

This is the Stress & Immunity Questions Page

Instructors will post questions here ahead of class time. Students should prepare answers in written form in the form of a bullet list of main points that can be used to answer the questions. An example is given for Week 1.

Week 1.

Paper: Seymour Levine, Stress: an historical perspective.

1. Where is Seymour Levine from and what sort of relevant research has he done?

Answer:

- Seymour Levine is from the Department of Psychiatry at UC-Davis.
- His research over the years began in the 1950s and was/is in the area of stress in early development and its effects on later behavior. He used both human and animal models. [Source: literature cited from topic paper.]

Questions for Week 1:

1. Stress, like welfare and happiness, is difficult to define. Which definition, or combination of definitions mentioned by Levine do think is most defensible?
2. What does Sapolsky do, what books has he written (see Amazon) and what did he say about Selye?
3. Was early work on stress conducted in a humane manner?
4. Specifically, where is CRF produced?
5. Which catecholamine causes release of CRF?
6. Who isolated and characterized CRF and in what year?
7. How is Psychoneuroendocrinology defined by Levine?
8. What effects does early experiences have on later stress responses?
9. Discuss the role of the following in a stress response:
 - Control
 - Predictability
 - Psychological vs. physical stressors
10. What was de Wied's central hypothesis?

Week 2.

Where do all white blood cells originate from?

What are the important differences between the innate and the adaptive immune system?

What are the two main mechanisms the innate immune system uses to kill pathogens?

Inflammation is traditionally defined as what four things?

What are the three main antigen present cells and why are they called this?

What are the differences between the cell-mediated and adaptive immune response?

When did the Th1/Th2 balance hypothesis first emerge?

The Th1 response drives what pathway?

The Th2 response drives what pathways?

What are the main cytokines involved in each of the 2 pathways (Th1 and Th2)?

What are the other factors that influence the Th1/Th2 balance, other than cytokines?

Name some Th2 dominant disorders?

Week 3

Who is Hans Selye?

What were his major scientific contributions?

Are his concepts still valid?

Paper: Glucocorticoids and the immune response. Wieggers et al.,

Please only read pages 175-183.

1. What was the initial theory about the effects of glucocorticoids on the immune system?
2. Who was the first to introduce the concept that the immune and other defense mechanisms are strengthened by stress? What piece of evidence validated this theory?
3. After reading this paper what is the primary role of the glucocorticoids? Provide a piece of evidence to support your theory.

Paper: Glucocorticoids and the Th1/Th2 balance. Elenkov

1. For Th1 and Th2 identify the cells and cytokine that are the key players.
2. Diagram the regulatory pathway of all the cytokines and immune cells involved in the Th1/Th2 pathway.
3. What is the proposed major mechanism by which glucocorticoids affect the Th1/Th2 balance? Incorporate the direct and indirect effects of the glucocorticoids into your diagram.
4. Does it seem logical that glucocorticoids would favor a Th2 response? Why? Provide evidence to support.
5. Design an experiment to support the hypothesis that Stress-induced Th2 shift via glucocorticoids has a profound effect on the susceptibility of an organism to an infection.

Week 4

1. What are the two systems that cause an endocrine response to stress?
2. What peptides are synthesized in the parvocellular cells?
3. What are the differences between rapid and delayed feedback?
4. What are the 2 corticosteroid receptors and how do their functions differ?
5. Give examples of afferent regulation of the HPA axis.
6. What are the two main categories of acute stress? Give examples.
7. What effect does injecting animals with Lipopolysaccharide have on cytokine production and on the HPA axis?
8. Name some measures that can be used to evaluate an acute or chronic stress response.
9. How are endogenous opioids involved in the regulation of the HPA axis?
10. What other factors are involved in the stress response?
11. Describe the HPA axis.
12. What is POMC?
13. In what regions of the body has CRF mRNA being detected?
14. What are the 2 CRF receptors and where are they distributed?
15. What peptide is required for normal diurnal pattern of glucocorticoids?
16. What is the importance of maternally derived glucocorticoids?
17. Describe an experimental design using knock-out mice to study the effects of CRF on anxiety behavior.

Week 5

Please view and listen to the breeze presentation and read the chapters twice before we meet on Monday at 10 am. Questions are embedded within the Breeze presentation. This presentation is found at:

<http://spectra.tosm.ttu.edu/dwftemp/>

You may want to print out the Power Point presentation before you view and listen to the breeze presentation. The Power Point presentation of this presentation can be opened and downloaded here:

[Physiological and Psychological Stress: PVN & Amygdala](#)