

Cell functional and phenotypical analysis: The usefulness of flow cytometry and related tools

WEEK1							
Tuesday: 11th April							
09:00-09:30	All	Registration					
09:30-10:00	All	Introduction to the course				Claudia Nobrega & Belém Marques (ICVS)	
10:00-11:00	All	Flow cytometry – general principles				Alexandre Salvador (Enzifarma)	
11:30-12:30	All	Analysis of surface and intracellular molecules – considerations and general protocols.				Alexandre Salvador (Enzifarma)	
Lunch break							
14:00-15:00	All	Panel design				Claudia Nobrega (ICVS)	
15:00-16:30	All	Experimental planning of a 8 colors experiment				Claudia Nobrega & Belém Marques (ICVS)	
16:30-17:00	All	General overview (quiz)				Claudia Nobrega & Belém Marques (ICVS)	
Wednesday: 12th April							
09:00-09:30	All	Slingshot_synthetic cells for flow cytometry canlibration and controlos				TBA (Lusopalex; Webinar)	
09:45-10:30	All	FlowJo_Basics and tricks on flow cytometry analysis				Ioannis Panetas (FlowJo)	
10:30-11:15	All	FlowJo_High Dimensional Analysis workflow				Ioannis Panetas (FlowJo)	
11:45-12:30	All	Instrument set-up, calibration and controls				Andreia Mendonça (Enzifarma)	
Lunch break							
13:45-14:30	G1	P1. Set-up and calibration with beads	G2	P2. FACS stain	TP1. Antibody titration: analysis	P1: Andreia Mendonça (Enzifarma)	
14:45-15:30	G3		G1			G2	P2: Alexandra Fraga & Belém Marques (ICVS)
15:45-16:30	G2		G3			G1	TP1. Claudia Nobrega (ICVS)
16:45-17:45	G2	P3. FACS data acquisition					
Thursday: 13th April							
09:00-10:00	G1	P3. FACS data acquisition	G2	TP2. Analysis of FACS data on mouse cells staining		P3. Andreia Mendonça (Enzifarma)	
10:15-11:15	G3		G1				TP2. Claudia Nobrega & Belém Marques (ICVS)
11:30-12:30			G3				
Lunch break							
14:00-15:00	All	Principles of cell sorting				Catarina Meireles (I3S)	
15:00-16:00	All	Full spectrum flow cytometry: get started				Rui Gardner (MSKCC)	
16:30-17:30	All	Warp-up: Planning and executing a flow cytometry experiment				Rui Gardner (MSKCC)	
Friday - Workshop: 14h April _ "Exploring the multitude of flow cytometry application"							
9:30-10:15	All	What you should know before starting detecting extracellular vesicles (EVs) by flow cytometry. Who is doing it the right way?				Andre Mozes (Champalimaud Foundation)	
10:15-11:00	All	Adapting to full spectrum flow cytometry using human samples				Ana Godinho (iMed, U. Lisboa)	
11:30-12:15	All	Mini samples: flow cytometry as a tool to study neonatal immunity				Elva Bonifácio (I3S)	
12:15-13:00	All	Flow cytometry to study the metabolic profile of a rare cell population				Catarina Almeida (U. Aveiro)	
Lunch break							
14:15-15:00	All	Imaging Cytometry				Maria Lazaro (I3s)	
15:30-16:15	All	Flow Cytometry Peer Reviewed: Concepts of data representation for publication				Rui Gardner (MSKCC)	

Cell functional and phenotypical analysis: The usefulness of flow cytometry and related tools

WEEK2						
Monday: 17th April						
09:30-10:30	All	DNA and cell cycle analysis by flow cytometry			Carlos Palmeira (IPO)	
11:00-12:30	All	Cell staining for cell cycle analysis			Belém Marques (ICVS)	
Lunch break						
13:30-14:15	G2	P4: Data acquisition: cell cycle		TP3: Cell cycle analysis	TP3. Carlos Palmeira (IPO) & Belém Marques (ICVS) P4. Claudia Nobrega (ICVS)	
14:30-15:15	G3		G2			
15:30-16:15	G1		G3			
16:30-17:15			G1			
Tuesday: 18th April						
9:30-10:15	All	Cell proliferation assays by flow cytometry			Claudia Nobrega (ICVS)	
10:15-10:45	All	FlowFish: evaluation of DNA repeats			Claudia Nobrega (ICVS)	
11:00-12:00	All	FlowFish: data analysis			Claudia Nobrega & João Canto (ICVS)	
Lunch break						
13:30-14:15	G3	Functional cytometry			Paula Ludovico (ICVS)	
14:15-15:00	G1	Flow cytometry of cell death			Paula Ludovico (ICVS)	
15:30-16:15	G2	Flow cytometry analysis of lipids and glucose consumption			Paula Ludovico (ICVS)	
Wednesday: 19th April						
09:00-09:45	G1	P5. Data acquisition : functional cytometry		TP4. Data analysis: functional cytometry	TP4 & 5: Belém Marques (ICVS) P5 & 6: Claudia Nobrega (ICVS)	
10:00-10:45	G2		G1			
11:00-11:45	G3		G2			
12:00-12:45	Lunch break		G3			
14:00-14:45	G1	P6. Data acquisition: assessment of cell's metabolism	Lunch break			
15:00-15:45	G2		G1	TP5. Assessment of cell's		
16:00-16:45	G3		G2	metabolism: data acquisition		
17:00-17:45			G3	and analysis		
Thursday: 20th April						
10:00-12:00	All	TBL			Claudia Nobrega & Belém Marques (ICVS)	
Lunch break						
13:00-13:45	G2	P7: Data acquisition: cell death		TP7: Data analysis: functional cytometry and quizz	TP7: Belém Marques P7: Claudia Nobrega (ICVS)	
14:00-14:45	G3		G2			
15:00-15:45	G1		G3			
16:00-16:45			G1			
Friday: 21st April						
09:30-10:15	All	Cytokine multiplex assay			Alexandra Fraga (ICVS)	
10:30-12:00	All	TP6: Data analysis: multiplex assay			Alexandra Fraga & Belem Marques & Claudia Nobrega (ICVS)	
12:00-12:30	All	Course survey/evaluation				

Cell functional and phenotypical analysis: The usefulness of flow cytometry and related tools

WEEK3			
Monday to Thursday: 24 to 27th April			
All day	All	Study period	
Friday: 28th April			
10:00-11:30	All	Final exam	Claudia Nobrega & Belém Marques (ICVS)
11:30-12:30	All	Discussion of the task assignments and exam	Claudia Nobrega & Belém Marques (ICVS)