

## Hormones

### A Very Short Introduction

By Martin Luck

#### Questions for thought and discussion

- When did hormone science really begin and how has it changed our view of how the body is coordinated?
- Why is it better to describe hormones as signals rather than messages? What is a *target cell* and why is this a misnomer?
- Broadly speaking, what are the two main ways in which hormones interact with target cells and what physical property of the hormone determines this?
- Why is it misleading to think of reproductive hormones as being “male” or “female”?
- How does the ovary know when the uterus is pregnant?
- Why do post-menopausal women produce large amounts of ovary-regulating hormones?
- Which hormones control the amount of water in the body and how do they do this?
- Which hormones control the amount of calcium in the blood, and what are the risks if this gets out of control?
- Why is Vitamin D better thought of as a hormone than a vitamin?
- Many affluent parts of the world are experiencing epidemics of diabetes and metabolic disease. Why might this be and what part do hormones play in these conditions?
- Why do you think the pharmaceutical industry has found it so hard to develop appetite-regulating pills?
- Why can an imbalance of thyroid hormones during foetal life have devastating consequences?
- Why does a deficiency of iodine in the diet paradoxically cause the thyroid gland to grow?
- What do hormones scientists mean by an *endocrine axis*?
- What are the connections between the endocrine system and the nervous system?
- Why can it be advantageous for animals to evolve cycles of physiological change, related to yearly and other environmental events, and what role do hormones play in maintaining these cycles?
- Now that many hundreds of hormones have been discovered and investigated, why might we need to modify our understanding of what a hormone is?
- Hormones don't survive in the fossil record, so what principles can we use to try to understand how they have evolved?
- Where would you draw the line between the use and abuse of hormone treatments?
- Who, in your opinion, should decide how we exploit our understanding of hormones?

#### Further Reading

Please refer to the further reading section at the back of *Hormones: A Very Short Introduction*