

## **Third Practical Training Course on In-vitro Technology for Alternatives to Animal Testing**

### **IVTech and the Institute of Clinical Physiology, CNR.**

#### **Introduction**

Current in vitro models are poorly representative of human patho-physiology. Most in-vitro experiments based on 2 dimensional (2D) cell cultures in incubators where the temperature and carbon dioxide content are controlled to body temperature and pH. Although they could be used to pre-screen substances for toxicity, their relevance and the correlation of data with human responses is so low that they are not considered sufficiently accurate. This is due to several limitations of the standard equipment used in biological laboratories, the petri dish or multiwell plate: the lack of a three dimensional architecture, the static conditions of the fluid environment and the absence of cross talk between different tissues. These factors render it necessary to use animal models in drug testing, despite their lack of predictivity. The reduction of animal experiments can only be brought about by adopting new cell culture technology which better recapitulates the dynamic physiological environment.

IVTech is dedicated to the dissemination of new methods and new approaches to cell culture experiments which bring in-vitro systems closer to the in-vivo environment, by combining flow, scaffolds and multiple cell types in fluidic bioreactors. Following on from the success of joint courses with the ISS in Rome and IZLER in Brescia, IVTech's third workshop on the design of in-vitro experiments to create better models of human physiology and as alternatives to animal tests will be held in Pisa (21-23 July 2014), in collaboration with the Institute of Clinical Physiology, CNR. The Institute, like IVTech, is committed to the reduction and refinement of animal tests.

#### **Aim of the workshop**

In this workshop the IVTech team will provide the participants with 10 years of know how in 3D cell culture models highly relevant of human physiology. In particular subject of the workshop will be:

- Introduce the theory of cell culture in 3D and flow, with reference to models of shear stress and oxygen consumption
- demonstrate innovative cell culture systems to develop an in-vitro model
- show participants how to perform an experiment using 3D scaffolds in dynamic conditions
- demonstrate how to determine end points and how to analyse the results from a 3D in-vitro model
- provide the participants with practical experience in setting up a simple 3D dynamic in-vitro model

The IVTech team will support the participants in all the phases that are needed to perform an 3D dynamic in-vitro model, from the theory to the practice.

#### **Overview of the workshop**

This workshop will take 3 days, from the 21<sup>th</sup> to the 23<sup>th</sup> of July 2014. It will be organized in the laboratories of the Institute of Clinical Physiology (CNR) in Pisa. During the morning experts in in-vitro models and members of the IVTech team will discuss the latest innovations in in-vitro research and describe the theory of in-vitro mode design. In the afternoon the participants will perform simple experiments of 3D in-vitro



model in dynamic conditions using IVTech products. Their hands on experience will range from i) cell seeding on scaffolds, ii) stimulation with medium flow ii) to the post-processing and evaluation of data. During the dynamic experiments participants will be shown how to monitor a 3D cell model using microscope and taking medium samples.

**Price & contacts**

Costs are 300 € /person and cover the material distributed during the theoretical part and laboratory supplies necessary for the practical training. We can accept a maximum of 20 participants, and the course will only be held if a minimum number of registrations are received. In order to subscribe, please contact us on this e-mail: **info@ivtech.it**.

The deadline is the 10<sup>th</sup> of July. Follow our news on the website [www.ivtech.it](http://www.ivtech.it)