, 1st cell.
- 2: Down, top row, 10th cell.
- 3: Down, 2nd row, 8th cell.
- 4: Across, 3rd row, 1st cell.
- 5: Across, 3rd row, 3rd cell.
- 6: Down, 3rd row, 7th cell.
- 7: Down, 3rd row, 2nd cell.
- 8: Down, 4th row, 5th cell.
- 9: Across, 4th row, 5th cell.
- 10: Down, 5th row, 4th cell.
- 11: Across, 5th row, 3rd cell.
- 12: Across, 6th row, 1st cell.
- 13: Across, 6th row, 5th cell.

Down

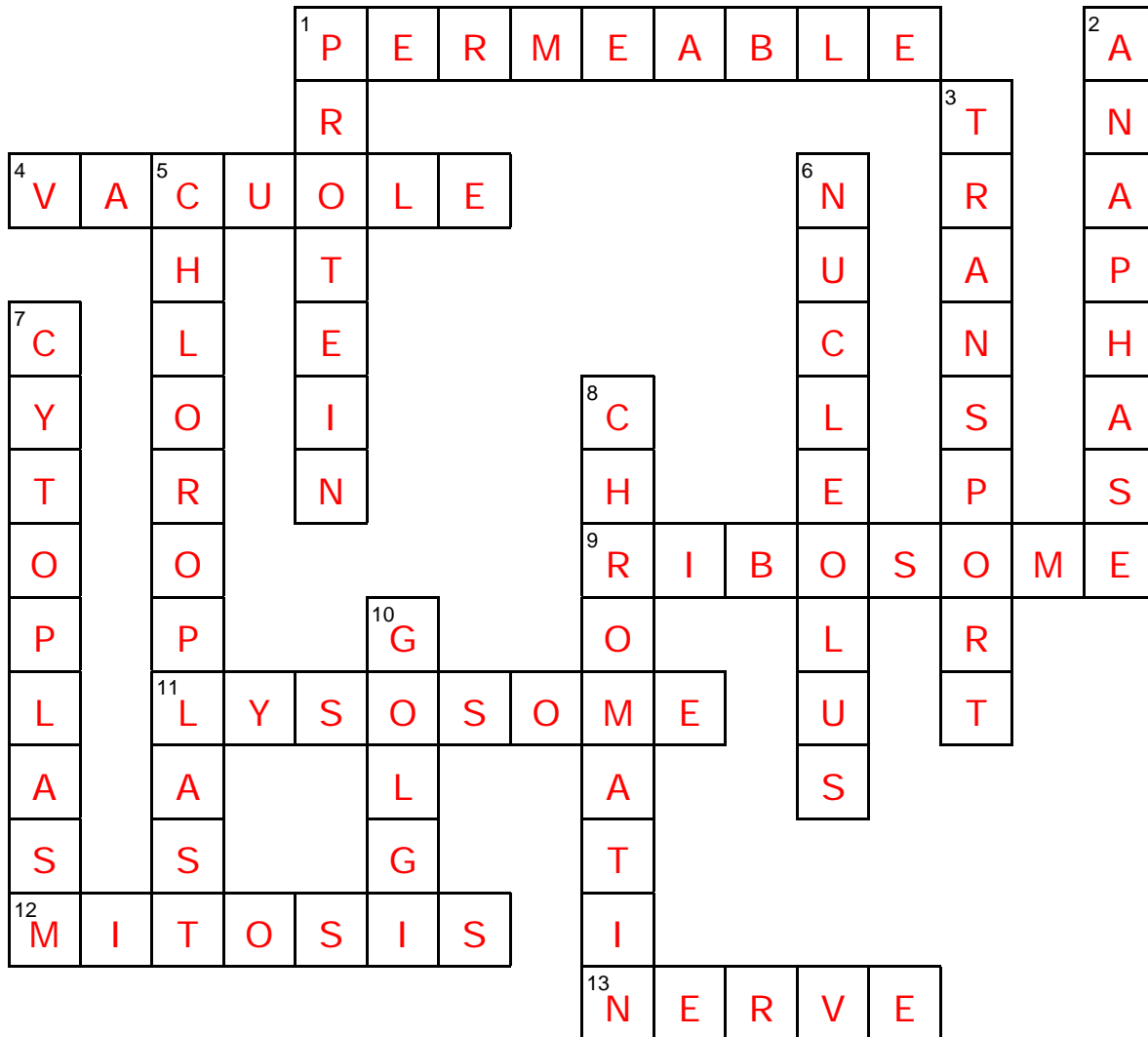
1. what ribosomes make
2. 3rd stage; chromosomes separate
3. osmosis is a form of passive _____
5. organelle found only in plant cells
6. dense center portion of nucleus
7. jellylike matrix for organelles
8. material of which chromosomes are made; condenses during prophase
10. forms vesicles: the _____ complex

Across

1. the nuclear membrane is _____, allowing materials to pass through
4. storage/transport sacks in a cell
9. organelle which produces protein
11. sack filled with enzymes; breaks down foreign substances
12. process of cell division
13. type of cell with a long "arm" - the axon



Cell Structure and Processes **KEY**



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Cell Structure and Division

Down

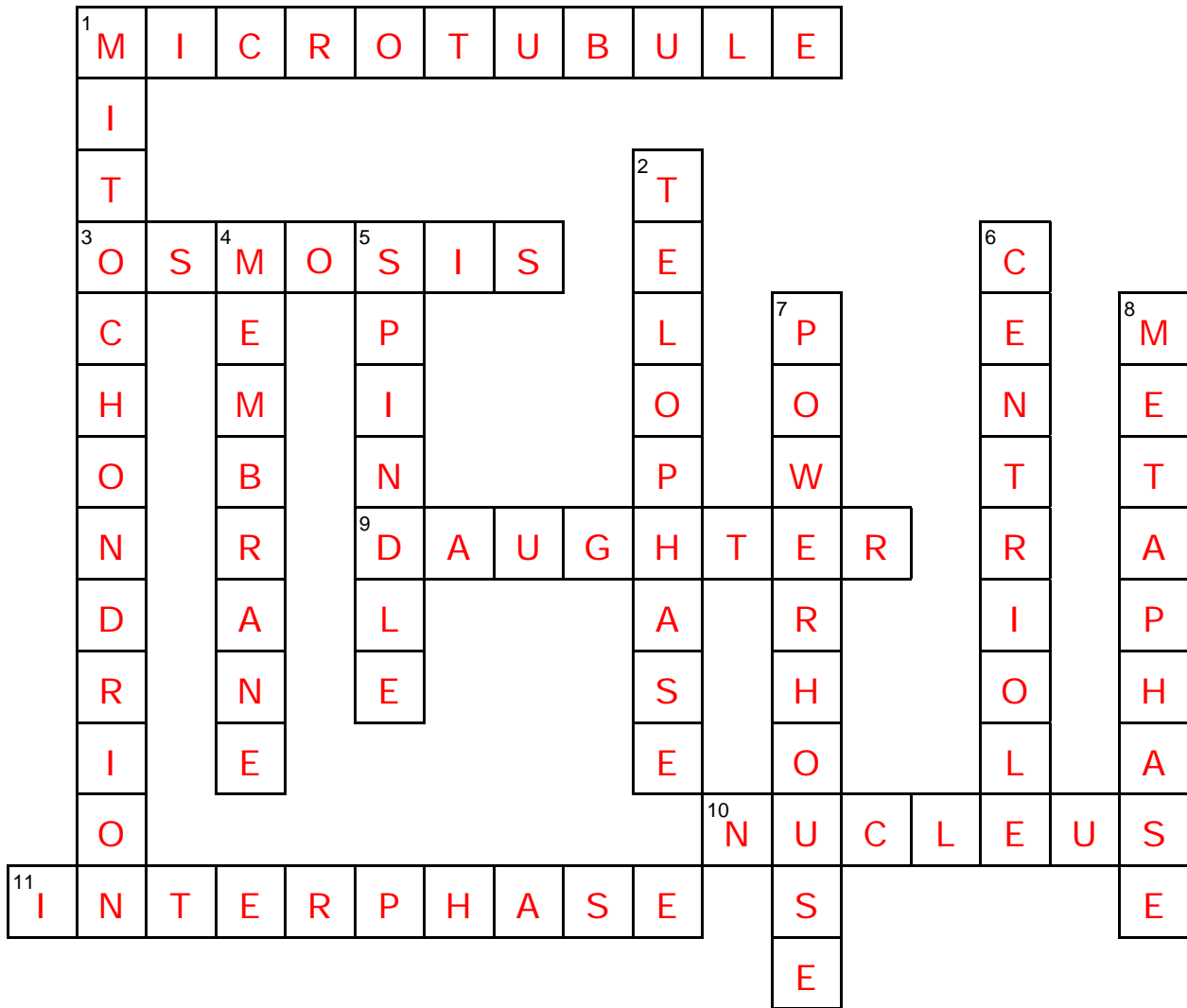
1. organelle releasing energy from food
2. 4th stage of mitosis; two cells form
4. the cell _____ surrounds the cell
5. during prophase, a group of fibers called the _____ forms in the cell
6. barrel-shaped organelles usually found in pairs and perpendicular to each other
7. mitochondria are the _____ of the cell
8. 2nd stage; chromosomes line up

Across

1. strands of protein which provide structural support for the cell
3. passive transport of water across a semipermeable membrane
9. during telophase, two _____ cells are formed
10. the rounded "brain" of the cell
11. the longest stage of mitosis, where the cell grows larger



Cell Structure and Division KEY



Down

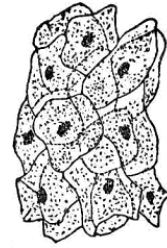
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How Many Cells?



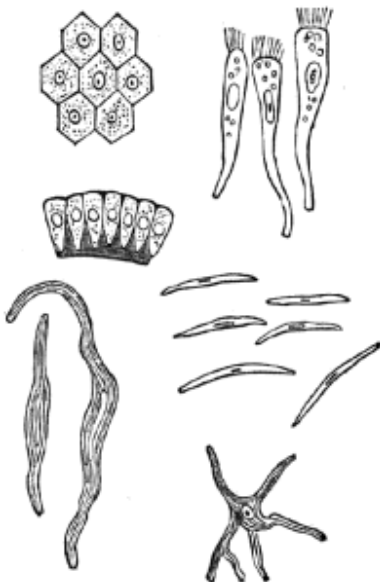
How many cells are hidden in this puzzle?

G	L	E	L	L	E	C	M	L	L	E	C	E	L	C
L	Y	C	E	N	T	R	I	O	L	E	H	A	L	Y
L	S	M	I	C	R	O	T	U	B	U	L	E	E	T
E	O	N	U	C	L	E	O	L	U	S	O	B	C	O
C	S	U	C	E	L	L	C	E	L	R	R	L	H	P
H	O	C	E	L	L	T	H	C	G	M	O	L	T	L
R	M	L	G	L	E	A	O	A	O	P	P	E	M	A
O	E	E	I	O	C	S	N	T	L	R	L	C	E	S
M	M	U	T	E	L	E	D	A	I	O	A	O	M	M
A	B	S	L	A	L	G	R	L	P	P	S	S	B	I
T	A	L	C	L	P	H	I	H	A	H	T	M	R	T
I	N	T	E	R	P	H	A	S	E	A	A	O	A	O
N	E	S	L	C	E	S	A	R	D	S	H	S	N	S
C	E	L	L	C	E	L	L	S	L	E	C	I	E	I
H	S	R	I	B	O	S	O	M	E	L	Y	S	C	S

First find all 20 words in the box below and circle them.

Then see how many times you can find the word "CELL" in the letters surrounding those words!

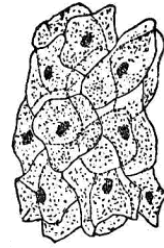
Look forwards, backwards, upside down, and even diagonal.



ANAPHASE	MICROTUBULE
CENTRIOLE	MITOCHONDRIA
CHLOROPLAST	MITOSIS
CHROMATIN	NUCLEOLUS
CYTOPLASM	NUCLEUS
GOLGI	ORGANELLES
INTERPHASE	OSMOSIS
LYSOSOME	PROPHASE
MEMBRANE	RIBOSOME
METAPHASE	TELOPHASE



How Many Cells? KEY



How many cells are hidden in this puzzle?
- 12 -

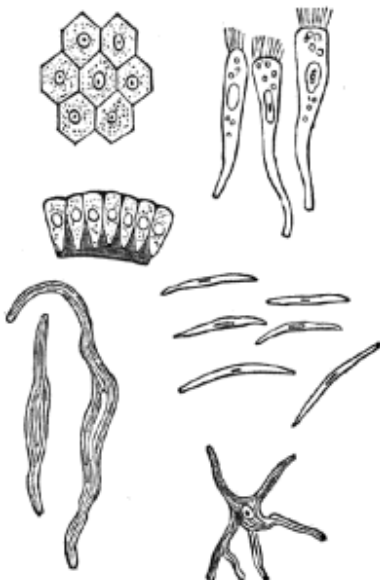
A 15x15 letter grid with 20 words hidden. Red arrows indicate the direction of each word. Blue letters highlight the word "CELL" in various orientations.

L	L	L	E	C	M	L	L	E	C	L	C			
L	Y	C	E	N	T	R	I	O	L	E	H	L	Y	
L	S	M	I	C	R	O	T	U	B	U	L	E	T	
E	O	N	U	C	L	E	O	L	U	S	O	C	O	
C	S	U	C	E	L	L	C			R	R	L	P	
H	O	C	L	L	H	G	O	L	T	L				
R	M	L	G	L	E	A	O	A	P	P	E	M	A	
O	E	E	O	C	N			R	L	C	E	S		
M		U	T	E	L	E	D	A	O	A	O	M	M	
A		S	L	A	L	G	R	P	P	S	S	B	I	
T		L	C	L	P	I	H	H	T	M	R	T		
I	N	T	E	R	P	N	A	S	E	A	A	O	A	O
N		S	L		S	A		S		S	S	N	S	
C	E	L	L	C	E	L	L	S	E	I	E	I		
		R	I	B	O	S	O	M	E					

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Look forwards, backwards, upside down, and even diagonal.



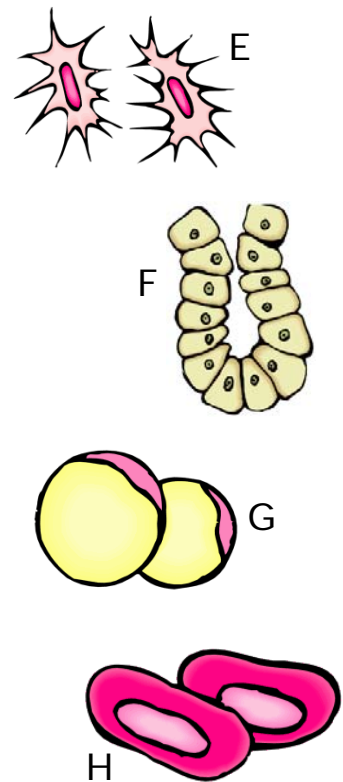
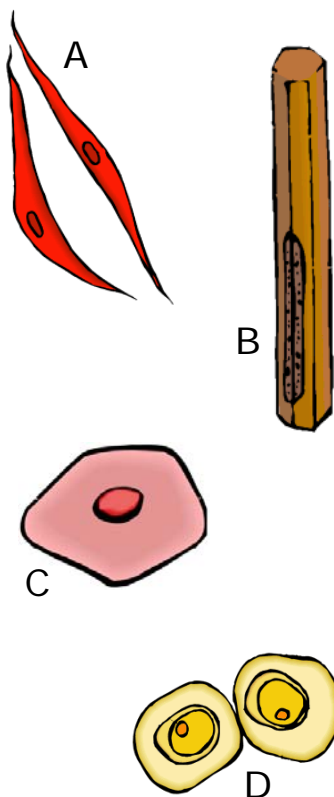
- | | |
|-------------|--------------|
| ANAPHASE | MICROTUBULE |
| CENTRIOLE | MITOCHONDRIA |
| CHLOROPLAST | MITOSIS |
| CHROMATIN | NUCLEOLUS |
| CYTOPLASM | NUCLEUS |
| GOLGI | ORGANELLES |
| INTERPHASE | OSMOSIS |
| LYSOSOME | PROPHASE |
| MEMBRANE | RIBOSOME |
| METAPHASE | TELOPHASE |



Matching Cells

Match.

- | | |
|--|--|
| <p>___ cell</p> <p>___ Robert Hooke</p> <p>___ Anton van Leeuwenhoek</p> <p>___ cell theory</p> <p>___ organelles</p> <p>___ cytoplasm</p> <p>___ mitochondria</p> <p>___ ribosomes</p> <p>___ endoplasmic reticulum</p> <p>___ vacuoles</p> <p>___ cell wall</p> <p>___ chloroplast</p> | <p>A. built simple microscopes in Holland</p> <p>B. organelles that make proteins</p> <p>C. jelly-like substance outside nucleus</p> <p>D. outside of cell membrane</p> <p>E. tubes to move materials through cell</p> <p>F. named little boxes "cells"</p> <p>G. storage areas of the cell</p> <p>H. all living things come from cells;
new cells only come from other cells</p> <p>I. powerhouse of cell; releases energy</p> <p>J. food-making structure in plant cell</p> <p>K. basic unit of life</p> <p>L. various structures within cells</p> |
|--|--|

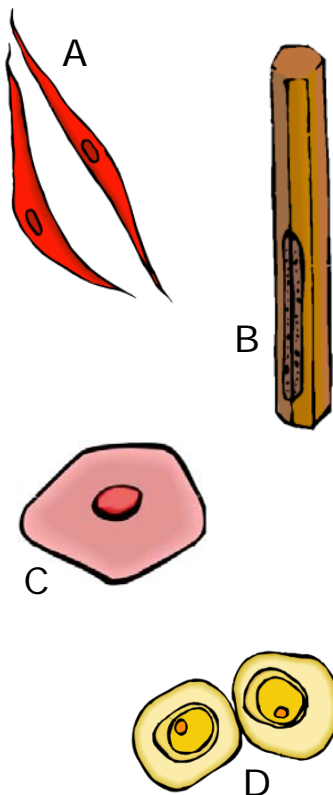


- | | |
|---|-------------------------------------|
| <p>___ skin cell</p> <p>___ fat cells</p> <p>___ gland cells</p> <p>___ muscle cells</p> <p>___ cartilage cells</p> <p>___ bone cells</p> <p>___ columnar cell</p> <p>___ red blood cells</p> | <p>E</p> <p>F</p> <p>G</p> <p>H</p> |
|---|-------------------------------------|

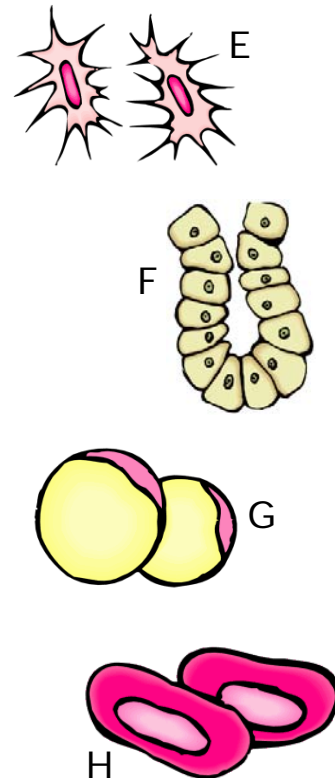
Matching Cells KEY

Match.

- | | |
|---|---|
| <ul style="list-style-type: none"> K cell F Robert Hooke A Anton van Leeuwenhoek H cell theory L organelles C cytoplasm I mitochondria B ribosomes E endoplasmic reticulum G vacuoles D cell wall J chloroplast | <ul style="list-style-type: none"> A. built simple microscopes in Holland B. organelles that make proteins C. jelly-like substance outside nucleus D. outside of cell membrane E. tubes to move materials through cell F. named little boxes "cells" G. storage areas of the cell H. all living things come from cells; new cells only come from other cells I. powerhouse of cell; releases energy J. food-making structure in plant cell K. basic unit of life L. various structures within cells |
|---|---|



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- F gland cells
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Organelles & Mitosis

Circle the letter of the best answer for each question.

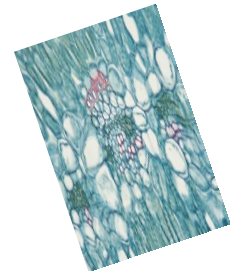


1. Which of these makes the most protein for the cell?

- A. golgi complex
- B. cell membrane
- C. mitochondria
- D. ribosomes

2. What stage includes chromosomes lining up in the center of the cell?

- A. interphase
- B. metaphase
- C. telophase
- D. prophase



3. What organelle makes food for plants?

- A. chloroplast
- B. chlorophyll
- C. cell wall
- D. cell membrane

4. What organelle is like the cell's highway?

- A. vacuoles
- B. endoplasmic reticulum
- C. nucleolus
- D. cell membrane

5. During which stage of mitosis do two daughter cells appear?

- A. prophase
- B. anaphase
- C. telophase
- D. metaphase

6. Who provided the name "cell"?

- A. Anton van Leeuwenhoek
- B. Robert Hooke
- C. Matthew Schleiden
- D. Rudolf Virchow

7. What structures in the cell release energy stored in food?

- A. ribosomes
- B. nucleus
- C. vacuoles
- D. mitochondria

8. Which organelle is a fluid-filled sack that acts like a storage area?

- A. vacuole
- B. ribosome
- C. nucleus
- D. nucleolus



Organelles & Mitosis **KEY**

Circle the letter of the best answer for each question.

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