



3000764 อนุชีววิทยาและชีวเทคโนโลยีของเซลล์

Molecular Biology and Cellular Biotechnology

Time and venue: Monday 10.00 – 12.00 am. at Room 218, 2nd Floor, Pattayapat building

Week	Date	Topics	Instructor
1	15 Aug, 2022	Introduction. Monitoring of gene expression (DNA microarrays, protein arrays, proteomic analysis)	Prof. Alain Jacquet
2	22 Aug, 2022	Principles of animal cell culture Initiation of animal cell cultures, proliferation, cell cycle, apoptosis, senescence, viability, mortality, proliferation and cytotoxicity assays	Prof. Alain Jacquet
3	29 Aug, 2022	Principles of animal cell culture animal cell contaminations, detection of contaminations, cell purification, medium composition, scaling-up	Prof. Alain Jacquet
4	5 Sep, 2022	Recombinant protein expression in mammalian cells Mammalian expression vector, cell transfection, clone selection, protein expression assays, tagged and fusion proteins	Prof. Alain Jacquet
5	12 Sep, 2022	Protein purification Cell analysis, Precipitation, concentration, purification strategy, chromatographic techniques, instrumentation, protein assay, non-protein host cell contaminants	Prof. Alain Jacquet
6	19 Sep, 2022	Monoclonal antibody production and immunological detection techniques:Hybridoma technology, recombinant antibodies, chimeric and humanized antibodies, immunoconjugates, antibody purification, ELISA, western blotting, immunoprecipitation, flow cytometry, immunobeads, immunotherapeutics.	Prof. Alain Jacquet

7	26 Sep, 2022	Vectorology polyplex and lipoplex formations, adenoviral, retroviral, lentiviral technology for gene delivery, Gene therapy and application of vectorology in cancer treatments (cancer immunotherapy)	Prof. Alain Jacquet
8	3 Oct, 2022	Cloning, stem cells and transgenic animals	Prof. Alain Jacquet
9	10 Oct, 2022	Transgenic and Knock-out animals, pronuclear microinjection, viral delivery of transgene, embryonic and adult stem cells, embryonic stem cell gene transfer, conditional knock-out using Cre/lox and Tet on/ off systems, reproductive and therapeutic cloning, biopharming	Prof. Alain Jacquet
10	17 Oct, 2022	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
11	24 Oct, 2022	Holiday	
12	31 Oct, 2022	reproductive and therapeutic cloning, biopharming	Prof. Alain Jacquet
13	7 Nov, 2022	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
14	14 Nov, 2022	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
15	21 Nov, 2022	reproductive and therapeutic cloning, biopharming	Prof. Alain Jacquet
16	28 Nov, 2022	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
17	TBA	Principles of animal cell culture animal cell contaminations, detection of contaminations, cell purification, medium composition, scaling-up	Prof. Alain Jacquet