

THE ESACT NEWSLETTER

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Editorial

FROM OUR NEW CHAIRMAN

This is the first Post-Tylösand Meeting Newsletter, and I would like to take this opportunity to thank Elisabeth Lindner-Olssen for the organization of the 17th ESACT-Meeting, which was successful in every sense of the word (scientifically, from the point of view of organization, socially, etc.), and I hope that she has "revived" in the meantime after the organizational stress.

During this meeting, the last General Assembly took place which has decided on the composition of the new ESACT Executive Committee. Two members of the old Committee (Caroline MacDonald and Bryan Griffiths) who have been active for ESACT and who have served on the Committee for more than 10 years (they represent to some extent the living

memory of ESACT) stepped down and were replaced by two newcomers (Martin Fussenegger, and Stephanos Grammatikos). At this time, I would like to take the opportunity to thank the old Committee for its contributions during the last years and, in particular, Caroline, Bryan and Manuel, our past Chairman. The new Committee should continue his activity in the same sense/direction as the old one. The opening towards other societies, such as JAACT, ESGT, ACTIP or EFB, should be continued, however, only when this can benefit our members.

A critical point in animal cell technology is the lack of a sufficient number of students for getting the natural scientists and engineers necessary for the development and production of the increasing numbers of new biologicals (by using animal cell cultures) which are currently in the pipelines of the biotech industry. This holds also true with respect to the "production" of laboratory assistants /technicians for the same purposes. As one of the key issues of ESACT is the furthering of Animal Cell Technology, the new Committee will discuss this problem and will eventually propose and implement strategies for resolving it. It is evident that this shortage of new/young animal cell technologists is due to misperceptions, a general lack of interest and appreciation of this technology from the part of university and research institute boards, and of course the chronic lack of financial means of the universities in most countries. Input from our members on this issue would be very much appreciated, including our associate members who may be facing or have faced similar problems.

Another point which has to be addressed during the next term of the ESACT Executive Committee is the question of membership. Presently ESACT distinguishes between two groups of members: Full who live and work in Europe (including Israel) and Associate who stay and work overseas. During the last General Assembly the question was posed if such a distinction is really justified. It seems that our Associate members would like to play a more active role in ESACT, which might certainly be of great interest, for instance, in view of the question concerning the insufficient teaching and training of animal cell technologists. This issue will be discussed by the Committee, however,

input from all members of ESACT is requested and will be appreciated.

Finally, the reader will remark that Tom Clark, the editor and driving force of the ESACT Newsletters for many, many years has decided to retire. The Committee wants to thank him for his perseverance and for his never-ending activity. In this spirit during the Tylösand Meeting ESACT awarded Tom the ESACT medal. Following Tom's retirement the function of the Newsletter Editor will be expanded to involve an Editorial board consisting of Steve Oh, as chief editor, and Lisa Hunt and Jürgen Lehmann as associate editors. The editorial board will be supported by the Committee. Furthermore, it should be mentioned that this actual number of the newsletter was edited by B. Griffiths, as interim-editor, and who will remain the desk editor of future Newsletters, responsible for their compilation, printing and distribution. The new Editorial board is highly motivated and has great ideas about a complete facelift of the Newsletters, so I am sure that a fresh wind will breathe into the Newsletters, and I am looking forward to the result.

For those of you, who still have to take their holidays, I wish you all the best. For those returning from holidays, have a good and successful start. By the way, these words were written under an olive tree in the south of Corsica.

Otto-Wilhelm Merten

ESACT – 25th ANNIVERSARY

2001 is ESACT's 25th Anniversary year as our first meeting was held in Amsterdam on the 10th-12th November 1976. Having attended this inaugural meeting and the recent (17th) meeting in Tylösand I was able to reflect on the changes and momentous advances that have occurred in Animal Cell Technology over these intervening 25 years.

The history of ESACT was described in the January 2000 Newsletter so in this article I wish to describe some of these changes. Back in 1976 Foot & Mouth Disease Virus (FMDV) was the dominant technology. This was because BHK suspension cells allowed relatively easy scale-up

in modified bacterial fermenters. In fact before the name 'ESACT' was adopted at Amsterdam we were called 'The European society for Large Scale Culture' to reflect the need of technologists and scientists working on cell products, many at large (1000L) scale, who had no organisation to represent them or promote meetings. Viral vaccines were the only animal cell product and whereas the technology for veterinary vaccines was largely in place those working on human vaccines, which relied on slow-growing low density anchorage-dependent (ADC) human diploid cells (HDC), had a woefully inadequate flask or roller bottle technology.

Thus at the first meeting, and the subsequent early meetings, the dominant topics were developing process infrastructure, processes, and scale-up technology for HDC. Topics included quality of serum (huge debates!), and other ingredients (e.g. Pyrogen-free water), how to avoid contamination, and freeze-preservation methods for establishing cell banks. By the second meeting (1978) microcarrier technology was introduced as the only option for a unit process for ADC (and still today is the only homogeneous scaleable system for ADC) and a new product, IFN, joined viral vaccines.

By the third meeting (1979) microcarrier was being used in an industrial process for FMDV vaccine but was not yet sufficiently reliable for HDC. In fact scale-up systems for ADC rather dominated this' and several subsequent meetings' However an important new topic was introduced, which is still with us today, namely Regulatory and Licensing issues and Quality Control Methods in general. It was introduced because of concerns over introducing transforming proteins and the technological need to replace HDC with heteroploid cell lines.

Moving on to 1981 the highlight at this time was the Licensing of human interferon from Namalva cells. This was a landmark event in Animal Cell Technology as it was the first human product to be manufactured from a cancer cell. The reason for acceptance was more due to improvements in quality control procedures however than any advances in Process Engineering. By the 1982 Meeting Monoclonal antibodies (MABs) and

IFN had taken over from vaccines as the most talked about products, and serum was able to take a back seat with the arrival of serum-free media.

The 1984 Meeting was the first one which would be recognisable by today's topics as ESACT welcomed in the genetic age. There were sessions on recombinant, immortalised and heteroploid cells. In addition tPA made its debut. So just 10 years from our first meeting the subject had advanced sufficiently for cell engineering to be the hot topic, the product range to have increased from viruses to a range of IFN's, hormones, MABs, tPA and CEA. The emphasis had also changed from developing new cell bioreactors to improving productivity by studying cell biology and physiology as the prelude to metabolic engineering.

The next 10 years saw the expansion of the Biotechnology Industry with many new products, the first recombinant human products (tPA followed by EPO), and many novel applications (tissue engineering, artificial organs, drug discovery, vectors and gene therapy). The last 5 years have seen the emphasis at meetings grow on gene expression post-translational modification and glycosylation, transcription control, metabolic and tissue engineering. A very different array of topics enjoyed by the 650 delegates at Tylösand compared to the 65 at Amsterdam. ESACT is justifiably proud of its role in promoting meetings and publications which have catalysed new ideas and concepts and thus supported these huge advances in Animal Cell Technology. Who knows what the next 25 years will bring but I am confident that ESACT will continue to catalyse the progress and we wish all its members success in pushing the subject even further forward.

Bryan Griffiths

Report from Tylösand

As chairman of the 17th Meeting of ESACT, I will try to summarize this meeting.

After a, believe it or not, very warm summer in Sweden and relaxing holidays it is now possible to have some distance to think back on this big event.

First of all I would like to thank the Scientific Committee for the 17th ESACT Meeting.

I am probably not the right person from my industrial perspective to judge the science presented on the meeting, but having said that I have got some good positive feedback. I believe personally that we had good science and some very good keynotes and invited speakers in Tylösand. This was made possible through the personal contacts of our Scientific Committee. The co-chairs were also chosen by them.

Please note that the statements in this resume are my personal opinion and nothing else.

Continuing with keynotes/invited speakers I personally enjoyed very much the presentations by Bob Langer, Bill Haseltine, David Weiner and Maria Cavazzana-Calvo.

Inviting speakers like this was a bit nervous for us, because due to their heavy schedule you never know for sure whether they are coming or not. Our speakers though were very reliable and even though Dr Haseltine arrived only 30 minutes before his presentation that was time enough.

Bob Langer gave a very good overview on the connection between biological effect and drug administration and he was, as always, a very good speaker.

Dr Haseltine gave an amazing talk. Although a bit provocative on the RNA-approach to the human genome he did not overdo it. HGS is a young pharmaceutical company and it will be very interesting to follow them in the future.

Both David Weiner and Marina Cavazzano-Calvo gave extremely interesting lectures on HIV and immune deficient children respectively.

I would also like to mention some of the lectures about stem cells and give a special recognition to both Lennart Philipson on the opening of the meeting and to Anders Hägerstrand from Neuronova. We are facing a very exiting development the next coming years.

We chose in this meeting to have quite a number of keynotes and invited speakers, but we also tried to give a chance to student to present their work. We actually approved 28 bursaries for students coming to present their scientific findings. The majority of those presentations were poster presentations, but also quite a few were oral presentations. As usual for ESACT, we got most contributions for the Process Technology session and hence this was the session where we had to transfer most oral papers to posters.

In connection to the lectures, a small word about technical equipment. The take home message for the meeting in Granada - keep it safe and simple – a PC is not that easy to just hook up to the multimedia projector. The sound was very good though and we actually have the whole meeting on tape with a very good recording.

We introduced two new sessions in this meeting; the “Identification of Drugs and Drug Targets” and the “Novel Technologies for Administration of Proteins”. These are two very important topics for the Animal Cell Technology. The Drugs and Drug Targets session came to focus mostly on lead identification and target validation, which was a good start. For future meetings, the focus could be shifted somewhat more towards cellular screening systems and cellular models. Also *in-vitro* proof-of- concept models could be very interesting.

In the Novel Administration session I would like especially to give credit to Claus-Michael Lehr, who gave a very good lecture on cellular models for pneumonal delivery of drugs.

We shall never forget that the market for a new drug is very dependent on the delivery system. Our speakers in this session felt a little outside of the ESACT sphere of interest, but personally coming from an industrial perspective I feel it is important for ESACT.

Coming to the social part of the meeting, we had fantastic interest and contributions from the audience. The auditorium was full for almost all the meeting.

Although Tylösand could not accommodate all participants, I hope it did not cause too much of

an inconvenience. The ESACT Meeting are today so big that only really large hotels in big cities can host all participants. We have from ESACT always tried to hold the meetings at smaller sites to get the participants somewhat closer. You are very welcome to give comments on this.

In terms of lunches and dinners, I was personally very impressed and satisfied with the Tylösand staff. It is not an easy task to serve almost 700 persons without waiting times. I think that Tylösand was great on this side. Not to mention the Gala Dinner.

Being the organizer of a meeting like this means, apart from the three year project, a very intensive period of work the weeks before the meeting, during the meeting and also the weeks after the meeting to prepare the book of proceedings. The manuscripts went in time to Kluwer in early July and they are now well on their way to prepare for printing. We might come back to some of you for some more questions.

The meeting has left a big free space in my life, which I am now starting to fill with other activities. Thank you all for your contributions!

Elisabeth Lindner-Olsson

Poster Competition at Tylösand

ESACT awarded prizes to the 3 best Posters presented at the Tylösand Meeting. Thanks in particular go to the Award Committee of Elke Lüllau(Chair), Stephanos Grammatikos and Nathalie Chatzisavido for their hard work in organising and judging this event. Congratulations to the following;

FIRST PRIZE

Increased production yields of native Interferon-gamma in membrane based bioreactors by combining micro- and ultra-filtration membranes.

E. Yalcin, C. Kloth*, F. Emmrich, R. Buchholz**, J. Harnisch, J. Gerlach*** and U. Marx****

University of Leipzig, Institute of Clinical Immunology and Transfusion Medicine, Leipzig, Germany

*Medarex, Inc., Annandale, NJ, USA

**Technical University of Berlin, Institute of Biotechnology, Berlin, Germany

***Humboldt University of Berlin, Institute of Experimental Surgery, Berlin, Germany

****ProBioGen AG, Berlin, Germany

SECOND PRIZE

S-phase synchronized CHO cells show elevated transfection efficiency and expression using Ca/PO4

Frédéric Grosjean, Pascal Batard and Florian M. Wurm

Laboratoire de Biotechnologie Cellulaire, Institut de Génie Chimique, Ecole Polytechnique Fédérale de Lausanne, 1015 Lausanne, Switzerland.

Frederic.Grosjean@epfl.ch

THIRD PRIZE

The Art & Science of Micro-sparging in High-density Perfusion Cultures of Animal Cells
Hanshi Qi, Goran Jovanoic*, James Michaels and Konstantin Konstantinov

Bayer Corporation, 800 Dwight Way, Berkeley, CA 94587, USA

*Oregon State University, Corvallis, OR 97331, USA

The 19th ESACT (2005) Meeting – Where ?

Although the recent 17th ESACT Meeting was very successfully organized and the organization of the 18th ESACT is well on the way, the ESACT Executive Committee has to look more into the future. This means that the question of the 19th ESACT Meeting, i.e. where ?, when ? (in the springtime of 2005, of course), and by

whom? (the most important question) becomes hot and is already burning. During the last meeting, different members of the Committee had time to discuss this matter with potential organizers, and up to now we have three potential meeting organizers: one Swiss-Hungarian, one Austrian, and one British. Although we have these potential candidates, the Committee would appreciate more input and further propositions from the members. It is clear, that the organization of such a meeting represents some work, however, with the help of the committee (the existing knowledge and the established procedures) and the help of a professional organizer, such a task can be done successfully.

In any case, the Committee is waiting for propositions up to October 2001, indicating that the final decision on the **organizer** should be taken during the next ESACT Executive Committee Meeting, which will take place in the second half of November 2001.

So, do not hesitate, be active, and if you have questions, contact me or any other member of the Committee.

O.-W. Merten

Inter-Society Activities

As stated by ESACT's new chairman in his Introductory Words in this Newsletter, ESACT is continuing to work with some societies with whom collaborations have been evolving over the years. Such relationships were reviewed in the "From Our Chairman" section of the December 2000 Newsletter and I will only update aspects worth considering since you can get all the details from ESACT's web page where older Newsletters are kept (I assume most of the paper versions get shredded by our members, apart, maybe from the Millennium issue of January 2000!).

1. European Society of Gene Therapy (ESGT) – the actual collaboration protocol was published in the April 2001 Newsletter. Their meeting, the 9th with a joint session with ESACT, takes place November, 2-4 in Antalya, Turkey – so you have to hurry up if you want to participate (see the "Upcoming Meeting" section in this Newsletter for

contacts). ESACT member's fees are the same as for ESGT's members.

2. Cell Culture Engineering (CCE VIII) – again, deadlines for presentation for the 1-6 April 2002 meeting are nearing (see "Upcoming Meetings" section)
3. European federation of Biotechnology (EFB) – During the 10th Congress of the EFB, held in Madrid July 8-11, the first session of the Pharma & Medical Biotechnology Section took place. This section was started by ESACT, now being run in partnership with Eur. Assoc. Pharma. Biotechnol. (www.eapb.org), and the session contained four lectures:
 - ✓ *Rainer H. Müller*: Approaches for the controlled delivery of biotech molecules.
 - ✓ *Surendra Mehta*: Lipid-based formulation approaches for the delivery of challenging molecules.
 - ✓ *Ana Verónica Carvalhal*: Controlled growth of animal cells for biopharmaceutical production: scientific options and engineering requirements.
 - ✓ *Augustinus Bader*: Relevance of new concepts in Regenerative Medicine for the engineering of cardiovascular grafts

As a parallel session and a first at ECB, the attendance reached a good eighty participants, very active in "questions and answers" to the professional presentations put forward by the speakers, to whom ESACT is indebted.

4. Animal Cell Technology Industrial Platform (ACTIP) – a key supporter to ACT activity in Europe the companies' representatives of ACTIP will held their next meeting in September 20/21. ESACT's chairman has had a "guest – advisor – partner" role over the last years and thus Otto Merten will attend and strengthen the ACTIP activities geared up towards wealth creation and quality of life obtained out of ACT.
5. European Life Sciences Forum (ELSF) – ESACT is evaluating whether and/or how to participate in the ELSF; a first meeting took place in Milano last June 20-21 where the main aims of ELSF were identified as focussing on:

- ✓ Increased funding for the Life Sciences and basic research
 - ✓ Content and management of the EU Framework Programmes
 - ✓ Improved and stable research infrastructures
 - ✓ Scientists in society (including career structure, women in science)
 - ✓ Science & Society
- as well as services to the members regarding relevant information, and serving as contact point for scientists, media and policy makers.

As Otto also mentions, these collaborations have to be seen as being of value to ESACT and its members – so please take position, for – or against – our collaborative links and activities and, whenever appropriate, use your prerogative to participate.

Manuel Carrondo

News from the General Meeting

This was held in Tylosand on June 12th 2001.

1. Constitution Change

The following change to ESACT's Constitution was accepted;

Rule 4.5 'Honorary Members shall not number more than ten per cent. Nominations for Honorary Membership shall be put forward by the Executive Committee and shall be circulated to members with the agenda for the Biannual GM. Members who cannot attend the meeting shall be entitled to vote by post. To qualify for election, a nominee must be supported by two thirds of the Members who take part in the voting'

(NB The change is from nine tenths to two thirds to give consistency to other voting procedures laid down in the Constitution)

2. New Honorary Member

Congratulations to Wolfgang Noé on his election as an Honorary Member in recognition to his services to the Society as a Committee Member, Secretary, and for Organizing the last 3 Trade Display's at ESACT Meetings.

(ESACT's other Honorary Members are; Simon Barteling, Wolfgang Berthold, Hermann Katinger, Jack Litwin, Bernard Meignier, Herbert Miltenburger and Ray Spier)

3. Euro Subscriptions

In future the ESACT annual subscription will be 20 Euro's (Full Members) and 30 Euro's (Associate Members)

4. Future of the Newsletter

The discussion on the need and the perception of the ESACT Newsletters clearly indicated that the ESACT members like Newsletters and that they want to get them in a printed version. In addition, they appear also on the ESACT website now (thanks to C. Losberger, the ESACT web-master). The main problem up to now was the inactivity of most of the ESACT-members (they are receiving, but not producing – remark from T. Clark, our previous editor). However, the Committee hopes that the new editorial committee will activate our sleeping members and will bring some new wind to the ESACT Newsletters.

5. Associate Membership

Should Associate members get to the same 'niveau' as Full members? This point was intensively discussed by the participants. There were pros and cons. Pros: the Associate members are as active as Full members, they pay a fee, and in particular, our US-friends might bring more activity into ESACT. In addition, Associate members count for about 30%. Cons: there are some fears that ESACT, a European Society might be overtaken by the members from overseas, leading to a loss of the European particularities of ESACT (transformation of an European Society into an International Society, which might lead to a loss of certain tax advantages in some European states). In any case, this matter will be discussed by the Committee and a proposition will eventually be proposed for the next General Assembly.

JIN Update

Following a short presentation on the benefits and current usage of JIN during the Tylösand Meeting, JIN appears to be gaining momentum as a number of exciting new positions in Europe and the USA are currently advertised. Since June there have been 28 new jobs submitted. Compare this to the 70 Jobs submitted in the first 2.5 years of JIN's operation!

While this is good news for JIN and for all ACT fans looking for jobs, we do not intend to relax. We are currently planning to add new features, such as the possibility of candidates posting their respective CVs and making their availability known.

We are committed to making JIN the reference job database for career opportunities in animal cell culture technology. Please help us realize this aim by spreading the word, by visiting JIN at www.esact.org/jin and of course by using JIN to advertise all your job availability's!

Christophe Losberger and Steph Grammatikos

EFB Working Group on Animal Cell Technology

The European Federation of Biotechnology, EFB, is currently in a process of reorganization.

The former Working Parties are being transformed into Sections, open to all European Scientists interested in a particular field. The Sections will concentrate on specific scientific areas, such as Biochemical Engineering Science. The sections may be organized into working groups. A working group on Animal Cell Technology, within the Section on Biochemical Engineering Science has been planned for some time, but has not yet been realised. I have undertaken the task to try to accomplish this. The activities of this working group will initially focus on organizing sessions (orals and posters) at the ESBES meetings (organized by the Section on Biochemical Engineering Science)

which are held every second year. The next ESBES meeting will be in August 28-31, 2002, in Delft, The Netherlands (<http://www.esbes4.tnw.tudelft.nl>). Joint EFB and ESACT meetings would promote co-operation between 'animal cell' scientists and scientists from other fields of biotechnology, and extend ESACT members opportunities to present their results to a broader audience. Anyone interested in supporting this idea, and willing to help with organisation and scientific matters, please contact Lena Häggström at lenah@biotech.kth.se.

Lena Häggström

FORTHCOMING MEETINGS

European Tissue Culture Society (ETCS) 43rd Meeting Sept 30th – October 3rd 2001 'Cellular Interactions and Cellular Complexity' Granada Spain. Organiser: M^a José Gomez-Lechon (etcs_esp@gva.es)

European Society of Gene Therapy (ESGT) 9th Meeting November 2nd – 4th 2001, Antalya, Turkey. Meeting President: A Murat Tuncer. Secretary: Meral Özgüc (mozguc@gen.hun.edu.tr) (www.esgt2001.org)
Deadlines: Reduced Registration 20/09/01

2nd European Meeting on Cell Engineering 26th – 28th October 2001 Park Hotel San Jorge, Costa Brava, Spain . Organiser: M.Al-Rubeai. (www.bham.ac.uk/cheng/actg/ewce2.htm)

**ESACT 18th MEETING
GRANADA, SPAIN
May 11-15 2003
'Animal Cell Technology meets
Genomics'**

Chairman; Francesc Gòdia
francesc.godia@uab.es

For further details contact;
ESACT 2003 Granada Secretariat
Grupo Pacifico
Maria Cubi 4
08006 Barcelona, Spain
www.pacifico-meetings.com
gp@pacifico-meeting.com

IABS-Meeting on Advancing Science and Elimination of the Use of Laboratory Animals for Development and Control of Vaccines and Hormones, Utrecht/NL, 12th-14th of November 2001. Organizer : C. Hendriksen (Coenraad.Hendriksen@rivm.nl). Deadlines : Abstract submission : 1.9.01, registration at low rates : before 15.10.01.

Cell Culture Engineering VIII, Snowmass/CO, USA, 1st-6th of April 2002. Organizer : M.J. Betenbaugh (beten@jhu.edu). Deadlines : abstracts for oral presentations : 31.10.01, abstracts for poster presentations : 30.11.01, submission of application form : 30.11.01.

News from JAACT

The JAACT2001 meeting was held in Kyoto on 26-27 July, 2001 and was attended by over 200 delegates.

It was a dream of the late Prof. Hiroki Murakami, founder of JAACT, to develop an Asian Society for Animal Cell Technology. JAACT has obtained funding to organize **ASSACT2001 Symposium Nov. 8-10 2001** in the Yagoto Marbery Hotel in Nagoya City. JAACT will invite 26 (young) researchers or students from 12 Asian countries. Please see the homepage; (<http://www.agr.nagoya-u.ac.jp/~tagen/assact/Participant.html>).

The chairperson of ASSACT2001 is Prof. Yasuo Kitagawa.

Programme:

Session 1: Asian strategy for genome sequencing project

Organizer: Dr. Jun Oshima (Takara Shuzo Co. Ltd.)
Dr. Tatsuhiko Kadowaki (Nagoya Univ.)

Session 2: Drug design based on the tertiary structure of proteins

Organizer: Dr. Masaru Tanokura (The Univ. of Tokyo)

Session 3: Commercialization of pharmaceuticals produced by animal cell technology

Organizer: Dr. Takamoto Suzuki (Kirin Brewery Co. Ltd.)

Session 4: Microarray technology

Organizer: Dr. Toshio Tanaka (Mie Univ.)

1 - 2 foreigners, 2-3 Japanese

Session 5: Stem cell technology

Organizer: Dr. Oda (Nagoya Univ.)

6: undetermined.

Hopefully "Status and future of European animal cell technology"

Sanetaka Shirahata
Vice-president of JAACT

NEW MEMBERS

We would like to welcome the following as New Members of ESACT elected since the last Newsletter.

Yu-Hsiang David Chang (*IDEC Pharmaceuticals Co*), USA;

Shalini Gupta (*Amgen*), USA;

Trygve Meum Eliassen (*Alpharma*), Norway;

Uwe Langer (*Bayer AG*), Germany;

Anette Larsen (*BioImage A/S*), Denmark;

Carl-Frederik Mandenius (*Linköping University*), Sweden;

John Masters (*University College London*), UK;

Karin Mellstrom (*KaroBio*), Sweden;

Ian Taylor (*Astrazeneca*), UK;

Gunn Irene Trospeth (*Alphapharma AS*), Norway ;

James Wilson (*Serologicals Ltd.*), UK