



## ***2005 Publishable executive summary***

Thanks to funding from the EU Framework Programme 6, the European Vascular Genomics Network (EVGN) became, in January 2004, the first Network of Excellence in the cardiovascular field. It unites 25 world-leading basic and clinical institutions from 10 European (or associated) countries in a bid to foster basic and clinical research in vascular biology. It focuses on 1) *endothelial dysfunction*, which is an early critical event leading to atherosclerosis and hence a target for prevention, 2) *plaque instability*, which underlies most episodes of coronary thrombosis and thus causes unstable angina and heart attacks, in themselves the most prevalent single cause of death in Europe and 3) *therapeutic angiogenesis*, which whether drug-, gene- or cell-based offers new hope to recover ischaemic heart function and reduce the impact of heart failure, a rapidly increasing health burden in the ageing population.

Achievements in 2004 predominantly related to successfully installing the Network: setting up research platforms needed for the Joint Programme of Activities (JPA), strengthening existing and establishing new collaborations, implementing intranet and outreach websites, promoting scientific exchanges between labs, and organising the first EVGN conference. In 2005, integration of research activities led to several breakthroughs in technology, basic vascular biology and translational research. In total almost 100 deliverables were yielded and milestones were met. Moreover, published results began to emerge in the most prestigious journals. For example, new tools in genomics were set up. Innovative platform-independent, pathway-based bioinformatics techniques, including Genomatix Bibliosphere, gene set enrichment analysis (GSEA) and Compendium Module analysis, were implemented by an EVGN-sponsored bioinformatician based in Amsterdam. EVGN groups in Jerusalem and Milan worked together to demonstrate that the endothelial growth factor VEGF mediates organ homing of circulating mononuclear myeloid cells and is required for their perivascular positioning and retention, a new discovery that is published in *Cell*. Partners in Paris and Stockholm produced the first demonstration that a subpopulation of lymphocytes called regulatory T cells provides immune protection against atherosclerosis, a finding published in *Nature Medicine*. In the field of translational research, the double-blind placebo-controlled multicenter REPAIR-AMI clinical trial demonstrated for the first time that intracoronary infusion of bone marrow mononuclear cells in patients after acute myocardial infarction improved left ventricular function at 4 months. The study coordinated by the EVGN partner in Frankfurt involved 17 medical centres in Germany and Switzerland, including 4 EVGN clinical institutions.

Also in 2005, the first European Summer School in Vascular Biology was organized in Maastricht. 65 PhD of the most gifted students from EVGN and other laboratories attended sessions aimed primarily towards bringing them to the cutting-edge in vascular biology. As an example of the enthusiasm generated, a European PhD Student Committee stemmed directly from this first EVGN Summer School. The visibility of EVGN in the Vascular Biology

community has grown in 2005, and several groups with which EVGN partners have established collaborations asked to join. EVGN Associate Membership was therefore created to spread excellence, by allowing these scientists to participate in the training and exchange programmes. Finally, the second EVGN conference was held jointly with the Third European Meeting on Vascular Biology and Medicine in Hamburg, in October 2005. During this congress, members of the EVGN and the European Vascular Biology Association unanimously decided to found the European Vascular Biology Organisation (EVBO) to provide enhanced networking opportunities for all European vascular biologists and thereby permanently restructure the European research area in Vascular Biology.