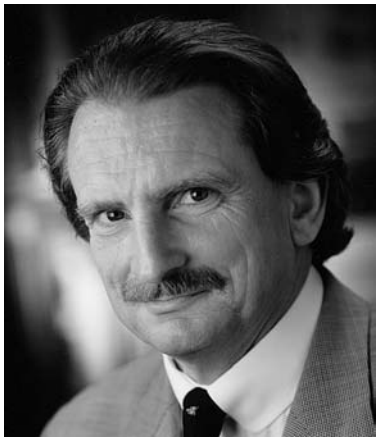
EASD
EUROPEAN ASSOCIATION FOR THE STUDY OF DIABETES
ASSOCIATION EUROPEENE POUR L'ETUDE DU DIABETE · EUROPÄISCHE GESELLSCHAFT FÜR DIABETOLOGIE
Rheindorfer Weg 3 · D-40591 Düsseldorf · Germany · Tel: +49-211-7 58 46 90 · Fax: +49-211-75 84 69 29
E-mail: easd@uni-duesseldorf.de · Homepage: http://www.easd.org

EASD

News Section
10/2002

Michael Berger, in memoriam

02.06. 1944–18.08.2002



Professor Michael Berger, former President of EASD and Editor-in-Chief of Diabetologia, died in Düsseldorf on 18 August 2002, following a long and severe illness which he bore with courage and dignity. Born in Schmalkalden, Thüringen, Germany on 2 June 1944, Michael Berger went to medical school from 1963-1969 at the universities of Würzburg/Germany, Galway/Ireland and Düsseldorf/Germany and received his medical degree in 1970 based upon a thesis on "Investigations on lipolysis in human adipose tissue in vitro". He received his Postgraduate Education in Internal Medicine, Physiology, Biochemistry at the Department of Medicine, Düsseldorf University (Prof. K. Oberdisse), Department of Medicine, Harvard Medical School at the Peter Bent Brigham Hospital, and Joslin Research Laboratory (Prof. G.F. Cahill, Jr.), Boston, USA and at the Institute de Biochimie Clinique, University of Geneva (Prof. A.E. Renold). From 1978, Michael Berger was professor of Internal Medicine at Düsseldorf University, where he served from 1985 as Director of the Department for Metabolic Diseases & Nutrition. He was vice-Dean and then Dean of the Faculty of Medicine of the Heinrich-Heine-University, Düsseldorf from 1984-1994. Since his very first co-authorship of a scientific publication in Diabetologia in 1968, Michael Berger received a number of scientific awards in various parts of the world, including the Promotion Award for Young Scientists, German Diabetes Association (1971); the 1973 Mario Balodimos Award, New England Diabetes Association, Boston, USA (1973); the Ferdinand Bertram Award, German Diabetes Association (1978); the Kellion Award, Australian Diabetes Association (1982); the Arnold Durig Award, Austrian Association for Nutrition (1982); Louis-Pasteur Medal, ALFEDIAM (1988); the Albert Renold Medal, European Association for the Study of Diabetes (1980); the 1993 Medal of Honour, Faculty of Medicine, Sofia University, Bulgaria (1993); the Mizuno Award Osaka, Japan (1993); and the Claude Bernard Lecturer of EASD (1995). Michael Berger became honorary member of the following associations: Union de Travailleurs Scientifique, Bulgaria (1977); Diabetes Association of Argentina (1984); Diabetes Association of Paraguay (1984); Rumanian Association for Nutrition and Metabolic Diseases (1985); Association for Diabetes and Nutrition of Uruguay (1990); Bulgarian Association for Internal Medicine (1993); Hungarian Diabetes Association (1994). He was Guest Professor of Internal Medicine, University of Benghazi, Libya (1983); Honorary President, Diabetes Association of Ecuador (1986) and a Member of the Academy of Medicine of Romania (1994). Michael Berger received honorary doctorates from the following universities: Medical University of Warsaw/Poland, Sts. Cyril and Methodus University Skopje/Macedonia; Universidad Autonoma de Barcelona/Spain, Šafárik University Košice/Slowakia, Medical University of Sofia/Bulgaria. He served as vice-president (1981/82) of the European Society for Clinical Investigation and as president, German Diabetes Association (1989/90). Since 1985 he was director of the WHO Collaborating Center for Diabetes Treatment and Prevention and from 1994 vice-president of the International Diabetes Federation IDF.

Michael Berger published 600 scientific articles, several text books for physicians and patients and served on the editorial boards of many of the scientific journals.

For over 23 years Michael Berger served the European Association for the Study of Diabetes in various functions. During his tenure as Honorary Secretary of Diabetes Education Study Group of EASD from 1979-1984, he was largely responsible for the development

of the Study Group. He was Editor-in-Chief of Diabetologia from 1983-1988. He was a member of the Council for 16 years and chaired the Postgraduate Education Sub-Committee of EASD from 1991-1994. During this time he organised very successful postgraduate education seminars of EASD in many East European countries; this was an outstanding contribution to postgraduate medical training in those countries at a very important time in their development. Michael Berger was Chairman of the 30th EASD Annual Meeting in Düsseldorf and he was president of EASD from 1995-1998. His scientific contributions to European diabetes research covered a wide range from laboratory research to the scientific evaluation of clinical care and patient education. Michael Berger will always be remembered with gratitude for his extraordinary commitment to EASD, diabetes research and diabetes care throughout Europe.

Wherever he worked, from Düsseldorf to Boston to Geneva and beyond, he will be remembered as an outstanding researcher, a physician dedicated to his patients and a convincing advocate of evidence-based medicine focused on benefit for the patient. We also remember Michael as a close and devoted friend of many members of EASD, a lover of horses and of life. He will be greatly missed.

Professor Berger is survived by his wife of 19 years, Professor Ingrid Mülhauser.

Prof. Philippe A Halban,
President, EASD

Dr Viktor Jörgens,
Executive Director, EASD

2002 Minkowski Prize – 37th Minkowski Lecture

Dr Bart Roep, Leiden University Medical Centre, Leiden, The Netherlands

Following his studies in Life Sciences and Medicine in Amsterdam, Dr. Roep (38) obtained a PhD in Medicine in Leiden in 1992 on his work on autoreactive T-cells in the pathogenesis of Type 1 diabetes. This subject has remained his primary interest until today. After a postdoctoral training at the University of California in San Francisco in the group of Dr. Steinunn Baekkeskov, he returned to Leiden University Medical Center as Fellow of the Royal Academy of Arts and Sciences, where he is presently appointed as associate professor and principal investigator in the immunology of diabetes. Dr. Roep is author of more than 80 peer-reviewed original articles. In recent years, he has translated his immunological studies to clinical practice, where he studies immunointervention therapies and islet transplantation to determine their immunological and clinical efficacy. Dr. Roep was visiting professor at the University of Washington in Seattle, and received several awards and prizes including the Marie Parijs Prize for Clinical Medicine and the Eli Lilly Diabetes Award.

2002 Castelli Pedroli Prize, 17th Camillo Golgi Lecture

Jaakko Tuomilehto MD, MPolSc, PhD,
Academy Professor, Diabetes and Genetic Epidemiology Unit,
Department of Epidemiology and Health Promotion National Public Health Institute,
and Department of Public Health, University of Helsinki, Helsinki, Finland

Jaakko Tuomilehto was born in Finland in 1946 and obtained his MD in 1973 and MPol Sc in 1975 from the University of Turku and PhD in Epidemiology from the University of Kuopio in 1975. He started his research career in the first community-based prevention programme, the North Karelia Project in the early 1970s. He worked as the Medical Officer for Cardiovascular and Metabolic Diseases at the WHO Regional Office for Western Pacific in the early 1980s. After returning back to Finland, he worked as the Professor of Community Medicine at the University of Kuopio and then at the Department of Epidemiology of the National Public Health Institute in Helsinki as the Chief of the Data Centre of the WHO MONICA (MONItoring trends and determinants of CArdiovascular disease) project the largest multinational cardiovascular research project ever carried out. He was the acting Director and then Research Professor at the Department of Epidemiology of the National Public Health Institute until 2000 when he was appointed as the Professor of Public Health at the University of Helsinki. In 2000, he also received a prestigious appointment as the Academy Professor by the Academy of Finland. He is a recipient of several scientific awards, including the ADA Kelly West Award in Diabetes Epidemiology and the UNESCO – Hellmut Mehnert Award. He has attended numerous expert committees and advisory groups by WHO and other organizations, and he is or has been serving editorial boards of several scientific journals including Diabetologia. He has visited several institutions and universities as a visiting professor or visiting scientist, including the current visiting professorship in neuroepidemiology at the Danube University in Krems, Austria. Currently he is chairing the National Task Force for Primary Prevention of Type 2 diabetes in Finland that is the first national program of its kind. He has served as the President of the International Diabetes Epidemiology Group, and the Finnish Hypertension Society. He has established and actively participated in multitude of domestic and international collaborative studies both in Type 1 and Type 2 diabetes. His scientific production is very extensive, including approximately 700 peer-review articles, and in addition over 150 reviews and book chapters. According to the recent analysis of publications related to diabetes during the last decade carried out by the ISI, he was found one of the most productive scientists in the field ranking the first in the number of scientific papers published and also being one of most highly cited among the diabetes researchers.

Report on Research work

Dr. Tuomilehto played a central role in the landmark study of cardiovascular disease prevention, the North Karelia Project, in particular in the field of epidemiology and control of hypertension. This was the first demonstration of the primary prevention of cardiovascular disease and a model for similar actions in many other countries. He has also significantly contributed to several controlled clinical trials in hypertension that have laid the foundation for the current evidence-based hypertension care. These include the first controlled trial of treatment of hypertension in the elderly and another one of isolated systolic hypertension. The latter one was also the first placebo-controlled demonstration of efficacy and safety of calcium-channel antagonists in the treatment of hypertension, particularly in diabetic patients. This study also showed that the risk of dementia can also be significantly reduced by effective lowering of systolic blood pressure. Part of his research work has been related to the assessment of health risks of high salt intake. He was the first investigator to show in 2001 that a high salt intake is an independent cardiovascular risk factor. As the part of the WHO MONICA Project he was involved in the community-based myocardial infarction and stroke registers, and he has also otherwise made many significant contributions to stroke epidemiology. Recently,

his prospective studies have confirmed the role of traditional cardiovascular risk factors as risk factors for dementia and Alzheimer's disease.

In the early 1980s he started to extend his research into the field of epidemiology of diabetes, both Type 1 and Type 2. He has coordinated prospective childhood diabetes register studies in Finland, the Baltic Sea region and worldwide. These studies were largely carried out within the framework of the WHO DiaMond (Diabetes Mondiale) project. Also findings from the prospective DERI (Diabetes Epidemiology Research International) mortality study carried out in four contries has provided convincing evidence that mortality related to acute complications of Type 1 diabetes depends on the structure of care offered to the diabetic patients: low mortality is seen in countries like Finland that has full coverage of costs for diabetes care.

His research has confirmed that the incidence of childhood Type 1 diabetes in Finland is still the highest in the world and that there has been almost a linear 2.5 – 3% yearly increase in the incidence over decades. Later on his work showed that a similar increase has taken place all over the world. Based both on the population-based twin studies and the family studies in Finland his research group has shown that the penetrance of the Type 1 diabetes susceptibility genes is low, approximately 25%. Nevertheless, the genetic component for the risk of Type 1 diabetes is high, 70-80% compared with the component explained with environmental factors. Also, it was found out that one of the reasons for the high incidence of Type 1 diabetes in Finland is related to a specific HLA haplotype that carries a very high risk and is only found in Finland. He has shown that in high incidence populations a male excess in incidence exists whereas all low incidence populations have a female excess. Also, his research revealed that diabetic parents are more likely to transmit the disease to their offspring if they do not share the same sex with the diabetic parent. A very interesting finding was the comparison of HLA haplotypes found in Type 1 diabetic children with those in elderly men with mild Type 2 diabetes: a large proportion of the Type 2 diabetic men also carried the same HLA haplotypes as diabetic children did. This suggests that at least some part of the genetic susceptibility to diabetes is the same for both types of diabetes.

Among several of Dr. Tuomilehto's research projects in Type 2 diabetes three are outstanding, and all still ongoing, and have had a major impact in the field. The Finland-United States Investigation of NIDDM (FUSION) genetics carried out in collaboration with several other investigators is probably the most comprehensive effort to map susceptibility genes for Type 2 diabetes. Stimulated by the American Diabetes Association (ADA) new proposal for classification and diagnostic criteria for diabetes, he initiated the collaborative studies in Europe (DECODE) and Asia (DECODA). These studies have clearly documented the importance of post-challenge glucose compared with fasting glucose alone for the diagnosis of diabetes as well as for predicting morbidity and mortality. The DECODE study showed that the increase in the risk of cardiovascular disease associated with the post-challenge glucose even in the non-diabetic population is similar than that shown for other major risk factors. Currently a global analysis including also the American data is being carried out on this matter. His research has been instrumental in the current re-evaluation of the diagnostic principles and the prediction in Type 2 diabetes. Dr. Tuomilehto has been one of the first contemporary researchers advocating the need for studies into the primary prevention of Type 2 diabetes. He was the first one to set up a properly designed randomised clinical trial to assess the feasibility and the efficacy of lifestyle modification to prevent Type 2 diabetes in high-risk subjects. The results published in 2001were striking: the risk of diabetes was reduced by 58%; even more striking was that later on a US study using a similar approach came up exactly with the same numbers. Prevention of Type 2 diabetes is now reality and these trial results will form a solid basis for the population-wide implementation of preventive measures.

2002 EASD / AMYLIN PHARMACEUTICALS INC. – PAUL LANGERHANS RESEARCH AWARD for Research on the Physiology and Pathophysiology of the Beta-Cell

Dr. Markus Tiedge, Institute of Clinical Biochemistry, Hannover Medical School, Hannover, Germany

In 1988 Dr. Tiedge finished his studies of medicine at the University of Göttingen. In the same year he obtained his doctoral degree in medicine for his thesis work upon the characterisation of the metabolic glucose sensor glucokinase in pancreatic beta cells at the Institute of Pharmacology and Toxicology in the group of Prof. S. Lenzen. For this thesis work he got the Junior Research Award of the German Diabetes Association in 1989. After a short intermission in internal medicine Dr. Tiedge was granted a Postdoctoral Research Fellowship by the Deutsche Forschungsgemeinschaft (DFG), the central German funding organization for academic research, in 1989 . This grant allowed him to proceed with his scientific work at the Institute of Pharmacology and Toxicology in Göttingen with the focus upon the molecular biology of the glucokinase and the GLUT2 glucose transporter in pancreatic beta cells. In 1992 Dr. Tiedge took the position of a research scientist at the Institute of Clinical Biochemistry at Hannover Medical School. From that time the research group of Dr. Tiedge was in particular interested in the mechanism of posttranslational regulation of glucokinase activity which has a significant impact upon the secretory function of the beta cell. The extraordinary sensitivity of the glucokinase towards SH-group oxidation has led his attention to the antioxidative defence status of the beta cell. This successful work resulted in an extensive characterisation of cytoprotective enzymes in insulin-producing cells. Notably the extremely low level of the hydrogen peroxide inactivating enzymes catalase and glutathione peroxidase proved to be the Achilles heel of the beta cell in the defence repertoire against free radicals. Overexpression of these cytoprotective enzymes provided an excellent protection of insulin-producing cells against free radical attack induced by chemical compounds and also cytokines. In 2000 Dr. Tiedge obtained a degree of a docent for biochemistry and participates as a lecturer for medicine and biochemistry in the academic staff of Hannover Medical School.

Brief report on research work

From the very beginning of my scientific work my interests were focussed upon the pancreatic beta cell with two main topics:

1. **Molecular aspects of the beta cell glucose sensor glucokinase**
   The glucose phosphorylating enzyme plays a pivotal role for glucose-induced insulin secretion in the beta cell coupling physiological millimolar glucose concentrations to signal generating metabolism. In recent studies we could show that in insulin-producing cells glucokinase enzyme activity is regulated within a compartment model which distinguishes a freely diffusible fraction of high activity from a matrix-bound fraction with low activity [1]. Through systematic peptide phage display library screening we could identify the bifunctional enzyme phosphofructokinase type 2 (PFK-2) as a novel interaction partner of glucokinase which increases the activity level of the glucokinase [2]. Currently we characterise the nature of this GK/PFK2 interaction which may help to establish strategies to improve the glucose sensor function of the pancreatic beta cell.
2. **Mechanisms of free radical mediated beta cell destruction in autoimmune diabetes**
   Oxygen free radicals and nitric oxide exert a critical function within the scenario of beta cell destruction by cytokines and immune cells. In contrast to other tissues such as the liver and the kidney pancreatic beta cells are extremely susceptible to damage by free radicals. The rationale for this susceptibility is a low enzymatic antioxidant defence status in particular the H_2O_2-inactivating enzymes catalase and glutathione peroxidase show an extremely low activity level in the range of 1 – 5 % of that observed in liver [3]. Through overexpression of these antioxidative enzymes in insulin-producing cell lines we could establish a feasible strategy to protect the cells against the toxicity of chemically generated

free radicals and importantly also against the toxicity of cytokines [4-6]. The role of free radicals within cytokine-mediated beta cell destruction paved the way to our current studies which provide evidence that free radicals also affect signal pathways of cytokines e.g. the transcription factor NF-kB. This work will be generously supported by the 2002 EASD/Amylin Pharmaceuticals Paul Langerhans Research Award. I thank the EASD and Amylin Pharmaceuticals for this honour.

1. Tiedge M, Steffeck H, Elsner M, Lenzen S (1999) Metabolic regulation, activity state, and intracellular binding of glucokinase in insulin-secreting cells. Diabetes 48: 514–523
2. Baltrusch S, Lenzen S, Okar DA, Lange AJ, Tiedge M (2001) Characterization of glucokinase-binding protein epitopes by a phage-displayed peptide library. Identification of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase as a novel interaction partner. J Biol Chem 276: 43915–43923
3. Tiedge M, Lortz S, Drinkgern J, Lenzen S (1997) Relation between antioxidant enzyme gene expression and antioxidative defense status of insulin-producing cells. Diabetes 46: 1733–1742
4. Tiedge M, Lortz S, Munday R, Lenzen S (1999) Protection against the co-operative toxicity of nitric oxide and oxygen free radicals by overexpression of antioxidant enzymes in bioengineered insulin-producing RINm5F cells. Diabetologia 42: 849–855
5. Tiedge M, Lortz S, Munday R, Lenzen S (1998) Complementary action of antioxidant enzymes in the protection of bioengineered insulin-producing RINm5F cells against the toxicity of reactive oxygen species. Diabetes 47: 1578–1585
6. Lortz S, Tiedge M, Nachtwey T, Karlsen AE, Nerup J, Lenzen S (2000) Protection of insulin-producing RINm5F cells against cytokine-mediated toxicity through overexpression of antioxidant enzymes. Diabetes 49: 1123–1130

2002 EASD/Eli Lilly Research Fellowship in Diabetes and Metabolism

Dr. Annette Plesner, Department of Pathology and Laboratory Medicine, University of British Columbia, British Columbia Research Institute for Children's and Women's Health, Vancouver, Canada

Curriculum vitae and current research project

Annette Plesner obtained her *cand. scient.* degree in biochemistry from the University of Copenhagen in April 1996. Her research focused on autoimmunity to GAD65 in animal models of Type 1 diabetes and was supervised by Drs. Jacob S. Petersen and Thomas Dyrberg at the Hagedorn Research Institute and Novo Nordisk A/S. During this period she was partly funded by a Novo Nordisk A/S Scholarship. In May 1996 she joined Dr. Åke Lernmark's laboratory at the University of Washington in Seattle to further study autoimmune aspects of Type 1 diabetes by addressing whether functional differences exist in macrophage populations among HLA-matched patients, first-degree relatives, and healthy controls. In addition, she performed mutational analysis of the membrane anchoring domain of GAD65 to address its antigenicity. Dr. Plesner was conferred her Ph.D. in molecular biology from the University of Copenhagen in 2000. Following this Dr. Plesner was awarded an Izaak Walton Killam Memorial Postdoctoral Research Fellowship to join Dr. C. Bruce Verchere in the Department of Pathology and Laboratory Medicine at the University of British Columbia in Vancouver. Her present work as a post-doctoral fellow focuses on generating apoptosis resistant beta cells for islet transplantation.

Current research work

The loss of ß-cells is central to the pathogenesis of Type 1 diabetes why replacement of ß-cells represents a logical therapeutic approach. Indeed, islet transplantation has been extensively investigated because of its significant theoretical advantages over whole pancreas transplantation, including the lesser invasiveness of the procedure, lower morbidity and mortality, and greater number of potentially eligible recipients. The success recently reported by the Edmonton group in transplantation of islets obtained from cadaveric organ donors into diabetic recipients has raised high hopes for the future of clinical islet transplantation. How-

ever, major challenges still need to be overcome, including: 1) Improving immunosuppressive drug regimens to minimize side effects such as susceptibility to infection and cancers, 2) Enhancing long-term survival of islet graft mass and function, and 3) Increasing the number of islets available for transplantation.

In addition to post-transplant immune-mediated cell death, islet cells are also clearly susceptible to damage and death during isolation, transplantation and revascularization of the graft. Therefore, inhibition of ß-cell apoptosis in transplanted islets represents a promising means of prolonging graft survival, both by protecting the graft from the recipient immune response and by enhancing ß-cell survival during isolation and transplantation. The intracellular pathways mediating apoptotic cell death are complex but it is well documented that families of cytoplasmic proteins including caspases, the Bcl-2 family and the "inhibitor of apoptosis" (IAP) proteins play important roles in regulating apoptosis. In particular, IAPs are known to be potent inhibitors of apoptosis by inactivating key members of the downstream effector caspases. Our collaborator Dr. Robert Korneluk at the University of Ottawa recently demonstrated the therapeutic potential of the X-linked inhibitor of apoptosis protein (XIAP) in disease models where various tissues were protected from degeneration and death as assessed by morphological, biochemical and functional criteria. Our own data using adeno-viral overexpression of XIAP in ß-cells suggest that XIAP not only protects ß-cells from immune-mediated cell death *in vitro* but also prolongs survival of islet allografts in diabetic mice *in vivo*. We hope to determine the mechanism by which overexpression of the anti-apoptotic gene (XIAP) in islets prior to transplantation provides long-term protection of islet allograft in diabetic mice. We also wish to pinpoint the mechanism by which XIAP expessed in islets prior to transplantation might delay or prevent failure of syngeneic islet transplants in autoimmune diabetic recipients. These experiments will improve our understanding of mechanisms underlying ß-cell survival and death in islet transplantation. Our work elucidating XIAPs great potential to inhibit ß-cell apoptosis of transplanted islets represents a promising and novel therapeutic mean to enhance graft survival in islet transplantation and will be greatly supported by the 2002 EASD/Eli Lilly Research Fellowship in Diabetes and Metabolism. I am grateful to the EASD and Eli Lilly for this honor.

2002 EASD/Eli Lilly Research Fellowship in Diabetes Microvascular Complications

Elena Beltramo, B.Sc., Ph. D., Department of Internal Medicine, University of Turin, Italy

Curriculum vitae and current research project

Elena Beltramo was born in Italy in 1968. From 1986 to 1991, she carried out undergraduate studies in biology and she took her degree with a thesis on the modifications of the neuroregulation of growth hormone in ageing.

In 1991, she entered the field of diabetes research, first as a graduate student, with a grant from the Piedmont Region for a project on the vascular complications, and then, from 1992 to 1996, as a Ph.D. student at the Department of Internal Medicine of the University of Turin, carrying out experimental studies on the metabolic basis of microvascular complications of diabetes. In 1991, Dr. Beltramo trained in London in the Diabetic Retinopathy Unit, Royal Postgraduate Medical School, Hammersmith Hospital, to learn new techniques about cell cultures and metabolic studies. In 1993, she trained in molecular biology in the Lab of Cytogenetics of the Department of Internal Medicine in Turin. In 1996, Dr. Beltramo obtained her Ph.D. in *Endocrine and Metabolic Sciences*, discussing a thesis entitled: "In vitro *experimental models to study the etiopathogenesis of the vascular complications of diabetes: the role of glucose*."

From 1996-1999, Dr. Beltramo worked at the Department of Veterinary Morphophysiology, training in electron microscopy and microphotography. In 1999, Dr. Beltramo returned to the Department of Internal Medicine, where she is currently employed as a scien-

tist in the Laboratory of Diabetic Retinopathy, directed by Prof. M. Porta. She carries out research in the field of the microvascular complications of diabetes, with particular interest in the role of glucose in the damage of vascular cells (endothelium and pericytes).

Dr. Beltramo has to date authored or co-authored 14 original papers and book chapters and has presented some 20 communications at Italian and international meetings. She has been the recipient of awards from the Italian Society of Diabetology (SID) and travel grants from EASD and EASDEC (Study Group on Eye Complications). She has two beautiful children, Massimiliano, 5, and Francesca, 3.

Dr. Beltramo's main scientific area is the study of the mechanisms responsible for the development of diabetic microvascular disease, in particular diabetic retinopathy. Beginning from the evidence that high glucose concentrations impair replication of vascular cells (endothelium and pericytes), in 1991 she studied the role of L-tyrosine in correcting this damage. She then carried out in London a study on the effects of human blood derivatives and growth factors (bFGF, aFGF, IGF-1, insulin, endothelin-1, PDGF, TGF-β, heparin, GH, NGF) on microvascular cell replication.

Back in Turin, Dr. Beltramo verified that the glycolytic flux is increased in the presence of high glucose concentrations, measuring both lactate production and hexokinase activity. Increased glycolysis leads to intracitoplasmic accumulation of phosphorylated metabolites very active in non-enzymatic binding of the NH_2-ε-terminal lysine groups of proteins and, in particular, glyceraldehyde-3-phosphate, which is orders of magnitude more active than glucose itself in glycating proteins. Endothelial cell proteins appeared to be glycated to a greater extent if cells were kept in the presence of high glucose concentrations. Thiamine (vitamin B1) prevented AGE formation, possibly by shifting excess glyceraldheyde-3-phosphate towards the pentose phosphate cycle and excess pyruvate towards the Krebs cycle.

In collaboration with another Turin group, she studied the effects of dehydroepiandrosterone (DHEA) on pericytes. DHEA is a hormone shown to possess beneficial effects on cancer, atherosclerosis, autoimmune diseases and also able to reduce insulin-resistance in Type 2 diabetes. DHEA was found to protect pericytes from high glucose damage, possibly through its antioxidant properties.

After a 3-year interval, during which she trained in electron microscopy, she returned in 1999 to diabetes research and began to study the interactions between extracellular matrix and pericytes, aiming at checking whether and how these interactions are influenced by the high ambient glucose in which endothelial cells are cultured and if inhibitors of non-enzymatic glycation, such as thiamine and aminoguanidine are able to correct this defect.

2002 EASD/GlaxoSmithKline Burden of Diabetes Research Fellowship

Dr Rachel Povey, Centre for Health Psychology, Staffordshire University, Stoke-on-Trent, UK

Current Research

I have two main areas of research. These are the examination of predictors of health-related dietary change, and the psychological implications of diabetes.

Predictors of Health-Related Dietary Change

I am interested in the influences on, and determinants of motivation to follow a healthy diet. My interest in this area stems from my PhD thesis which examined people's perceptions of the concept of 'healthy eating', and applied the Theory of Planned Behaviour and the Transtheoretical Model of Change to health-related dietary change. Recent work has included an examination of attitudinal ambivalence among people with vegetarian, meat and vegan diets; an investigation of the influence of breakfast consumption on mood of vegetarians, vegans and meat eaters; and the development of attitude-based interventions to promote health-related dietary change.

Psychological Implications of Diabetes

I have previously been involved in a project at the Central Manchester Healthcare Trust to investigate the

psychological implications of diabetes among adults. Since working at Staffordshire University I have developed and conducted a further study with South Staffordshire Health Authority, to examine the impact of diabetes on children and their parents. This involved carrying out interviews with children (aged 7-18) registered at Queen's Hospital, Burton upon Trent to examine the implications of diabetes from a child's perspective. In addition, a questionnaire-based examination of the parents' perspectives of living with a child with diabetes was conducted. Finally, I am a member of the National Framework Empowerment Group for Diabetes, and have been involved with the initial preparation of the material for the National Service Framework.

Summary of Proposed Research Project

Although dietary self-care is generally considered an integral component of diabetes management, adherence to dietary self-care activities is still largely perceived by patients as one of the major burdens of diabetes. The project will consist of three studies with the ultimate aim of producing a resource for nurses working in the primary care sector. The first study will consist of a comprehensive survey of 100 people with type 2 diabetes aged 18–75 to examine the extent to which different psychosocial variables (e.g. attitudes, self-efficacy), influence their engagement in dietary self-care activities. A theoretical model based on the components of the Theory of Planned Behaviour will be employed to examine the relative contribution of intentions, perceived behavioural control and self-efficacy on behaviour. In addition, the extent to which attitudes, subjective norm, perceived behavioural control, self-efficacy and psychosocial adjustment influence intentions will be examined. The different psychosocial variables that discriminate between people who engage in dietary self-care activities and those who don't will be identified, and used to inform the resource for practice nurses. The second study will consist of two focus groups with 12 practice nurses to examine the attitude problems that they encounter with people with diabetes, and attitude change techniques that they already use. The final study will involve a process evaluation of the development of a resource for practice nurses to assist them in increasing uptake of dietary self-care behaviours among their patients.

EASD – ADA Fellowships

The European Association for the Study of Diabetes and the American Diabetes Association are pleased to announce the availability of research fellowships designed to bring European and American scientists into closer collaboration, fostering a synergy of efforts to improve the lives of people with diabetes around the world.

These fellowships, which are supported by an education grant from Eli Lilly and Company, are designed to encourage research into basic or clinical questions related to diabetes or its complications. Applications will be judged on the strength of the applicant's previous and current work, the feasibility and importance of the research plan, and the research environment in which the applicant will work. All fellows will be encouraged to present their work at the appropriate EASD or ADA Annual Meeting.

Two fellowships are available each year: one to support an investigator from Europe to study in the US, and one for a US fellow to study in Europe. An award of US $50,000 will be made to the host institution. The award amount should cover one year's salary of the awardee, and the remaining amount may be used for travel costs and for laboratory equipment or supplies. It is expected that eligible fellows will have completed their advanced degree (MD, PhD, or equivalent) within the previous 7 years. Complete application forms can be found on the Associations' web sites: **www.easd.org** and **www.diabetes.org.**

Purpose:
EASD-ADA Fellowships are designed to encourage research into basic or clinical questions related to diabetes or its complications and to foster closer links between the research communities in Europe and the United States.

Support:
The award will be made for the stipend support of a postdoctoral fellow in a given year, as well as laboratory supplies and travel costs. Two fellowships are available each year: one for a fellow from Europe studying in the US, and one for a US fellow studying in Europe. Awards of US$50,000 will be made to the host institution. Of the award amount, US$35,000 can be allotted for the salary support of the fellow, US$5,000 for travel costs, and US$10,000 for laboratory equipment or supplies.

Eligibility Requirements:
It is expected that eligible fellows will have completed their advanced degree (MD, PhD, or equivalent) within the previous 7 years. The fellow cannot be serving an internship or residency during the fellowship period. The fellow must devote at least 80% of time and effort to diabetes research during the fellowship. Applications will be judged on the strength of the applicant's previous work, the feasibility and importance of the research plan, and a demonstrated commitment to the field of diabetes research. At the conclusion of the fellowship, fellows will be encouraged to present their work at the EASD or ADA Annual Meetings.

An eligible candidate from Europe must be an EASD member and a citizen or permanent resident of a European country. An eligible candidate from the United States must be an ADA member and a US citizen or permanent resident. Eligible institutions in Europe or the United States must be recognized nonprofit research institutions. Fellows will be offered complementary membership in their host Association (EASD or ADA) during the period of their fellowship.

Terms:
An award year commences on 1 July and ends on 30 June. Funds will be paid to the institution in US dollars in quarterly payments beginning 1 July. A progress report is required by 30 March following the award period.

Acknowledgement of support from the EASD and the ADA must be made when findings resulting from the fellowship are published or presented. The fellow must agree to inform the ADA and the EASD of his or her professional status, research support, and all publications for a period of five years following completion of the fellowship.

Review Criteria:
Particular attention will be given to:

- The quality and activity of the applicant's current research.
- The novelty, feasibility, and importance of the applicant's research plan.
- The research environment in which the applicant will work.

Submission:
Application must be made on the forms provided. Twelve copies of the application form plus the original must be submitted. Applications should be sent to the EASD or ADA office in the applicant's home region on or before 1 February. Successful applicants will be notified of the award by 11 April. The applicant may send an email to the appropriate office requesting a confirmation of the receipt of the application.

Applications from EASD members should be sent to:

EASD Secretariat
Rheindorfer Weg 3
D-40591 Düsseldorf
Germany
www.easd.org

Applications from the USA should be sent to:

American Diabetes Association
1701 North Beauregard Street
Alexandria, Virgina 22311
USA
Tel +1-703-5491500
Fax +1-703-5491715
www.diabetes.org/research
research@diabetes.org

Deadline for applications is 1 February 2003.

Successful applicants will be notified of the award by 1 April. Funding begins on 1 July 2003 and ends on 30 June 2004.

Short summaries of the awardees of

1. ADA-EASD Transatlantic Fellowship

Anna-Marie Demetriades
The Wilmer Eye Institute, Baltimore, USA

Diabetic retinopathy is a major cause of blindness and visual morbidity. Vision loss occurs primarily due to two processes: (1) retinal neovascularization that results in bleeding and scar tissue that detaches the retina, and (2) vascular leakage resulting in macular edema. Retinal laser photocoagulation is a common treatment; however, progression to blindness remains a significant problem. One therapeutic strategy involves the use of angiogenesis inhibitors. Endogenous angiogenesis inhibitors include pigment epithelium-derived factor (PEDF) and the soluble extracellular portion of the vascular endothelial growth factor receptor (sFlt). Gene therapy involving these inhibitors provides a potential strategy for the treatment of ocular neovascularization by producing local and sustained release of a chosen inhibitor.

Preclinical studies have demonstrated that an intraocular injection of adenovirus-mediated PEDF (AdPEDF) is highly effective in preventing neovascularization. The aim of our study is to determine the efficacy of periocular gene transfer via subconjunctival injection. Periocular gene transfer is a novel, less invasive strategy that has the additional advantage of reducing intraocular viral concentration and its associated side effects, as well as allowing administration of a larger injectate volume. Our preliminary studies have demonstrated that periocular administration of AdPEDF and adenovirus-mediated sFlt (AdsFlt) is effective in preventing laser-induced choroidal neovascularization in a murine model. We propose to use this strategy in animal models of diabetic retinopathy. These studies could lead to potential treatments for ocular neovascularization.

Sarah Bates
Joslin Diabetes Centre, Boston, USA

Obesity predisposes to insulin resistance and beta cell failure and is thus a major risk factor for the development of Type 2 diabetes as well as for complications in all types of diabetes. The discovery of the hormone leptin and its receptor (LRb) has provided insight into the control of body energy homeostasis. Leptin is secreted by adipocytes in response to positive energy balance and stimulates LRb in the hypothalamus and other tissues to suppress feeding and regulate neuroendocrine function. Leptin controls glucose homeostasis directly via actions on pancreatic function and insulin sensitivity as well as indirectly via changes in body adiposity. Tyr^{1138} on LRb mediates activation of the transcription factor STAT3 during leptin action. In order to understand the molecular mechanisms by which leptin controls glucose homeostasis, we have produced a mouse model in which the LRb contains a mutation at Tyr^{1138} that disrupts the LRb-STAT3 signal but in which all other LRb signals are mediated normally. Interestingly, we found that obesity and frank hyperglycaemia are dissociated in this mouse thus providing us with a unique opportunity to investigate adiposity-independent control of glucose homeostasis by leptin. We are currently investigating this mouse model to further increase our understanding of how energy and glucose are regulated. Therefore, we are examining the mechanism of leptin action on glucose homeostasis (insulin resistance and/or beta cell failure) in homozygous mutant s1138 mice (s/s) and db/db mice, and we will investigate the reversibility of these defects in glycaemic control. The results of this study will increase our knowledge of glucose and energy homeostasis and the role of leptin signaling in these mechanisms, furthermore they may point us in the direction of new therapeutic targets.

2. EASD-ADA Transatlantic Fellowship

Alexander Graham Roberts
King's College School of Medicine, London, UK

Matthias Bernd Schulze
German Institute of Human Nutrition, Bergholz-Rehbruecke, Germany

IA-2 and IA-2beta are tyrosine phosphatase-like protein localised to secretory granules of islets of Langerhans and neuroendocrine tissues, that associate with cytoskeletal components and have been highly conserved during evolution. These properties suggest a role for the proteins in mediating interactions of secretory granules with the cytoskeleton. Each of the molecules is targeted by antibodies during the onset of Type 1 diabetes mellitus.

The aim of my recent work has been to investigate possible post-translational modifications of IA-2 / IA-2beta and their relationship to neuroendocrine function. In particular, my studies have concentrated on insulin secretion. I have detected IA-2 as multiple molecular weight variants and gathered evidence of proteolytic cleavage of IA-2 to lower M_r forms. Calpains are calcium-regulated proteases proposed to play a role in regulation of insulin secretion and I have demonstrated that IA-2 processing is mediated by calpain-like enzymes.

Molecular and cell biological studies performed so far on IA-2 / IA-2beta have yet to address the question of the function of the molecules within the cell. Our objective now is to gain insight into the molecular mechanisms by which the molecules signal within the cell. We hypothesize that there are important changes in the ability of IA-2 / IA-2beta to self-associate that may be related to these modifications. We hypothesis that such changes may be important determinants of ability to transduce a signal to the cytoplasm. I plan future work to be directed towards the function of IA-2 and IA-2beta in regulation of secretion of insulin and other peptide / polypeptide hormones.

My scientific work is performed in parallel with clinical diabetes and endocrinology.

My research mainly focuses on dietary pattern analysis. This approach has recently received growing attention in nutritional epidemiology, since it might be more appropriate in studies of diet-disease associations than the single food or nutrient approach that has dominated past epidemiologic research. However, methodological issues of pattern analysis are still unsolved and studies implementing this approach are scarce. My research focuses on the one hand on patterning methods. Here research on patterns ability to explain food and nutrient intake has been undertaken (Schulze et al. *Br J Nutr* 2001;85:363-373) as well as were more sophisticated methods of pattern analysis discussed with the scientific community (Hoffmann et al. *Public Health Nutr* 2002;5:89-90). Most recent efforts focus on pattern analysis in the context of the multi-center EPIC-Study and on the reproducibility of findings. Besides methodological issues, I am currently investigating patterns relation to incident diabetes and hypertension in the EPIC-Potsdam study.

Other fields of my research relate to food and nutrient intake in the German EPIC-cohorts (Schulze et al. *Ann Nutr Metab* 1999;43:235-45, Schulze et al. *Ann Nutr Metab* 2001;45:181-189) as well as on methodological issues of blood pressure measurements in large scale epidemiological studies, with particular emphasis on the multi-center EPIC-Study (Schulze et al. *Eur J Epidemiol* 2000;16:891-898, Schulze et al. *Blood Press Monit* 2002;7:95-104).

European Foundation for the Study of Diabetes
The Research Foundation of the European Association for the Study of Diabetes

2002 Albert Renold Career Development Award of the European Foundation for the Study of Diabetes

Sebastian Barg, Ph.D., Institute for Physiological Sciences, Lund University, Sweden

Dr Sebastian Barg was born in Germany in 1969. He studied Chemistry and Biochemistry at the Freie Universitet Berlin and graduated in 1995 with an undergraduate thesis on the function of calcium release channels, prepared in the laboratory of Dr Sidney Fleischer at Vanderbilt University (Nashville, TN). He then started research in islet physiology when joining the group of Dr Patrik Rorsman in 1996, and obtained his Ph.D. from Lund University in 2001. Dr Barg currently holds an assistant professorship at the Medical Faculty in Lund and is now moving to the Vollum Institute (Portland, OR), where he will work with Dr Wolfhard Almers to use novel imaging methods for the study of exocytosis and insulin-release on the level of individual secretory granules.

In his work, Dr Barg has combined state-of-the-art electrophysiology and fluorescence microscopy techniques to study cellular mechanisms of hormone-release from islet cells. In pancreatic B-cells, metabolic stimuli regulate biochemical and electrical processes that culminate in Ca^{2+}-influx and release of insulin. Like in other endocrine cells and neurons, Ca^{2+}-influx triggers the rapid exocytosis of hormone-containing secretory granules. These granules undergo a series of poorly understood steps to achieve their goal: recruitment/docking at the release sites, exocytotic fusion, contents release, and membrane recycling by endocytosis. Importantly, at any time, only a small fraction of the cells' mature granules (<1%) can be released immediately upon stimulation, while the remainder still has to be "primed". Such functional organization may account for systemic features such as the biphasic time course of glucose-stimulated insulin secretion[1]. Since this release pattern is altered in type-2 diabetes mellitus, it is conceivable that disturbances in the exocytosis machinery underlie or aggravate the disease.

L-type Ca^{2+}-channels are part of the exocytotic machinery

Exocytosis of insulin-containing granules is triggered by influx of Ca^{2+} through voltage-gated L-type Ca^{2+}-channels. Interestingly, B-cell exocytosis requires high Ca^{2+}-concentrations (EC_{50} ~ 20μM), yet Ca^{2+} rarely exceeds 2 μM in the bulk of the cytosol[2]. Apparently, steep spatial gradients exist, with the highest Ca^{2+}-concentrations expected near open Ca^{2+}-channels. However, the number of functional Ca^{2+}-channels is very low in B-cells (<500) compared with other endocrine cells. Dr Barg and colleagues have demonstrated that B-cells are nevertheless capable of high-speed exocytosis, because the few Ca^{2+}-channels are efficiently coupled to the exocytotic machinery via interaction of the channel with core proteins of the exocytotic machinery[2,3]. Interfering with this interaction inhibits the initial burst of exocytosis, presumably by causing the Ca^{2+}-channels to drift away from the site of exocytosis. What is the advantage of such functional coupling? In synaptic terminals, coupling between N-type Ca^{2+}-channels and the exocytotic machinery is required for the enormous speed of neurotransmission. For the B-cell speed should not be an issue, but rather keeping the influx of Ca^{2+} to a minimum. This is because the ATP-dependent removal of excessive amounts of Ca^{2+} would likely interfere with the B-cells' glucose sensing mechanism.

Granular Cl^--fluxes are required during priming for exocytosis

The principal effect of antidiabetic sulfonylureas is to stimulate insulin secretion from pancreatic B-cells by inhibiting ATP-sensitive K^+-channels (K_{ATP}-channel) in the plasma membrane. These channels normally sense the metabolic state in that they close in response to a decreased cytosolic ATP/ADP ratio. In

addition, sulfonylureas also potentiate insulin secretion by a direct effect on the exocytotic machinery[4]. Dr Barg and colleages have shown that this stimulation is at the priming stage of the insulin-containing granule and mediated by a granular sulfonylurea-binding protein of 65-kDa[5]. This protein controls a granular ClC-3 Cl^--channel, which in turn allows efficient acidification of the granule lumen by providing a shunt conductance for proton pumping by a V-type H^+-ATPase[6]. This suggests that the granule acidification is part of the ATP-dependent priming of granules for exocytosis. Consequently, blocking either the Cl^--conductance or proton pump selectively abolishes the slow second phase of exocytosis, while directly interfering with the granular proton gradient blocks all exocytosis[6]. Interestingly, the proposed granular Cl^--channel complex appears to have a pharmacological profile similar but reversed, to that of the B-cell K_{ATP}-channel and may thus represent an exciting new target for the development of novel antidiabetic compounds.

Release of insulin from the granule is a slow process

The recent advent of genetically encoded fluorescent markers (e.g. green fluorescent protein, GFP) made it possible to study living cells with unparalleled specificity and resolution. For example, GFP can be targeted to secretory granules as a soluble protein that is released during exocytosis. This single release event can then be detected as sudden loss of the granular fluorescence by various flavors of fluorescence microscopy. Dr Barg has for the first time combined real-time confocal microscopy of single GFP-labelled granules with simultaneous patch-clamp capacitance recordings, which allowed him to correlate ”whole cell” exocytosis with the dynamics of individual granules undergoing exocytosis[7]. He could then demonstrate that depletion of the readily releasable pool (RRP) of insulin granules correlates with exocytosis of only 10-20% of the docked vesicles. Importantly, the remaining docked vesicles become releasable during recovery of RRP, suggesting that modification of the granules is required after docking in preparation for exocytosis. Surprisingly, fusion of the granule with the plasma membrane initially permits only the release of protons and small compounds from the granule lumen, while release of the peptide-cargo is delayed for several seconds[7]. This suggests that insulin release via the initial fusion pore is negligible and only proceeds after complete fusion of the granule with the plasma membrane. These findings have two important implications: 1) insulin secretion may be regulated even after exocytosis, by the time course of vesicle emptying; and 2) it is conceivable that under certain conditions the fusion pore opens only transiently (”kiss-and-run”). This would result in release of only small compounds such as nucleotides or glutamate, while the granule and its insulin core would remain intact, ready for another round of exocytosis.

1. Rorsman et al., Trends Physiol Sci 15:72–77, 2000 (2) Barg et al., *Biophys J*, 81:3308–3323, 2001; (3) Wiser et al., *PNAS,* 96:248–253, 1999; (4) Eliasson et al., *Science*, 271:813–815, 1995; (5) Barg et al., *PNAS*, 96:5539–5544, 1999; (6) Barg et al., *J Cell Sci*, 114:2145–2154, 2001; (7) Barg et al., *Neuron*, 33:287–299, 2002

International Diabetes Federation

PARIS 2003
FÉDÉRATION INTERNATIONALE DU DIABÈTE

A - F - D

OFFICIAL ANNOUNCEMENT

18th International Diabetes Federation Congress
Paris, France
24 – 29 August 2003

1. INTRODUCTION AND GENERAL INFORMATION

On behalf of the Association Française des Diabétiques, we are pleased to invite you to the 18th International Diabetes Federation Congress which will be held at Le Palais des Congrès de Paris, Hôtel Concorde La Fayette Paris and Le Meridien Etoile Hotel.

The Plenary Lectures, Symposia, Satellite Symposia, Workshops and Round Tables will be held at Le Palais des Congrès de Paris, Hôtel Concorde La Fayette Paris and Le Meridien Etoile Hotel, and Le Palais des Congrès will host the exhibition, Oral and Poster Sessions, Poster Presentations and poster display.

The Congress will start with the Opening Ceremony and Welcome Reception on Sunday 24 August 2003 from 17:00 – 19:00 in Le Palais des Congrès.

The meeting will end on Friday 29 August 2003 at 16:00 with the Closing Lecture and Reception.

We are sure that the unique combination of programmes, incorporating the topics of

a) 'Basic Research / Clinical Research and Care'
b) 'Education'
c) 'Healthcare Organisation'
d) 'Life with Diabetes'
e) 'Professions Allied to Medicine'

allied with the unforgettable ambience of Paris, will provide an unforgettable experience for all participants.

We look forward to welcoming you to Paris in August 2003.

2. PROGRAMME

Original communications, to last no longer than 10 minutes, are invited on any subject relevant to the understanding of diabetes mellitus. Further instructions are given in paragraph 4 and under www.idfparis2003.org

The closing date for Abstracts is 17 February 2003. Investigations performed in human subjects must have been carried out in accordance with the principles of the Declaration of Helsinki. Attention is drawn to the Editorial on the Ethics of Human Investigation published in DIABETOLOGIA, Vol. 15, 6, 1978.

Communications must be delivered in English. There is no simultaneous translation.

The Programme will **include** Plenary Lectures, Symposia, Satellite Symposia, Oral and Poster Presentations, Poster display, Workshops and Round Tables sessions.

When the IDF Congress is held in Europe the EASD does not organise its own annual scientific meeting. The 18th IDF Congress is organised in co-operation with the EASD. The EASD Lectures, namely the 35th Claude Bernard Lecture to be delivered by Prof. Michael A. Brownlee, the 38th Minkowski Lecture, the 18th Camillo Golgi Lecture as well as the EASD General Assembly will take place in Paris in conjunction with the IDF Congress.

It is not permitted to take photographs and/or film during any of the sessions.

3. RECEIPT OF ABSTRACTS

Authors are encouraged to submit Abstracts online via www.idfparis2003.org and cannot be submitted LATER THAN 17 FEBRUARY 2003. THE DEADLINE WILL BE STRICTLY ENFORCED, as will the regulations given in paragraph 4. Where internet access is not available, please contact the IDF Paris 2003 Abstract Secretariat (+ 49 211 7584690).

4. SUBMISSION OF ABSTRACTS

Authors are not permitted to submit work that they know is likely to be published before 24 August 2003. The Programme Committee has the right to withdraw from the programme an abstract that contains material that has already been published.

The abstract must be submitted as follows:

EACH PRESENTING AUTHOR CAN SUBMIT ONLY ONE ABSTRACT. (Presenting authors may be co-authors of other abstracts). It is mandatory that the presenting author of any abstract accepted for presentation attends IDF Paris 2003 to present his/her paper.

Abstracts are welcome from non-members of IDF.

The abstract must be submitted in English. Once it has been received CHANGES IN THE CONTENT OF THE SUBMITTED ABSTRACT WILL NOT BE ACCEPTED AFTER FEBRUARY 17, 2002.

These instructions for the submission of abstracts must be strictly followed. If an abstract is unsuitable for reproduction, it will be disqualified. Detailed abstract submission instructions can be found under **www.idfparis2003.org**

Please follow the instructions on the website. Special emphasis should be drawn to the following points:

1) The title, in **bold** letters, should be short (maximum 2 lines).
2) **Every author must be entered into the system individually**.
3) The abstract must be structured. Begin each section with a new paragraph and with the words **Background and Aims:, Materials and Methods:, Results:** and **Conclusions:** in **bold** characters. One or two sentences should describe the **methods**, and any aspects of methodology (e.g. use of control groups, randomisation, patient selection, assay variation). The sentences stating the **results** must include hard data, including statistical analysis.
4) References should not be included.
5) Abbreviations may not be used in the title. A list of approved abbreviations and units of expression for use without definition appeared in DIABETOLOGIA, Vol. 45, 1, 2002.
6) It is only possible to select one keyword.
7) You may enter tables, but no graphs.
8) A signed copy of the abstract **must** be faxed to the **IDF Paris 2003 Abstract Secretariat Fax: +49 211 758 46929, deadline: 17 February 2002. In case of questions, please call: +49 211 7584690.**

5. ABSTRACT TOPICS

All abstracts submitted on the topics **a) Basic Research / Clinical Research and Care, b) Healthcare Organisation, c) Education and d) Professions Allied to Medicine** will be **reviewed anonymously**. The Selection Committee Members will meet in the last week of April 2003 and have the absolute right to accept or reject abstracts. Abstracts accepted for oral or poster discussion will be published in DIABETOLOGIA, abstracts accepted as poster format will be published in DIABETES & METABOLISM. The first author will receive confirmation of submission by e-mail and after the Selection Committee Meeting the information on acceptance / non-acceptance.

Authors should select one keyword in association with their abstract. The keyword indicated will be utilised for the reviewing process.

Keyword topics are as follows:

a) Basic Research / Clinical Research & Care

GROUP 1: Genetics / Epidemiology
01 Epidemiology
02 Genetics of Type 1 diabetes
03 Prediction and prevention of Type 1 diabetes
04 Genetics of Type 2 diabetes
05 Prediction and prevention of Type 2 diabetes and other forms of diabetes
06 Genetics / Epidemiology: Other

GROUP 2: Islets
07 Islets
08 Insulin synthesis
09 Insulin secretion
10 B-cell signal transduction
11 Islet degeneration and damage
12 Experimental immunology
13 Clinical immunology
14 IAPP / Amylin
15 Islet Transplantation

GROUP 3: Pathophysiology/Metabolism
16 Insulin action
17 Insulin sensitivity and resistance
18 Hormone receptors
19 Gastro-entero pancreatic factors
20 Other hormones, action
21 Glucose transport
22 Carbohydrate metabolism
23 Protein metabolism
24 Lipid metabolism
25 Weight regulation and obesity
26 Pathophysiology / Metabolism: Other

GROUP 4: Clinical Science and Care
27 Clinical diabetes
28 Nutrition and diet
29 Insulin therapy
30 Oral pharmacological agents
31 Hypoglycaemia
32 Devices
33 Pancreas transplantation
34 Exercise
35 Diabetes in childhood
36 Pregnancy
37 Clinical science and care: Other

GROUP 5: Complications
38 Neuropathy-somatic
39 Neuropathy-autonomic, incl. erectile dysfunction
40 Diabetic foot
41 Retinopathy

42 Nephropathy
43 Hypertension
44 Lipids, lipoproteins
45 Cardiac complications
46 Macrovascular disease
47 Microvascular disease
48 Glycation, AGE
49 Endothelium
50 Pathogenic mechanisms
51 Complications: Other

b) Healthcare Organisation

Implementing preventative strategies
Organisation of care and education
Diabetes in primary care
Healthcare costs
Patients outcomes
Process of care and monitoring
Access issues in developing countries
Health Care Organisation: Other

c) Education

Education
Behaviour
Self management
Psycho-social
Quality of life
Teaching the teachers

d) Professions Allied to Medicine

Insulin injection
Self blood glucose monitoring
Child diabetes
Obesity prevention
Malnutrition
Belief and representation about food
Prevention of food disease
Wounds
Dressings
Material devices
Professions Allied to Medicine: Other

e) Life With Diabetes

Abstracts submitted on the topic **e) Life with Diabetes** will **not be reviewed anonymously**. Abstracts will be displayed in poster format and will be published in DIABETES & METABOLISM.

Public awareness
Association
Life with diabetes
Fund-raising
Life with Diabetes: Other

6. SELECTION COMMITTEES

The Selection Committees' Members will meet in the last week of April 2003 and have the absolute right to accept or reject abstracts. Their decision is final. All accepted abstracts will be printed. Abstracts which are chosen for oral presentation or discussion will be published in Diabetologia, whilst abstracts presented in poster format only will be published in Diabetes & Metabolism. Presenting authors will be advised of the Programme Committee's decision from 13 May 2003.

7. POSTER PRESENTATIONS

Posters are displayed in rotation throughout the event. The posters are accessible for study at any time during Meeting hours. Dedicated Poster Presentation Sessions will take place during lunch breaks, when no other sessions will take place. Detailed instructions will be sent to the presenting author on notification of acceptance.

8. VOLUME OF ABSTRACTS

For the Basic Research / Clinical Research and Care, Education, Healthcare Organisation and Professions Allied to Medicine tracks, abstracts accepted for oral presentation or poster discussion will be published in DIABETOLOGIA. Abstracts chosen to be presented in poster format only will be published in DIABETES & METABOLISM.

For the Life with Diabetes track, abstracts will be displayed in poster format and published in DIABETES & METABOLISM.

Both Volumes of Abstracts will be available on www.idfparis2003.org and upon registration at IDF Paris 2003.

9. SATELLITE SYMPOSIA

SATELLITE SYMPOSIA held on the occasion of the 18th International Diabetes Federation Congress will be announced in the IDF Paris 2003 Preliminary Programme, on www.idfparis2003.org and by means of an ad hoc specific programme available upon registration at IDF Paris 2003.

Satellite Symposia will be hosted before and after the dates of the Congress and also during the Congress, outside of scheduled meeting hours.

For further information on hosting or attending Satellite Symposia, please contact:

Mrs. Sharon Holmes
IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

T: +44 (0)1273 647031
F: +44 (0)1273 684173
E: sharon@congressworld.co.uk

10. CREDIT POINTS

An application for CME accreditation has been made. Details of the accreditation status may be found on www.idfparis2003.org. Certificates of Attendance will be provided by the Congress Secretariat on-site.

11. GRANTS

A limited number of grants for associations' representatives, including travel, registration to the congress, accommodation and/or a 9m^2 stand in the Association Village are available.

These grants are reserved for those who are in difficulty or who are unable to find a sponsor to participate in the Congress. The selection criteria for the beneficiaries will primarily take into account:

- The status of the person (person living with diabetes, volunteers advocating for the association, nurses…)
- The daily activities and ongoing projects of the association
- The achievements of the association in favour of people living with diabetes

The application form for such a grant, as well as all information concerning associations, is available via www.idfparis2003.org

Applications for these grants should be addressed to the IDF Paris 2003 General Secretariat.

IDF Paris 2003 General Secretariat
c/o Association Française des Diabétiques
58, rue Alexandre Dumas
F-75011 Paris
France

T: +33 (0)1 40 09 68 05
F: +33 (0)1 40 09 20 30
E: afdinternational@noos.fr

All applicants will be informed of the result of their application in March 2003.

12. PASSPORTS AND VISAS

A valid passport is required for entry into France. Participants requiring a visa are strongly advised to apply in their home country at least 3 months before the intended date of travel. Please consult the French Embassy or Consulate nearest to you for specific details relating to Visas. Please visit www.france.diplomatie.fr for further details.

13. OFFICIAL INVITATIONS

Official letters of invitation to IDF Paris 2003, designed to help overcome administrative difficulties in certain countries, will be sent by the Congress Secretariat on request. Please note that this procedure aims to assist delegates who need to obtain a visa or permission to attend the Congress and is not an official invitation covering fees and any other expenses. It does not imply any financial support from IDF Paris 2003. Requests should be addressed to:

Ms. Mary Morrison
IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd.
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

F: +44 (0)1273 570632
E: registrations@congressworld.co.uk

14. REGISTRATION

- **IDF INDIVIDUAL MEMBERS**
- **INDIVIDUAL NON-IDF MEMBERS**
- **ACCOMPANYING PERSONS**

Individuals are encouraged to register via the On-line Registration Form at www.idfparis2003.org.

Registration may also be made by mail or fax by completing a Registration Form. Registration Forms may be requested from and returned, completed with the appropriate fee, to:

IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd.
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

T: +44 (0)1273 647030
F: +44 (0)1273 570632
E: registrations@congressworld.co.uk

- **LAY MEMBERS**

A Lay Member is defined as a member of a diabetes association who is a non-health professional.

Registration may be applied for by mail or fax only by completion of a Registration Form. All applicants must submit photocopied proof of their status together with the appropriate registration fee when submitting the Registration Form. IDF Paris 2003 reserves the right to determine valid documentation. Its decision is final and further correspondence will not be entered into.

A limited number of grants is available to assist the participation of association representatives at IDF Paris 2003. Associations wishing to apply for a grant for a representative should contact the General Secretariat:

c/o Association Française des Diabétiques
58, rue Alexandre Dumas
F-75544 Paris Cedex 11
France

- **PROFESSIONS ALLIED TO MEDICINE**
- **STUDENTS**

Registration may be applied for by mail or fax only by completing the Registration Form. All applicants must submit photocopied proof of their status together with the appropriate registration fee when submitting the Registration Form. IDF Paris 2003 reserves the right to determine valid documentation. Its decision is final and further correspondence will not be entered into.

- **MEMBERS OF THE PRESS**
- **EXHIBITORS**

Special reservation procedures apply for Exhibitors and members of the Press. For further details please contact:

IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

Tel: +44 (0)1273 647031
Fax: +44 (0)1273 684173
Email: idfparis2003@congressworld.co.uk

- **ABSTRACT AUTHORS**

Authors are advised to register for IDF Paris 2003 when submitting their Abstract, and thus take advantage of the 'Early Registration' rate. Should the submitted abstract not be accepted, the author will be entitled to a full refund of the registration fee.

On receipt of a completed Registration Form, the correct fee and any supporting documentation required, the Congress Secretariat will provide each participant with confirmation of registration.

Participants must bring the confirmation to the Registration Desk on-site as proof of their registration.

Registration documentation and name badges may be collected from Le Palais des Congrès during the following opening hours:

Saturday 23 August 2003	09:00 – 20:00
Sunday 24 August 2003	09:00 – 20:00
Monday 25 August 2003	07:00 – 17:30
Tuesday 26 August 2003	08:00 – 17:30
Wednesday 27 August 2003	CLOSED
Thursday 28 August 2003	08:00 – 12:00
Friday 29 August 2003	08:00 – 10:00

Participants' registration fees include:

1. Admission to Lectures, Symposia, Workshops, Poster Sessions, Satellite Symposia and Exhibition areas
   - For legal reasons, Lay Members may have restricted access to certain areas. For further details, please visit www.idfparis2003.org
2. Congress bag, containing the Final Programme, the Abstract Books and a voucher for the Abstracts on CD-ROM
3. "Paris Highlights" guide
4. Invitation to Opening Ceremony and Welcome Reception
5. Invitation to Closing Ceremony

Accompanying persons' registration includes items 4 and 5 of the above, plus a complimentary tour of Paris.

15. GROUP RESERVATIONS

A discounted rate will be offered to Industry Groups registering prior to 31 December 2002. Special reservation procedures apply for Industry Groups. For further details please contact:

IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

Tel: +44 (0)1273 647030
Fax: +44 (0)1273 570632
Email: registrations@congressworld.co.uk

16. REGISTRATION FEES (in EURO)

Substantial reductions are offered by registering for IDF Paris 2003 in advance at the early or pre-registration rate.

DEADLINES

15 April 2003	Early Registration
11 July 2003	Late Registration

After 11 July 2003 you are kindly requested to register on-site.

REGISTRATION CATEGORY	EARLY Until 15 April 2003	LATE Until 11 July 2003	ON-SITE
IDF Individual Member	500 €	630 €	750 €
Non-IDF Member	650 €	700 €	800 €
Lay Member*	50 €	50 €	50 €
Professions Allied to Medicine	150 €	150 €	150 €
Student	250 €	250 €	300 €
Exhibitor	200 €	250 €	300 €
Accompanying Person	180 €	180 €	180 €

Please note all registration fees are inclusive of taxes.
* For legal reasons, restricted access may be applied to lay Members. For further details please contact the Congress Secretariat.

17. PAYMENT OF REGISTRATION FEES

All registration fees must be remitted in Euros from a valid Euro account.

FOR REGISTRATION BY INTERNET & FAX
Payment by credit card only.
VISA, EuroCard / MasterCard and American Express; all other cards will not be accepted.

FOR REGISTRATION BY MAIL
Payment by Credit Card.
VISA, EuroCard / MasterCard and American Express; all other cards will not be accepted.

Payment by Cheque
Payable to IDF Paris 2003
The name and address of the sender must be clearly marked.

18. SOCIAL EVENTS

Included in the Registration fees of participants and accompanying persons:

OPENING CEREMONY
Sunday 24 August 2003 at 17:00
Le Palais des Congrès

All registered delegates and accompanying persons are invited to attend the Opening Ceremony, where the President of IDF Paris 2003 and the Mayor of Paris will address the audience, along with other members of the Executive Board.

WELCOME RECEPTION
Sunday 24 August 2003 at 19:00
Le Palais des Congrès, Levels 1 and 2

All registered participants are invited to attend the Welcome Reception of IDF Paris 2003.

Professor Sir George Alberti will be making the Congress Opening Speech on Monday 25 August at 08:30 in the Grand Amphithéâtre.

CLOSING CEREMONY
Friday 29 August 2003 from
16:00 – 18:00
Le Palais des Congrès

All registered participants are invited to attend the Closing Ceremony of IDF Paris 2003.

19. OPTIONAL SOCIAL EVENTS

GALA EVENING
Thursday 28 August 2003, from 19:00
Musée du Louvre & Le Jardin des Tuileries

Arrangements to be confirmed.

All participants will be eligible to book tickets. Please visit www.idfparis2003.org for further details.

20. INDUSTRY EXHIBITION

A professional exhibition incorporating major companies, institutions and associations working in the field of diabetes will be held at Le Palais des Congrès. For further details please contact:

Ms. Julia Gallagher
IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

Tel: +44 (0)1273 647031
Fax: +44 (0)1273 684173
Email: julia@congressworld.co.uk

21. SPONSORSHIP

The Executive Board of IDF Paris 2003 would like to take this opportunity to thank the Platinum and Gold Sponsors of the Congress, and all other companies who have generously supported IDF Paris 2003.

For Sponsorship Opportunities still available, please contact:

Mrs. Sharon Holmes
IDF Paris 2003 Congress Secretariat
c/o CongressWorld Ltd
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

Tel: +44 (0)1273 647031
Fax: +44 (0)1273 684173
Email: sharon@congressworld.co.uk

22. HOTEL ACCOMMODATION

The Congress Organisers have reserved accommodation in a number of hotels of different categories. Given that more than 10,000 delegates are expected, we kindly ask you to reserve accommodation at your earliest convenience.

HOW TO BOOK
Visit **www.idfparis2003.org** and kindly complete the Hotel / Travel Request Form on-line or download a

copy of the Form and mail together with deposit / payment for your accommodation to:

CongressWorld Ltd
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom

Fax: +44 (0)1273 570632
Email: hotels@congressworld.co.uk

We strongly advise all participants to reserve hotel accommodation as soon as possible.

ACCOMMODATION

Rates are per room, per night and include breakfast and all taxes	**PRICE BAND** (Euro)	**DEPOSIT REQUIRED** (Euro)
Category A	66 – 95	200
Category B	96 – 175	350
Category C	176 – 260	550
Category D	261 – 474	900
Category E	475 +	1200

All rates will be confirmed on your accommodation acknowledgement and will be inclusive of TVA at the current rate, service charge and breakfast, unless otherwise notified.

All rooms are offered for a minimum of 5 nights' stay i.e. 24 – 29 August 2003.

CongressWorld will endeavour to meet all accommodation requests. However, should your preferred hotel category be full, CongressWorld reseves the right to change your booking to the nearest available alternative.

PAYMENT
To guarantee your reservation, payment of the deposit is required. Upon receipt of deposit, each participant will receive written confirmation. **The balance of the accommodation has to be settled by 30 April 2003.** If payment does not arrive by 30 April 2003, the reservation will be cancelled without reminder. Payments may be made via Euro cheque or credit card (only Visa, EuroCard/MasterCard and American Express accepted). The credit card number, expiry date, billing address and signature of the cardholder are needed. *Please note that bank charges are the responsibility of the payee.* The name and address of the participant have to be marked clearly on every remittance. Please do not send any payments or change of reservation directly to the hotel.

23. CANCELLATION POLICY

1. Cancellation of Registration

Notification of cancellation of registration must be sent in writing to the Congress Secretariat.

Refund of registration fees will be as follows:

- For cancellations received by 30 June 2003: 50% will be charged
- For cancellations received after 30 June 2003: 100% of total will be charged

Name changes are not accepted unless the proposed name change comes from the same university, institute or company. Name changes will be processed under the above conditions with a charge of 50.00 Euro per change.

2. Cancellation of Hotel Accommodation

Notification of cancellation of accommodation must be sent in writing to CongressWorld Ltd.

Refund of hotel fees will be as follows:

- For cancellations received by 15 December 2002: 25% of total will be charged
- For cancellation between 16 December 2002 & 30 April 2003: 50% of total will be charged
- For cancellations from 1 May 2003 onwards: 100% of total will be charged

ALL REFUNDS WILL BE PROCESSED AFTER IDF PARIS 2003.

24. TRAVEL TO PARIS

BY AIR
There are excellent flight connections from all over the world to Paris. Orly Airport is situated 14km south of Paris and Roissy-Charles de Gaulle is located 25km north of Paris.

Air France who have been nominated as the official airline for IDF Paris 2003, offer non-stop, direct flights from European and overseas cities. It is anticipated that a favourable Congress rate will be extended to participants of IDF Paris 2003.

Please visit **www.idfparis2003.org** for further details.

BY EUROSTAR
Arriving in the heart of Paris at the Gare du Nord, IDF Paris 2003 participants may benefit from up to 30% off full-fare business tickets.

Route: Waterloo/Ashford – Paris – Waterloo/Ashford

Travel dates: 21 – 30 August 2003

Tickets are subject to availability, prices are subject to change and tickets are exchangeable before departure from the UK only.

To make a reservation:

From within the UK please telephone:
0870 6000 777
From outside the UK please telephone:
+44 1233 617509

Please identify yourself by quoting reference: ES050/02.

25. INSURANCE

The registration fees do not include provision for the insurance of participants against personal accidents, sickness, cancellation, theft, property loss or damage. Participants are advised to take out adequate personal travel insurance.

26. DISCLAIMER

The best endeavours will be made to present the programme as printed. However, IDF Paris 2003 and its agents reserve the right to alter or cancel, without prior notice, any of the arrangements, timetables, plans or other items relating directly or indirectly to the Congress, for any case beyond its reasonable control.

IDF Paris 2003 and the Congress organisers are not liable for any loss or inconvenience caused as a result of such alteration or cancellation.

27. ACCOMPANYING PERSON'S PROGRAMME

Tours will be available to all accompanying persons throughout the Congress and to registered delegates on Saturday 23, Sunday 24, Wednesday 27, Saturday 30 and Sunday 31 August only.

Half Day Tours
Panoramic City Tour
Orsay Museum
Chateau de Chantilly
Versailles Palace and Gardens
Giverny
Montmartre Promenade
The Marais District
Open Air Market on the Rue Mouffetard

Full Day Tours:
Champagne Tasting in Reims
Chartres and Versailles
Fontainebleau and Barbizon
Loire Valley
Normandy Landing Beaches
Rouen and Giverny
Wine Tasting in Burgundy

For further information please contact:

CongressWorld Ltd.
Blenheim House
120 Church Street
Brighton BN1 1WH
United Kingdom
F: +44 (0)1273 570632
E: tours@congressworld.co.uk

28. PRE AND POST CONGRESS TOURS

PRE AND POST CONGRESS TOURS
Will be available to all delegates and accompanying persons. A selection of just some of the tours on offer is detailed. Please contact CongressWorld Ltd. for further information.

Loire Valley
3 day tour of the Loire Valley including visits to Chenonceau Castle, Chateaux Chambord, Cheverny, Azay le Rideau and Villandry. There will also be an opportunity to do some wine tasting with leisure time available for shopping.

Normandy
3 day tour of Normandy stopping en route in Giverny to visit Monet's house and gardens, the source of inspiration for over 40 years of paintings. There will be a full day tour of the Normandy Landing beaches including lunch in Bayeux and a visit to the Caen Memorial and Omaha Beach. The final day will take you to Honfleur with its delightful harbour and finally on to Deauville for an afternoon of leisure.

Provence and Nimes
3 day tour of Avignon with its great 14th century circle of ramparts; Les Baux de Provence (the most famous provencal hilltop village) and finally on to Provence and Nimes with its fascinating Roman city and Pont du Gard.

Burgundy
3 day tour of one of the most famous and picturesque wine producing areas in France with a visit to Dijon and Beaune including a visit to the famous Hôtel Dieu. The final day is a full day
drive along the famous Côtes de Nuit Road with stops at various vineyards and famous wineries.

PLEASE VISIT WWW.IDFPARIS2003.ORG FOR THE MOST UP TO DATE CONGRESS INFORMATION