



Department of Biotechnology		LP: BY22211
		Rev. No: 00
M.Tech	: Biotechnology	Date: 18.04.2023
Regulation	: 2022 (Autonomous)	
PG Specialisation	: Biotechnology	
Sub.Code/Sub. Name	: BY22211 Advanced Microbial and Immunotechnology Lab	

Session No*	List of Experiments
1	Disinfection, safety instructions; Preparation of media and Sterilization.
2	Screening and isolation of antibiotic producing microbes from soil.
3	Enumeration of microorganisms by serial dilution.
4	Growth curve, measure of bacterial population by turbidometry.
5	Ethics, selection and handling of animals for immunological experiments (Eg. Mice, Rats, Rabbits).
6	Preparation of antigen and immunization through different routes (Eg. Intraperitoneal, Sub-cutaneous, Intramuscular, Intra-nasal, Oral).
7	Methods of bleeding (Eg. Tail bleeding, Intravenous, Intraorbital).
8	Collection of serum, storage and purification of total IgG (salt precipitation).
9	Separation of splenocytes and proliferation against mitogens.
10	Separation of mononuclear cells by Ficoll-Hypaque.
11	Measurement of cytokines secreted from immune cells by ELISA.
12	Immunofluorescence staining of B-cell and T-cell populations of mouse spleen and thymus.
13	Analysis of CD4 expression using RT-PCR and Agarose Gel Analysis.
14	Flow cytometry and FACS analysis of mouse splenocytes and thymocytes.
15	Methods for prototype development of Immunodiagnostics (ICT card).
Content beyond syllabus (if any): Biochemical test to identify microorganism	

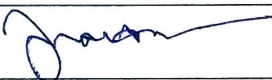

* Session Duration: 300 minutes



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REFERENCES:

1. Collee, J.G., Fraser, A.G., Marmion, B.P., Simmons, A., Mackie & McCartney. Practical Medical Microbiology, 14th Edition, Churchill Livingstone, 1996.
2. John, E. C. Current Protocols in Immunology, Wiley Interscience, 2003.
3. Freshney, R. Ian. Culture of animal cells: a manual of basic technique and specialized applications, John Wiley & Sons, 2015.
4. Lawson, P. Timothy, ed. Assistant Laboratory Animal Technician, American Association for Laboratory Animal Science, 1998.
5. Melamed, Myron R., Tore Lindmo, Mortimer L. Mendelsohn, and Robert D. Bigler. Flow cytometry and sorting, 2nd Edition, John Wiley & Sons, 1991.

	Prepared by	Approved by
Signature		
Name	J. Hariharan	Dr. E. Nakkeeran
Designation	Assistant Professor	HOD-BIO
Date	03.04.2023	03.04.2023
Remarks*: The same lesson plan will be followed in the subsequent semester		

* If the same lab plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD