New COST Actions – Medicine and Health related research

(COST Actions approved by the Committee of Senior Officials on 12 Feb 2016)

List of Actions

CA15203 – Mitochondrial mapping: Evolution - Age - Gender - Lifestyle - Environment

SUMMARY

The objective of the MITOEAGLE network is to improve our knowledge on mitochondrial function in health and disease related to Evolution, Age, Gender, Lifestyle and Environment. Every study of mitochondrial (mt) function and disease is faced with EAGLE as the essential background conditions characterizing the individual patient, subject, study group, species, tissue or even cell line. To address the complex interrelationships of EAGLE with an initial focus on humans and rodent models, the network will enhance the value of each individual study by starting to analyse and catalog data beyond the published record. Highlighting the topic of gender and mitochondrial function, unique new information will emerge on human biology from the development of a European reference database. Protocols, technologies and standard procedures will be compared and strategies defined for improvement of quality control. An inter-laboratory ring test will be established as a world-wide innovation in the field of mitochondrial respiratory physiology. The expertise gained and new standards developed will be integrated into a strategic dissemination and education programme for mitochondrial phenotyping, aiming at an expanding European and MitoGlobal EAGLE network where researchers collaborate on mapping mitochondrial physiology and medicine, complementary to established mtDNA databases.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Basic medicine: Organelle biology ● Biological sciences: Physical chemistry of biological systems ● Clinical medicine: Non-communicable diseases	● mitochondrial physiology ● reference database ● gender ● age ● lifestyle

COST Countries (24)
Austria, Belgium, Croatia, Czech Republic, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland, United Kingdom

COST Inclusiveness Target Countries: 46%

International Cooperation
Near Neighbour Country (1): Egypt

Industrial participation: SME (1), Large company (1)

CA15204 – European Platform for Outcomes Research into Perioperative Interventions during Surgery for Cancer

SUMMARY

Cancer remains one of the principal causes of mortality in Europe, usually attributable to metastasis, rather than the primary tumour itself. Surgery is the primary treatment of many tumour types, but minimal residual disease, i.e. scattered micro metastasis during surgery, is usually inevitable. Whether this results in clinical recurrence depends on the balance between conflicting forces at work in the perioperative period, including the patient's immune function, the surgical stress response, postoperative pain, and direct effects of anaesthetic and analgesic drugs and techniques which may either promote or inhibit tumour cell survival.

Since a retrospective clinical study found an association between improved survival after breast cancer with a combined propofol-regional anaesthetic technique, compared with standard general anaesthesia and opioid analgesia, the hypothesis that anaesthetic, analgesic or other perioperative interventions during primary cancer surgery could influence recurrence or metastasis has gained worldwide traction, topping a research priority setting exercise. Conflicting results from multiple retrospective studies in various cancers and the huge potential impact of a positive outcome warrant definitive evidence from prospective, randomised trials. A few have started, but are necessarily protracted, requiring long term patient follow-up.

Many laboratory and translational studies, including using serum of patients randomised to a clinical trial have also produced findings suggestive of a signal that anaesthetic-analgesic technique during cancer surgery might have an hitherto unrecognised effect on recurrence or metastasis. This COST Action would enable co-ordination of activity among a network of active European researchers in this exciting new field of research.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Clinical medicine: Anaesthesiology ● Clinical medicine: Oncology ● Clinical medicine: Surgery ● Clinical medicine: Analgesia	● Anaesthesia, general ● Breast Cancer ● Anaesthetic technique, regional anaesthesia ● Cancer, metastasis

COST Countries (10)
Austria, Belgium, Ireland, Israel, Italy, Netherlands, Romania, Sweden, Switzerland, United Kingdom

COST Inclusiveness Target Countries: 10%

International Cooperation
International Partner Country (1): United States

CA15205 – Gene Regulation Ensemble Effort for the Knowledge Commons

SUMMARY

Biological knowledge discovery is becoming increasingly dependent on computational modelling and simulation. Model building requires comprehensive knowledge bases describing biological entities and how they work together. However, dedicated action is needed to enter such knowledge in knowledge bases, as scientific results cannot be effectively shared with the community through publications alone: their information content needs to be carefully checked, or curated, and archived in standardised formats in public resources, to become broadly available for computational integration and analysis. Existing resources are significantly fragmented, have limited coverage, may not be compliant with existing data standards or have no documented quality control procedures. Most initiatives for standardising the description, recording and exchange of biological data have been shaped by needs arising from specific molecule- or data types, and not by the challenge to cover all subdomains of a complete biological process domain. This Action specifically targets the domain of gene regulation: transcription factors interacting with the genome and RNA synthesis machinery, orchestrated by a complex web of signal transduction molecules, thus crucial to fully comprehend cellular control mechanisms at the systems level. The Action aims to establish communication and foster coordination of activities of all existing but currently disparate groups in Europe who actively generate and collate data on gene regulation. By including global partners, SMEs, publishing houses, policy makers, and funding agencies in the building of the "Knowledge Commons", this Action will set the stage for the development of one integrated knowledge management framework for this key area of molecular biology.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Biological sciences: Bioinformatics ● Medical biotechnology: Databases, data mining, data curation, computational modelling ● Biological sciences: Molecular biology and interactions ● Electrical engineering, electronic engineering, Information engineering: Databases, data mining, data curation, computational modelling	● life science knowledge management ● curation guidelines ● ontologies and controlled vocabularies ● information retrieval ● scientific data exchange and web services

COST Countries (10)
Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Portugal, Spain, Switzerland

COST Inclusiveness Target Countries: 10%

International Cooperation
Near Neighbour Country (1): Russian Federation
International Partner Country (3): Brazil, Japan, New Zealand
European RTD Organisations (1)

CA15208 – Rationing - Missed Nursing care: An international and multidimensional problem

SUMMARY

Rationing of nursing care occurs when resources are not sufficient to provide necessary care to all patients. The reasons that lead to this phenomenon include staff reductions, increased demands for care due to the technological advancements, more treatment options, more informed service users, all requiring more time and attention from care professionals. Rationing of nursing care may also occur due to particular approaches of nurses' clinical judgement and knowledge in allocating the resources, and the wider value basis of the society on care. As a result, fundamental patient needs may not be fulfilled and human rights linked to discrimination may be affected.

In view of the increasing evidence indicating a negative effect of nursing rationing on patient outcomes, the fragmented work on the complexity of the topic as well as the gaps regarding issues such as ethics, methodology and patient safety, this Action will enable and facilitate internationally coordinated exchange of expertise and knowledge for both research and clinical practice at European and international level.

This Action will facilitate a debate on the conceptualisation of rationing and the methodological challenges in investigating and monitoring the phenomenon and the development and evaluation of intervention methods. It will also facilitate stakeholders to develop a responsive research agenda that identifies challenges and innovative cost-effective and patient-centered solutions associated with care rationing. It will enable research and policy synergies by drawing out the implications of nursing rationing across countries and identify innovative delivery models and strategies with an overall aim to address patient needs..

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Health Sciences: Nursing	● Nursing Care Rationing ● Missed Nursing Care ● Prioritisation And Clinical Judgement In Nursing ● Nursing Care Priorities

COST Countries (15)
Belgium, Cyprus, Czech Republic, Finland, Greece, Italy, Lithuania, Norway, Poland, Portugal, Slovakia, Spain, Switzerland, Turkey, United Kingdom

COST Inclusiveness Target Countries: 47%

International Cooperation
International Partner Country (4): Australia, Canada, New Zealand, United States

CA15210 – European Network for Collaboration on Kidney Exchange Programmes

SUMMARY

About one per thousand European citizens suffers from end stage renal disease. Living donor kidney transplantation is often the most effective treatment and the alternative of deceased donor kidney transplantation is severely limited by availability. As approximately 40% of living donors are incompatible with their specified recipient, several European countries have independently developed kidney exchange programmes (KEPs).

KEPs aim to match donors optimally to recipients for organ exchange within the population of recipient-donor pairs. Recent research shows that KEPs may greatly improve survival probabilities and quality of life, especially for recipients that are difficult to match. These recipients are disadvantaged disproportionally by the small scale of many national (or local) KEPs in Europe. KEPs vary regarding the solutions provided for the problems in (i) the policy domain (prioritisation, equity, and accessibility); (ii) the clinical domain (clinical practice and evidence); and (iii) the optimisation domain (methods to solve the hard dynamic multi-criteria matching problems which take clinical evidence and health policy into account). Knowledge sharing among European KEPs, exchange of best practices, and practical collaboration are very scarce.

ENCKEP brings together policy makers, clinicians and optimisation experts in Europe to (i) exchange best practices and scientific state of the art with respect to national KEPs (ii) develop a jointly-used, common framework for data and optimisation; (iii) develop and test a prototype for transnational KEPs; and (iv) stimulate European policy dialogue. ENCKEP is expected to have substantial impact on the medical / socioeconomic, technological as well as scientific domains.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Mathematics: Discrete mathematics and combinatorics ● Computer and Information Sciences: Algorithms, distributed, parallel and network algorithms ● Clinical medicine: Transplantation ● Health Sciences: Health services, health care research	● Transplantation ● Allocation ● Exchange ● Optimization

COST Countries (15)
Austria, Czech Republic, Estonia, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, United Kingdom

COST Inclusiveness Target Countries: 40%

International Cooperation
International Partner Country (2): Australia, United States

CA15214 – An integrative action for multidisciplinary studies on cellular structural networks

SUMMARY

Structural networks that connect the extracellular matrix and cell surfaces through the cytoskeleton with the nucleoskeleton govern cell, tissue and organ integrity. Besides their structural roles, these networks participate in a multitude of fundamental functions, e.g. regulating signal- and mechano-transduction, cytoplasmic transport, sequestering biomolecules, maintaining genome organization and promoting meiosis. Mutations in the building blocks of these networks frequently lead to devastating diseases. The pathogenesis of these diseases is far from being understood and requires a wide interdisciplinary approach that is distinct from the individual research schemes. Based on capacity building measures, coordinated networking and educative activities and interactions with business partners and European research infrastructures, the EuroCellNet Action aims to develop an orchestrated multinational activity grid, organized in four Working Groups: 1) Biophysics of cell and tissue structure, 2) Structural analysis of biomolecules involved in mechanobiology, 3) New methodologies to study mechanobiology of cells and tissues, and 4) Mechanobiological principles of rare and common diseases. The Action will target researchers from molecular and cell biology, genetics, biophysics, structural biology, mechanobiology, neurobiology, developmental biology, pathology, and translational medicine. The Action will also develop new bridging and educative activities, and provide the scientists with a unifying dedicated website with on-line tools facilitating the interactions and exchange of information. There is a high interest for such an Action, underscoring the current need for such an Action The 45 Action proposers originate from 33 countries bridge the gap between less-research intensive countries and leading research countries.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Biological sciences: Molecular biology and interactions ● Biological sciences: Structural biology (crystallography, NMR, EM) ● Biological sciences: Epigenetics and gene regulation ● Biological sciences: Morphology and functional imaging of cells ● Basic medicine: Molecular and cellular neuroscience	● structural proteins ● mechanobiology ● mechanotransduction ● cell biology ● pathogenesis

COST Countries (30)
Austria, Belgium, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Israel, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom

COST Inclusiveness Target Countries: 50%

International Cooperation
Near Neighbour Country (1): Russian Federation
International Partner Country (3): Japan, Singapore, United States
International Organisations (1)

CA15216 – European Network of Bioadhesion Expertise: Fundamental Knowledge to Inspire Advanced Bonding Technologies

SUMMARY

Many organisms, ranging from bacteria and fungi to those much larger animals and plants use chemical and mechanical means to attach permanently or temporarily to surfaces. Some bioadhesives have advantages over synthetic counterparts in terms of their ability to function over a wide temperature range, in wet or dry environments, and to form stable bonds within seconds to all manner of substrata, even those with challenging surface coatings.

Knowledge about these materials, in terms of composition, structural design and interactions with surfaces, is necessary to reveal the basic biochemical and mechanical principles involved in biological adhesion.

This COST Action "European Network of Bioadhesion Expertise – ENBA" will unite the widespread European expertise in the field of biological adhesives (spanning biology, physics, chemistry, and engineering) by streamlining and pooling knowledge, methods and techniques, and will focus activities by avoiding duplication of efforts, decreasing research costs, and accelerating scientific and technological progress in Europe.

The bottom-up approach of this COST Action, integrating universities, applied research organisations and industry into an holistic program providing technical and scientific progress in understanding the fundamentals of natural bonding principles and test these natural systems in vitro. Knowledge achieved in this COST Action would certainly have a major impact on European academia and industrial competitiveness in the field of adhesion, nanotechnology, biomaterial and biotechnology and raise public awareness of the diversity of bioadhesives and their impact for technical applications in the future.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Biological sciences: Biodiversity, comparative biology ● Biological sciences: Biological systems analysis, modelling and simulation ● Biological sciences: Biochemistry ● Biological sciences: Biophysics	● Bioadhesive ● Glue ● Bonding ● Biointerface ● Attachment

COST Countries (17)
Austria, Belgium, Czech Republic, Denmark, France, Germany, Greece, Ireland, Israel, Italy, Netherlands, Poland, Portugal, Romania, Spain, Turkey, United Kingdom

COST Inclusiveness Target Countries: 29%

International Cooperation
European RTD Organisations (1)

Industrial participation: SME (3)

CA15222 – European Network for cost containment and improved quality of health care

SUMMARY

This COST Action aims to support the scientific R&D and technology development necessary for a breakthrough in the field of cost-containment in healthcare while also maintaining the quality of care. So far, the EU R&D agenda has given little to no attention to this aspect while in nearly every COST Member Country emerging costs for healthcare are becoming a major societal problem (EU wide €1.400 billion/year).

While the rising trend in costs is continuous and significant, the chances for efficiency gains and costs reductions are large (> 35%). However, previous attempts to reduce costs within existing healthcare systems have shown that simply making these systems more effective and efficient does not lead to the necessary cost reduction that will keep healthcare sustainable and affordable for all European citizens. Instead, innovative care models need to be developed that factor in cost containment from the start, while also maintaining the quality of care.

The EU-commission recognized the gap in their R&D agenda and supported the development of a EU R&D Strategy and Roadmap. This development involved key players from all over Europe representing the fragmented healthcare sector and the many scientific disciplines involved in R&D and technology development in this field. This COST Action sets out to expand and utilize this network in order to attune the ongoing R&D and technology development efforts towards the development of integrated care models that can be tested in large scale settings with the support of all stakeholders involved to create the needed breakthrough.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
● Health Sciences: Health services, health care research ● Economics and business: Public economics, political economics ● Sociology: Population dynamics, demography ● Medical engineering: Databases, data mining, data curation, computational modelling ● Clinical medicine: Sustainability	● Cost containment ● quality of care ● innovative care models ● large scale testing ● R&D Roadmap

COST Countries (7)
Belgium, Germany, Israel, Netherlands, Slovenia, Sweden, United Kingdom

COST Inclusiveness Target Countries: 14%

International Cooperation
International Partner Country (1): United States

Industrial participation: Large company (1)

New COST Actions February 2016 – Full list

Action N°	Proposal title
CA15201	Archaeological practices and knowledge work in the digital environment
CA15202	Self-healing As preventive Repair of COncrete Structures
CA15203	Mitochondrial mapping: Evolution - Age - Gender - Lifestyle - Environment
CA15204	European Platform for Outcomes Research into Perioperative Interventions during Surgery for Cancer
CA15205	Gene Regulation Ensemble Effort for the Knowledge Commons
CA15206	Payments for Ecosystem Services (Forests for Water)
CA15207	Professionalisation and Social Impact of European Political Science
CA15208	Rationing – Missed Nursing care: An international and multidimensional problem
CA15209	European Network on NMR Relaxometry
CA15210	European Network for Collaboration on Kidney Exchange Programmes
CA15211	Atmospheric Electricity Network: coupling with the Earth System, climate and biological systems
CA15212	Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe
CA15213	Theory of hot matter and relativistic heavy-ion collisions
CA15214	An integrative action for multidisciplinary studies on cellular structural networks
CA15215	Innovative approaches in pork production with entire males
CA15216	European Network of Bioadhesion Expertise: Fundamental Knowledge to Inspire Advanced Bonding Technologies
CA15217	Ocean Governance for Sustainability – challenges, options and the role of Science
CA15218	Measuring homelessness in Europe
CA15219	Developing new genetic tools for bioassessment of aquatic ecosystems in Europe
CA15220	Quantum Technologies in Space
CA15221	Advancing effective institutional models towards cohesive teaching, learning, research and writing development
CA15222	European Network for cost containment and improved quality of health care
CA15223	Modifying plants to produce interfering RNA
CA15224	Identifying causes and solutions of keel bone damage in laying hens
CA15225	Fractional-order systems: analysis, synthesis and their importance for future design
CA15226	Climate-Smart Forestry in Mountain Regions