



**3000764 อนุชีววิทยาและชีวเทคโนโลยีของเซลล์**  
**Molecular Biology and Cellular Biotechnology**  
**Semester 1/2017**

**Schedule :**

**Time and venue :** Monday 10.00 – 12.00 at Room 218, 2<sup>nd</sup> Floor, Pattayapat building,  
 Faculty of Medicine

No	Week/date	Topics	Instructors
1	21 August, 2017	Introduction. Monitoring of gene expression (DNA microarrays, protein arrays, proteomic analysis)	Prof. Alain Jacquet
2	28 August, 2017	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	4 September, 2017	Principles of animal cell culture animal cell contaminations, detection of contaminations, cell purification, medium composition, scaling-up	Prof. Alain Jacquet
4	11 September, 2017	Recombinant protein expression in mammalian cells Mammalian expression vector, cell transfection, clone selection, protein expression assays, tagged and fusion proteins	Prof. Alain Jacquet
5	18 September, 2017	Protein purification Cell analysis, Precipitation, concentration, purification strategy, chromatographic techniques, instrumentation, protein assay, non-protein host cell contaminants	Prof. Alain Jacquet
6	25 September, 2017	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	2 October, 2017	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	9 October, 2017	Cloning, stem cells and transgenic animals 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
9	16 October, 2017		

10	30 October, 2017	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
11	6 November, 2017	reproductive and therapeutic cloning, biopharming	Prof. Alain Jacquet
12	13 November, 2017	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
13	20 November, 2017	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
14	27 November, 2017	reproductive and therapeutic cloning, biopharming	Prof. Alain Jacquet
15	4 December, 2017	Tissue engineering Cell culture, scaffold, signal factors, xenotransplantation	Prof. Alain Jacquet
16	18 December, 2017	Principles of animal cell culture animal cell contaminations, detection of contaminations, cell purification, medium composition, scaling-up	Prof. Alain Jacquet