

4 Cell communication and feedback — Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)
signals	信号	_____
ligand	配体	_____
receptor	受体	_____
hormones	激素	_____
Signal transduction	信号转导	_____
Negative feedback	负反馈	_____
homeostasis	稳态	_____
Positive feedback	正反馈	_____

Recall

You already know that the body's cells work together:

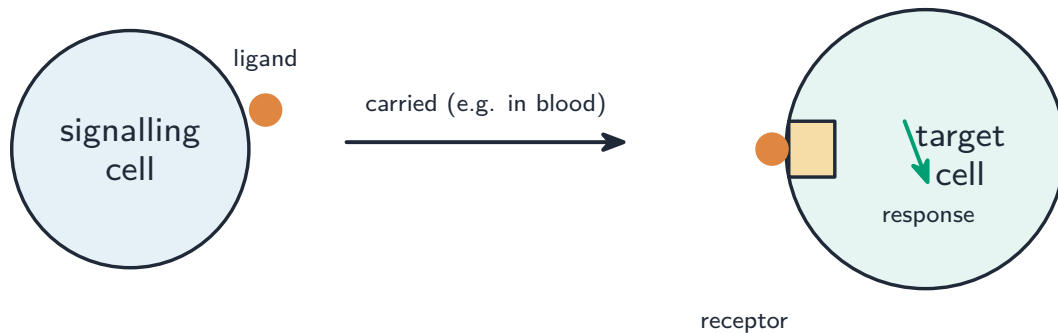
- Hormones carry chemical messages through the blood.
- Your body keeps a steady temperature and blood sugar.
- Nerves and chemicals let cells “talk” to one another.

This sheet lines up how cells communicate. Each idea has a short worked example.

New ideas

■ 1 Cell signals

Cells send chemical **signals** 信号 to each other. A signalling cell releases a **ligand** 配体 (a signal molecule), which binds to a matching **receptor** 受体 on the target cell.



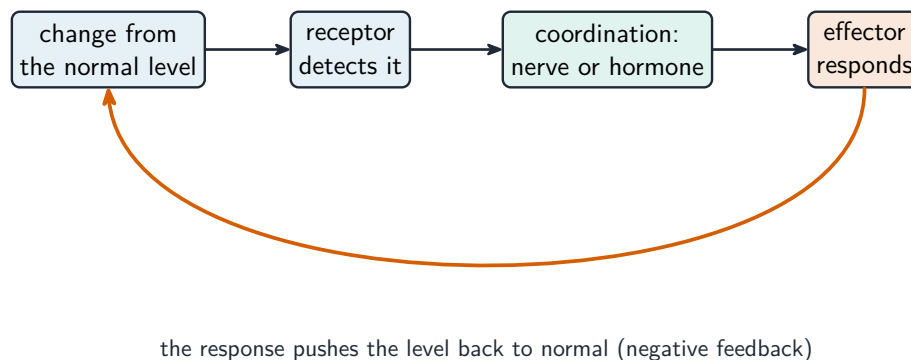
Long-distance signals are **hormones** 激素, carried in the blood.

■ 2 Signal transduction

Signal transduction 信号转导 turns an outside signal into a response, in three steps: **reception** (ligand binds receptor), **transduction** (a relay inside the cell), and **response** (the cell changes what it does).

■ 3 Negative feedback

Negative feedback 负反馈 reverses a change to return to a set point – like a thermostat. It keeps conditions steady, which is **homeostasis** 稳态.



■ 4 Positive feedback

Positive feedback 正反馈 does the opposite: it **amplifies** a change to push a process to completion, like the contractions of childbirth or blood clotting.

Watch out: “negative” feedback does not mean bad – it means the response **opposes** the change, bringing the system back to normal. It is what keeps you stable.

Practice

Try these in order. The methods are all above.

2.1 State what a ligand and a receptor are. [2]

2.2 Name the three stages of signal transduction. [2]

2.3 Explain how negative feedback keeps body temperature steady. [2]

2.4 State the main difference between negative and positive feedback. [2]

2.5 Give one example of a process controlled by positive feedback. [1]
