

4. Cell Communication and Cell Cycle

Starter Quiz · 课前小测

AP Biology

Name: _____ Score: _____

1. Why do the cells of a body need to communicate?

- ☐ to coordinate their actions as one organism
- ☐ to compete and destroy each other
- ☐ they do not communicate at all
- ☐ only to store energy

2. **Signal transduction** is the process of...

- ☐ converting an outside signal into an inside cellular action
- ☐ copying DNA
- ☐ making ATP
- ☐ digesting food

3. A **signal transduction pathway** is...

- ☐ a chain of molecules that each activate the next
- ☐ a single molecule doing everything alone
- ☐ a type of DNA
- ☐ a kind of cell wall

4. **Homeostasis** is...

- ☐ keeping the body's internal conditions steady
- ☐ growing as fast as possible
- ☐ copying DNA
- ☐ making the body colder over time

5. The **cell cycle** is the sequence a cell follows to...

- ☐ grow, copy its DNA, and divide into two
- ☐ make ATP
- ☐ send hormones
- ☐ digest food

6. A cell that has the right receptor and can respond to a signal is called a _____ cell.

7. The three stages are reception, transduction, and _____.

8. When one signal produces a huge response through a cascade, we call it _____.

9. The target value that the body tries to hold is called the _____ point.

10. **Mitosis** produces two daughter cells that are genetically identical to the parent.

- ☐ True ☐ False

AP Biology

1. **to coordinate their actions as one organism**

Cells must communicate to act together — growing, defending, and responding as one coordinated body.

2. **converting an outside signal into an inside cellular action**

Signal transduction turns a signal arriving outside the cell into a response inside it.

3. **a chain of molecules that each activate the next**

A pathway is a relay: molecule A activates B, B activates C, and so on inside the cell.

4. **keeping the body's internal conditions steady**

Homeostasis keeps internal conditions (temperature, glucose, water) steady around a set point.

5. **grow, copy its DNA, and divide into two**

The cell cycle takes a cell through growth, DNA copying, and division into two new cells.

6. **target**

Only a target cell with the matching receptor responds; other cells ignore the signal.

7. **response**

The final stage is the response — the cell actually does something.

8. **amplification**

Each step activates many of the next, so amplification turns a tiny signal into a large effect.

9. **set**

The body compares the current value with the set point and corrects any difference.

10. **True**

Mitosis splits the copied chromosomes evenly, so each daughter cell is an identical copy.