

Màj 18/08/2022

UE 2.2. Current concepts in Oncology**12 ECTS****Parcours Basic and clinical oncology, towards precision medicine****ST9: Glycobiology of cancers**Contact: fabrice.allain@univ-lille.fr

The objective of this seminar is to focus on the impact of glycoconjugate remodelling in tumour progression. It will rely on a series of recent studies showing the functions of cancer glycans in tumour growth, immune escape and metastasis.

Duration: 1 day**Program**

Context: Cell surface glycoconjugates (glycoproteins, glycolipids, proteoglycans) play key roles in mediating cell-cell and cell-matrix interactions. They are also involved in protein-receptor signalling and biological availability of protein mediators. Malignant transformation and tumour progression correlate with aberrant changes in the expression of a number of enzymes that are involved in the biosynthesis of glycosylated epitopes. This structural remodelling impacts on the communication between cancer cells and their environment, leading to tumour expansion, induction of immune escape and metastasis. As a consequence, alteration in the synthesis and functions of glycans offers the possibility of revealing both interesting biomarkers and molecular targets (glycosyltransferases, sulfotransferases, cancer-associated glycans) to study the biology of cancer and develop therapeutic approaches.

Content: The day includes presentations under the form of scientific conference/analysis of publications and roundtable discussion. The origin of the glycome modifications affecting N-glycosylation, mucin-type O-glycosylation, glycosaminoglycans and glycolipids, as well as the consequence in tumour progression will be addressed. A discussion on the contribution of glycobiology to the findings of new prognosis and therapeutic tools will conclude this day.

Educational Team

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Berois N, Pittini A, Osinaga E (2022) Targeting tumor glycans for cancer therapy: successes, limitations, and perspectives. *Cancers (Basel)*. 14: 645. doi: 10.3390/cancers14030645.

Chiang AWT, Baghdassarian HM, Kellman BP, Bao B, Sorrentino JT, Liang C, Kuo CC, Masson HO, Lewis NE (2021) Systems glycobiology for discovering drug targets, biomarkers, and rational designs for glyco-immunotherapy. *J Biomed Sci*. 28: 50. doi: 10.1186/s12929-021-00746-2

Faria-Ramos I, Poças J, Marques C, Santos-Antunes J, Macedo G, Reis CA, Magalhães A (2021) Heparan sulfate glycosaminoglycans: (un)expected allies in cancer clinical management. *Biomolecules*. 11: 136. doi: 10.3390/biom11020136

Thomas D, Rathinavel AK, Radhakrishnan P (2021) Altered glycosylation in cancer: A promising target for biomarkers and therapeutics. *Biochim Biophys Acta Rev Cancer*. 1875: 188464. doi: 10.1016/j.bbcan.2020.188464

Wang M, Zhu J, Lubman DM, Gao C (2019) Aberrant glycosylation and cancer biomarker discovery: a promising and thorny journey. *Clin Chem Lab Med*. 57: 407-416. doi: 10.1515/cclm-2018-0379