

# Birla Institute of Technology & Science, Pilani

I st Semester 2022-23

Comprehensive Examination

Molecular Immunology BIO G514 Duration 1hr Marks 15 (CB)

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- 1) Distinguish between active and passive immunity 2
- 2) Your friend has a cut on her arm and is frightened. Calm her down using your knowledge of immunology to highlight the basic defense mechanisms, which would be activated, if any pathogen entered through the broken skin. 4
- 3) **Plasmacytoid Dendritic cells are the same as follicular dendritic cells.** Comment on this statement with reasons. 3
- 4) Write briefly on cytosolic DNA sensors and the STING pathway. 3
- 6) Explain the mechanism behind class switching in antibodies. 3

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Comprehensive Examination

Molecular Immunology BIO G514 Duration 2hr Marks 25 (0B)

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1) If there was a drug that bound to SIPR1 on the surface of lymphocytes and caused down-modulation of the same. What would be the effect on lymphocyte recirculation through the lymphnodes? Immunologically would the effect necessarily be harmful? 4

2) You have used an experimental drug ,and suddenly see that the half-life of circulating IgG has decreased drastically. Considering your understanding of immunology, where could this drug be acting? 4

3) What would happen in T cell activation if Lck underwent a loss of function mutation? 4

4) During lymphocyte development, Notch 1 and GATA 3 expression was suppressed using antisense oligonucleotides. What could be the probable outcome and could it lead to a disease state? 5

5) What could be the outcome during lymphocyte development if DNA polymerase was suppressed, during the rearrangement process? 4

6) What could result in the immunological response to a bacterial infection if C 3b processing was prevented from occurring ? 4