


Teacher(s)	Constantinescu Stefan ;Decottignies Anabelle ;Feron Olivier ;Lemaigre Frédéric (coordinator) ;Sonveaux Pierre ;
Language :	French > English-friendly
Place of the course	Bruxelles Woluwe
Prerequisites	fundamental principles in cell and molecular biology, and in biochemistry (metabolism) taught during the baccalaureate.
Main themes	The course describes the molecular and cell biology of intercellular signaling in normal condition and cancer, the mode of action of anti-cancer drugs, the interaction between tumor cells and their micro-environment, angiogenesis and metabolic anomalies resulting from the adaptation of tumor cells to their micro-environment (hypoxia and acidosis). The course will also address the issue of tumor cell immortality.
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>The course is expected to provide the students with the competence to:</p> <ul style="list-style-type: none"> <li>- master the main intercellular signaling pathways, the interactions between tumor cells and blood vessels, the principles of cell immortality and the determinants of tumor cell metabolism;</li> <li>- understand and explain how perturbed intercellular signaling, abnormal metabolism and cell immortality contribute to tumor initiation and progression, and metastasis;</li> <li>- understand and explain how anti-cancer drug modulate intercellular signaling;</li> <li>- be able to design an experimental approach aiming at the identification of therapeutic targets;</li> <li>- be able to critically address an oral presentation or article in the field;</li> <li>- use the acquired knowledge to address new issues.</li> </ul>
Evaluation methods	<p>Written exam with open questions evaluating the student's knowledge and the student's ability to implement the knowledge to solve a biological problem.</p> <p>The course is taught by several teachers. Questions will be asked on all chapters of the course; their weighted value is indicated on the exam sheet. When a student has a final mark between 9/20 and 10/20 after correction, the lecturers review together the exam copy to decide whether the mark should be rounded down or up according to the overall evaluation of the copy.</p>
Teaching methods	Lectures on site.
Content	<p>The course describes the molecular and cell biology of intercellular signaling in normal condition and cancer, the mode of action of anti-cancer drugs, the interaction between tumor cells and their environment, angiogenesis and metabolic anomalies resulting from the adaptation of tumor cells to their micro-environment (hypoxia and acidosis). The course also addresses the issue of tumor cell immortality.</p> <p>At the end of the course, the students are expected to master the main intercellular signaling pathways, the interactions between tumor cells and blood vessels, the principles of cell immortality and the determinants of tumor cell metabolism; to understand and explain how perturbed intercellular signaling, abnormal metabolism and cell immortality contribute to tumor progression and metastasis; to understand and explain how anticancer drug modulate intercellular signaling; to be able to design an experimental approach aiming at the identification of therapeutic targets; to use the acquired knowledge to address new issues.</p>
Inline resources	Slides presented during courses and teaching notes are made available on <a href="http://moodleucl.uclouvain.be/">http://moodleucl.uclouvain.be/</a>
Bibliography	The biology of Cancer, R.A. Weinberg, Garland Publishing
Other infos	necessary bases: fundamental principles in cell and molecular biology, and biochemistry (metabolism) taught during the baccalaureate.
Faculty or entity in charge	FASB

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biomedicine	<a href="#">SBIM2M</a>	3		
Master [60] in Biomedicine	<a href="#">SBIM2M1</a>	3		