Advanced cell culture systems in tumor biology and cancer research:

Conventional cell culture systems focus on one particular cell type cultivated on standard sterile surfaces in commercially available disposables. In vivo tissue is build up of various cell types in a complex three-dimensional structure. This structure is maintained mechanically and biochemically by additional extracellular matrix components. To understand pathological processes in tumor initiation and progression we need improved cell culture models which at least in part reflects these "tissue –like" organization.

Consequently we focus in this "wet –lab-workshop" at first on surface modifications by using natural ECM-compounds like Collagen I/IV and Fibronectin. The influence of such coatings on cell behavior like migration, morphology and proliferation will be examined using appropriate techniques.

To mimic cell-cell paracrine interaction that plays a dominant role in normal tissue homeostasis as well as in tumor development and progression we will cultivate different cell types by using the co-culture system. This approach enables to investigate paracrine mechanisms responsible for changes in proliferation-migration and invasion mimicking in vitro the cell-cell interactions existing in the tumour microenvironment.

To investigate these processes in more details, we will cultivate cells onto membranes harboring different pore-sizes allowing cell-cell communication as well as transmembrane migration. The movements of individual cells will be monitored by live-cell-imaging under the microscope.

And finally we will offer a specific technology to build up 3D-tumor-spheroids from different tumor cells as well as hetero-spheres using tumor cells co-cultured with fibroblasts or human endothelial cells (HUVEC) to mimic the individual tumor micro-environment. On these 3D spheroids we will perform the evaluation of viability with WST-1 such as the evaluation of tube formation by endothelial cells.

This ambitious workshop summarizes the most recent technology in tumor cell biology and enables the participants to examine tumor cell behavior under "in-vivo-like" conditions. Nevertheless, the various methods you will learn are all well examined and performed in our own laboratories. The workshop is divided in theoric sessions that are reserved to the explanations of the different issues that will be addressed during the workshop and also of the different methodologies used. The workshop will be organized also with practical sessions where the attendants will be in direct contact with the bench where the experiments will be performed in order to maximize the "direct learning" of the different procedures. Below you can find the workshop program and the registration schedule. The present workshop is an initiative of the Italian Association for Cell Culture (AICC). The cost of the workshop is 500 € (450 for the workshop attendance + 50 for the subscription at the AICC) and 450 € for those who are already subscribed to AICC. The participants have to fill the schedule and send it together with the receipt of the payment to the following email: asme.segreteria@gmail.com within the dead-line of 15th April 2012.

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IL CORSO E' RISERVATO AD UN MASSIMO DI 20 ISCRITTI.

Department of Biochemistry and Biophysics
School of Medicine, Second University of Naples,

Saarland University, *Homburg*

Advanced cell culture systems in tumor biology:

INVASION, MIGRATION AND ANGIOGENESIS

Prof. Gerhard Unteregger

Presenter: Prof. Michele Caraglia

Introducer: Prof. Antonio Giordano

Director Sbarro Institute for Cancer Research and Molecular Medicine and Center of Biotechnology College of Science and Technology Temple University BioLife Science Bldg. Suite 431 1900 N 12th Street Philadelphia PA

11—15 June 2012

Seconda Università di Napoli,

Dipartimento di Biochimica e Biofisica,

Complesso "S. Andrea delle Dame",

Via L. De Crecchio, 7 80138 Napoli

11 June 2012 Monday

(Aula Donatelli)

Ore 14.00 Conferenza stampa a cura di:

Prof. Michele Caraglia
Prof.ssa Marina Di Domenico

Inizio lavori ore 15.00

Chairmen:

Prof. Gaetano Irace e Prof. Maurizio Bifulco

15.00 - 16.00 Prof Antonio Giordano:
Microspheres as predictive tools of response to anticancer agents

16.00– 17.00 Prof. Fortunato Ciardiello
Optimizing treatment of metastatic colorectal cancer patients with anti-EGFR drugs: identification of mechenisms of cancer cell sensivity and resi stance.

17.00-18.00 Prof. Gerhard Unteregger
General Introduction
*Group **A** and **B***

12 June 2012 Tuesday

(Aula SA4)

08.30 –09.30 ***P01:*** *Primary Cell Cultures*

09.30 - 10.30 ***P02****: ECM and Cell Matrix Interaction*

10.30 - 11.00 ***Coffee break***

11.00– 11.40 ***P03*** *:ECM - coating*

11.40 - 12.30 ***P04****: From tissue to Cells...*

12.30 - 13.30 ***Lunch***

GROUP A

14.00 - 15.00
Ex 01*: Coating of MTP Membranes*

15.00 -16.00
Ex 02*: Subcultivation MTP/ Coculture*

16.00 - 16.30 ***Coffee break***

16.30– 17.30
Ex 03*: Subcultivation Migration/ Invasion*

17.30 - 18.30
Ex 04*: Subcultivation 3D*

18.30-19.00 ***IBDI Tecnochimica****:*
Meet the Expert on migration evaluation tools

13 June 2012 Wednesday

(Aula SA4)

GROUP B

08.30 -09.30
Ex 01*: Coating of MTP Membranes*

09.30 -10.30
Ex02 : *Subcultivation MTP/ Coculture*

10.30 -11.00 ***Coffee break***

11.00-11.40
EX03*: Subcultivation Migration/ Invasion*

11.40-12.30
Ex04*: Subcultivation 3D*

12.30 -13.30 ***Lunch***

GROUP A

14.00 -15.00
Ex 05*: XTT EX 01/02*

15.00 -16.00
Ex 06*: Staining Ex 03 (Pl/Calcein)*

16.00 - 16.30 ***Coffee break***

16.30-18.00 ***EX07****: Harvesting 3D– Spheres*

14 June 2012 Thursday

(Aula SA4)

GROUP B

08.30 -09.30
Ex 05*: XTT EX 01/02*

09.30 -10.30
Ex06 : *Stainig Ex03 (Pl/Calcein)*

10.30-11.00 ***Coffee break***

11.00-12.30
Ex07: *Harvesting 3D - Spheres*

12.30 -13.30 Lunch

14.00 - 15.00 ***P05:*** *Cell Migration*

15.00 - 16.00 ***P06:*** *Cell Invasion + live cell imaging*

16.00 - 16.30 ***Coffee break***

16.30 - 17.20 ***P07:*** *Proliferation + Viability*

17.20 - 18.00 ***P08:*** *3D Models*

15 June 2012 Friday

(Aula SA4)

09.00 - 11.00 *Final discussion of the results*
Both groups

Legend : P *Theory presentations*
Ex *Experiments*