History of the European Society of Biochemical Pharmacology (ESBP)

The ESBP was founded in the early 1950s when it was acknowledged that methods and concepts in pharmacology had turned from the use of classical physiological approaches towards a biochemical focus in seeking answers to questions of drug action. In particular, modern analytical, especially spectrophotometric, methods were applied to study the biotransformation of xenobiotics. At approximately the same time, Z.M. Bacq in Liège and P. Alexander in London together with Sir Rudolph Peters took the initiative and founded a related journal, Biochemical Pharmacology.

For many years while the journal thrived, ESBP had become dormant. The Society was revived in 1984 when the organizers of the Drug Metabolism Workshops, who were then planning the 9th DMW, suggested that ESBP merge with DMW. The workshop organizers recognized that the DMWs needed a supporting scientific society in order to have a broader basis in Europe. The number of members of the ESBP was then around 150. The merger was mutually beneficial with the new energy of the successful DMWs boosting ESBP and the future planning of the DMWs being greatly facilitated by the support of ESBP.

From then onwards ESBP was based on three different and successful activities: (1) the DMWs, (2) special conferences of about 20 participants on a defined subject (the Otzenhausen Conferences), and (3) an exchange programme among the European laboratories of biochemical pharmacology with the aim to propagate and teach the respective methodology. The strengthening of an existing Newsletter also contributed very much to the reshaping of ESBP.

It is notable that there was an agreement made in 1993 that the ISSX European meetings would be scheduled in order to avoid conflicting with the DMWs. At this time, John Caldwell was President of ISSX and Karl J. Netter was President of ESBP. In the year 2000 ESBP and ISSX jointly organized the 17th DMW in St. Andrews, chaired by Brian Burchell.

This joint meeting strengthened the momentum within ESBP to seek cooperation with other supranational societies that are concerned with biological actions of drugs and other xenobiotics. This momentum culminated in March of 2007 with the signing of an agreement whereby ESBP would incorporate into ISSX, the International Society for the Study of Xenobiotics.

The portrait of a scientific society like ESBP cannot be complete without mentioning the personalities who have actively contributed to the developments described. Therefore, the following table gives the respective information for the years between 1984 and 2002.

Honorary Members:	G. Ludwig † (1988)
	K.J. Netter (1998)
	W. Klinger, K. W. Bock (2000)

	1984 - 1986	1986 - 1988	1988 - 1990	1990 -1992	1992 - 1994	1994 - 1996	1996 - 1998	1998 - 2000	2000 - 2002	Prospective composition of ESBP Board 2002 to 2004
President	G. Siest	V. Ullrich	Ph. Bentley	S. Garattini	K.J. Netter	Ph. Beaune	W. Klinger	J.A. Jansen	B. Burchell	M. P. Lòpez-Garcìa
Vice-President	J. Gielen *	Ph. Bentley	S. Garattini	Ph. Beaune	Ph. Beaune	W. Klinger	J.A. Jansen	B. Burchell	M.P. Lopez-Garcia	M. F. Sahin
Secretary	W. Cautreels	G. Ludwig	G. Ludwig	G. Ludwig	J.P. Thenot	J.P. Thenot	Ch. Fleck	Ch. Fleck	Ch. Fleck	Ch. Fleck
Treasurer	L. Maitre	J.W. Faigle	J.W. Faigle	J.W. Faigle	J.W. Faigle	R. Gasser	R. Gasser	R. Gasser	R. Gasser	R. Gasser
Progr. Coord.			V. Ullrich	H.J. Ahr	H.J. Ahr	H.J. Ahr	H.J. Ahr	H. Kroemer	H. Kroemer	H. Kroemer
Members	D. Breimer J.W. Bridges V. Ullrich	J.W. Bridges J. Gielen K.J. Netter G. Siest	J.W. Bridges J. Gielen K.J. Netter G. Siest	K.W. Bock L.A. Damani A. Gescher L.J. King W. Klinger	K.W. Bock S. Garattini A. Gescher L.J. King W. Klinger	L.J. King A. Gescher J.A. Jansen M.P. Lopez-Garcia K.J. Netter	Ph. Beaune B. Burchell M.P. Lopez-Garcia K.J. Netter J.P. Thenot	Ph. Beaune W. Klinger M.P. Lopez-Garcia J.P. Thenot N.P.E. Vermeulen	K. Hansen (until 2001) J.P. Thenot N.P.E. Vermeulen	J.P. Thenot N. P. E. Vermeulen
		Members ESBP 1988: 186		Members ESBP 1992: 156		Members ESBP 1995: 185		Members ESBP 1998: 201	Members ESBP 185	Members ESBP 2003: 111

A complete listing of the 19 DMWs appears on the next page. The 1st DMW was organized by D.V. Parke and J.W. Bridges and took place in Guildford, UK with 117 participants. By the time the 9th DMW was organized in 1984 participation had grown to 496. It is during this period that the DMWs merged with ESBP. The final DMW, the 19th, took place in Antalya, Turkey in 2004. It was decided that the next DMW, planned for the UK in 2006, would join forces with the European ISSX meeting also planned for that year. The 9th European ISSX Meeting, which was held in Manchester, UK in June of 2006, incorporated sessions planned by ESBP and substituted for the 20th DMW. Several months later in Washington, DC, ESBP dissolved and became an important part of ISSX.

History of the European Drug Metabolism Workshops

In 1967 from 24. - 30. September, a group of European industrial and academic chemists and pharmacologists called EUCHEM held a meeting on the newly emerged experience in xenobiotic metabolism. The small meeting took place in the old splendor of the Ostend luxury hotel Thermae Palace and brought about 30 interested colleagues together. Among them where, according to the recollection of the undersigned, D.V. Parke, London , the early promoter of drug metabolism, Sir Rudolph Peters, the discoverer of the biological toxification of fluoroacetate, H. Remmer, the discoverer of enzyme induction and R.T. Williams the author of the Detoxication Mechanisms and so benevolently nicknamed the 'Beilstein-Williams'. Among the younger participants were J.W. Bridges, H. Uehleke, and the undersigned.

The latter three felt the necessity to continue with the field and to broaden it by establishing a forum in the form of a workshop. The first venue was to be the newly founded University of Surrey in Guildford, which originated from the Battersea College of Science and Technology. It took some time until the first European Drug Metabolism Workshop (DMW) could take place, being the first activity in the brand new facilities in July 1970.

The meeting was attended by a total of 117 participants and was designed to have the character of an educational enterprise as well as up to date discussion of the newest results.

The purpose of the Workshops is to introduce people to the principles, practical importance, methodology and ways of thinking in drug metabolism research, so that participation has special value for new workers in the field.

In the first Workshops, demonstrations of experimental set-ups were given and well appreciated but due to the increasing number of participants this became less feasible in the later Workshops; this time these demonstrations have, therefore, been replaced by audio-visual displays. The character of the Workshops has also changed: it has in addition become a meeting point also for the more experienced colleagues, and for them the seminar discussions on recent trends and new technical developments in drug metabolism are of interest. Moreover, the presence of these more experienced investigators is of utmost value for the newcomers to the field: informal meetings facilitate the contacts between these groups.

This was considered to be the best way to introduce the subdiscipline of biochemical pharmacology and drug metabolism to academia and industry.

The purpose of the workshop was stated in the following way: *' it is a teaching course intended primarily for European scientists from industry, government, hospital, and university research laboratories with good chemical, medical, or biological background, but with little or no experience in the principles and techniques of drug metabolism studies. The course is also suitable for scientists with considerable*

experience in special aspects of the subject who wish to widen their sphere of interest. Particular attention is directed to human drug metabolism studies.'

To make life easier it was decided not to publish the proceedings but only to ask informal abstracts from the presenters of lectures as well as demonstrations and practicals, a tradition which has recently been developed into a more visible and mainly citable publication in a journal (Experimental and toxicologic Pathology; Gustav Fischer Verlag: Jena).

Later, in 1978 the aims and intentions of the DMW's were again stated for the DMW in Leiden; and it was again emphasized that bridging the generation gap and dichotomy in biochemical pharmacology is a main purpose. The goal of the Workshops is to introduce people to the principles, practical importance, methodology and ways of thinking in drug metabolism research, so that participation has special value for new workers in the field.

At that time Pergamon Press published *Biochemical Pharmacology* (founded by Sir Rudolph Peters) already in its 19th volume. The group which was assembled in Guildford welcomed the offer of the publishers Taylor & Francis to launch a new journal in the field called *Xenobiotica*. This is now in its 32nd volume and has significantly contributed to the documentation of drug metabolism results.

The structure of the workshops basically intends to introduce the participants by plenary lectures, to show techniques by demonstrations, to provide personal experience by practicals and to offer the opportunity to show posters and to discuss them in evening
seminars, which were catalyzed by beer and often lasted remarkably long and well into the dark hours.

In spite of the possibly diverse nature of the workshops they have survived very well and have helped many scientists to set foot on the interesting field of drug metabolism. Accordingly, respective questionnaires showed a generally positive opinion of the participants, and this in spite of the above explained 'dilemma'.

From the beginning onwards the tradition was formed to have a course dinner with an after-dinner speaker, a tradition which began in the eminently suitable facilities of Guildford and with an address by Sir Rudolph Peters. Later dinner speakers were D.V. Parke, H. Remmer, V. P. Whittacker and very frequently the undersigned who had the privilege and honour to participate in everyone of the now 18 DMW's.

The continuity of the DMW's was carried by the above mentioned triumvirate on a very private, free-lance, and financially audacious basis. Decisive help came from colleagues all around Europe who were sufficiently brave to undertake the tasks and who were supported by the increasing popularity of the workshops among the younger colleagues which lead to increasing numbers of participants.

So far the DMW's have taken place in 16 different European cities. It is appropriate to take this opportunity to thank the many organizers and their supporting colleagues for the efforts they have invested. The following

table gives a survey of the so far 18 DMW's, whereby obviously many details could not be recorded in the limited space.

Financially the course fees of the participants have essentially made it possible to present equilibrated balances for each workshop; however, the conduction of workshops would not have been possible without the substantial help from many sponsoring pharmaceutical and chemical companies. It is again appropriate to use this opportunity to
thank those responsible in industry to have so generously supported the twofold aims of the DMW's.

It may be mentioned here that the workshop organizers always took great efforts and made it possible to enable colleagues from countries with non-convertible currencies to participate. Beginning in 1984 and more effective in 1988 the financial structure received a broader and more stable basis by the fact that the European Society for Biochemical Pharmacology (ESBP) favourably responded to the request to act as a financial umbrella for the originally free-lance enterprises. This has proven particularly useful in the current times of decreasing numbers of paying participants.

The seventeenth DMW (in St. Andrews) clearly marks an important change in the basic concept, which now no longer confines itself to strictly drug metabolic questions : in the seventeenth workshop the rapidly increasing evidence for the important role of transmembrane dislocation of xenobiotics came to fruition through the active participation of experts of membrane transport proteins. In connection with pharmacogenetic considerations the understanding and the concept of the pharmacokinetic fate of xenobiotics has entered a new era of a more holistic perception. It is to be hoped that the now far more complex view of the path of a xenobiotic through the host organism will lead to new developments of better drugs.

In parenthesis it may be noted, that the participants of the last workshop (418) came from 27 different countries; naturally participation from the UK was the highest (177), followed by the USA (49), Germany (31), France (23), Sweden (19), The Netherlands (15), Denmark (14), Switzerland (13) and nineteen further countries. It should also be noted with particular satisfaction that even Japan, Australia and New Zealand were represented at this "European" meeting.

In September 2002 the 18th DMW took place in Valencia and was organized by P. Lopez-Garcia, who now is the president of the ESBP until 2004, and her colleagues. In this Workshop the "tradition" of St. Andrews was continued by having presentations and discussions on the transport of drugs and xenobiotics into and out of the cell and its organelles. Also the genetic background and mechanisms, which determine drug action and disposition, played an important role as well as sulphur and selenium compounds, molecular techniques and environmental influences. The DMW itself and all ancillary necessities were splendidly organized in the rapidly modernizing city of Valencia and in particular in the luxurious and almost gigantic new conference center. And yet the history of the city was omnipresent, and its perennial scientific life was represented by two outstanding scientists: Santiago Ramon y Cajal and Santiago Grisolia.

Registration for the DMW , the Short Courses and the first reception took place in the venerable Medical Faculty in the center of Valencia under the dominating monument of Ramon y Cajal (1852 – 1934), and many were suddenly reminded that the scientific carreer of the great neuroanatomist began here in 1885. His key achievement was the discovery that the nervous system does not consist of a network of continuous long conducting fibers from the origin of an impulse to its end point but rather of a complicated interaction between many singular and polarizable cells, which Wilhelm Waldeyer (1836 – 1921) christened "neurons" in 1891. For more than one century this conclusion is now the basis for our understanding of the nervous system. In 1906 Santiago Ramon y Cajal – together with Camillo Golgi – received the Nobel Prize (see htth://www.nobel.se/medicine/articles/cajal/index.html). His artistic and brilliant drawings of neurons became classical textbook highlights, and one of them was even taken by the NASA Space Lab into outer space during the "decade of the brain", in respect to Cajal. It is perhaps an intentional coincidence that we find a satellite photograph of Valencia and surroundings in the Final Program of the DMW.

An internationally renowned biochemist, Valencia-born Dr. Grisolia, accepted to be honorary president of the local organizing committee and to participate in the Opening Ceremony introducing the audienceinto the basics of genetics. During his many years in biochemistry in the Kansas University he has contributed to our knowledge on enzyme regulation. In Kansas he worked together with Severo Ochoa (e.g. betaoxidation of fatty acids). Nobel Prize 1959 to Ochoa and Arthur Kornberg. After his return to Valencia Santiago Grisolia promoted the creation of a research institute, the Fundacion Valenciana de Investigaciones Biomedicas, and was its director. As president of the Valencia Council of Culture he facilitated important scientific institutions and the science museum. Last but not least he also decisively helped in obtaining financial support for this DMW.

Two Short Courses preceded the DMW program and were concerned with "cytometry and cytomics in drug research" and with" gene chip and genomic technology: understanding variation of drug action". Ten speakers shared their expertise with sixty participants, most of whom were students, primarily from Spain. The DMW program had eight plenary sessions concerned with Drug Development and Metabolism, Pharmacogenetics, Drug Transport, and other fields.

With 310 participants and exhibitors from thirty different countries the DMW was a great success in fulfilling one of its prime goals, namely to bring industrial and academic colleagues together, incidentally in a ratio of 40 to 60 percent. About a third of registered participants were PhD's or postdoctorals, whose attendance was partially supported a ESBP sponsorship, again confirming the commitment of the ESBP. There was ample time and space for poster presentation and contacting exhibitors. The financial support of the ESBP – this year specifically oriented to young scientists –facilitated the attendance of eleven pregraduate and thirteen postdoctoral students from ten different countries at the DMW 2002 and twenty students in the Sunday Short Courses; ten senior scientists from Eastern Europe and less developed countries received partial financial support. In general, thanks to the number of paying registrants and the significant support from industry and Spanish local and national institutions the overall financial balance will be in equilibrium.

Finally brief statistics about the origin of the participants at the DMW 2002 : Spain 58 (19%), United Kingdom 55 (18%), France 31 (10%), Germany 25 (8%), USA 17 (6%), Denmark 13 (4%), Finland 13 (4%), Switzerland 12 (4%), Czech Republic 10, Italy 10, Poland 10 , Sweden 10, Hungary 6, Belgium 5, Canada 4 , Yugoslavia 4, Other countries (e.g. Brazil, Iran, Japan, New Zealand, Taiwan, Turkey): 27 .

One particular feature needs to be mentioned here: The third DMW in 1972 inTübingen made a slight surplus which enabled H. Uehleke to initiate a new tradition: He acquired a silver cup (very much smaller and cheaper than a football trophy) which since then has been handed down from organizer to organizer after each new DMW was engraved on it. This "formal" act is accompanied by a bottle of a local wine which is also presented to the respective next organizer; this pleasant tradition only creates difficulties when the previous workshop happened to be in an European country without viniculture, but it stimulated the not very remote substitution by other fermentation products, possibly distilled ones. It is remarkable that in Valencia the nice and unifying custom saw its thirtieth year. At some Workshops another event was successfully practised: the sale of T-shirts with the emblem of the respective DMW.

In hindsight, the organizers of the very first DMW demonstrated justified optimism by calling the first gathering the '*First* Drug Metabolism Workshop' in the firm conviction that it would be followed by subsequent meetings. It is anticipated that the 19th DMW in 2004 will be 34 years later in Antalya, Turkey, organized by Prof. M. F. Sahin.

The following tabulation of all DMW's reflects the progress in biochemical pharmacology during the last three decades. At the same time it demonstrates the attractivity of a balanced blend between an introduction for beginners in the field as well as presentation and discussion of its latest achievements among experienced contributors to our present knowledge on the complex interaction between chemicals and biological organisms.

K. J. Netter

History of the European Drug Metabolism Workshops

K.J. Netter

DMW	Course Organizer	Main Subjects Lectures and/or demonstrations	Participants (total)
1.) **Guildford** 27.-31.07.1970	D.V. Parke J.W. Bridges	Pharmacokinetics, In vivo and in vitro drug metabolism, Factors affecting drug metabolism, Implications in man 17 Lectures, Demonstrations, Practicals	117
2.) **Guildford** 19.-24.09.1971	J.W. Bridges	Biological basis, Distribution of drugs, Techniques of drug metabolism, Factors affecting drug metabolism 20 Lectures, Demonstrations, Practicals	127
3.) **Tübingen** 01.-06.10.1972	H. Uehleke	Absorption, exretion of drugs, drug metabolism enzymes, Toxic metabolites, Factors affecting drug metabolism, Analytical methods 25 Lectures, Demonstrations, Practicals	162
4.) **Mainz** 15.-20.09.1974	K.J. Netter	Drug metabolism pathways, Enzyme induction, Cytochrome P450 mechanisms and genetics, Methods, Regulatory aspects 26 Lectures, 23 Demonstrations, 5 Practicals	188
5.) **Stockholm** 14.-18.06. 1976	S. Orrenius H. Selander	Enzymology, Pharmakokinetics, in vitro and in vivo relevance, Metabolite identification, Induction-inhibition of drug metabolism Seminars and Posters; 28 Lectures	225
6.) **Leiden** 18.-23-06. 1978	D. Breimer H. Nieuwenhuise	General aspects of drug metabolism, Factors influencing drug metabolism, Techniques used in drug metabolism studies, Biotransformation and drug safety. Pharmakokinetics and biotransformation. Seminars and Posters; 25 Lectures	306

7.) **Zürich** 05.-10.10. 1980	U. A. Meyer	Drug metabolism pathways and enzymes, Chemical Structure and biotransformation, Extraphatic Drug metabolism, Genetic, environmental and other factors influencing drug metabolism, Evolutionary aspects and species differences in drug metabolism, Isolated cells in culture, Xenobiotics and their metabolites causing DNA damage, DNA binding of carcinogens, Drug metabolism enzymes in human liver, assessment of drug metabolism in man, human drug metabolism, Activation and inactivation of toxic metabolites, Drug metabolism in use of drugs in man. 20 Lectures; 8 Seminars; Posters	319

8.) **Liège** 05.-09.09. 1982	J.E. Gielen P. Kremers	Drug metabolism models, Drug metabolism control by endogenous factors, Drug metabolism and toxicology, Reactive metabolites, Inbitors of drug metabolism. Assessment of drug metabolism in man, Molecular basis for species differences in drug metabolism Polymorphism in drug metabolism 16 Lectures; Total 348 Abstracts	480

9.) **Nancy** (Pont à Mousson) 11.-15.06. 1984 (under the auspices of the European Society of Biochemical Pharmacology - ESBP)	G.M. Siest A.M. Batt	Cellular topology of drug metabolism enzymes, Prediction of drug metabolism, Conjugation reactions, Extrahepatic drug metabolism, Methodology, Reactive intermediates, Biotechnology in drug production, non-P450 oxidations, Pharmacogenetics, Biosynthesis of drug metabolism enzymes 24 Lectures Total 322 Abstracts 15. June 1984: Meeting of the European Society of Biochemical Pharmacology (ESBP)	496

10.) **Guildford** 06.-11.07.1986 (in honour of D.V. Parke) (under the auspices of ESBP)	J.W. Bridges D.J. Benford	Drug metabolism enzymes at the molecular level, Human drug metabolism enzymes, Techniques in drug analysis Ontogenesis of drug metabolism enzymes, Safety evaluation of drugs, Metabolism and mechanisms of toxicity. Probes for P450 isoenzymes. 787 page book 'Drug Metabolism from Molecules to Man' (Ed. Benford, Bridges, Gibson); dedicated to D.V. Parke Taylor and Francis, 1987	498

11.) **Konstanz** 11.-16.09.1988	K.J. Netter V. Ullrich G. Ludwig	Enzymes in drug metabolism, Variability of drug metabolism, Peptide drugs, Reductive metabolism, Metabolite detection, Regulatory problems 24 Lectures; total 291 Abstracts	404

12.) **Basel** 17.-21.09.1990	Ph. Bentley U.A. Meyer	Reactions and enzymes (non-oxidative), Cellular activities of drug metabolism enzymes, P450 gene superfamily, Mechanisms of cytotoxicity, Sterochemical aspects, Drug metabolism induction in humans 32 Lectures, total 219 Abstracts	363

13.) **Bergamo** 21.-25.09. 1992	S. Garattini	Receptors and drug design, Peptides as drugs, Active and reactive metabolites, Genetics of drug metabolism, Conjugation reactions, Isoenzymes of cytochrome P450, Esterases, Stereoselectivity, Multidrug resistance 26 Lectures; total 150 Abstracts	252

14.) **Paris** 04.-08.07. 1994	Ph. Beaune J.P. Leroux	Novel aspects in drug metabolism, Flavin containing monooxygenases, Human cytochromes P450, Epidemiology of drug conjugation, Drug resistance, Cytokines, Singlett molecular oxygen, NO, Eicosanoids, Peptidases 40 Lectures; total 306 Abstracts	558

15.) **Jena** 09.-13.09. 1996	W. Klinger Ch. Fleck F.K. Splinter	Drug metabolism enzymology, Cytokines, Apoptosis, Reductive drug metabolism, NO, DNA-adducts as biomarkers, Expression systems for drug metabolism enzymes, Drug metabolism and the kidney, Modern analytical tools in drug metabolism 24 Lectures; total 188 Abstracts	320

16.) **Copenhagen** 21.-26.06. 1998	J.A. Jansen K.T. Hansen	In vitro drug metabolism and drug development, Drug metabolism and cancer development, Cellular regulation of drug metabolism enzymes, Clinical pharmacology of cytochromes P450, Expression of drug metabolism enzymes in extrahepatic tissue Glutathione conjugation, CYP: 2C19, 2D6, 2C9, 2E1, 3A4 20 Lectures, Total 158 Abstracts	298

17.) **St. Andrews** 11.-16.06. 2000 DMW/ISSX 2000 (together with ISSX European Meeting)	B. Burchell M. Coughtrie	Drug Transport Glucuronidation (In honor of K.W. Bock – Tübingen) Xenobiotics and Cell Signalling, Cell Cycle, Apoptosis, Role of drug transport and metabolism in the drug discovery process, Conjugation of xenobiotics and endogenous compounds, Modulation of human drug metabolism by xenobiotics, Prediction of pharmaco-dynamic and pharmacokinetic properties, Kinetics and metabolism of bioproducts. *Short Courses* on Analytical techniques in drug metabolism and on Pharmacogenetics. 33 Lectures 14 Short presentations Abstracts	418

18.) **Valencia** 21.-26.06. 1998	M. P. López-García J. Bentez J. Coloma	Genetics, Biomarkers, Predictability of drug metabolism, Genetic variability of drug disposition, Cytochromes P450, CYP expression, Nicotine addiction, Cellular drug transport, MRP's, OATP's, Sulphur transferases, Organoselenium, Transgenic & knockout technologies, Proteomics, Metabonomics, SNP discovery, Nitric oxide, Glucuronosyltransferases, Idiosyncratic responses, Environmental considerations. *Short Courses* : Cytometry and Cytomics (5 oral instructions and practical session);Gene chip and genomic technology. (5 oral instructions). - 26 Plenary Lectures - 156 Posters (with Abstracts) in 16 subject sections.	310

19.) **Antalya, Turkey**	M. Fethi Sahin E. Banoglu	Structure and Function of Drug Metabolizing Enzymes (11 lectures), Genetic Variability in Clinical Drug Metabolism, Bioactivation of Genotoxicants, Drug Transporters, Toxicogenomics and DNA Chip Technology, Xenobiotics in aquatic Environments, Free Radical Formation, Oxidative Stress, Industrial and Regulatory Aspects. Short Courses: Genomics and Microarray Technologies, Proteomics Technology, Bioinformatics, SNP Discovery, Extrapolation to Man, Drug-Drug Interaction,, Models for Prediction of Absorption. (Oral instructions and practical sessions). - 34 Plenary Lectures , 14 Oral Presentations – 161 Poster Presentations (with Abstracts) in 21 subject sections. Participants from 22 countries.	224