The presence of aging disorders in the fast growing population group of over 65 years in the European population presents a challenge for public health care systems in Europe. A key element in coping with this process is the availability of well classified, large enough patient cohorts and the establishment of quality-controlled central banks for DNA, serum, plasma, and cells / tissues / RNA / proteins together with the development of an IT-based infrastructure to provide samples and data required for biomedical studies. The DANUBIOBANK project established a biobank network focussing on molecular medicine of aging disorders which connects disease-specific collections of different cohorts and controls from universities, associated teaching hospitals, primary prevention programs, and end point related rehabilitation clinics along the Danube river and in neighbouring regions. The scientific network is addressing the field of non-cancer aging-disorders focusing on metabolic overload related endpoints, including vascular disease, diabetes, metabolic disease, and neurodegenerative disorders.

The ultimate mission of the DANUBIOBANK consortium was to prepare the ground for health care integrated biobanking of local and regional health care systems along the Danube through e-health portal structures, IT-based strategies and novel technologies in the field of vascular and metabolic aging disorders.

One central data bank (Regensburg) and three geographically distributed local biobanks (Regensburg, Vienna, and Budapest) have been established following the OECD recommendations (Draft guidelines for human biobanks and genetic research databases, 2008) and the collaborative discussions with the BBMRI-consortium. After an assessment of the current information systems, the Danubian universities with the aid of IT companies (e.g. Siemens, IBM, Telecom international), European projects (e.g. Karolinska Institutet Biobank, UK Biobank), and the P3G consortium are delineating the common IT architecture of the future network. Web-based communication has been realised as a project-driven website within an e-health portal for the public. Web-based communication (data,
video and voice) has been also implemented in the new Seventh Framework Programme (FP7) project LIPIDOMICNET for communication of the coordinator with the management team and the Task Forces with each other (Webex-platform).

The interactive DANUBIOBANK website has been launched in January 2006 including a web based patient health record study support system (SSS) and the DANUBIOBANK expertise platform (please see http://www.danubianbiobank.de online). The web-based and encryptable patient health record study support system allows online recording of patient and family history. The questionnaire is based on a data set that is used by Monica and follows the main line of studies archived by the observatory of P3G ('Public population project in genomics'). In Budapest, the components of the interactive DANUBIOBANK website were introduced.

In collaboration with the SME Askion in Gera (please see http://www.askion.de online) and the Fraunhofer Institute for Cryobiology, the DANUBIOBANK consortium is developing a liquid nitrogen based roboted biobanking unit for integrated health care biobanks. The project currently applies for additional funding by the BMBF in Germany. This cooperation has led to a new highly competitive EU-FP7 application on healthcare integrated biobanking (HIBCONSORTIUM) with 17 academic and industrial partners focusing on high throughput healthcare integrated biobanking technologies for tissues, cells and body fluids from preanalytics to automated storage, retrieval and phenotyping.

The DANUBIOBANK consortium has developed multiple activities to implement novel technologies and SOPs for applications including co-founding of the European lipidomics initiative, LIPIDOMICNET, and the establishment of the public domain, method-, data- and knowledgebase.

The results of DANUBIOBANK have taken the form of policy statements, reviews of a particular area of research and expertise survey results. The consortium and its biobank are partners of the P3G international biobanking activities, the BBMRI-European biobanking activities and the TMF-German local biobanking activities and contributed to the elaboration of data entry documents and guidelines (OECD) for the establishment of biobank structures and safety of handling the samples and records therein. Our position papers help to draw attention to the research community towards biobanking. Involving actors beyond the founding members is of pivotal importance since population-wide biobanking depends on the involvement of as many initiatives as possible. Although we were proactive in approaching actors beyond the core of the DANUBIOBANK, we expect that a sound publicity strategy as proposed herein will serve as an invitation to interested parties like communities, local media, chambers of commerce, public health organisations and patient self care groups (e.g. weight watchers, coronary sport groups).

Exploitation following the project has already taken the form of spin-off consortia aiming to undertake certain joint research activities under national or international funding. The largest consortium ever to be funded by the EU on lipidomics is the recently established LIPIDOMICNET initiative (please see http://www.lipidomicnet.org online) which focuses on research related to lipid droplets. LIPIDOMICNET as a consortium of 26 European groups with an EU-FP7 funding of EUR 11.6 million for 4 years started in May 2008. In addition, the consortium is associated with the FP6 projects EUROSPAN and CARDIOGENICS. In addition, the DANUBIOBANK project has also led to a new highly competitive FP7 application on healthcare integrated biobanking (HIBCONSORTIUM) with 17 academic and industrial partners focusing on high throughput healthcare integrated biobanking technologies for tissues, cells and body fluids from preanalytics to automated storage, retrieval and phenotyping.

In summary, the action has helped realising a biobank model, thereby generating a win-win situation for all stakeholders. The diversity of activities, scientific meetings, networking and policy meetings, a survey of expertise and the publication of position papers not only results in a strategy of research on aging disorders for the direct actors involved, but it also brings attention to the field of biobanking and thus inspires stakeholders to seek contacts and establish strategic alliances.

Related documents

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