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American Association of Immunology
Heidi Anderson: Lesson Plan for Cell Signaling and Immune System

Unit Alignment

Day1: Students will review prior knowledge and build connections to cell communication.

Review prior knowledge/vocabulary and concepts:
Biochemistry, macromolecules, glycoprotein &integral membrane proteins, phosphorylation, mitosis & cyclin/CdK, cell proliferation, gene expression acetylation/methylation, transcription/translation, mutations, phagocytosis

Pre-Testover cell communication & immune system

Overview & discussion Cell Communication & Signal Transduction Pathways

Day2: Students will read text on the immune system as a model of cell communication and discuss mechanisms by which these cells and chemical signals are used in innate and adaptive immunity.

Reading Activity: Bondada, S., Chelvarajan, R.M. & Gururajan, 2005. "B Lymphocytes" Encyclopedia of Life Science, John Wiley & Sons, Ltd.

Introduction: WBC classification with Innate vs. Adaptive Immunity, Cellular vs. Humoral Immunity Compare/Contrast

Lecture: Innate vs. Adaptive (Cellular vs. Humoral) Immunity

Activity A: Concept Mapping Cellular Interactions, with cytokines and cell receptor identifications

New Terminology:

Cells	Markers/Receptors	Protein Cascade	Cytokines/ Chemokines	Immunoglobulins
Leukocytes	CD19	BID	IL-1	IgM
Neutrophils	CD4+	BCL XL	IL-2	IgG
Eosinophils	CD8+	BCL-2	IL-4	IgE
Basophils	CD3	TCL	IL-5	IgA
Macrophages	BCR	PAR-4	TNF-β	IgD
Mast cells	TCR	BKT	γ–IFN	
Dendritic cells	MHC I	cIAP2		
T cells (Th1, Th2, CTL or Tc, Treg)	MHCII			Opsonization
B cells (Plasma Memory)				
NK cells				
Lymphocytes				

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Supplemental Resources for Unit:

Calculations for Assay Trials on B-cell Populations
Lab Supplement Activity B

Directions: Complete the following calculations for a drug trial using the equation $C_1V_1 = C_2V_2$

1. The cell concentration we start with is 6.3×10^{6}

3. Heat tubes 10 minutes in boiling water and vortex again.
4. Load wells w