Set up certified biobanks is critical to best serve medical research so as to result in a better understanding of diseases and improvement in diagnosis and treatment. The important advantage of supra-regional biobanks and national, European and even international biobanking networks, such as BBMRI-ERIC and ISBER, can be exemplified by the possibility to set up large cohorts for studies on rare diseases or genetic associations and, of course, to enable biomarker research for personalised medicine.

Today, the demands on biobanks increase constantly with the growing number of next-generation omics technologies and other highly sophisticated applications. The pre-analytical workflow within biobanks, in combination with sample storage and data handling, comes more and more into focus and needs personnel that are trained appropriately. Hence, there is the need to transfer knowledge from certified biobanks to emerging biobanks as well as the necessity to educate experts in biobanking for future challenges in the field.

The demand for biobanking experts in the future
A well-structured postgraduate education and training system is needed to satisfy the high demand for experts in the field of biobanking (for details see Macheiner T, Huppertz B, Sargsyan K. Innovative ways for information transfer in biobanking. CWIS 2013;30:379-85.). This occupational education should include key aspects such as:
(a) Handling of different types of samples and storage conditions (pre-analytical chain);
(b) Cryobiology;
(c) Research knowledge in, for example, molecular biology, biochemistry, omics and histology;
(d) Workflow creation skills;
(e) Knowledge about clinical trials and scientific applications;
(f) Quality management, quality assurance and quality control;
(g) IT and data management;
(h) Ethics and law;
(i) Risk management and disaster planning;
(j) Biostatistics;
(k) Epidemiology; and
(l) International networks.

Today there are limited opportunities to be educated in at least some of these aspects. Currently, options to be trained in biobanking include traditional face-to-face teaching at a site and online teaching, which is becoming more and more common. Most of the options available at present are biobanking training modules or workshops on specific topics without academic graduation. Thus, there is still the need for postgraduate master education, including academic courses teaching all technical, scientific and legal/ethical aspects of human and environmental biobanking.

Examples of today’s biobank education
So far, there are only two postgraduate courses available. The Catholic University of Lyon (France) offers postgraduate biobanking education for two years, including a nine-month hands-on training scheme that results in an MSc-equivalent diploma. However, this course is held in French, and only methodological tools are taught in English as well. King’s College London (UK) offers a specially focused, ten-month postgraduate biobanking course in English. The course focuses on pre-analytical work flows, collection and storage techniques for oncology. Shorter and clearly defined courses are offered by the University of Luxembourg (three weeks) and by Biobank Graz (Medical University of Graz, Austria; one to two weeks). Other biobanking training courses are primarily performed online, such as the training of the University of British Columbia (Canada).

This short overview on education opportunities in the field of biobanking makes obvious that only a very small number of institutions offer solid educational courses with practical placements as well as theoretical units over longer periods for a sustainable and sound biobanking education.

Short training, workshops and courses represent ideal supplemental education for scientists employed in the biobanking field. However, such courses cannot replace a professional and occupational biobanking education for biobank personnel. Here a sound education on all aspects of biobanking is needed, including sample handling, storage, ethics, applications and management.

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