Combined Science - Biology - KS4

Homeostasis and Response

Hormonal Responses

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Endocrine vs. Nervous System

Feature	Endocrine system	Nervous system
Type of signal	Chemical (hormones)	Electrical (and chemical across synapse)
Organs	Glands	
Transmission		Along neurones
Speed	Slow release	
Effect		Short lived, localised

Answers

Feature	Endocrine system	Nervous system
Type of signal	Chemical (hormones)	Electrical (and chemical across synapse)
Organs	Glands	Brain and spinal cord
Transmission	Through the blood	Along neurones
Speed	Slow release	Fast release
Effect	Longer lasting, widespread	Short lived, localised

Practise questions

1. State the name of the gland that secretes insulin. [1]
2. State the name of the hormone that is released from the thyroid gland. [1]
3. Which gland releases growth hormone? [1]
4. What is a hormone? [1]
5. How to hormones travel to the target cell? [1]

Answers - Practise questions

1. State the name of the gland that secretes insulin. [1] **Pancreas**
2. State the name of the hormone that is released from the thyroid gland. [1] **Thyroxine**
3. Which gland releases growth hormone? [1] **Pituitary**
4. What is a hormone? [1] **Chemical messenger**
5. How to hormones travel to the target cell? [1] **Blood stream**

Exam style question

Compare the coordinated responses of **hormones** in the **endocrine system** and **nerves** in the **nervous system**. [6 marks].

Answer - Exam style question

Compare the coordinated responses of **hormones** in the **endocrine system** and **nerves** in the **nervous system**. [6 marks].

- Both hormones and electrical impulses in nerves send signals.
- Nervous system uses an electrical signal whereas hormones are a chemical signal.
- Electrical signals are fast**er** than chemical signals.
- Hormones are released by glands.
- Hormones move in the blood around the whole body whereas the nervous system remains localised.
- Hormonal responses are slow**er** but long**er** lasting than nervous responses.
- Hormones act upon a target cell whereas nervous response targets an effector.