European Union Research Funding

Janez Potocnik, European commissioner for science and research, has been discussing EU objectives for spending on cardiovascular disease with Ingrid Torjesen, BSc.

The European Union (EU) has steadily increased the funding allocated toward research into cardiovascular disease (CVD), and this trend is expected to continue, says Mr Potocnik. The European Commission’s latest research framework programme (FP), referred to as FP7, is currently being considered by the European Parliament and Council and identifies the need to fund research into CVD, as it is a major health challenge for Europe.

Around 100 million euros is likely to be allocated specifically to CVD under the current framework programme (FP6) that began during 2002 and closed in November 2005. So far, 7 projects have been allocated 34.7 million euros. Another 5 projects are under negotiation, and these further projects financed under FP6 will receive a total EU contribution of over 60 million euros. FP6 will include several large-scale 4-year and 5-year projects. Three have been funded so far: the European Vascular Genomics Network, Bloodomics (to discover genetic markers that predict CVD), and EICOSANOX (to increase knowledge of eicosanoids and nitric oxide).

The funding for FP6 projects is likely to be twice the 52 million euros allocated to the 31 FP5 projects began between 1998 and 2002. The commissioner says that the focus of the current specific CVD programme (FP6) was on “translational research,” meaning building the bridge between advances in basic research and applications that can help patients. He expects this to continue with FP7, saying, “I see the value of EU funding for research into cardiovascular disease with Ingrid Torjesen, BSc.

Mr Potocnik outlined some of the main areas being targeted by current and future FP projects. Research into normal and pathological development of the heart and the vascular system is one of the most important areas supported by the commission, because it will provide the knowledge base for the development of cell therapies. He explained, “It is becoming clear that many congenital pathologies affecting the heart will be best understood by tracing their origins in embryonic development. A great effort should be made in understanding the molecular mechanisms that drive cardiac determination of stem cells.” Vascular biology and the mechanisms governing the development of atherosclerosis are also being looked at, with an emphasis on the role of vessel wall remodelling, the contribution of platelets and endothelial dysfunction to atherosclerosis, and the role of inflammation and cell apoptosis in the occurrence of plaque development and rupture.

Unravelling the genetic epidemiology of CVD by identifying the causative and disease-susceptibility (or disease-modifying) genes involved is also a priority, he said, because “pharmacogenomics approaches have the potential for improving clinical management and individualised treatment in CVD.”

Mr Potocnik emphasised that research into heart failure and noninvasive imaging also needs continued support. “Promising noninvasive techniques have created new opportunities. Research will enable better understanding of the specific role that different methods can play,” he said. Considerable EU investment is also being put into fundamental genomics and biotechnology, including how to analyse gene expression patterns more quickly and to determine single nucleotide polymorphisms. “Public investment in CVD research is justified because many open questions concern areas of precompetitive research,” the commissioner explained. “For example, our knowledge of the differentiation of cardiovascular system cells during human development is limited, but is needed in order to develop safe cellular replacement therapies for CVD, such as after myocardial infarction.”

Funding at the EU level has the added advantage of allowing resources to be pooled across Europe, avoiding double-funding, ensuring resources are put into areas that might otherwise be overlooked, and providing large patient cohorts. However, the commissioner recognises that “EU funding can only be a complement to and catalyst for broader funding through national and/or regional sources. Funding from industry must not only continue, but must intensify.

“And there are no allocations to specific countries,” he pointed out. “The approach followed by the EU is to encourage and support the participation of all research actions in our programmes on an equal footing and this is also the best approach to develop excellent research in the new member states.”

Ingrid Torjesen is an associate editor at Haymarket Medical Ltd and a freelance writer.
European Meetings Update

January to April 2006

If you would like your meeting or educational programme to be considered for listing in future issues, please contact the managing editor at kbarnard@lww.co.uk

18-21 January
French Society of Cardiology Annual Meeting
Paris, France
For more information, contact vmorel@cardio-sfc.org

25-28 January
Heart Failure Winter Research Meeting
Garmisch-Partenkirchen, Germany
For more information, contact evelyn.harrison@kcl.ac.uk

27-28 January
Annual Business Meeting of the Finnish Cardiac Society
Helsinki, Finland
For more information, contact fcs@sydanliitto.fi

4-11 March
24th International Cardiovascular Surgical Symposium
Zürs/Arlberg, Austria
For more information, contact congress@herzchirurgie.at

10-12 March
Annual Meeting of the Libyan Cardiac Society
Tripoli, Libya
For more information, contact cardiolibya@yahoo.com

30 March-1 April
1st International Conference on Hypertension, Lipids, Diabetes and Stroke Prevention: Interdisciplinary and Multifactorial Approach
Paris, France
For more information, contact strokeprevention@kenes.com

31 March-1 April
Kardiologie 2006
Innsbruck, Austria
For more information, contact info@congressinfo.net

22-26 April
XXVII Portugese Congress of Cardiology
Vilamoura, Portugal
For more information, contact secretariado@mail.spc.pt

24-27 April
Annual Scientific Conference of the British Cardiac Society
Glasgow, Scotland, United Kingdom
For more information, contact enquiries@bcs.com

27-28 April
3rd International Symposium on Gene & Stem Cell Therapy for Heart Failure and other Cardiovascular Diseases
Valladolid, Spain
For more information, visit www.cardiovascularcelltherapy.com

Forthcoming ESC Educational Programmes

26-28 January
Healthcare Economics
Programme to be held in European Heart House
Sophia-Antipolis, France
For more information contact vfranquenouille@escardio.org

18-20 May
Advanced Course on the Clinical use of Doppler Myocardial Imaging and Three Dimensional Echocardiography
Programme to be held in European Heart House
Sophia-Antipolis, France
For more information contact sbrodin@escardio.org

The opinions expressed in Circulation: European Perspectives in Cardiology are not necessarily those of the editors or of the American Heart Association.

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Pioneers in Cardiology

Ulrich Sigwart, MD, chief of the cardiology centre at Geneva University, Switzerland, introduced the first coronary artery stent in 1986. He spoke to Keith Barnard, MB, BS, about this important breakthrough.

Did you expect the specialty to develop as it did when you first became a cardiologist?

Not to the extent we have now. I was fortunate to come into cardiology at a time when it was becoming particularly interesting, and involved more that just prescribing digitalis and diuretics. I was interested in the subject even as an undergraduate in Basel and Freiburg. After qualifying in 1967, I pursued my interests further in the United States in Boston, Mass, and with a cardiology fellowship in Houston, Tex, before returning to work with Dr Willy Rutishauser at the University Hospital in Zurich in 1972.

How did you get into interventional cardiology?

Cardiac catheterisation was becoming important at that time, and I was keen to learn how to do it. Then Dr Andreas Grünzig, who was also working at University Hospital, Zurich, made the breakthrough with balloon angioplasty. I got to know Andreas as we were both there together for a time.

He performed his first angioplasty in September 1977 and it caused quite a sensation. I remember we had lunch together soon afterwards and he showed me his equipment. He gave me 3 balloons and 2 guiding catheters, one for the right and one for the left coronary artery. I went away and practiced and subsequently performed my first angioplasty.

I met with a certain degree of suspicion, awe, and maybe also some jealousy from a neighbouring university, who threatened to take me to court. They claimed what I was doing was unethical as we had no surgical facility at that time. I published my first 7 cases, and then stopped until I had moved to the University of Lausanne, where surgical standby could be arranged.

What made you come up with the idea of stenting?

Abrupt vessel closure after angioplasty caused me a great deal of frustration, and it was this setback that sparked the idea to put a scaffold into the artery to keep it open. I was determined to end the situation where we had to walk away on tip-toe after the balloon has been deflated and hope for the best. I wanted to make the procedure safer and more predictable. Sometimes for no apparent reason the vessel would close again while the patient was still on the table, or in the hour following the procedure. This whole situation was the catalyst that made me think about stents.

One day a friend of mine who was also a patient gave me the address of a group of engineers in the Lausanne area who had some experience with implantable devices. After about 4 weeks of talks we came up with the idea of what is now known as the Wallstent, a braided mesh made of elastic stainless steel wires similar to the shielding in coaxial cable — almost limitless quantities were available for industrial applications! After extensive animal studies, we used it in our first human cases in 1986, but only in 3 strictly defined situations: after acute closure following balloon angioplasty, for restenosis after angioplasty, and for restenosis after saphenous vein bypass grafts, known for their propensity to develop restenosis.

What technical difficulties did you encounter?

Precise positioning of the self-expanding mesh stent, which significantly shortened upon expansion, was not so easy. I noticed that some operators had trouble mastering the technique, as placement was so critical. This lead to the development of a balloon expandable stent, the Multilink, which became the most widely used stent for a time in the 1990s.

How about stent thrombosis?

At this time we encountered serious problems with the anticoagulation regime, and I discussed this with Dr Valentin Fuster, who was at the Mount Sinai School of Medicine in New York. The result was a complex cocktail of anticoagulants and antiplatelet drugs. Using this regime was like walking a tightrope, a difficult balancing act, and it was not until the introduction of aspirin plus ticlopidine and now clopidogrel that anticoagulation management improved dramatically.

Did you think of drug eluting stents?

Everyone involved in stenting dreamed of ways to reduce thrombosis and hyperplasia. I was at the Brompton Hospital in London from 1989 to 2001, where we went on to study coated stents and to tackle the problem of intimal hyperplasia. I used to think that thrombosis was the most important trigger for hyperplasia, but it can occur even in patients who have no recognisable thrombosis and are perfectly anticoagulated.

At the Brompton we experimented with phosphoryl choline coated metal stents that appeared, in contrast to other polymers, not to induce further hyperplasia. We studied those stents without further addition of drugs and with genes meant to modify the healing process. But now it seems that the present generation of stents coated with serious cyotosistatics like sirolimus or paclitaxel represent a significant breakthrough in reducing hyperplasia, but not without a price to pay, however.

What was your reaction to receiving the King Faisal Prize?

Winning the King Faisal International Award for Medicine in 2004 for my work came as a complete surprise, but I was very happy to receive it. I was told by Dr Eugene Braunwald, Professor of Medicine at Harvard Medical School, that I would be treated like a king in Riyadh when I went to collect it, and so I was. The reward was timely, because it enabled me to pass most of the prize money to the Jonas Foundation, a charity that aims to help youngsters find new hope and perspective in life through music, dance and drama.

Do you still have time for other activities?

My work with stents has been a major part of my life and following interests outside medicine can be difficult. I take great pleasure in my family and spend as much time as possible in the country, taking walks and listening to my wife’s piano playing. I still love to ski — as a medical student I was an instructor — and I have been flying aircraft now for over 40 years.

Dr Barnard is the managing editor of Circulation: European Perspectives in Cardiology.
Profile of a Young Cardiologist: 
Dimitrios Tziakas, MD.
An interview with Monica Polak, PhD.

Dr Dimitrios Tziakas received a “Young Investigator Award” in clinical science at the European Society of Cardiology (ESC) Congress in Stockholm, Sweden, in September 2005. He is 38 years old, and is a consultant cardiologist at the University Hospital of Alexandroupolis and assistant professor of cardiology at Democritus University of Thrace Medical School in Alexandroupolis, Greece. The award was made as a result of his study that revealed that erythrocyte membranes in patients with acute coronary syndromes (ACS) contain significantly higher levels of total cholesterol than those of people with stable angina.

The study involved a collaboration between Dr Dimitrios Hatseras of the University of Thrace Cardiology Department, and Drs Juan Carlos Kaski and David Holt of St George’s Hospital in London. Dr Tziakas and his colleagues believe the findings implicate erythrocyte membrane total cholesterol in atherosclerotic plaque growth and clinical stability.

Dr Tziakas admits to a passion for research, and predicts the next big breakthrough in cardiology will come in the management of ACS.

As a clinical cardiologist who manages an everyday practice, he believes that more research is needed on ACS regarding diagnosis, prognosis, treatment, and, in particular, markers that can aid early diagnosis. He feels that the next major innovation will be in the field of stabilising at-risk atherosclerotic plaques. There is a great deal of research going on in this field, and he expects that novel drugs will be launched that will help in the stabilisation of atherosclerotic plaques that are vulnerable.

Dr Tziakas was drawn to this area of research as a result of seeing comparatively young patients with no risk factors who were presenting with acute myocardial infarction (MI) or ACS. He believes the ESC award will be of great benefit, and will help him to attract further funding and possibly facilitate future collaborative efforts between Democritus University and other medical centres around the world.

He says the award is significant for a young cardiologist because it proves his study was held to a high standard; the award is also likely to help his research career. He is also pleased that such an award will reflect favourably on his collaborators at the university.

Dr Tziakas has always had a natural affinity for the specialty, and says that his first and only interest was cardiology. During his training in medical school he found that cardiology was closer to him than other areas of medicine, and compares it to mathematics. He regards it as a relatively straightforward specialty, with specific diagnoses and treatments. He readily attributes his attraction to cardiology to his mentor and teacher, Dr Hatseras, the head of cardiology at Democritus University, whose guidance and insights have influenced his career right from the beginning.

After graduating from the University of Athens Medical School in 1991, Dr Tziakas followed an interesting career path. He served one-and-a-half years compulsory service in the armed forces as a military doctor. A year in general practice then followed, and this allowed him, as he put it, “to come very close to the real problems with patients in settings which are far away from tertiary centres.” And after this, a 6-month spell working at St George’s Hospital in London broadened his view of how cardiology is practiced in another country.

In addition to his consultant and research duties, Dr Tziakas teaches medical students and junior hospital doctors. He says that looking after his patients is the perfect partner to clinical research, although long working hours limit the time available. He admits that he has little spare time and he tries to do extra research whenever possible. He believes that publishing research papers is his most important priority, because it is a way of putting forward thoughts and ideas to develop cardiology. Furthermore, Dr Tziakas says it is also essential to receive criticism and feedback, which will only serve to improve future research.

Attending conferences, such as the National Cardiology Congress in Greece, the ESC Congress, and congresses on atherosclerosis and heart failure elsewhere in Europe help him keep up with the latest research developments. Making sure he remains abreast of current projects is in fact a prerequisite of Dr Tziakas’ academic department.

For the future, his ambition is to expand and firmly establish the atherosclerosis laboratory at his university as a leading centre for research. He says that he wants to attract new scientists and doctors to work with him in his chosen field. This will help ensure the growth of the cardiology department at Democritus University, and make it better known in the cardiology community.

Dr Tziakas believes Greece is a place where clinical cardiology and research can coexist successfully. He says he feels there is an understanding in his country that a doctor who is involved in clinical cardiology has many insights from practice that can be implemented in research. He finds that the combination of helping people in need as a clinical cardiologist and finding novel treatments as a research scientist makes for an exciting life.

Despite the long hours he works and the immense effort he puts into his research, Dr Tziakas still finds time for family life and interests outside of medicine. He has been married for 10 years, and he and his wife have 2 young daughters. He keeps fit, jogs regularly, and enjoys scuba diving. For relaxation, he likes reading literature, and as if all this were not enough, he is an expert in tae kwon do and has obtained a black belt in the art.

Dr Monika Polak is a freelance writer.
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