SCIENTIFIC AND METHOD MODULES

Module name	**Chemical Biology and Biophysics of Cancer** " Novel developments of anticancer therapeutics"
Number	2013-A2
Aims	Molecular biology shows the complexity and ambiguity that arises from the variability of tumours. Nevertheless, some biochemical and biophysical changes are universal to solid tumour progression and may provide both, novel diagnostic as well as therapeutic concepts. The state of the art in diagnostics and therapeutics will be discussed to identify the current needs.
Basics	***Recommended knowledge:*** thematic modules T2, T5, T6 ***Required knowledge:*** Advanced knowledge in cell biology (cytoskeleton, transcription, translation), chemistry and biochemistry (hybrids of peptides and inorganic molecules) and cell mechanics (polymer physics, rheology)
Contents	Tumour progression (tumour growth and homeostasis, uncontrolled proliferation, invasion and metastasis, tumour induced alterations of the stroma, vascular system and immune system, role of chemical cues as well as active and passive forces in triggering cell division and apoptosis), Therapy (surgery, radiation, chemotherapy [antineoplastic drugs, cytostatic molecules, protein kinase inhibitors]), Targeted tumour therapy (specific and unspecific shuttles, specific expression of cell surface proteins, internalization of biomolecules into tumour cells, linkers for controlled release, etc.) Development of novel tumor therapeutics, from target identification, to chemistry and biology of tumor models
Methods	Biochemistry and biology to identify tumor targets, medicinal chemistry methods to make drugs out of bioactive molecules, conjugation, hybrid molecules
Type	Two-day block course/ yearly recurrence with modification
Date (month/year)	17./18. September 2013, Talstrasse 33, Seminarraum 135a, basement
Time	9 h- 17 h daily
Work load	15 hours presence/ 45 hours self-study
Examination	Written
Credit points	2
Responsible scientists	Beck-Sickinger
International guest lecturers	Dr. B. Riedl (Bayer Wuppertal), Dr. M. Heroult (Bayer Berlin), Dr. Lerchen (Bayer Wuppertal), Prof. Dr. Lordick/PD Dr. U. Hacker, Onkologie, Universitätsklinikum Leipzig
Industrial partners	OntoChem (Halle, Germany), Bayer (Wuppertal, Germany),
Recommendations for literature, e-learning	

Graduate School BuildMoNa
Universität Leipzig
Johannisallee 29
04103 Leipzig
Germany

Phone: +49 341 97-36016
Fax: +49 341 97-36094

buildmona@uni-leipzig.de
www.buildmona.de

SCHEDULE for Module 2013-A2

Time	Lecturer	Programme	Location
Day 1 – 17. 9. 2013			
9.00-10.30	Prof. Annette G. Beck-Sickinger, Univ. Leipzig	Introduction in tumor biochemistry: molecular changes and current targets	Talsstr. 33, Sem. 135a
10.45-12.15	Prof. Tilo Pompe, Univ. Leipzig	Mechanobiophysics of (tumour) cells and their extracellular matrix	Talsstr. 33, Sem. 135a
Lunch			
13.30-15.00	Priv. Doz. Dr. Ulrich Hacker,Universitätsklinikum Leipzig	State of art: current chemotherapy of tumors	Talsstr. 33, Sem. 135a
15.15-16.45	Dr. Bernd Riedl, Bayer AG Wuppertal	Drug development in industry – case study of Nexavar/Sorafenib, targeted tumor therapy	Talsstr. 33, Sem. 135a
Day 2 – 18.9. 2013			
9.00-10.30	Prof. Annette G. Beck-Sickinger, Univ. Leipzig	Peptide-drug conjugates: hybrid molecules, specific uptake and release	Talsstr. 33, Sem. 135a
10.45-12.15	Dr. Hans-Georg Lerchen, Bayer AG Wuppertal	Antibody conjugates to target tumors	Talsstr. 33, Sem. 135a
Lunch			
13.30-15.00	Dr. David Kosel, Ontochem Halle	In vitro testing: cell lines, and antiproliferativ assay system	Talsstr. 33, Sem. 135a
15.15-16.45	Dr. Melanie Heroult, Bayer AG Berlin	Current animal models in tumor biology!	Talsstr. 33, Sem. 135a

Didactic elements:
Lecture, discussions

Expected performance:
Active participation in discussions