

Biomedical master (UNIL), specialization in 'Immunology and Cancer'

Module 3 ECTS credits: 15 (total of 2nd semester)

Responsible: J. Esser-von Bieren (julia.esser-vonbieren@unil.ch); secretary: N.Colin-Garret (Nathalie.Colingarret@unil.ch)

2024 program

2nd semester

COURSE	RESPONSIBLE	TEACHER	SUBJECTS	C	S	
C Immunology II	J. Esser-von Bieren	J. Esser-von Bieren (JEB)	Course introduction, T-cell differentiation	3h		
			S. Luther (SL)	Secondary lymphoid organs	5h	
			W. Held (WH)	NK-cells, Innate lymphoid cells	3h	1h
			M. Rebsamen (MR)	Myeloid cells and inflammation	3h	
			M. Thome (MT)	Signaling in lymphocytes	5h	1h
			P.-C. Ho (PCH)	Metabolism of T cells and macrophages	3h	1h
			S. Monticelli (SM)	Gene expression in immune cells	2h	
			M. Perreau (MPe)	Acute and chronic viral infections	4h	1h
			P. Broz (PBr)	Cell death and immunity	4h	
			T. Roger (TR)	Bacterial infections and sepsis	2h	1h
C Immunology III	J. Esser-von Bieren		D. Velin (DV)	Gut immunity	3h	1h
			N. Ubags (NU)	Microbiome, lung immunity	3h	
			C. Pot (CP)	Autoimmunity and neuroinflammation	3h	
			G. Verdell (GV)	Mouse models, immune monitoring	2h	
				<b>Total</b>	<b>45h</b>	<b>6h</b>
				<b>51h</b>		
C Cancer II	T. Petrova	D. Hanahan (DH)	Cancer: a summary	2h		
			E. Missiaglia (EM)	Cancer genetics and heterogeneity	4h	
			G. Ciriello (GC)	Epigenetics of cancer	2h	1h
C Cancer III	T. Petrova		Tumor vessels and microenvironment	5h	1h	
			J. Joyce (JJ)	Tumor invasion and metastasis, glioma	5h	1h
			D. Gleller (DGL)	Genetics of antitumor immunity, omics	2h	
				<b>Total</b>	<b>20h</b>	<b>3h</b>
				<b>23h</b>		
C Treatments	T. Petrova	A. Harari (AH)	Antitumor immunity	4h		
			M.-C. Vozenin (MV)	Radio- and Chemotherapy	2h	
			L. Kandalaf (LK)	Cancer immunotherapy	3h	
			C. Arber (CA)	Leukemias and therapies	2h	1h
			L. Perez (LP)	Vaccines	2h	
			D. Golshayan (DGo)	Immunology of organ transplantations	2h	
			D. Comte (DC)	Allergies and treatments	2h	
				<b>Total</b>	<b>17h</b>	<b>1h</b>
				<b>18h</b>		

C: Course (lecture) S: Seminar / journal club (JC) PW: Practical Work  
Courses start at full hour!

COURSE	RESPONSIBLE	TEACHER	SUBJECTS	C
C Molecular and cellular techniques	M. Quadroni (MQ)	MQ, M. Biasani (MB), V. Zotte (VZ), GV, P. Baumgartner (PBa)	Proteomics, antigen discovery, 3D modelling, peptide-based assays	14h
C Bioinformatics	D. Gleller (DGL)	DGL	Bioinformatics	2h
C Biostatistics	F. Schütz (FS)	FS	Biostatistics	2h
Common courses				20h
Clinical Medicine				20h
RESAL Module 1 or Clinical Research Module	M.-C. Broillet (MCB)	C. Cadilhac (CC)		20h
			G. Wuerzner (GW)	E. Gonzalez Rodriguez
PRACTICAL WORK RESPONSIBLE TEACHER SUBJECTS				
PW Molecular and cellular techniques	M. Quadroni (MQ)	MQ, MB, VZ, GV, PBa, L. Derré(LD)	Antigen discovery by mass spectrometry, 3D modeling, peptide-based assays	6 days
PW: Ex vivo and in situ techniques	A. Bénédet (AB)	AB, J. Bernier-Latnani (JBL), A. Noble (AN), CA, J.-F. Mayol (JM)	Histology (Immunology)	4.5 days
			Histology (Cancer)	5 days
			Flow cytometry	
PW Bioinformatics	D. Gleller (DGL)	DGL	Basics of bioinformatics and biostatistics	4h
PW Biostatistics	F. Schütz (FS)	FS		13h
E E-learning exercises				
E-learning Intro	S. Luther (SL)		Introduction	1h
ABL immunology	S. Luther (SL)	MP + LP	Experimental design	2h
or CBL cancer	S. Luther (SL)	O. Naveiras (ON)	Clinical case	2h
S/E Grant writing and defense				2h
	T. Petrova			
Master thesis				1.5 Semesters
	S. Luther (SL)	Group leaders		

CBL: Case-Based Learning ABL: Article-Based Learning

Important: all courses and lecture pdf's are to be given in English!

WEEK 1: 19.02 to 23.02

	mo 19	tu 20	we 21	th 22	fr 23
08:15	Introduction to Clinical Medicine				
09:15	Clinical Research Module (Theory) GW				
10:15					
11:15					
12:15					
13:15	Clinical Research Module (e-learning TRREE) GW				
14:15	RESAL Module 1 (Practicals - Group I - Animalerie Arare, Genève) MCB,CC				
15:15					
16:15					
17:15					
	CHUV-A.Yersin	CHUV-Maternité	CHUV-C.Roux	BU19-Decker	BU19-Decker
	CHUV-M.Mayer	CHUV-C.Roux	CHUV-C.Roux	BU9-G.Audiere	CHUV-C.Olivier

WEEK 2: 26.02 to 01.03

	mo 26	tu 27	we 28	th 29	fr 01
08:15	Clinical Research Module (e-learning TRREE) GW		Clinical Research Module (e-learning TRREE) GW		
09:15	RESAL Module 1 (Practicals - Group II - Animalerie Arare, Genève) MCB,CC		RESAL Module 1 (Practicals - Group III - Animalerie Arare, Genève) MCB,CC		
10:15					
11:15					
12:15					
13:15	Clinical Research Module (e-learning TRREE) GW		Clinical Research Module (e-learning TRREE) GW		
14:15	RESAL Module 1 (Practicals - Group II - Animalerie Arare, Genève) MCB,CC		RESAL Module 1 (Practicals - Group III - Animalerie Arare, Genève) MCB,CC		
15:15					
16:15					
17:15					

WEEK 3: 04.03 to 08.03

	mo 04	tu 05	we 06	th 07	fr 08
09:00	Overview JEB	C-Immunology II SL	C-Immunology II SL	C-Immunology II JEB	C-Treatments AH
10:00	C-Immunol.II SL				
11:00	C-Cancer II DH	C-Cancer II EM	C-Immunology II MT	C-Cancer III DGL	C-Immunology II MR
12:00					
13:00					
14:00	C-Cancer II EM	C-Cancer II GC	prepare JC		C-Treatments AH
15:00				C-Immunol.II MR	
16:00		prepare JC	prepare JC	prepare JC	prepare JC
17:00					
18:00					
Site	F308	F308	F308	F308	F308

WEEK 4: 11.03 to 15.03

	mo 11	tu 12	we 13	th 14	fr 15
09:00	C-Immunology III GV	C-Proteomics (MC)	C-Antigen discovery (MB)	PW Ag discovery	C-Immunology II MT
10:00					
11:00		PW Proteomics	C-Antigen discovery (MB)	PW Ag discovery	S-Immunol.II MT
12:00					
13:00					
14:00	S-Cancer II GC	C-Proteomics (MC)	PW Ag discovery	PW Ag discovery	C-Immunology II WH
15:00	C-Immunol.II MT				
16:00	prepare JC			PW Ag discovery	
17:00					
18:00					
Site	F308	F308 / B304	F304/ F308/ B304	F304/ F308/ B304	F308

WEEK 5: 18.03 to 22.03

	mo 18	tu 19	we 20	th 21	fr 22
09:00	C-Cancer III TP	C-Immunol.II WH	C-Immunology III TR	PW Ag discovery	PW report writing
10:00		S-Immunol.II WH		Q/A session	
11:00	C-Protein analysis (VZ)	C-Cancer III TP	C-Treatments LP		PW report writing
12:00				PW report writing	
13:00					
14:00	C-Protein analysis (VZ)	PW-3D modelling (VZ)	C-Cancer III TP	PW Intro (PBa)	
15:00			S-Cancer III TP		PW report writing
16:00				PW report writing	PW report writing
17:00		PW 3D modelling			
18:00					
Site	F308	F308 / B304	F302	F302/ B304	F308/ B304

WEEK 6: 25.03 to 29.03

	mo 25	tu 26	we 27	th 28	fr 29
09:00	PW Peptide-based assays	PW Peptide-based assays	PW report writing	PW report writing	Easter holidays 29.3. - 5.4
10:00					
11:00	C-Protein analysis (GV/PBa)	PW report writing	PW Peptide-based assays		
12:00					
13:00					
14:00	PW Peptide-based assays	PW Peptide-based assays	PW Peptide-based assays	PW report writing	
15:00					
16:00					
17:00					
18:00					
Site	F304/ F302/ B304	F304/ F302/ B304	F304/ F302/ B304	F302	

EASTER HOLIDAYS : FROM MARCH 29 TO APRIL 5, 2024

WEEK 7: 08.04 to 12.04

	mo 08	tu 09	we 10	th 11	fr 12
09:00	C-Immunology III NU	C-Immunol.III DV	PW FACS: acquisition	PW FACS: acquisition	PW FACS: analysis
10:00		C-Immunol.III DV			
11:00	C-Immunology III DV	S-Immunol.III TR	PW FACS: acquisition	PW FACS: acquisition	PW FACS: analysis
12:00					
13:00					
14:00	C-Treatments DGo	C FACS: introduction JM	PW FACS: acquisition	PW FACS: acquisition	PW FACS: analysis
15:00					
16:00		PW preparation	PW FACS: acquisition	PW FACS: acquisition	PW FACS: analysis
17:00					
18:00					
Site	F302	F302	F304 (B304)	F304 (B304)	B304 (F302)

WEEK 8: 15.04 to 19.04

	mo 15	tu 16	we 17	th 18	fr 19
09:00	PW report writing		C-Immunology III MPe	C-Immunology III MPe	PW-Bioinformatics DGI
10:00		PW report writing			
11:00	PW FACS Q/A session		C-Cancer III Jj	C-Cancer III Jj	PW-Bioinformatics DGI
12:00					
13:00					
14:00			C-Cancer III Jj	C-Bioinformatics DGI	C-Immunol.II PCH Intro e-learning SL
15:00					
16:00	PW report writing	PW report writing	C-Immunol.II PCH	C-Immunol.II PCH	
17:00					
18:00					
Site	B304 (F302)	B304 (F302)	F302	F302	B304 (F302)

**Master of Science in Medical Biology - Study path in Immunology and Cancer - Spring 2024**

**WEEK 9: 22.04 to 26.04**

	mo 22	tu 23	we 24	th 25	fr 26
09:00	C-Immunology III PBr	ABL/CBL preparation	ABL/CBL preparation	E- ABL or CBL	C-Treatments MV
11:00	C-Immunology III CP			E- ABL or CBL (2nd group)	C-Immunology II SM
12:00					
13:00					
14:00	C-Immunol. III CP	ABL/CBL preparation	ABL/CBL preparation	C-Immunology III PBr	C Histology: introduction AB
15:00	C-FACS&more JM			E- CBL Q/A session	S-Immunol. II PCH
16:00					
17:00					
18:00					
Site	B304 (F302)	B304 (F302)	B304 (F302)	B304 (F302)	F302

**WEEK 10: 29.04 to 03.05**

	mo 29	tu 30	we 01	th 02	fr 03
09:00	PW histology presentation	PW Histology	PW report writing	PW histology presentation	PW report writing
10:00		PW Histology			
11:00					
12:00					
13:00					
14:00	PW histology presentation	PW Histology	PW Histology Q/A session	PW histology presentation	S histology: presentations
15:00		PW Histology			
16:00					
17:00					
18:00					
Site	B304 (F302)	B304 (F302)	B304 (F302)	B304 (F302)	B304 (F302)

**WEEK 11: 06.05 to 10.05**

	mo 06	tu 07	we 08	th 09	fr 10
09:00		C-Treatments LK	PW report writing	<b>Ascension</b>	preparation for evaluation
10:00	S-Immunol. III MPa	C-Treatments CA			
11:00	C-Treatments LK	S - treatments CA			
12:00					
13:00					
14:00	C-Treatments DC	C-Histo&more AB	PW report writing		
15:00		C-Feedback / Apéro SL, JEB			
16:00					
17:00					
18:00					
Site	F302	F302	B304 (F302)		

**WEEK 12: 13.05 to 17.05**

	mo 13	tu 14	we 15	th 16	fr 17
09:00					
10:00					
11:00					
12:00					
13:00	preparation for evaluation	preparation for evaluation	preparation for evaluation	preparation for evaluation	preparation for evaluation
14:00					
15:00					
16:00					
17:00					
18:00					

**WEEK 13: 20.05 to 24.05**

	mo 20	tu 21	we 22	th 23	fr 24
09:00	<b>Pentecôte</b>	preparation for evaluation	preparation for evaluation	oral evaluation	oral evaluation
10:00				oral evaluation	oral evaluation
11:00					
12:00				oral evaluation	
13:00				oral evaluation	
14:00					
15:00					
16:00					
17:00					
18:00					
Site				F302	F308

**WEEK 14: 27.05 to 31.05**

	mo 27	tu 28	we 29	th 30	fr 31
08:00				written evaluation	<b>Dies academicus</b>
10:00				written evaluation	
11:00					
12:00					
13:00	preparation for evaluation	preparation for evaluation	preparation for evaluation		
14:00					
15:00					
16:00					
17:00					
18:00					
Site				GEN/C	

**WEEK : 03.06 to 07.06**

	mo 03	tu 04	we 05	th 06	fr 07
09:00					
10:00					
11:00					
12:00					
13:00	grant proposal	grant proposal	grant proposal	grant proposal	grant proposal
14:00					
15:00					
16:00					
17:00					
18:00					

**WEEK : 10.06 to 14.06**

	mo 10	tu 11	we 12	th 13	fr 14
09:00					
10:00					
11:00					
12:00					
13:00	grant proposal	grant proposal	preparation of grant defense	preparation of grant defense	<b>Defense of grant proposal</b>
14:00					
15:00					
16:00		submit grant proposal			
17:00					
18:00					
Site					F302 / F308

**3rd semester**

**Master work** all day, all semester

**Dates for students:**

Easter Friday (Good Friday)	29.03.24
Easter Monday	01.04.24
UNIL Easter holidays:	07-14.04.2024
Ascension day (Thursday)	09.05.24
Whit Monday (Pentecost Monday)	20.05.2024
First day of spring semester:	Monday 19.02.2024
Last day of spring semester:	Friday 31.05.2024
Dies academicus	31.05.24
Last day of autumn semester	20.12.2024
Exam session	10.06.-06.07.2024
Repeat exam session	29.08.-07.09.2024
Submission of master work report	10.01.2025 (?)
Defense of master work (last possible date)	31.01.2025 (?)

**Lecture rooms:** F308 / F302 (DIB, Epalinges)  
**Library with computers:** B304 (DIB, Epalinges)  
**Lab for practicals:** F304 (DIB, Epalinges)  
**Exams:** F308/ F302 (DIB, Epalinges), GEN/C (UNIL-Dorigny)

**Practicals and other exercises**  
 Manfredo Quadroni <Manfredo.Quadroni@unil.ch>,  
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**Master students:**

EMAIL	EMAIL

**Lecturers in Immunology:**  
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 Michal Bassani <michal.bassani@chuv.ch>,  
 Vincent Zoete <vincent.zoete@isb-sib.ch>

EXAMS	Grade	Journal club (oral presentation)	theoretical	written evaluation	4h (4 topics in immunology and 4 topics in cancer biology; topics announced at end of courses)
2nd	practical	1/6	2/3	1/3	30' (15' preparation and 15' exam), mix of immunology and cancer questions
		1/6			
		1/6			
		1/4			
		1/4			
		1/8 PW report 'histology' and 1/8 PW oral presentation 'histology'			
3rd	practical	<b>master work:</b>			
		written report (1/4 grant proposal written report, 3/4 final thesis report)			
		oral defense (1/4 grant oral defense, 3/4 final thesis defense)			
		practical research work			
		Both the practical and theoretical grade need to be ≥ 4			
		All three grades need to be ≥ 4			