

Session 4: The Adaptive Immune Response

Text: Chapters 8 & 9

Time: 4 Class periods

Objectives: You should be able to start putting many of the previous bits of information together along with new information and come to an understanding of how the body generates a cell-mediated or humoral-mediated immune response. These are long chapters, and they are loaded with important information. But they are among the most important chapters in the entire book. Try to find significant time to work on them.

Chapter 8 – T Cell-Mediated Immunity

Intro *Read carefully* Understand the language and concepts.

Part 1 - Activation of Naïve T Cells on Encounter with Antigen

Intro *Read*

8-1 *Read carefully* Understand the functions of dendritic cells (Fig 8.1).

8-2 *Read carefully* Understand circulation of dendritic cells (Figs 8.2 & 8.3).

8-3 *Read carefully* Understand (re)circulation of T cells ((Figs 8.5 & 8.6).

8-4 *Read* *Read* the first paragraph carefully. *Review* the rest for Concepts. Note the importance of adhesion molecule (Figs 8.6 to 8.9, but especially 8.7 & 8.9).

8-5 *Read carefully* Understand the significance of co-stimulation (Fig 8.10).

8-6 *Read* Understand the diversity of APC's (Figs 8.11 & 8.13).

8-7 *Review* *Review* for concepts only, including Figs 8.14 and 8.16).

8-8 *Read carefully* Understand importance of Il-2 (Fig 8.17).

8-9 *Read* Understand Tolerance (Fig 8.18).

8-10 *Read carefully* Understand Th1 vs Th2 cells (Figs 8.19 to 8.21).

8-11 *Read carefully* Understand Tk cells (Fig 8.22).

Summ *Read*

Part 2 – The Properties and Functions of Effector T Cells

Intro *Read*

8-12 *Read* Why is co-stimulation not needed here? *Review* Fig 8.23.

8-13 *Read carefully* Understand functions of Il-2, Il-3, Il-4, TNF, FAS/FASI, INF and GM-CSF. Understand Figs 8.26 & 8.27.

8-14 *Read very carefully* Understand Figs 8.28 to 8.30 and the mechanism of cytotoxicity.

8-15 *Read carefully* Understand Figs 8.31 & 8.32 and the mechanism of cytotoxicity.

8-16 *Read carefully* Understand functions of Th1 cells (Fig 8.34).

8-17 *Read carefully* Understand functions of Th1 cells (Figs 8.35 & 8.36).

8-18 *Read carefully* Understand functions of Th2 cells (Fig 8.37 & 8.38).

8-19 *Read* Why do we need these cells?

Summ *Read*

Summary to Chapter 8

Read carefully Understand Fig 8.39.

Chapter 9 - Immunity Mediated by B Cells and Antibodies

Intro *Read carefully.* Understand the language and concepts.

Part 1 - Antibody Production by B Lymphocytes

Intro *Read*

9-1 *Read* Understand Figs 9.1. *Review* Fig 9.2.

9-2 *Read* Understand Fig 9.5

9-3 *Read* Differentiate TI vs TD antigens (Figs 9.6 & 9.7).

9-4 *Read carefully* Understand activation of B cells by Td antigens (Figs 9.8 to 9.10).

9-5 *Read.* *Review* Fig 9.11.

9-6 *Read* *Review* Fig 9.12.

9-7 *Read carefully* Understand Figs 9.13 & 9.14. Understand lymphoid tissue architecture.

9-8 *Read* Understand Fig 9.15.

9-9 *Review* *Review* Figs 9.16 & 9.17 for concepts.

9-10 *Read* *Review* Figs 9.1 & 9.19.

Summ *Read* *Review* Fig 9.20.

Part 2 - Antibody Effector Functions

Intro *Read*

9-11 *Read* *Review* Fig 9.21.

9-12 *Read* *Review* Fig 9.22.

9-13 *Read* *Review* Fig 9.23.

9-14 *Read carefully* Understand Fig 9.24, and the concept of Passive Transfer of Immunity.

9-15 *Read* *Review* Figs 9.25 & 9.26. Define: Agglutination and Neutralization.

9-16 *Read* *Review* Figs 9.27 & 9.28.

9-17 *Read* *Review* Figs 9.29 to 9.31.

9-18 *Review*

9-19 *Review* *Review* Fig 9.34.

9-20 *Review* *Review* Fig 9 .35.

9-21 *Read carefully* *Read* Figs 9.36 to 9.39. Understand the concepts but don't memorize details.

9-22 *Read* *Review* Fig 9.40 and *Read* Fig 9.41.

9-23 *Read* *Read* Fig 9.43 and understand NK cells and ADCC.

9-24 *Read carefully* Understand Fig 9.44. What is the significance of degranulation of mast cells/basophils and release of pharmacologic mediators?

9-25 *Review*

Summ *Read*

Summary to Chapter 9 *Read*