BIO-472  Cancer biology II
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Summary
The course covers in detail the interactions of cancer cells with their environment with an emphasis on tumor-angiogenesis, inflammation, adaptive and innate immunity and cancer-induced immune suppression. Additional topics are cancer metabolism, cancer stem cells and metastasis.

Content
The 2x5 credit course Cancer Biology I+II starts in the winter semester and continues throughout the summer semester. Cancer Biology II covers:
• complex oncogenic signaling networks and hierarchical tumor organization
• tumor metabolism
• cell death signaling and apoptosis
• cancer histology with pratical training

• inflammatory signaling in cancer
• tumor angiogenesis
• tumor cell dissemination and metastasis
• innate immunity: pro-tumorigenic roles of inflammation, NK cells
• adaptive immunity: immuno editing, immune evasion, immunotherapy

The weekly lectures will be followed by exercises. The task for these exercises will be student presentations of scientific articles which illustrate the course in order to consolidate the knowledge of the course topics.

Learning Prerequisites
Recommended courses
Cancer Biology I
Immunology

Learning Outcomes
By the end of the course, the student must be able to:
• Systematize major mechanisms of tumor-stroma interactions
• Interpret published experimental studies
• Propose new models based on experimental results
• Design experiments to solve scientific questions in the area of cancer research
• Integrate information from various levels to evaluate signs of tumor progression

Transversal skills
• Make an oral presentation.
• Summarize an article or a technical report.
• Evaluate one’s own performance in the team, receive and respond appropriately to feedback.
• Communicate effectively with professionals from other disciplines.
• Access and evaluate appropriate sources of information.

Assessment methods
Continuous evaluation during the semester with two intermediate exams

Resources
Bibliography
The Biology of Cancer, Robert A. Weinberg

Ressources en bibliothèque
• The Biology of Cancer / Weinberg