BITS PILANI, DUBAI CAMPUS
DUBAI INTERNATIONAL ACDEMIC CITY
FIRST SEMESTER 2012-2013
COMPREHENSIVE EXAMINATION (CLOSED BOOK)

COURSE NO. BIOT C463 3.1.2013 MAXIMUM MARKS: 40
COURSE NAME; INTRO TO IMMUNO &IMMUNOTECH DURATION: 3 Hrs.

Attempt all the questions in the given sequence only

Q1. (i) What is the difference between central and peripheral Tolerance. Explain the mechanisms by which this tolerance is maintained in your body. (3)
(ii) List out the Complement activation products, their biological properties and regulation of their activity in a tabular form only. (3)
(iii) What is the difference between Antigenicity and Immunogenicity? There are various ways by which immunogenicity can be influenced .Justify (2)

Q2. (i)Explain the mechanism how the antigen peptides are transported to ER. (2)
(ii) What are microRNAs, and what is their primary function? (1)
(iii) How are miRNA associated with disease? (2)

Q3. (i) Briefly describe the technique which can help in separation of protein or antigen from a sample containing many different proteins. (2)
(ii)What do you understand by SCID? Why is it known as a bubble boy disease? How is it treated? (2)
(iii) Explain what allelic exclusion is and what is its significance? (2)

Q4. (i) Briefly describe the steps involved in MCR & MLR testing. (3)
(ii) Briefly describe the role of cytokine in immunotherapy with 2 examples. (2)
(iii) Explain the various factors that influence/regulate the expression of MHC genes. (2)

Q5. (i) What is the difference between live and killed vaccines .What are the advantages and disadvantages of these. (2)
(ii) How does the immune system respond to bacterial at different levels? (2)
(iii) How do cytokines work? What are the implications of cytokines in disease? Justify with an example? (2)

Q6.(i) Apoptosis plays an important role in deletion of potentially autoreactive thymocytes during negative selection. Explain the mechanism. (3)
(ii) Write a short note on MALT and Dendritic cells. (2)
(iii) Briefly explain the mechanism of class switching. (3)

**********GOOD LUCK**********

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FIRST SEMESTER 2012-2013
TEST -2 (OPEN BOOK)

COURSE NO. BIOT C463 17.12.12 MAXIMUM MARKS: 20
COURSE NAME; INTRO TO IMMUNO &IMMUNOTECH DURATION: 50 Mins

Q1. (a) What are the consequences if C3b is continuously activated? How is the activity regulated, explain? (3)

(b) Explain why NK cells kill many types of virus infected cells but do not kill normal cells? (2)

(c) Explain the mechanism by which the microbes that are taken up by phagocytes but escape from phagosomes into cytosol (where they are not susceptible to microbicidal activities of phagocytes) are eliminated? (2)

Q2. (a) How do the viruses evade the defense strategies given by the host cell? Explain. (2)

(b) Cheetahs were nearly hunted to extinct recently and consequently are genetically very similar (a genetic bottleneck), especially in their HLA loci. Please explain why cheetahs are highly susceptible to viral infections? Explain (3)

(c)What are the limitations of Polysaccharide vaccines and how could this limitation be overcome? Explain. (2)

Q3. (a) There are numerous peptides which are formed in system, how does the binding of exact sized peptide binding is ensured in peptide binding cleft? How does the premature binding of the peptides is prevented to MHC molecules? Explain (2)

(b) Describe the mechanism by which T cells recognize and respond to an antigen. (2)

(c) HLA- DM and HLA-DO are termed as non classical MHC class II molecules, how do they differ from classical class II MHC and how do they differ from each other? What is their function? (2)

BITS PILANI, DUBAI CAMPUS
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FIRST SEMESTER 2012-2013
TEST -1 (CLOSED BOOK)

COURSE NO. BIOT C463 17-10-2012 MAXIMUM MARKS: 25
COURSE NAME: INTRO TO IMMUNO &IMMUNOTECH DURATION: 50 Mins

Q1. (i) Signal transduction mechanism is central to various cellular processes in human body, describe a basic model of cytokine receptor signaling studied by you. (3)

(ii) Diagrammatically show the formation of Secretary Ig A .Where it is formed and briefly describe its role. (3)

(iii) Sequential and non sequential epitopes generally behave differently when a protein is denatured, fragmented or reduced. Justify the statement with an example. (4)

Q2. (i)Briefly describe the Endocytic pattern recognition receptors and signaling pattern recognition receptors with an example and how they work? (3)

(ii) Briefly describe the role of Thymus in T cell maturation. (3)

(iii) Briefly explain the different phases of adaptive Immune response. (2)

Q3. (i)What do you understand by Hematopoiesis? How is hematopoiesis regulated? Explain. (2)

(ii) What role do NK cells play in immune response and how do they differ in their mechanism from complement System in fighting against microbes (2)

(iii) Cytokine profiles are cross regulated. Justify the statement with an example. (3)

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