

Experimental Workshop Segment
Feb 21-22, Bonn

„Microfluidic technology for protocell experiments“

As part of ECLT Workshop on Experimental Protocells
Feb 21-26 in Bonn and Venice

1. General purpose of the ECLT workshop in Bonn

The main goal of the workshop in Bonn is to develop the protocell/artificial cell vision particularly with regard to fluidic micro-environments. The initial selection of microflow reactor environments, optimized to form an appropriate chemical microenvironment for complex chemical systems will be presented. Specific goals are to establish the compatibility with and advantages of microfluidic environments for investigating special “container and replicator chemistry” from various partners. The workshop will include demonstrations and hands on experience with passive and active microfluidic systems. The workshop puts special emphasis on the development of joint experimentation and the exploration of complementation ideas.

2. Outline schedule of the workshop activities in Bonn.

(A detailed version including more background information was sent to all experimental PIs.)

Monday, February 21, 2005, Bonn:

8:00 -11:30

- Sample preparation and experimental setup for visitors
- Idea and plan for the overall workshop on experimental protocells by Peter Nielsen, Günter von Kiedrowski or Steen Rasmussen as well as the 2-day workshop segment “Microfluidic technology for protocell experiments” by John McCaskill
- Short presentations by experimentalists describing their chemical systems and plans for microfluidic tests and integration. *The presenters are:* Günter von Kiedrowski (Bochum) Peter Nielsen (Copenhagen), Patrick Wagler (Bonn), Martin Hanczyk (Protolife, Venice) Liaohai Chen (Argonne), Jim Boncella, (Los Alamos), Andy Shreve (Los Alamos), Woody Woodruff (Los Alamos)

11:45 – 12:45

- Description of pre-planned experiments and demonstrations
- Task force and experiment planning
 - A. *container chemistry* in 2D gradient reactor and flow systems
 - B. *replicator chemistry* in channels and fan reactor
 - C. *electronic control* of protocell chemistry

12:45 – 13:45 Lunch

13:45 – 18:00

- Presentation of facilities and setup in small groups in parallel with microfluidic experiments
- Discussion of experiments and short evaluation of the first-day experiments, experimental planning for second day.

19:30 Dinner

Tuesday, February 22, 2005, Bonn

8:00 – 10:45

- Discussion of experimental ideas and directions for microfluidic protocell complementation. Relation to PACE and PA objectives.
- Microfluidic experiments and simulations

10:45 – 11:15 Coffee Break and discussion

11:15 – 12:30

- Microfluidic experiments and simulations, focus on task force B
- Individual discussions

12:30 – 14:00: Lunch

14:00 – 16:00:

- Microfluidic experiments and simulations, focus on task force C
- Final discussion and concluding remarks.
- Adjourn and clean up, then travel to Venice to continue ECLT workshop.