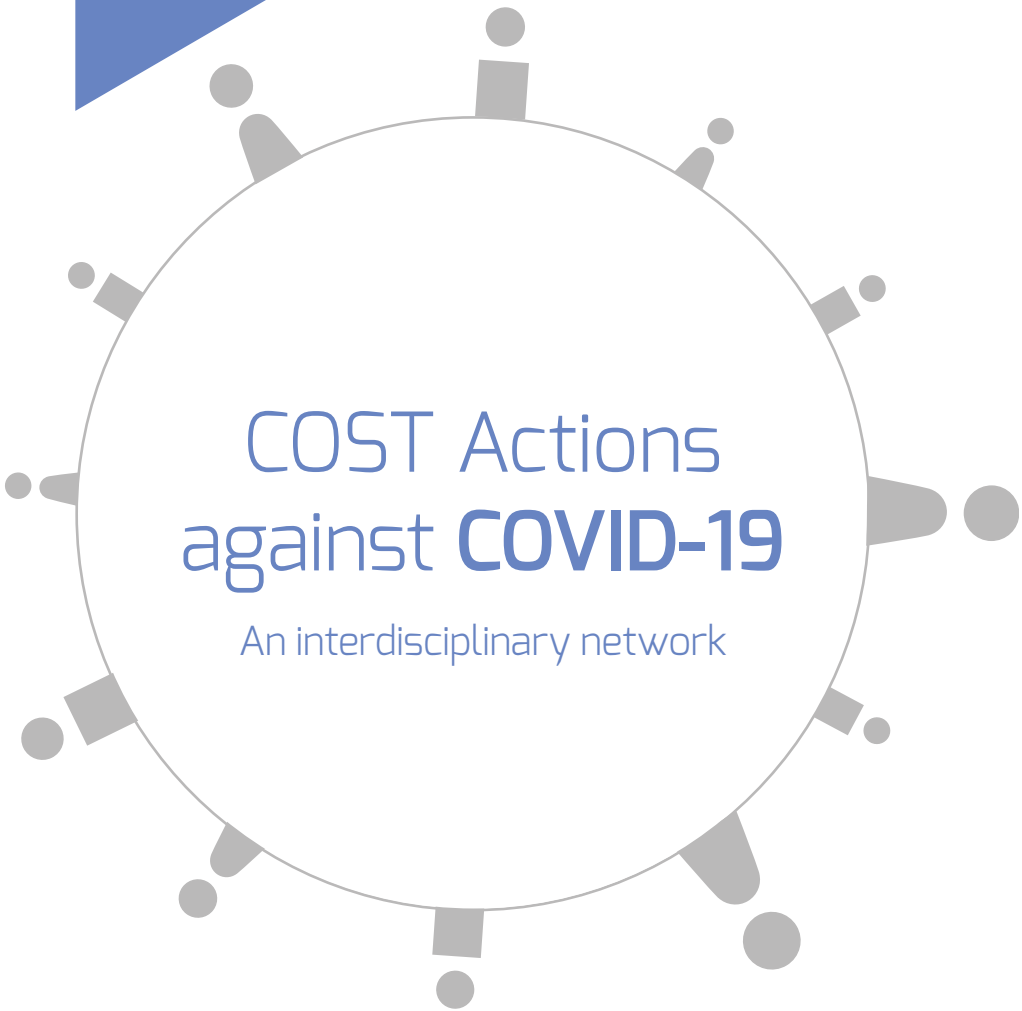

COST Actions against **COVID-19**

An interdisciplinary network

cost
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY

Introduction

Since March 2020, multiple COST Actions have approached the COST programme wanting to collaborate with other Actions on COVID-19 research. In response to these requests and to make the networking process smoother, COST has gathered together in this booklet details of all of the Actions wishing to connect and collaborate. As the full consequences of the current pandemic are yet unknown and the threat of a future pandemic is always present, this network offers considerable potential in mobilising experts and tackling challenges as they arise.

Any Actions wishing to be added to the list can still do so by contacting the Science Officer coordinating this initiative, Dominique Vandekerchove.

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Actions collaborating on COVID-19

- Health sciences 20%
- Biological sciences 13.33%
- Sociology 13.33%
- Agriculture and environment 11.67%
- Clinical medicine 10%
- Mathematics and computing 8.33%
- Chemical sciences 8.33%
- Physical sciences 5%
- Materials engineering 5%
- Psychology 3.33%
- Law 1.67%

Colours legend: Percentage shows relative representation in the network, i.e. 20% of the participating Actions have the core scientific field of Health Sciences.

Links between the Actions represent MC members or substitutes being in those Actions. The thicker the lines the higher the number of shared MC members or substitutes.

The size of the bubble is proportionate to the size of the Management Committee.

Overarching fields

Health sciences

CA15105 European Medicines Shortages Research Network - addressing supply problems to patients (Medicines Shortages)

CA18218 European Burden of Disease Network

CA15114 Anti-MIcrobial Coating Innovations to prevent infectious diseases (AMICI)

CA18208 Novel tools for test evaluation and disease prevalence estimation

CA15129 Diagnosis, Monitoring and Prevention of Exposure-Related Noncommunicable Diseases (DiMoPEx)

CA17117 Towards an International Network for Evidence-based Research in Clinical Health (EVBRES)

CA15208 Rationing - Missed Nursing care: An international and multidimensional problem (RANCARE)

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CA16112 Personalized Nutrition in aging society: redox control of major age-related diseases

CA16216 Network on the Coordination and Harmonisation of European Occupational Cohorts (OMEGA-NET)

CA16116 Wearable Robots for Augmentation, Assistance or Substitution of Human Motor Functions

Biological sciences

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CA17129 Catalysing transcriptomics research in cardiovascular disease (CardioRNA)

CA15126 Between Atom and Cell: Integrating Molecular Biophysics Approaches for Biology and Healthcare (MOBIEU)

CA17116 International Network for Translating Research on Perinatal Derivatives into Therapeutic Approaches (SPRINT)

CA15223 Modifying plants to produce interfering RNA (iPLANTA)

CA16119 In vitro 3-D total cell guidance and fitness (CellFit)

CA17104 New diagnostic and therapeutic tools against multidrug resistant tumors (STRATAGEM)

Sociology

ISI206 Femicide across Europe

CA15122 Reducing Old-Age Social Exclusion: Collaborations in Research and Policy (ROSEnet)

CA18236 Multi-disciplinary innovation for social change

CA18214 The Geography of New Working Spaces and the Impact on the Periphery

CA16111 International Ethnic and Immigrant Minorities' Survey Data Network

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CA16121 From Sharing to Caring: Examining Socio-Technical Aspects of the Collaborative Economy

CA18205 Worlds of Related Coercions in Work (WORCK)

CA18140 People in Motion: Entangled Histories of Displacement across the Mediterranean (1492-1923) (PIMo)

Agriculture and environment

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CA18201 An integrated approach to conservation of threatened plants for the 21st Century (Conserveplants)

CA16202 International Network to Encourage the Use of Monitoring and Forecasting Dust Products (inDust)

CA18105 Risk-based meat inspection and integrated meat safety assurance (RIBMINS)

CA16230 Combatting anthelmintic resistance in ruminants (COMBAR)

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Clinical medicine

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CA18216 Network for Research in Vascular Ageing (VascAgeNet)

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CA18122 European Cholangiocarcinoma Network

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CA15210 European Network for Collaboration on Kidney Exchange Programmes (ENCKEP)

Chemical sciences

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CA16215 European network for the promotion of portable, affordable and simple analytical platforms

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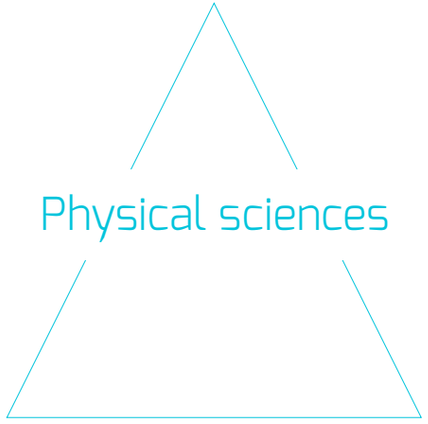
CA18103 Innovation with Glycans: new frontiers from synthesis to new biological targets (INNOGLY)

Physical sciences



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CA19140 Focused Ion Technology for Nanomaterials (FIT4NANO)

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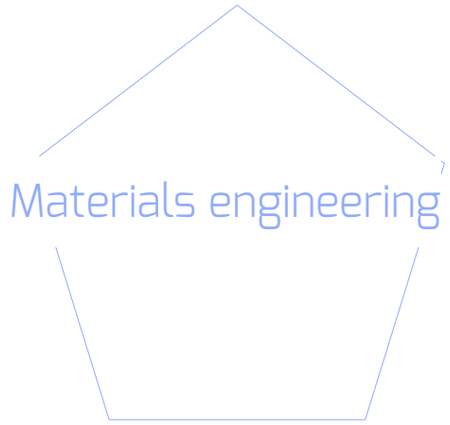

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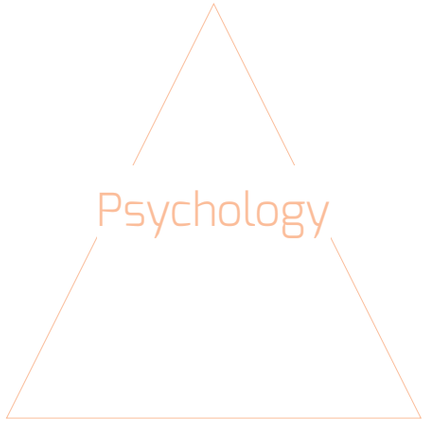
CA15101 Comparative Analysis of Conspiracy Theories (COMPACT)



CA19106 Multi-Sectoral Responses to Child Abuse and Neglect in Europe: Incidence and Trends (Euro-CAN)

CA18138 Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder

Law

CA17102 Police Stops

IS1206

Femicide across Europe

Summary

Femicide is a leading cause of premature death for women globally, distinct from homicide and other forms of gender violence. Femicide research is abundant in the United States. In Europe, agencies have funded initiatives on gender and violence but not specifically on femicide. Research is in its infancy and uncoordinated. It requires an interdisciplinary approach, focusing on victim and perpetrator, upon cultural (e.g."honour killings") and psychological causes, and on societal issues. The Action will establish the first pan-European coalition on femicide with researchers who are already studying the phenomenon nationally, in order to advance research clarity, agree on definitions, improve the efficacy of policies for femicide prevention, and publish guidelines for the use of national policy-makers. Different forms of publications will emerge from the Action, such as articles, books, newsletters and an Action internet site for the use of researchers, practitioners and policy-makers. Workshops will be held annually, adding advocates and researchers each year, and an Action conference will be held to attract stakeholders until the Action will organise a pan-European conference to launch the idea of a European Observatory on femicide.

Offered expertise to the COVID-19 network

The Action ended on April 8th, 2017, but is available to provide expertise on femicide. It is interested in the impact of COVID-19 on domestic violence. The Action Chair is author of an article on Covid-19 and femicide "For Women, Lockdown Can Be More Dangerous Than the Coronavirus".

Contacts: Prof. Shalva Weil ✉

CA15101

Comparative Analysis of Conspiracy Theories (COMPACT)

Summary

Conspiracy theories play an increasingly visible role in the political life in Europe, not least because the EU itself is often viewed as a vast conspiracy. Although sometimes seen as harmless entertainment, conspiracy theories can contribute to extremism within particular regions, as well as fueling tensions between nations. They can erode trust in democratic institutions and the media. Despite the increasing prominence of conspiracy theories in the age of the internet, there has been little systematic research on where they come from, how they work and what can be done about them. This Action aims to develop an interdisciplinary and international network to provide a comprehensive understanding of conspiracy theories. Existing research has tended to concentrate on specific national traditions and is often confined to the perspective of a single discipline. In contrast, this Action will adopt a comparative approach, investigating the causes, manifestations and effects of conspiracy theories in different regions and times, and drawing on insights from history, politics, sociology, anthropology, cultural studies and psychology. The Action will pursue the inquiry in three broad areas: the manifestations and modes of transmission of conspiracy theory in different historical and cultural contexts; the variety of actors and ... | Read more

Offered expertise to the COVID-19 network

COMPACT would be happy to provide expertise on conspiracy theories, misinformation and fake news in the pandemic. This Action on Conspiracy Theories also deals with conspiracy theories in health. The Action is finishing on September 30th 2020, but has requested an extension to be able to organise the stakeholders meeting they could not hold in March. COMPACT would be able to offer an interesting insight on the viral spread of fake news related to COVID. A peripheral topic, but relevant as it also has a concrete impact on the way people choose to behave and therefore on public health.

Contacts: Prof. Peter Knight ✉

CA15105

European Medicines Shortages Research Network - addressing supply problems to patients (Medicines Shortages)

Summary

The problems created by supply shortages of medicines have been widely reported by healthcare professionals and patients in recent years, and acknowledged at the European level by the European Medicines Agency and European Commission. The largest pan-European survey of healthcare professionals to date found that in the European hospital sector, the shortages are mainly of antimicrobials and oncology products used for large populations. The cited causes range from production disruptions, natural disasters, discontinuations, to difficulties created by various legal, trade and pricing frameworks. In order to treat patients in the best way possible, healthcare professionals require access to reliable and up-to-date information about the unavailability of a medicine. Research will cover the significant impact on patients due to lack of medication, in terms of safety and management of their condition. In addition, the forced substitution of an alternative product, or the requirement to produce a medicine, may increase the risk of error, stress and overall cost to the healthcare system. This Action will encourage systematic sharing of ... | Read more

Offered expertise to the COVID-19 network

The Action encourages systematic sharing of information and research about past, ongoing and future shortages of medicines and nutritional products. It aims to respond to clinical, financial and quality of life interests, to achieve analytical clarity on disruption causes, to simulate decision making in medicines production and trade, to highlight restrictive legal and economic frameworks, to disclose disincentives in the supply chain such as conflicts of interest or problematic cost-benefit ratios, and to reflect on best coping practices.

In light of the ongoing COVID pandemic, CA15105 seeks to cooperate in finding multidisciplinary solutions to mitigate and prevent problems caused by disrupted global supply chains, higher demand, economic hardships and new epidemiological challenges which can affect ... | Read more

Contacts: Prof. Isabelle Huys ✉
Dr Roberto Frontini ✉
Prof. Claude Farrugia ✉
Dr Tomasz Bochenek ✉

CA15109

European Cooperation for Statistics of Network Data Science (COSTNET)

Summary

For many modern economic, epidemiological, ecological and biological questions, a major challenge is to understand the randomness in the network structure of the entities they study. For example, the SARS epidemic showed how prevention of epidemics depends on a keen understanding of random interactions in social networks; and curing complex diseases is aided by a robust data-driven network approach to biology. Although the analysis of data on networks goes back at least to the 1930s, it is only in the past decade that the importance of statistical network modelling for many areas of substantial science has been recognised. The USA is at the forefront of institutionalising this field of science through various interdisciplinary projects and networks. There are also excellent statistical network scientists in Europe, but cross-disciplinary collaboration has been slow. This Action will facilitate interaction and collaboration between diverse groups of statistical network modellers, establishing a large and vibrant, interconnected and inclusive, community of network scientists. The aim of ... | Read more

Offered expertise to the COVID-19 network

COSTNET is involved in Network Data Science and some participants are involved in governmental bodies advising their governments on the outbreak:
- Statistical Modelling: Prof. Goeran Kauermann (LMU, Munich) would like to work on Nowcasting deadly infections and surveillance System to detect regional outbreaks. He is looking for Epidemiology/public health management expertise
- Modelling and inference of infectious disease: Prof. Ernst C. Wit Action Chair (USI, Lugano, Switzerland) is working on estimation of infection fatality Rate in the early stages of an epidemic and biostatistical modelling and analysis
- Prof. Mirjam Kretzschmar is working on modelling to assess the effectiveness of contact tracing for COVID-19 and on individual based modelling or social networks and spread of COVID-19 in the context of social ... | Read more

Contacts: Prof Tom Britton ✉
Prof. Fredrik Liljeros ✉
Prof. Ernst Wit ✉
Prof. Mirjam Kretschmar ✉

CA15111

European Network on Myalgic Encephalomyelitis/ Chronic Fatigue Syndrome (EUROMENE)

Summary

Myalgic Encephalomyelitis/Chronic Fatigue Syndrome - ME/CFS - is a disabling condition of unknown aetiology that affects individuals of all ages. Disease is causing significant social and economic burden. Research efforts in the last 20 years on ME/CFS remain rather fragmented, and there is a lack of coordination of European research. This Action will provide clear benefits through coordination of research activities, support for development of common standards, database synchronisation, and promotion of new research projects in the area. The harmonisation of data depositories and synchronisation of data collection protocols can greatly improve the use of existing data, including open data sources, and allow the development of coherent research strategies. Innovation will benefit from: coordination of introduction of new technologies in this research area; experience on novel data analysis approaches; patient stratification and synergistic approach to existing data. This will support the development of translational platforms that have long-term potential for development of new products to address ME/CFS. Early Carrier investigators will receive a special training package built on training schools, training workshops, clinical research introduction, STSMs. Researchers with high potential from other areas will enrich their scientific focus through interaction at events and materials produced by the Action. Priority countries will get special supportive measures, as many of them still lack streamlined research agendas on ME/CFS.

Offered expertise to the COVID-19 network

EUROMENE has a Clinical Group active on the SARS-CoV-2 and Covid-19 in association with ME/CFS – post-SARS-CoV-2 fatigue. Contacts for this Group are Prof Jerome Auther, and Prof Jose Alegre-Martin.

Contacts: Prof. Modra Murovska ✉

CA15114

Anti-MIcrobial Coating Innovations to prevent infectious diseases (AMICI)

Summary

Infections and infectious diseases are a continuous threat to human health. The European Centre for Disease prevention and Control (ECDC) estimates that more than 4 million people will be afflicted with a HealthCare Associated Infection (HCAI). The AMICI-consortium is convinced that new methods, used in addition or as alternatives to the appropriate use of disinfectants and antibiotics, are required to reduce microbial activity, associated infections and the increase of Antimicrobial Resistance. A potential and promising weapon against bacterial growth and possibly the development of multi-drug resistant bacteria has been found in AntiMicrobial (nano)-Coatings (AMC) that are fortified with an active ingredient that can eliminate the micro-organisms. So far, little is known about the effectiveness of AMC surface application in preventing the spread of infections and their impact on induction of multi-drug resistant bacteria in healthcare (such as hospitals, nursery homes). The presence of active substances in AMC may promote/induce resistance mechanisms which need to be understood. A balanced risk-benefit analysis of widespread application of AMC is needed to guide the 'Safe-by-Design' development and introduction into complicated chains with high demand for compliance, such as healthcare. AMICI brings together stakeholders from different countries and disciplines, including knowledge institutes, producers and processors of antimicrobial coatings, and organisations involved in compliance with international standards on hygiene. The central aim is to evaluate the impact of introducing AMC into healthcare institutions on the spread of infections and on the efficacy in fighting HCAI and bacterial resistance to current antibiotics.

Offered expertise to the COVID-19 network

CA15114 develops materials for surfaces that "kill" bacteria and viruses (including coronavirus). A COST Innovators Grant (CIG) was granted to this Action. Contacts for this Action are Pete Askew (commercial lab), or prof. Bill Keevil (University of Southampton).

Contacts: Mr Pete Askew ✉ Prof. Bill Keevil ✉ Dr Minna Keinänen-Toivola ✉

CA15117

Cosmology and Astrophysics Network for Theoretical Advances and Training Actions (CANTATA)

Summary

Observations of unprecedented quality reveal a universe that is at tension with the standard, and very successful description of matter and energy in physics. Approximately 95% of the substratum of the universe is of unknown nature, split into an accreting component (dark matter) and a repelling component (dubbed dark energy). There are auspicious prospects that the combination of state-of-the-art experiments, and theoretical advances will provide us with tools to elucidate this fundamental issue. This Action explores the viewpoint that cosmological observations reveal a degree of incongruity with theory, not because of mysterious elements, but because of the need to review and extend Einstein Relativity to a scale where it has not yet been properly tested. So this Action "CANTATA" gathers a team of leading European experts in gravitational physics and cosmology to test the extension of Einstein's theory of General Relativity. A programme including the complementary aspects of theoretical physics, cosmology, and astrophysics is set to consider, in a coordinated and multidisciplinary way, the build up self-consistent models at the various scales and, in principle, to find out some "crucial feature" capable of confirming or ruling out Extended Theories of Gravity with respect to General Relativity. This Action will enhance already ... | Read more

Offered expertise to the COVID-19 network

CANTATA consists of a group of top theoretical physicists. Anything to do with data treatment can fit their expertise (or at least that of WG3).

They have a lot of experience in the statistical treatment of data, and graphics & plotting, as well as simulations and forecasts, and consider working in other fields of expertise as an opportunity to make themselves useful in the pandemic context and broaden their horizons.

Contacts: Dr Ruth Lazkoz Saez ✉

CA15120

Open Multiscale Systems Medicine (OpenMultiMed)

Summary

Multiscale systems medicine assumes that the growing amounts of highly diverse (multiscale) data relevant to human health and disease are the key to addressing current and future medical challenges. Transforming these data into effective and economical medical solutions requires appropriate means for multiscale data modelling, integration and analysis. The overarching aim of the Open Multiscale Systems Medicine (OpenMultiMed) Action is to gather a critical mass of international researchers and coordinate them as a team that develops and evaluates a transdisciplinary framework for multiscale systems medicine, consisting of novel concepts, methodologies and technologies. The unique concept and ambition of the OpenMultiMed Action rests on three pillars: 1) a transdisciplinary strategy in which medical researchers, mathematical modellers, data scientists, and computer scientists work jointly, using a shared conceptual framework and combined disciplinary-specific approaches; 2) a strong focus on multiscaleness across systems medicine, multiscale modelling, multiscale data science and multiscale computing; 3) an open-science approach, making scientific research, data and dissemination in multiscale systems medicine accessible to all levels of an inquiring European and international society. The potential impacts resulting from the OpenMultiMed Action include more effective and economical ways of health promotion, disease prevention and therapy; more effective and efficient concepts, methods and tools for multiscale systems and data modelling, and multiscale computing; and a strengthening of scientific excellence and industrial competitiveness of individuals and organisations in medical, analytical and technological areas.

Offered expertise to the COVID-19 network

Many groups within OpenMultiMed are working on COVID-19 research: the Chair, Harald Schmidt, WG leader Jan Baumbach, Italian member, Paolo Tieri. One goal is to generate hybrid virus host networks to identify targets for drug repurposing and possible pathomechanisms.

Contacts: Prof. Harald Schmidt ✉

CA15122

Reducing Old-Age Social Exclusion: Collaborations in Research and Policy (ROSEnet)

Summary

Reducing the number of people at risk of social exclusion is a headline target of the Europe 2020 strategy. Population ageing and low economic growth pose major challenges to meeting this target, emphasising the necessity to tackle old-age exclusion. While risks of exclusion of older people are widening and deepening, damaging gaps in understanding old-age exclusion exist across Europe. Existing knowledge is poorly developed, lacks synthesis and is spread across highly disparate disciplines. This Action aims to overcome fragmentation and critical gaps in conceptual innovation on old-age exclusion across the life course, in order to address the research-policy disconnect and tackle social exclusion amongst older people in Europe. The Action will engage with researchers and policy stakeholders to develop shared understandings and new policy and practice interventions that can be practically and effectively implemented, for reducing exclusion in diverse European ageing societies. ... | Read more

Offered expertise to the COVID-19 network

Social exclusion can be a particularly damaging consequence for older people in methods of pandemic management. ROSEnet studies the nature of social exclusion and the ways to alleviate it. This Action has been engaged in conducting a preliminary analysis of policy/practice responses to the pandemic and the multi-level interplay between policy and exclusionary experiences in older age. Action members are engaged in drafting policy messages (for example see our website), iinternational guidelines and funding applications that address multifaceted forms of exclusion as a result of, or intensified by, COVID-19. This includes topics such as digital exclusion, social isolation and loneliness, service exclusion and ageism and other forms of symbolic exclusion. In addition, ROSEnet members are engaged in a 7-country study of exclusion from social relations. This activity, which commenced prior to the pandemic and is due to collect qualitative data on this topic in the coming months, will directly explore the impact of COVID-19 on older people's social relations.

Contacts: Dr Kieran Walsh ✉

CA15124

A new Network of European BioImage Analysts to advance life science imaging (NEUBIAS)

Summary

This Action is a programme for establishing a network of BioImage Analysts (BIAlysts), in order to maximise the impact of advances in imaging technology on the Life-Sciences (LSc), and to boost the productivity of bioimaging-based research projects in Europe. BIAlysts have recently emerged in various research institutions but these experts are still not well recognised in the LSc community. They are specialised in customising image analysis (IA) workflows by assembling and automating multiple computational tools, and by interacting with software developers and life scientists to facilitate IA. The Action aims to provide a stronger identity to BIAlysts by organising a new type of meeting that fosters interactions between all stakeholders including: life scientists, BIAlysts, microscopists, developers and private sector. It will collaborate with European Imaging research infrastructures to establish best practice guidelines for IA. The Action plans to create an interactive database for BioImage analysis tools and workflows with annotated image sample datasets, to help matching practical needs in biological problems with software solutions. It will also implement a benchmarking platform for these tools. To increase the overall level of IA expertise in the LSc, the Action will: offer a novel training programme with three levels of courses: release open textbooks: and create a programme of short-term scientific missions to foster collaboration, IA-technology access, and knowledge transfer for scientists and specialists who lack these resources. This Action will support the long-term scientific goals of European science and industry by bridging essential fields of scientific excellence.

Offered expertise to the COVID-19 network

NEUBIAS can potentially contribute to helping researchers with their COVID research projects by providing consultancy in image analysis. Please contact the Action Chair, Mr Julien Colombelli, for further details.

Contacts: Mr Julien Colombelli ✉

CA15126

Between Atom and Cell: Integrating Molecular Biophysics Approaches for Biology and Healthcare (MOBIEU)

Summary

Molecular-scale biophysics is a dynamic and ever-expanding interdisciplinary field that studies biological macromolecules and assemblies as a whole, at an intermediate level between atomic-resolution structural descriptions and cellular-level observations ("Between Atom and Cell"), with significant applications in biomedicine and drug discovery. The MOBIEU Action aims to seed a large-scale pan-European interdisciplinary synergistic clustering in order to ally and synergise the power of spectroscopic, hydrodynamic, real-time microfluidic, thermodynamic and single-molecule approaches. This novel open network will create an optimal environment for the development of innovative integrative biophysical approaches, at the level of data acquisition, analysis and modeling, as well as for the design of unprecedented and ambitious combinations of methodologies. The network will make it more efficient to decipher crucial biological phenomena and to overcome significant biomedical challenges. MOBIEU will also broadly disseminate knowledge, notably through the organisation of a strong programme of workshops and Training Schools, and by setting up a STSM scheme, with priority to Early Career Investigators and technical scientists. It will particularly emphasise the construction of a new ... | Read more

Offered expertise to the COVID-19 network

MOBIEU offers expertise on characterization of potential drug targets (virus proteins or RNAs), of host target receptors or co-receptors, identification and characterization of potential inhibitors (antibodies or chemical compunds), and characterization of potential antigenic molecules (to help fine-tuning an anti-Covid-19 vaccine). The current SARS-CoV2 epidemic challenge clearly highlights the necessity of a strong and coordinated molecular biophysics community, notably to understand the viral physiology and pathogenicity, to develop and implement rapid diagnostic methods, and to discover efficient prophylactic and therapeutic strategies.

Contacts: Dr Patrick England ✉

CA15129

Diagnosis, Monitoring and Prevention of Exposure-Related Noncommunicable Diseases (DiMoPEx)

Summary

Adverse health outcomes related to environmental exposure (in the living and working environment) are a major societal challenge. The WHO estimates that worldwide about 55 million people died in 2011 from Non-Communicable Diseases (NCDs), including cancer, diabetes, chronic cardiovascular, neurological and lung diseases. Although epidemiological and toxicological studies provide evidence that environmental exposure played a significant role in the initiation and progression of degenerative diseases and cancer, there is still the challenge of identifying determinants of prevalence and morbidity of NCDs. Much time and resources have been devoted to identifying the contribution of genetic factors in the onset of NCDs. Now it is time to look more closely at the evidence related to environmental factors in the prevalence and morbidity of NCDs. DiMoPEx will develop an interdisciplinary collaborative network, providing insight into emerging issues of morbidity and mortality from exposure-related health outcomes. This Action will offer interdisciplinary opportunities for cooperation between scientists and physicians/clinicians. DiMoPEx ... | Read more

Offered expertise to the COVID-19 network

DiMoPEx offers expertise on human environmental exposure, air pollution (chemical, biological), and detection of noncommunicable diseases (especially respiratory diseases).

The Action consists of interdisciplinary partners focusing on detection, diagnosis and prevention of noncommunicable diseases. The Action partners plan to focus mainly on two aspects of the SARS_COVID-19 epidemic: 1. there could be a possibility to collaborate on air pollution and increased risks related to CORONA virus infections 2. noncommunicable diseases in patients after exposure to CORONA virus and SARS_COVID-19 infection disease (project allready initiated).

Contacts: Prof. Lygia Therese Budnik ✉ Dr Ludwine Casteleyn ✉

CA15135

Multi-target paradigm for innovative ligand identification in the drug discovery process (MuTaLig)

Summary

This Action aims to join highly-qualified research teams working in disciplines related to the field of medicinal chemistry, into a new network devoted to the multi-target issue in drug discovery. Currently, an important and emerging issue in modern drug discovery is to design novel or identify existing bioactive compounds, endowed with the capability to interact selectively with two or more macromolecular targets, exerting their effects against certain therapeutic goals in a synergic fashion. This leading concept stimulated this Action which focuses on novel ligands able to recognise selected multiple targets, in order to promote closer scientific links among European research groups involved in the medicinal chemistry field at both academic and industrial level. This theme has a marked multidisciplinary character, which can ensure a strong interaction among all COST Action participants. The research competencies of the network will span medicinal chemistry, from synthetic chemistry, natural products and biophysics to theoretical chemistry, molecular modelling and biological screening.

Offered expertise to the COVID-19 network

MuTaLig would like to work on the following topic: drug discovery of novel ligands against COVID-19 targets by means of in silico or other rational approaches. It offers: medicinal chemistry facilities applied to drug discovery: in silico simulations (molecular modelling, docking, ADME prediction), chemical synthesis and physico-chemical characterization of bioactive compounds. The Action is looking for expertise on: biophysical and biological tests, with specific reference to targets involved in COVID-19 infection and progression.

Contacts: Prof. Stefano Alcaro ✉

CA15208

Rationing - Missed Nursing care: An international and multidimensional problem (RANCARE)

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 judgment and knowledge in allocating the resources, and on the impact of wider societal values on care. As a result, fundamental patient needs may not be met, which can affect human rights related to discrimination. This Action will enable and facilitate internationally coordinated exchange of expertise and knowledge for both research and clinical practice at European and international level. It is needed because of increasing evidence of 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 facilitate debate on the concept of rationing and the methodological challenges in investigating and monitoring the phenomenon, as well as the development and evaluation of methods of intervention. It will also help stakeholders to develop a responsive research agenda that identifies challenges and innovative cost-effective, ... | Read more

Offered expertise to the COVID-19 network

RANCARE has organised an STSM on COVID-19 : the purpose of the STSM was to explore the frequency of missed care related to infection control and to identify the factors that contribute to missed nursing care related to infection control. Many factors in dealing with missed care in crisis times have been documented. A book and useful recommendations on this topic are planned. Read the success story here.

Contacts: Prof. Walter Sermeus (KU Leuven) ✉ Prof. Annette Schuermans (KU Leuven) ✉

CA15210

European Network for Collaboration on Kidney Exchange Programmes (ENCKEP)

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 disproportionally disadvantaged by the small scale of many national (or local) KEPs in Europe. The solutions provided by KEPs vary in how they address problems in: 1) the policy domain (prioritisation, equity, and accessibility); 2) the clinical domain (clinical practice and evidence), and; 3) 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 policymakers, clinicians and optimisation experts in Europe to: 1) exchange best practices and scientific state of the art with respect to national KEPs; 2) develop a jointly-used, common framework for data and optimisation; 3) develop and test ... | Read more

Offered expertise to the COVID-19 network

ENCKEP's network is investigating the challenges of COVID-19 in transplantation at knowledge, policy and practice levels. A survey has been circulated within the Action and inputs from different countries are being collected. The Action Chair will put any interested parties in contact with the person coordinating this activity.

Contacts: Prof. David Manlove ✉

CA15211

Atmospheric Electricity Network: coupling with the Earth System, climate and biological systems (ELECTRONET)

Summary

An atmospheric electric field (AEF) of 100 V/m to several kV/m exists in the atmosphere, resulting from a global electric circuit that extends from the surface to the lower ionospheric layers. The study of many environmental processes can greatly benefit by the inclusion of atmospheric electricity, including (but not limited to) earthquakes, aerosols / clouds and climate, sun-earth interactions, air pollution, and lightning. Further, there is emerging evidence that AEF variations may interfere with biological processes, including human brain function. The proposed Action aims to address the lack of coordination between different research efforts in these fields, by involving and integrating existing resources in the field of atmospheric electricity; creating a network; enhancing interaction; creating the necessary critical mass of researchers and facilities to advance knowledge; introducing new techniques; and transferring know-how. The Action will improve the understanding of a number of processes at the interface of solid earth, environmental, biological, climatic and solar/terrestrial sciences.

Offered expertise to the COVID-19 network

ELECTRONET is planning to work on the topic of simulation of COVID-19 epidemic spread and data analysis. The Action offers expertise on Data Analysis and Modeling. It is also looking for expertise on Data Analysis and Modeling.

Contacts: Prof. Konstantinos Kourtidis ✉

CA15223

Modifying plants to produce interfering RNA (iPLANTA)

Summary

Methods to exploit plant defence mechanisms or changing plant metabolism by RNA silencing show great potential. Interfering RNA can be used to improve plant composition while enhancing levels of beneficial nutrients, and to improve plant productivity by suppressing undesirable traits and switching resources to more beneficial quality and yield traits.Gene expression in pathogens and pests can be targeted and plants modified to produce dsRNAs which trigger silencing and affect essential physiological functions in pest or disease-causing organisms.

Many of the modes of activity of the micro- and small interfering RNAs (miRNAs, siRNAs) that mediate the silencing effect are not yet fully understood and knowledge of systemic propagation, turnover, specificity etc. of these molecules is limited.

This Action will define and coordinate the most important research tasks for the ... | Read more

Offered expertise to the COVID-19 network

iPLANTA offers expertise on plant disease and pest resistance, interfering RNA, and silencing genes of virus replication.

RNAi technology can be applied to silence genes of virus replication and infection so to control them. The efficiency of this technology has been demonstrated to control different pests and diseases, including virus in plants.

Results have also been obtained with a view to control viruses in humans, but the application of this technology remains limited as the development and application of vaccines is considered much more efficient. In the case of COVID-19 it has not yet been possible to develop a vaccine and this will probably still take a long time. It may therefore be important to also consider the RNAi technique to develop new products that can allow ... | Read more

Contacts: Prof. Bruno Mezzetti ✉

CA16111

International Ethnic and Immigrant Minorities' Survey Data Network

Summary

The main goal of this network is to bring together researchers, policymakers and survey data producers to combine their efforts to improve the access, usability, dissemination and standards of the multiple and scattered survey data that exist on the economic, social and political integration of ethnic and migrant minorities (EMMs). This Action is both relevant and timely as it will provide the mechanisms to enhance research capacity in Europe in the field of EMMs' economic, social and political integration. Furthermore, it will allow for a solid and evidence-based transfer of knowledge to policymakers and civil society organisations on the key consequences and social processes related to the integration of EMMs in European societies and elsewhere. The COST network will focus immediately on multiplying research capacity and transferring knowledge to a multiplicity of audiences and stakeholders. It will achieve these goals by compiling, documenting, archiving and pooling a large amount of data coming from various comparable studies conducted around Europe, thereby providing the means to improve ... | Read more

Offered expertise to the COVID-19 network

The substantive focus of CA16111 is removed from COVID-19 but as a result of contacts created within the COST Action, the Chair is currently collaborating with the main research infrastructure project of H2020 for the Social Sciences and Humanities (SSHOC). In the context of SSHOC they are discussing the possibility of creating an online portal for COVID-19 related research and resources within EOSC as well. The Chair is also collaborating with the Research Data Alliance (RDA) in the drafting of a report on recommendations on how to share data on COVID-19 in the domain of the social sciences and the humanities. In the context of the Action itself we could use our EMM Survey Register to record all surveys that are being undertaken on the impact of COVID-19 on ethnic and migrant minorities across Europe Hence the interest to be included in any initiative or critical mass opportunities within ... | Read more

Contacts: Prof. Laura Morales ✉

CA16112

Personalized Nutrition in aging society: redox control of major age-related diseases

Summary

The importance of a healthy ageing process becomes apparent when considering that: (a) the Generation 50+ (G50+) already has around a one-third share of the population across Europe, with obvious regional variations; (b) this share is likely to increase in the future; and (c) vitality in older age is not only an important measure of quality of life but is also key to participation and productivity. The 'nutrition and ageing' theme has many different aspects and poses numerous challenges which provide a fertile ground for many research themes and networks. Among them, the NutRedOx network will focus on the impact of redox active compounds in food on healthy ageing, chemoprevention and redox control in the context of major age-related diseases. The main aim of the Action is to gather experts from across Europe, including other Mediterranean countries, and from different disciplines who are involved in the study of biological redox active food components and are relevant to the ageing organism, its health, function and vulnerability to disease. Together, these experts will form a major and sustainable ... | Read more

Offered expertise to the COVID-19 network

The Action is a broadly multidisciplinary network with epidemiological, biological, biochemical, chemical, clinical, medicinal and therapeutical aspects. It thus has a clear interest in the ability of natural compounds to positively modulate age-related diseases with a particular focus on polyphenolic-type compounds with redox activity. Some of them have already shown to display broad antiviral properties (entry inhibitor, anti-inflammatory ...) and a few compounds are currently being analysed on COV-SARS-2 by some of the Action's participants. For example, some natural compounds are currently under spotlights such as quercetin in Canada. Potential inputs of the Action into the COVID network would be : Antivirals - Search for some natural compounds that can block host entry of COVID-19 (CovidS-Ace2 receptor interaction ...) - Evaluation of polyphenols ... | Read more

Contacts: Dr Mourad Elhabiri ✉

CA16116

Wearable Robots for Augmentation, Assistance or Substitution of Human Motor Functions

Summary

Wearable robots (WRs) is an emerging field in personal devices that are integrated parts of human functioning and are constructed from typical robotic components such as actuators, sensors and control algorithms. Where conventional robots were typically intended for use in industrial environments to help with tedious and repetitive tasks and those requiring high precision, the situation is currently evolving to one where there is an increasing direct physical interaction between robot and human operator. The interaction with humans in WRs is not only physical, but also includes cognitive aspects as, during the interaction, control of functions is typically shared by human and machine. WRs can be used either to augment, train or supplement motor functions or to replace them completely. They operate alongside human limbs, as is the case in orthotic robots, exoskeletons or robotic suits. WRs are expected to find applications in medical, industrial and consumer sectors, such as neuro-rehabilitation, worker support or general augmentation. As WRs continuously interact with humans in multiple situations, human robot interaction, ... | Read more

Offered expertise to the COVID-19 network

A part of this network is involved in rehabilitation robotics / functional movement therapy devices; under the current COVID-19 situation there seem to be certain related needs, especially for: - solutions for COVID-19/ICU patients to prevent muscle loss due to inactivity, or to provide suitable rehabilitation practice post ICU - solutions to maintain (neuro-)rehabilitation services while facing certain restrictions in the clinical environment: tele-rehabilitation or robot-mediated rehabilitation. Several of these solutions are in place in different degrees of development, up to certified product status. Often, diverse barriers (traditional clinical ways of working, reimbursement models, ...) hinder a fast adoption of such innovations. Considering the current urgent situation and the pressure on the healthcare systems, this may be a good time to faster adopt new solutions, in order to relieve ... | Read more

Contacts: Dr Jan Veneman ✉

CA16119

In vitro 3-D total cell guidance and fitness (CellFit)

Summary

The present Action is aimed at refining our understanding of the in-vivo micro-environment, reducing the differences when translating it in vitro, to create 3D total guidance ex-vivo culture systems to replace the use of animals. Traditional in-vitro 2D culture systems fail to imitate the physiological and biochemical features of cells in the original tissue. Differences between the micro-environment provided by cell culture models and that distinct in the in-vivo tissues are significant and can cause deviations in cell response and behaviour. In this Action, the present understanding of the in-vivo micro/macro-environment will be refined in order to reproduce in vitro the physiological system in the best possible way: surface topography, substrate stiffness, mechanical stimulation, chemical cues and localised density will be analysed. This will enable the development of a reliable '3D total guidance' in-vitro model, thereby reducing the number of animals used and allowing for a safe translation of the current basic knowledge in cell repair and regeneration from the laboratory bench to clinical application, to produce a positive impact on everyday life, patients and general health costs. As research in this field is being performed by different groups in the EU, efforts are needed to coordinate them to avoid duplication, set targets ... | Read more

Offered expertise to the COVID-19 network

CellFit is interested in collaborative interactions related to COVID-19. The Action is setting up 3D platforms with respiratory tract cells, VERO cells and MSC in order to create more physiological models of infection substrates. These cultures are used to explore how they interact with nanoparticles (selected for the same size of COVID-19). The idea is to have an in vitro model to investigate how the virus is taken up by cells, mimicking the mechanisms that may be active at early stages prior to viral replication and how this can be prevented, using a nanomedicine supported approach. CA16119 would like to collaborate with nanoparticle experts, virologists, toxicologists and pharmacologists.

Contacts: Prof. Tiziana Brevini ✉

CA16121

From Sharing to Caring: Examining Socio-Technical Aspects of the Collaborative Economy

Summary

In recent years, the terms 'sharing economy' or 'collaborative economy' have been commonly used to refer to the proliferation of initiatives, business models and forms of work. The main objective of this Action is to develop a European network of actors (including scholars, practitioners, communities and policymakers) focusing on the development of collaborative economy models and platforms and on social and technological implications of the collaborative economy through a practice-focused approach. The specific aims of the proposal are: (i) to develop a deeper understanding of all aspects of the collaborative economy phenomenon by studying in-depth the socio-technical systems and human practices involved, comparing and reflecting upon local, regional, national and international initiatives; (ii) to discuss and critique elements of the current discourse on the collaborative economy, and propose a richer definition and characterisation of the phenomenon; (iii) to formulate a European research agenda for the socio-technical aspects of the collaborative economy, including specifically the design of future technological platforms, the technical infrastructure, and their legal, ethical and financial implications; and (iv) to articulate a European research perspective on the collaborative economy based on EU social innovation values, and in line with the Europe 2020 strategy objective to become a smart, sustainable and inclusive economy by 2020. The Action will produce online resources, including publications offering a comprehensive view of the current European collaborative economy and socio-technical and policy recommendations for the future.

Offered expertise to the COVID-19 network

Sharing and Caring is collecting collaborative economy initiatives related to the COVID-19 crisis from the participating countries, that will be published on its website as part of the Short Stories repository.

The Action is also open to collaboration with any other COST Actions.

Contacts: Dr Gabriela Avram ✉

CA16124

Brillouin Light Scattering Microspectroscopy for Biological and Biomedical Research and Applications (BioBrillouin)

Summary

The BioBrillouin Action will establish a collaborative network of European researchers and instrument developers working in the field of Brillouin Light Scattering Spectroscopy (BLSS) applied to life sciences and health-related problems. BLSS uses visible or infra-red light from a laser source to probe the mechanics of a material through light scattering from thermally induced acoustic modes. It can give access to the viscoelasticity and structure of matter in a non-destructive, contactless way, and when coupled with optical (confocal) microscopy, has proven to be particularly well suited to biomedical applications. Although an established tool in condensed matter physics, it is only recently that BLSS has seen promising applications in the life sciences and medical diagnostics. This can be largely attributed to advances in instrument (spectrometer) design along with increasing interest in the biomechanics of cells and tissues and their relation to disease, underlying genetics and biochemistry. There are now a significant and growing number of researchers actively working in BLSS for biomedical research in Europe. The BioBrillouin Action aims for the first time to bring together the diverse community working in the field, which includes instrument developers, physicists, chemists, biologists and clinicians, with the core objective of stimulating collaboration, promoting technological advancement and paving the way towards routine life science research and clinical applications of BLSS.

Offered expertise to the COVID-19 network

Brillouin Light Scattering Spectroscopy (BLSS) uses visible or infrared light from a laser source to probe the mechanics of a material through light scattering from thermally induced acoustic modes. It can give access to the viscoelasticity and structure of matter in a non-destructive contactless way, and when coupled to optical (confocal) microscopy, has proven to be particularly well suited for biomedical applications.

Contacts: Dr Kareem Elsayad ✉

CA16201

Unraveling new physics at the LHC through the precision frontier (ParticleFace)

Summary

Elementary particle physics is currently described by the Quantum Field Theory (QFT) called the Standard Model (SM). The SM, being an apparent success, is well known to be theoretically incomplete. Fundamental questions underlying the quantum structure of Yang-Mills theories are still unanswered. The SM neither accounts for mass hierarchies nor for dark matter or dark energy. Most importantly, it cannot remain valid to arbitrarily high energies and does not include gravity. Following confirmation of the existence of Higgs boson, entirely new questions have come into focus in the field. The key to addressing these questions is to confront experimental data with theoretical predictions with the highest possible precision. Current Large Hadron Collider (LHC) data do not indicate a clear signal of new physics. Therefore, any evidence is expected to appear as a slight deviation from the SM. Precision phenomenology is the necessary prerequisite for theory and collider physics in the coming years and will be the driving element in the development of new and innovative tools and algorithms to perform a meaningful comparison between theory and data. The aim of this Action is to shift the precision frontier to a new level of accuracy and to create new resources of networking and innovation, with the quest for discovery as the main motivation. It is designed to work through long-standing challenges on the basis of the most encouraging advances in QFT and related areas of pure mathematics and computer science by uniting the leaders of the field in a coherent effort.

Offered expertise to the COVID-19 network

ParticleFace is active in the field of particle physics, both theoretically and experimentally, and its goal is to provide the most accurate theory predictions possible to describe the data collected at experiments in high-energy colliders. Machine Learning techniques have been used in particle physics since long, and are now playing an even more prominent role. ParticleFace offers experience in theoretical modelling and data analysis. It needs some counterpart in the field of epidemiolgy, biology, or even sociology to tackle specific problems.

Contacts: Dr German Rodrigo ✉

CA16202

International Network to Encourage the Use of Monitoring and Forecasting Dust Products (inDust)

Summary

Sand and dust storms (SDS) are extreme meteorological phenomena that generate significant amounts of airborne mineral dust particles. SDS play a significant role in different aspects of weather, climate and atmospheric chemistry and represent a serious hazard to life, health, property, environment and the economy. Understanding, managing and mitigating SDS risks and effects requires fundamental and cross-disciplinary knowledge. Over the last few years, numerical prediction and observational products from ground and satellite platforms have become prominent at several research and operational weather centres due to growing interest from diverse stakeholders, such as solar-energy-plant managers, health professionals, aviation, and policymakers. Current attempts to transfer tailored products to end-users are not coordinated, and the same technological and social obstacles are tackled individually by all different groups, which makes the use of data slow and expensive. The overall objective of the proposed Action is to establish a network involving research institutions, service providers and potential end-users of information on airborne dust. Since airborne dust transport has multi- and trans-disciplinary effects at local, regional and global scales, the present Action involves a multidisciplinary group of international experts on aerosol measurements, regional aerosol modelling, stakeholders and social scientists. The Action will seek to coordinate and harmonise the process of transferring dust observation and prediction data to users as well as to assist the diverse socio-economic sectors ... | Read more

Offered expertise to the COVID-19 network

Some ongoing studies of inDust participants search to correlate the air quality levels with the incidence of the coronavirus. At the moment, the inDust network is not leading any specific activity. However, it can offer its network of experts that includes epidemiologists, atmospheric and social researchers. Because of inDust's background, the Action is looking to contribute to any study that tries to understand the atmospheric factors that can contribute to the spread of the virus.

Contacts: Dr Sara Basart ✉

CA16215

European network for the promotion of portable, affordable and simple analytical platforms

Summary

This research area is dominated by the so-called 'big scientific instruments' which have enabled multiple breakthroughs in health, forensics, pollution or agri/food. However, the high cost of such instruments and the need for skilled professionals to operate them are limiting their use to a few social and economic spheres of society. Modern separation techniques are no longer limited to large instrumentation, with numerous studies demonstrating the possibility of achieving fast and efficient analysis using low-cost devices. Such tools would be highly beneficial to SMEs and small organisations that do not have the financial and human resources to afford large, expensive instruments. It is therefore of economic and societal interest to facilitate and promote a wider use of such analytical platforms. With low-budget organisations in mind, such instruments should be affordable and simple to use, allowing for their utilisation by inexpert staff. Ideally, they should also be portable so that they can be used on-site or in the field and are easily carried around. The PortASAP Action aims to work towards this goal by involving scientists working in separation sciences, engineers, chemometricians and other scientific fields, with end-users lacking expertise in analytical chemistry and instrument manufacturers. PortASAP will provide a platform where analytical requirements in applied areas can be matched with expertise. It will also provide training and promote awareness regarding the potential of low-cost analytical techniques.

Offered expertise to the COVID-19 network

Modern separation techniques are no longer limited to large instrumentation, with numerous studies demonstrating the possibility of achieving fast and efficient analysis using low-cost devices. CA16215 facilitates and promotes a wider use of such analytical platforms. Several of the Action's participants have come forward offering their expertise in view of a collaboration in the COVID-19 context. For more details, click here.

Contacts: Dr Guillaume Erny ✉, Dr Hasan Kurt hasan ✉, Prof. Ozan Unsalan ✉, Dr David Kinahan ✉, Dr Zhugen Yang ✉, Dr Lorena Diéguez ✉, Dr Emir Karamehmedovic ✉, Dr Claudio Larosa ✉, Prof. Rene Kizek ✉, Dr Saverio de Vito ✉, Dr Eithne Dempsey ✉, Dr Meral Yuce ✉

CA16216

Network on the Coordination and Harmonisation of European Occupational Cohorts (OMEGA-NET)

Summary

Occupation and paid employment are essential components of adult life and major determinants of health and healthy ageing. However, in recent years, there has been very limited coordination and promotion of European health research on occupation and employment. Europe currently has some of the most valuable occupational, industrial and population cohorts worldwide. The lack of integration of these cohorts is hampering the optimal exploitation of these resources, which are essential to underpin evidence-based interventions and policy. The overarching concept of the 'Network on the coordination and harmonisation of European occupational cohorts' (OMEGA-NET) is to create a network to optimise the use of occupational, industrial and population cohorts at the European level. OMEGA-NET will advance the: (i) collaboration of existing cohorts, with extensive contemporary information on employment and occupational exposures; (ii) coordination and harmonisation of occupational exposure assessment efforts; and (iii) facilitation of an integrated research strategy for occupational health in Europe. We will inventory numerous cohorts with occupational information in Europe; implement an online interactive tool with detailed information on existing cohorts; facilitate work on the harmonisation of occupational exposure and health outcome information and new protocols for data collection; ... | Read more

Offered expertise to the COVID-19 network

OMEGA-NET has expertise available on:
Exposure Science
- Assessment of occupational exposures
- Other work-related issues such as precarious work, working hours etc.
- Exposure control (including virus), based on principles using the control hierarchy (elimination, engineering controls, administrative controls, in addition to personal protective equipment)

Occupational epidemiology
- Risk modelling

Contacts: Dr Ingrid Sivesind Mehlum ✉

CA16227

Investigation and Mathematical Analysis of Avant-garde Disease Control via Mosquito Nano-Tech-Repellents (IMAAC)

Summary

IMAAC is aiming at an investigation and mathematical analysis of the effect of avant-garde control measures in vector-borne diseases involving day-time active mosquitoes transmitting diseases like dengue, Zika, chikungunya and yellow fever. The control measures involve new technologies in textile and paint products based on nano- and micro-particles releasing repellents or pesticides in a well-portioned dosage. The study will also be expanded to scenarios using vaccines in combination with the mentioned control techniques. The main focus will be on dengue fever transmitted via Aedes aegypti and Aedes albopictus mosquitoes in synergy with existing EU projects, although the application will also have positive effects on other vector-borne diseases. Nano- and micro-particles are used in textile production for various purposes, and can be used to release chemicals like repellents and insecticides at a well-controlled rate. First attempts have been made in this direction, but no efficacy studies have been performed as yet. The spectrum of combinations of nano- or micro-particles, repellents, insecticides and types of textiles (or paint) has not been studied well. In particular, efficacy studies in cases using these control measures in combination with vaccines are unchartered territories, and mathematical modelling has to be developed. This Action aims to bring together experts from epidemiology, biostatistics, mathematics, biology, nanotechnology, chemical and textile engineering to implement new techniques to combat mosquito-transmitted vector-borne diseases. The key question remains how far such avant-garde measures can help to reduce the burden of disease, eventually in collaboration with existing vaccines which turned out to have only limited efficacy on their own.

Offered expertise to the COVID-19 network

IMAAC Action, while working on mosquito-borne diseases, has modified a pandemics simulator created a few years ago for the spread and possible control of COVID-19.

Contacts: Prof. Martin Eichner ✉ Dr Markus Schwehm ✉ Ms Virginia Sanz Sánchez ✉
Dr Peyman Ghaffari ✉ Prof Ana Marija Grancaric ✉

CA16230

Combatting anthelmintic resistance in ruminants (COMBAR)

Summary

Helminth parasitic pathogens cause severe disease and are among the most important production-limiting diseases in grazing ruminants. Frequent use of anthelmintics to control these infections has resulted in the selection of drug-resistant helminth populations. Today, anthelmintic resistance (AR) is found in all major helminth species across Europe and globally. The COMBAR Action will advance research on the prevention of anthelmintic resistance in helminth parasites in ruminants in Europe and disseminate current knowledge among all relevant stakeholders. By gathering parasitologists, social scientists and agricultural economists, COMBAR will bring together a multidisciplinary blend of scientists who do normally rarely interact. Inclusion of SMEs and industry in the consortium will facilitate the dissemination of knowledge and novel technologies across the animal health playing field. COMBAR will integrate novel developments in the field of: (i) diagnostic tests; (ii) vaccines to protect animals from infection; (iii) anti-parasitic forages; (iv) selective treatment strategies; and (iv) decision-support tools. COMBAR will tackle AR by evaluating these novel technologies and assessing their economic trade-offs and barriers to uptake in a European coordinated approach.

Offered expertise to the COVID-19 network

COMBAR focuses on anthelmintic resistance in parasitic worm infections in animals. The Action's experts are using social and economic sciences to allow better decision making on disease control, taking into account multiple diseases and epidemiologic, economic and social factors. They can contribute to interdisciplinary approaches to tackle epidemics while also considering the endemic diseases that continue to cause a great health and economic burden. They can also look at the role of co-infections (viruses, bacteria and parasites) infecting animals at the same time and affecting disease evolution, spread and development of immunity.

Contacts: Dr Johannes Charlier ✉

CA16231

European Network on Vaccine Adjuvants (ENOVA)

Summary

This Action aims to bring together experts and stakeholders from the three main areas of vaccine research – human infectious disease, cancer, and animal disease – in order to address one of the most critical steps in vaccine development: the use of adjuvants in vaccine formulations. The ultimate goal is to establish a platform to discuss, share and synergise available knowledge on adjuvants and vaccine formulation, and to coordinate their translation into successful, safe and innovative vaccines. Significant effort will be put into bridging these three separate vaccine fields. This network will significantly strengthen ongoing EU-funded activities and provide a platform for accelerating the development of affordable and effective vaccines in Europe. In addition, as well as sharing their experiences with each other, the Action participants will also engage with the general public, providing impartial, balanced and scientific information on adjuvants and vaccines. This Action will contribute to strengthening Europe's position as a global leader in vaccinology and will increase knowledge across the currently separated fields of vaccine ... | Read more

Offered expertise to the COVID-19 network

ENOVA would like to work on the following topics:

- Development of COVID-19 vaccines using different adjuvant systems
- Development of different versions of the S protein from SARS-CoV-2 virus produced by recombinant baculovirus vectors in the insects CrisBio© technology platform
- Development of COVID-19 vaccines using different adjuvant systems
- Testing of immune response of the different single or multimeric recombinant S protein versions generated in the insects CrisBio© platform using different adjuvants
- Testing of prime-boost immunization regimes using ... | Read more

Contacts: Ms Ana Falcon ✉

CA16235

Performance and Reliability of Photovoltaic Systems: Evaluations of Large-Scale Monitoring Data (PEARL PV)

Summary

The aim of this Action is to improve the energy performance and reliability of photovoltaic (PV) solar energy systems in Europe. This will lead to lower costs of the electricity produced by PV systems due to a higher energy yield, a longer lifetime eventually beyond the guaranteed 20 years as specified by manufacturers, and a reduction in the perceived risk in investments in PV projects. This objective will be achieved by analysing data of the actual monitored long-term performance, defects and failures in PV systems installed all over Europe to quantitatively determine the absolute influences of components' rated performance, the key design of systems, installation, operation, maintenance practice, geographic location and weather factors on the performance, performance degradation over time and failure modes of these PV systems. Despite the rapidly growing PV systems market, to date an Action on PV system performance and reliability has yet to be established. On the other hand, it is very important to ensure the performance of PV systems to achieve long-term goals for them in the future single energy market, such as economic viability, securing investments, environmental sustainability, and security and predictability of supply. Our aim is particularly suited to a COST Action as it entails the formation of an inclusive network of PV system researchers, data resources that will be analysed by researchers, forming the largest-ever agglomeration of PV systems performance data in Europe, and experts who can include more-nuanced evidence-based reliability in PV system evaluation methods and simulation and design tools.

Offered expertise to the COVID-19 network

PEARL PV could offer support by its new internationally accessible CKAN data repository, which can be used in a secure manner for uploads, sharing and processing of data. It could create a special environment for this COVID-based collaboration.

Contacts: Prof. Angèle Reinders ✉

CA17102

POLICE STOPS

Summary

Stop and search (S&S) is a practice carried out by the police worldwide which enables police officers to stop a person, prevent him or her from pursuing his or her passage (Bowling & Philips, 2007; Bowling & Weber, 2011) and, if necessary, proceed with a search. Two types of S&S approaches can be distinguished: the reactive approach, whereby the police decide to stop someone as a response to suspicious behaviour or circumstances in order to find proof of criminal activity, and the proactive approach, where the goal is to deter future offences and maintain public order (Murray, 2014). The latter fits well within the current 'culture of control' which aims to identify suspicious individuals as soon as possible (Van der Leun & Van der Woude, 2011). In various European countries, S&S has been a source of considerable debate. It is argued that S&S principally targets certain population groups and more specifically ethnic minority groups (ethnic profiling) and young people (Delsol & Shiner, 2006; Sollund, 2006). Consequently, S&S is a rather controversial practice that can have a negative effect on the public and can impact the legitimacy of ... | Read more

Offered expertise to the COVID-19 network

POLICE STOPS is interested in collaborating on the COVID-19 situation. It is working on police stops and it seems that police powers have expanded in quite a lot of European states. In response to the current COVID-19 public health crisis, European states have introduced measures to close workplaces, to limit the movement of people and to require or encourage social distancing. The ways in which these measures have been formulated and enforced vary from one country to the next and, in many cases, from one town to another. The Action is seeking responses to questions that are rising on the use of their (sometimes special) powers, accountability, etc. and the effect this will have on policing, social capital, human rights and communities within the EU (foremost in the 29 countries of our network). It aims to better understand some of these variations as part of the COST Action on Police Stops.

Contacts: Prof. Sofie De Kimpe ✉

CA17104

New diagnostic and therapeutic tools against multidrug resistant tumors (STRATAGEM)

Summary

This Action will build the first multidisciplinary network, including academic laboratories, research institutes and small and medium-sized enterprises (SMEs), with a wide range of excellent and non-overlapping expertise, aiming to improve the diagnosis and therapy of multidrug resistant (MDR) solid tumours.

Until now, knowledge of biomarkers and therapeutic tools used against MDR tumours has been fragmented. There are no algorithms which are predictive/diagnostic of MDR tumours ex-ante; and all previous therapies against MDR tumours have failed. The key challenge of this Action is to fill these gaps by producing a comprehensive, open and user-friendly platform of knowledge on MDR tumours, identifying new diagnostic/predictive biomarkers, and producing new and safe compounds applicable to personalised treatments of MDR tumours. Up to 70 % of solid tumours are resistant to diagnosis, which means poor quality of life quality and prognosis for patients and high management costs for European healthcare systems. This Action is working to ... | Read more

Offered expertise to the COVID-19 network

In the COVID-19 context, STRATAGEM would benefit from expertise in virology (particularly for this type of virus) in institutions with Biosafety Level 2 labs, to test the antiviral effect of novel compounds. CA17104 is already in contact with other Actions with a view to collaborate. It is focusing on SARS-CoV-2 research in the area of therapy, using the different protein components as targets:

- Hit identification
- Drug and clinical trial compound's repurposing
- PROTAC development
- Activity optimization for known drugs (not yet started). The idea behind this part concerns the fine tuning of the molecular structure of known drugs by applying small modifications able to improve the compound's ... | Read more

Contacts: Prof. Chiara Riganti ✉
Prof. Helena Vasconcelos ✉
Mr Dale James Matthew Lawson ✉
Dr Thomas Mohr ✉

CA17107

European Network to connect research and innovation efforts on advanced Smart Textiles (CONTEXT)

Summary

The aim of the COST CONTEXT Action is to create a network of European researchers and main relevant stakeholders to develop joint ideas and initiatives which can be turned into advanced smart textile products. A smart textile material is a "functional textile material which interacts actively with its environment, i.e. it responds or adapts to changes in the environment". They find applications in all sectors and especially in health and medical, automotive and aeronautic, personal protective equipment, sports and wearables, and buildings and interior design. Although several R&D projects have been carried out in this field in recent years, most of the prototypes developed have not reached the market for many reasons, such as product reliability, production economies, and the absence of a demonstrated use case and/or value proposition.

In that sense, CONTEXT is aiming to ignite research and innovation projects (with outputs with high technology readiness levels expected) by bringing together in the same network and through working ... | Read more

Offered expertise to the COVID-19 network

CONTEXT members are working on:
- Textile materials for personal protection
- Production of the COVID-19 protection products – those which can be produced by sewing
- Combining the people & technologies. Connection between companies, R&D institutes and end-users with different skills
- Sharing novelties inside the group of experts
- Development of solutions for protective equipment based on fiber-based materials
- Looking for new fabrics/combinations for masks and solutions to reuse disposable masks
- Establishment of requirements for protective equipment development
- Synthesis of biological active compounds with antibacterial and anticancer activity
- Development of nanoparticles

CONTEXT members offer ... | Read more

Contacts: Dr Ariadna Detrell ✉

CA17112

Prospective European Drug-Induced Liver Injury Network (DILI)

Summary

There is a clear unmet need for a deeper understanding of idiosyncratic drug-induced liver injury (DILI), a multilayered challenge that spans the life of the drug from preclinical development to clinical trials and post-marketing.

The aim of the PRO-EURO-DILI-NET COST Action is to create a unique, cooperative, interdisciplinary, European-based DILI network of stakeholders to coordinate efforts in DILI, to facilitate bidirectional exchange of discovered knowledge and generated hypotheses among different disciplines, and to promote clinically impactful knowledge discovery and its translation into clinical practice.

This Action will: 1) harmonise efforts towards in-depth DILI phenotyping and a bio-sample repository and coordinate pre-funded database/repository studies to aggregate a large number of DILI cases in a standardised manner (WG1); 2) establish a strategy for development, validation and performance of DILI novel biomarkers and explore multifactorial DILI risk modifiers in clinical datasets using novel approaches for future precision medicine (WG2); 3) facilitate clinically impactful knowledge discovery by introducing biological variations and their complexity (i.e. multi-cellular/multi-organ systems) into toxicological experiments to assess hepatotoxicity to guide future drug safety testing (WG3); 4) define criteria and establish end points to measure efficacy on novel interventions in DILI (WG4); and 5) draft policy recommendations about near-patient testing tools. The network will promote and coordinate a highly translational and innovative research programme in Europe and beyond with the ultimate goal of pre-empting and preventing DILI, ... | Read more

Offered expertise to the COVID-19 network

DILI advances knowledge on the diagnosis and management of drug-induced liver injury (DILI) in patients with COVID-19 with and without preexisting liver conditions.

Contacts: Prof. Raul Andrade ✉

CA17116

International Network for Translating Research on Perinatal Derivatives into Therapeutic Approaches (SPRINT)

Summary

Stem cells hold great promise in the evolving field of regenerative medicine, and there are many sources from which they can be obtained. Over the past decade, different perinatal (Pn) tissues have been shown to harbour a vast array of stem cells with therapeutic potential. This relatively new field of research is rapidly expanding and its relevance is supported by the recent emergence of clinical trials in Europe and worldwide. There are, however, many issues that need to be addressed to ensure optimal research outcome and clinical experimentation data interpretation. These issues range from the need to reach a consensus on nomenclature and optimal techniques for isolation, characterisation and cryopreservation, to more advanced issues such as collating data and expertise towards the understanding and exploitation of the mechanisms and therapeutic actions of perinatal derivatives. It is also necessary to identify gaps in knowledge and how collaborative research can address these. Therefore, this COST Action will unite a currently fragmented critical mass of academic, clinical and industry expertise ... | Read more

Offered expertise to the COVID-19 network

SPRINT is focused on perinatal derivatives which have been shown (in particular perinatal mesenchymal stromal cells-MSC) to have strong anti-inflammatory, immune-modulatory, and anti-microbial properties. Members of this Action have expertise in a wide variety of topics in regenerative medicine, that include (but are not limited to) cell therapy and inflammatory disorders, including lung fibrosis. The application of Perinatal MSC or MSC-derived extracellular vesicles, in COVID-19 constitutes an interest of the Action because, due to their potent immunomodulatory properties, these cells and their derivatives are currently being proposed as a potential therapeutic application to fight the deleterious inflammatory reaction observed after COVID-19 infection. As a matter of fact, several Action members are already working on COVID-19 (clinical and research activities).

Contacts: Prof Ornella Parolini ✉

CA17117

Towards an International Network for Evidence-based Research in Clinical Health Research (EVBRES)

Summary

Redundant clinical research has been published due to the absent use of systematic reviews (SR) when new research is planned. It is unethical, limits the available funding for important and relevant research, and diminishes the public's trust in research. To raise awareness of this inappropriate practice, the EVBRES consortium defines 'evidence-based research' (EBR) as the use of prior research in a systematic and transparent way to inform a new study so that it answers the questions that matter in a valid, efficient and accessible manner. New studies should be informed by SRs as to the most appropriate design and methods. EVBRES will establish an international European-based network aiming to raise awareness of the need to use of SRs when planning new studies and placing new results in context. PhD students and senior clinical researchers need to learn how to find, critically appraise and update a SR, answering the same clinical questions as the new study plans to answer. Closely related to this is the involvement and awareness of related stakeholders, including patients, ethics committees, ... | Read more

Offered expertise to the COVID-19 network

EVBRES recently published the paper "Novel Coronavirus (2019-nCoV) Infection in Humans: A Scoping Review and Meta-Analysis" in The Lancet.

Two more published manuscripts are
1. Wolkewitz and Puljak, "Methodological challenges of analysing COVID-19 data during the pandemic"
2. Ruano et al., "What evidence-based medicine researchers can do to help clinicians fighting COVID-2019?".

Additionally, the following study has been published on a preprint server (currently under review):

Fidahic M, Nujic D, et al., "Research methodology and characteristics of journal articles with original data", preprint articles and registered clinical trial protocols about COVID-19.

Contacts: Prof. Hans Lund ✉ Prof. Ana Marusic ✉ Dr Tina Poklepović Peričić ✉ Dr Irena Prodan Žitnik ✉ Prof. Livia Puljak ✉

CA17122

Increasing understanding of alien species through citizen science (ALIEN-CSI)

Summary

There is no sign of saturation in the accumulation of alien species (AS) introductions worldwide. Furthermore, the rate at which some species are spreading has also been shown to be increasing. However, the challenges of gathering information on AS have been recognised. Recent developments in citizen science (CS) provide an opportunity to improve data flow and knowledge on AS while ensuring effective and high-quality societal engagement with the issue of invasive alien species (IAS). Advances in technology, particularly online recording and smartphone apps, along with the development of social media, have revolutionised CS and enhanced connectivity while new and innovative analysis techniques are emerging to ensure appropriate management, visualisation, interpretation and use and sharing of data.

The Action will address multidisciplinary research questions in relation to developing and implementing CS, advancing scientific understanding of AS dynamics while informing decision-making, specifically implementation of ... | Read more

Offered expertise to the COVID-19 network

Several members of ALIEN-CSI are preparing a project proposal with aims related to the COVID-19 pandemic, especially focusing on the effects of wildlife trade on biological invasions, and how consequences of pandemics (e.g. trade bans) might influence the global commerce of wildlife.
· A topic we are planning to work on: effects of wildlife trade on pandemics; consequences of outbreaks on wildlife trade; predicting how future outbreaks might affect the emergence of biological invasions
· Expertise CA17122 can offer: considerable experience in several topics in ecological science; research in biological invasions, dealing with different aspects of global change issues, including the environmental and socioeconomic impacts posed by biological invasions; assessing expert knowledge through online surveys
· Expertise the Action is looking for: experience in administrating surveys/social sciences; experience in illegal wildlife trade.

Contacts: Ms Joana Teixeira Ribeiro ✉

CA17129

Catalysing transcriptomics research in cardiovascular disease (CardioRNA)

Summary

This Action aims to create an interdisciplinary network to accelerate the understanding of transcriptomics in cardiovascular disease (CVD) and further the translation of experimental data into usable applications to improve personalised medicine in this field. CVD remains the leading cause of death worldwide and, despite continuous advances, better diagnostic and prognostic tools, as well as therapy, are needed. The human transcriptome, which is the set of all RNA produced in a cell, is much more complex than previously thought and the lack of dialogue between researchers and industrials and consensus on guidelines to generate data make it harder to compare and reproduce results. Currently, the lack of an existing network to address the complexity of transcriptomics in CVD gives the CardiRNA Action an advantage. It aims to provide opportunities for collaboration between stakeholders from complementary backgrounds, so that the functions of different RNAs and their interactions can be deciphered more rapidly in the cardiovascular context for translation into the clinic. The Action will generate grant proposals to advance understanding of the transcriptome's role in CVD and to translate findings into clinical applications, thereby fostering personalised medicine and meeting a current public health challenge. It will refine guidelines for transcriptomics investigations in CVD to enhance the reproducibility of results, facilitating clinical product development. It will disseminate knowledge and allow capacity-building ... | Read more

Offered expertise to the COVID-19 network

Several CardioRNA members are working on COVID-19 (clinical and research activities). The Action aims to build a large international multicenter study on cardiovascular RNA biomarkers and treatments of SARS-CoV-2 infection. The Action has already a task force of 40 research groups and is happy to consider any collaboration outside their network. Should you be interested to join, please contact Yvan Devaux. See also this paper.

Contacts: Dr Yvan Devaux ✉

CA18103

Innovation with Glycans: new frontiers from synthesis to new biological targets (INNOGLY)

Summary

The aim of the INNOGLY COST Action is to build up a multidisciplinary group of researchers to address the same pioneering goal: gaining new insight into the biological function of glycans in different biological contexts. INNOGLY will address two main topics: 1) glycan profiling in health and disease, where studies will be more specifically focused on glycan-based correlations in developmental and cancer biology, and glycan-dependent modulation of autophagy in cancer, lysosomal disorders and neurodegenerative diseases; 2) glycan-based diagnostics and therapeutics, whereby INNOGLY investigators will focus on the glycan-dependent fine-tuning of immunity, and exploration of the multifaceted roles of glycosaminoglycans.

Within these topics, INNOGLY will foster the development of new glycan-based tools for the diagnosis and treatment of diseases. To this end, it will bring together scientists working in the vast area of glycoscience and researchers in other scientific disciplines willing to participate in the mutual exchange of knowledge, skill and expertise. ... | Read more

Offered expertise to the COVID-19 network

Members of INNOGLY would be able to provide expertise in the chemistry, biochemistry, cell biology and immunology of glycans and glycoconjugates, ranging from protein glycosylation to glycolipids, glycan binding proteins and glucosamino glycans. Glycans play an important role in modulating viral infections – important topics are: glycosylation of spike protein and ACE2| binding of the spike protein to sugars (sialic acids and glucosamino glycans). Investigators can help with analysis and glycan profiling and with development of glycan-based diagnostics and therapeutics.

Contacts: Prof. Sabine Flitsch ✉

CA18105

Risk-based meat inspection and integrated meat safety assurance (RIBMINS)

Summary

The European Food Safety Authority has recently proposed a generic framework for a modern, flexible and dynamic risk-based meat safety assurance system. Implementation of such a system is expected to be a slow and careful process involving its thorough development, fine-tuning and testing of its practical feasibility and general impacts. Currently, many research groups in Europe perform these studies, mainly at the national level, to fill the knowledge gaps related to such a new system. The main aim of the proposed network is to combine and strengthen European-wide research efforts on modern meat safety control systems. The network would allow for an exchange of ideas, experience and results of country-level research studies. Furthermore, the aim is to create a platform for training relevant participants in the new meat safety system to assist with its operability, as well as to inform relevant stakeholders about the requirements, benefits and consequences of the new system. The RIBMINS network will comprise five working groups: 1) on the scope and targets of meat safety assurance; 2) on farm-level controls and risk categorisation of farms; 3) on abattoir-level controls and risk categorisation of abattoirs; 4) on the meat safety assurance system impact of the changes, additions and alternatives to meat inspection; and 5) on the meat safety assurance system training, communication ... | Read more

Offered expertise to the COVID-19 network

RIBMINS is about risk-based meat safety systems. As COVID-19 disease isn't considered meat-borne the Action is only investigating its side effects such as current obstacles to perform official meat controls and public health impact of creating food supplies and prolonged food/meat storage. The RIBMINS network is mainly comprised of vets dealing with food safety and epidemiology and also supports joint activities on this topic (perhaps to assess overall impact of the disease on public health?).

Contacts: Dr Bojan Blagojevic ✉

CA18120

Reliable roadmap for certification of bonded primary structures

Summary

With the increasing pressure to meet unprecedented levels of eco-efficiency, the aircraft industry is aiming for superlight structures and in a move towards this aim, composites are replacing the conventional aluminium. The same trend is being followed by the civil, automotive, wind energy, naval and offshore industries, where the combination (or replacement) of steel with composites can increase the strength-to-weight ratio. However, the joint design is not following this transition. Currently, composites are being assembled using fasteners, which represents a huge weight penalty for composites, since holes cut through the load-carrying fibres and destroy the load path. Adhesive bonding is the most promising joining technology in terms of weight and performance. However, its lack of acceptance is limiting its application to secondary structures, whose failure is not detrimental for structural safety. In primary (critical-load-bearing) structures, fasteners are always included along bond lines – as a back-up – in case the bond fails. ... | Read more

Offered expertise to the COVID-19 network

Members of CA18120 have expertise on nanoparticles and thin films with antibacterial properties, and materials with anti-virus/bacterial properties for implementation in aircraft and building structures. The idea is to offer this expertise in order to collaborate with other groups that can provide sufficient experience in e.g., biosensors (sensors that can detect RNA changes) for virus detection (early?) in order to protect workers in manufacturing plants, but also in public transportation. a. Offer: Technology to create films and nanoparticles that can impregnate materials and provide antibacterial properties and multisensor systems for surface contamination analysis b. Request: Technology in biosensors, microbiology, virology, biochemistry ... | Read more

Contacts: Dr Anastasios Vassilopoulos ✉

CA18122

European Cholangiocarcinoma Network

Summary

Cholangiocarcinomas (CCAs) are an heterogeneous group of cancers of the biliary tree. CCA is considered one of the deadliest cancers and its incidence is increasing both constantly and dramatically in Europe. Notably, CCA is the most frequent cause of cancer metastases of unknown origin, suggesting an underestimation of the problem. CCA heterogeneity has limited the discovery of biomarkers and novel therapeutic options, hampering the development of tools for early diagnosis and effective treatment. It constitutes a major challenge for researchers, clinicians, national health systems and society, and coordinated multidisciplinary pan-European studies are still lacking.

As such, the EURO-CHOLANGIO-NET European Cholangiocarcinoma Network aims to set up a pan-European-wide interdisciplinary cooperative network of stakeholders, including scientists, clinicians, regulatory authorities, small and medium-sized enterprises and industry partners, to address the CCA problem. Through the creation of shared data registries (inherent main relevant basic or clinic-epidemiologic aspects), conference calls, meetings, workshops, scientific exchanges as well as training schools, this Action will coordinate efforts aimed at advancing our understanding of CCA to translate basic research and preclinical findings into clinical practice. ... | Read more

Offered expertise to the COVID-19 network

The multidisciplinary group of CA18122 could study the influence of the new SARS-CoV2 coronavirus on different models and / or cell lines using novel methodologies and / or an analysis model. Above all, and due to the nature of this COST action, one could study the effects of this new pathogen on the liver, its functions and attached or directly connected organs. In addition, the new drugs, synthesized by this consortium, can also be studied, or replacement drugs, through theoretical calculations and their interaction with the drug regions of the virus, as well as their way of acting on its different functions. More detailed information can be found here.

Contacts: Dr Ivan Rivilla ✉

CA18124

European Sexual Medicine Network

Summary

Sexual medicine is an immense field that deals with disorders of individuals' sexual health throughout their life. Due to its broad scope, a comprehensive approach to the subject is largely non-existent: research is in short supply and few medical educators are qualified to teach the subject. Although different clinical, biological and psychosocial disciplines deal with the treatment of sexual disorders, they often do this only partially due to the particular discipline. Clinical, technological and socio-economic progress, as well as societal changes, have caused the general interest in sexual health to increase and change. Sexual medicine must also pay more attention to modern-day developments. Incidents of mass sexual violence amplify the need for novel research into sexually deviant behaviour. Mass media, including social media, have an immense impact on contemporary viewpoints on sexuality from younger generations. Research into the prevalence, pathophysiology and optimal treatment of sexual dysfunction associated with chronic illness, including cancer, becomes more important. Also important is the fact that the ageing population compels medical and psychosocial sciences to deal increasingly with the sexual health of older people.

This Action aims to exchange research results produced by different disciplines in order to find commonalities in concepts and approaches to sexual medicine. It will serve as the foundation for identifying shared concepts and definitions, and the start of joint interdisciplinary research, with a particular focus on including young researchers. It will also form the conceptual groundwork for developing interdisciplinary outlines and curricula for further university education at a European standard of qualification and recognition.

Offered expertise to the COVID-19 network

CA18124 will study the impact of COVID-19 on sexual health.

Contacts: Dr Marianne GREIL-SOYKA ✉

CA18125

Advanced Engineering and Research of aeroGels for Environment and Life Sciences (AERoGELS)

Summary

The AERoGELS COST Action aims to bring together the knowledge on research and technology of aerogels at the European level from academia, industry and regulatory experts. Aerogels are a special class of mesoporous materials with very high porosity and tuneable physicochemical properties. Although some types of aerogels have already reached the market in construction materials and aerospace engineering, their full potential is still to be assessed for other sectors. In this Action, the use of aerogels specifically for environmental and life sciences applications will be explored in a multidisciplinary approach to tackle two of the current main European challenges: the circular economy and active ageing.

The scope of the Action is to advance the state of the art on the topic by linking the knowledge and efforts of the most renowned experts on cutting-edge aerogel technology, advanced characterisation of materials, as well as on biomedical and environmental research. Aerogels will be assessed from a materials performance point of view but also regarding health and environmental implications. AERoGELS will set up a forum to disseminate knowledge to society, boost industry-academia interactions, and train young European researchers in research, innovation and entrepreneurial skills via technical schools, publications and short-term scientific mission exchanges. Finally, the interdisciplinary collaborations ... | Read more

Offered expertise to the COVID-19 network

AERoGELS members would be glad to collaborate and join research efforts regarding the COVID-19 situation.

· The topic on which CA18125 would like to work: development of carriers for antiviral drugs
· Expertise offered: expertise in nanostructured materials for biomedical applications (pharmaceutical technology and regenerative medicine)
· Expertise looked for: antiviral drug candidates and intended administration route(s)

Contacts: Dr Carlos Garcia Gonzalez ✉

CA18132

Functional Glyconanomaterials for the Development of Diagnostics and Targeted Therapeutic Probes (GlycoNanoProbes)

Summary

Carbohydrates, proteins, lipids and nucleic acids are the biomacromolecules that constitute the fundamental building blocks of life. Among them, carbohydrates are key players involved in a myriad of molecular recognition events from protein folding, cell-cell communication, bacterial and viral infections to fertilisation. Cell-surface carbohydrates can differ considerably between cell lines as well as between healthy and disease states. These differences can be exploited for the development of early diagnostic tools, prevention and/or treatment of diseases via, for example, molecules/probes that target the interactions between key glycans and their receptors. However, despite their biological significance and therapeutic potential, these important biomolecules have been investigated to a much lesser extent compared to nucleic acids and proteins. The vast complexity of carbohydrate systems combined with the scarcity of glycan-based tools for study have proved a major challenge in glycobiology. Thus, the production of tailored and structurally defined glycan-based probes for biomedical applications represents a significant advancement in the field.

Nanotechnology provides a new array of techniques and platforms to study glycosystems. Recent developments in the field have provided access to an advanced toolkit of synthetic ... | Read more

Offered expertise to the COVID-19 network

GlycoNanoProbes has members covering different aspects from synthesis of epitopes and materials to evaluation of diagnostic tools and therapeutics and is interested in collaborating within the COVID-19 context. Priyanka Sahariah is the Action's coordinator for this initiative.

Contacts: Dr Priyanka Sahariah ✉

CA18138

Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder

Summary

The main goal of the Riseup-PPD COST Action is to establish a pan-European multidisciplinary network of researchers dedicated to the understanding of peripartum depression disorder (PPD), from its prevention and assessment to its treatment and global impact. Although outdated, currently available European estimates show that PPD prevalence ranges from 4 % to 38 %, bringing several consequences for women, newborns and the family system, and representing a socio-economic burden to society. Riseup-PPD aims to fill current gaps in PPD research, practice and social awareness by developing updated reviews to foster research efforts on the standardisation of diagnostic criteria, the development of adequate screening tools, and the cost-effectiveness of prevention and treatment programmes. In addition, the network seeks to bridge multidisciplinary knowledge on the determinants of depressive symptoms in the peripartum period, and the mechanisms of action and change. This will be achieved by supporting innovative, translational research projects on the neuropsychological mechanisms and biomarkers involved in the onset, maintenance and short- and long-term impact of PPD on women, newborns and families, followed by cost-effectiveness analysis and evidence-based implementation research projects. Finally, Riseup-PPD aims at building a shared database ... | Read more

Offered expertise to the COVID-19 network

COST Action CA18138
- is already collaborating with another COST Action to gather information/guidelines/reports/publications concerning perinatal mental health ;
- has established a Task Force on perinatal mental health and COVID-19 ;
- the above mentioned Task Force is, among other things, translating the COPE survey.

Contacts: Dr André Silva ✉

CA18140

People in Motion: Entangled Histories of Displacement across the Mediterranean (1492-1923) (PIMo)

Summary

The PIMo Action is a four-year global research project undertaken by scholars from the humanities and social sciences, including historians, scholars of literary, visual and material culture, philosophers, mathematicians, and maritime, biological, and bio-behavioural sciences. It addresses the entangled histories of displacement of human beings both within and from the Mediterranean from the 15th to the 20th centuries. The Action provides a critical historical context and understanding for the current migration crisis in Europe in terms of the intensity of emotional responses of displaced peoples and the communities they orbit and join. It investigates multiple historical case studies of the movement of people through religious persecution, slavery and indentured labour, trade, exploration, and imperialism, curiosity, and environmental and social catastrophe. Within the deeply entangled or intertwined history and cultures of the Mediterranean, the Action introduces the term 'displacement' as a way to reconceptualise the movement of people with awareness, historical acuity and compassion. Attending to the phenomenon of displacement as a connective tissue of human experience does not presume (or judge) the conditions of movement ... | Read more

Offered expertise to the COVID-19 network

""Contagion"" is a podcast series on circulation and pandemic threats throughout history, jointly promoted by CA18140 PIMo and the history journal Cromohs. Contagion asks how individuals, groups, societies and states reacted to pandemics. The first three podcasts have been released and are accessible here and here. More podcasts have been commissioned and will be published within the upcoming weeks. Further suitable proposals are welcome.

Contacts: Prof. Giovanni Tarantino ✉

CA18201

An integrated approach to conservation of threatened plants for the 21st Century (Conserveplants)

Summary

Even though plants represent an essential part of our lives offering exploitational, supporting and cultural services, we know very little about the biology of the rarest and most threatened plant species, and even less about their conservation status. Rapid changes in the environment and climate, today more pronounced than ever, affect their fitness and distribution causing rapid species declines, sometimes even before they had been discovered. Despite the high goals set by conservationists to protect native plants from further degradation and extinction, the initiatives for the conservation of threatened species in Europe are scattered and have not yielded the desired results. The main aim of this Action is to improve plant conservation in Europe through the establishment of a network of scientists and other stakeholders who deal with different aspects of plant conservation, from plant taxonomy, ecology, conservation genetics, conservation physiology and reproductive biology to protected area's managers, not forgetting social scientists, who are crucial when dealing with the general public.

Offered expertise to the COVID-19 network

Conserveplants members have written an inspiring and thought provoking essay on 'The COST of COVID-19' which has been uploaded on the Action website.

Contacts: Dr Ziva Fiser ✉

CA18202

Network for Equilibria and Chemical Thermodynamics Advanced Research (NECTAR)

Summary

The thermodynamic study of chemical equilibria represents the core of many important branches of chemistry. Coordination and supramolecular chemistry, chemical speciation, molecular modelling, drug design are just few examples. The importance of chemical equilibria, and chemical thermodynamics in general, results from the simple assertion that many properties of elements and compounds depend mainly on their interactions in a given system: the biological activity of an element or molecule, or their environmental impact can be explained by a detailed study of these interactions, whose nature and strength can be evaluated by chemical equilibrium and other thermodynamic studies. For example, speciation modelling based on chemical equilibrium data is commonly used in to improve commercial products performances, investigate the mobility of pollutants and toxicants in the environment, optimize industrial processes, explain the mechanisms of action of biologically active substances. Furthermore, advanced thermodynamic studies yield deeper insights into the mechanisms of these interactions.

Offered expertise to the COVID-19 network

NECTAR participants are keen to offer their unconditional help to support other scientists fighting all over Europe and the world, against COVID-19. As for its structure and expertise, the participants cannot say at this moment that they would like to work in any particular field, but they can offer their expertise in many chemical (and chemically oriented) disciplines to support other studies. NECTAR's network is mainly composed by Analytical, Physical, Inorganic, Organic and Medicinal Chemists, including some Chemical Engineers and Biologists.

They have expertise on:
- solution chemistry, chemical equilibria and speciation analysis (drugs in biological fluids); ... | Read more

Contacts: Prof. Demetrio M. Milea ✉

CA18205

Worlds of Related Coercions in Work (WORCK)

Summary

The COST Action "Worlds of Related Coercions in worK" (WORCK) represents a radical change of perspective on labour history by contending that the coexistence, entanglement and overlapping of diverse work relations has been the rule throughout history. It seeks to overcome the classic divides of labour history discourse (productive/unproductive, free/unfree, capitalist/pre-capitalist) by linking the stories of work and production with those of violence, expropriation and marginalisation. Neither the male-breadwinner model nor the free wage labourer or the capitalist mode of production can form a blueprint for our endeavour; instead we address the persistence and transformation of coercion and bondage across gender orders, world empires and historical eras.

WORCK will establish the following four working groups: "Grammars of Dependency"; "Sites and Fields of Coercion"; "(Im)Mobilisations of the Workforce"; and "Intersecting Marginalities". This conceptual approach will create an academic space that cuts across standard research fields and enables exchanges between scholars working on topics as various as: construction work in ancient civilisations; indentured work and sharecropping in rural societies; chattel slavery and coolie work; debt bondage, convict labour and military impressment; and coercive mechanisms in household work and wage labour.

Offered expertise to the COVID-19 network

WORCK offers expertise on history, sociology, and law. The Action is currently collecting ideas from the debate on "COVID-19 and the Workers of the World". Debate now online here.

Contacts: Prof. Juliane Schiel ✉

CA18208

Novel tools for test evaluation and disease prevalence estimation

Summary

Epidemiological studies assessing disease prevalence are critically important to both the identification and control of pathogens in humans and animals (including zoonosis and food borne outbreaks). However, countries typically collect data in a way that is best suited for their specific needs, and non-standardized sampling strategies and diagnostic methods produce prevalence estimates that cannot be directly compared. Hence, the need for harmonization, which has been often highlighted in reports of relevant EU institutions, like the ECDC and EFSA. Despite the availability of appropriate statistical methods – Bayesian Latent Class Models (BLCMs) – that adjust for the imperfect accuracy of the diagnostic process and produce comparable prevalence estimates, the number of research studies and scientific reports that use them is small compared to the number of instances that use of such methods would have been optimal. The objective of this proposal is to coordinate and promote the implementation of BLCMs through networking and knowledge transfer between BLCM experts and researchers working in statistics, epidemiology, diagnostics and population health. Specifically, we will (a) increase the visibility and collaboration of BLCM researchers, (b) promote stakeholder engagement, (c) provide training and networking opportunities for ECIs and ITC researchers, (d) create separate training opportunities for policy makers and stakeholders, (e) establish a free online BLCMs repository, (f) set up an International society for BLCMs and (g) organize the first international conference of this society. The strongest asset ... | Read more

Offered expertise to the COVID-19 network

CA18208 is interested in collaborating / working on a model for COVID-19 diagnostics. A topic on which the Action would like to work is epidemiology. Expertise it is offering: evaluation of diagnostics, estimation of true disease prevalence, and proof of disease freedom. Expertise it is looking for: microbiology, epidemiology, clinical medicine.

Contacts: Dr Polychronis Kostoulas ✉

CA18213

Rural NEET Youth Network: Modeling the risks underlying rural NEETs social exclusion

Summary

This Action encompasses the creation of a European-led multidisciplinary network from countries showing higher NEET youth rates in rural areas. Rural NEETs' Youth Network (RNYN) aims at developing a model of comprehension for rural NEETs' social exclusion risk and protective factors based on the bioecological model. It focuses on three specific goals: (1) upholding future research capability, with an emphasis on Early Career Investigators (ECI) and Inclusiveness Target Countries (ITC); (2) creating a rural NEETs' online observatory; and (3) fostering knowledge use by policy makers and practitioners. The RNYN work plan will be produced by 3 working groups; it will contribute to define a coherent model for future research, based on an intensive survey of national and cross-national trends regarding rural NEETs' profile and support systems, as well as methodological and intervention best-practices in the field. RNYN added value stems from an eclectic theoretical, disciplinary, institutional and international approach and in upskilling ECI in ITC that are more affected by high rural NEET rates. In the long run, RNYN's scientific impact will lead to the creation of a rural NEETs' observatory, integrating ECI in a broad multidisciplinary community and strengthening the COST Inclusiveness Policy. Long-term socio-economic impact ... | Read more

Offered expertise to the COVID-19 network

NEET offers expertise on psychology, economics, sociology, agriculture, and political science. The Action participants are interested to look at the effect of the pandemic on social exclusion, expecially of the youths that are not employed nor in training nor studying (Not in Employment, Education or Training - NEET), and to surveying stakeholders' (public services and NGOs) intervention needs regarding NEETs, at the national/regional levels, developing webinars and short-briefs to deliver results. See also the Action's webpage.

Contacts: Dr Francisco Simões ✉

CA18214

The Geography of New Working Spaces and the Impact on the Periphery

Summary

The aim of the COST Action is threefold. First, it aims to share the first outcomes of some funded international research projects on the phenomenon of new workplaces, such as Coworking Spaces and Maker Spaces, in order to: (i) identify the typologies (Taxonomy) of such emerging workplaces, and (ii) reveal their spatial distribution, and to explain their location patterns.Secondly, through the comparison and dissemination of the first results of these international research activities, the Action aims at identifying, measuring and evaluating the (direct and indirect) effects of these new working spaces (Atlas) in order to understand whether and how they have promoted – with or without the help of public subsidies and planning measures : (a) regional competitiveness, economic performance and resilience; (b) entrepreneurial milieu; (c) knowledge creation within regional innovation system, retaining knowledge workers and the creative class; (d) social inclusion and spatial regeneration of peripheral areas. ... | Read more

Offered expertise to the COVID-19 network

CA18214 has expertise available on
- Social and economic geography:
• Social, cultural and economic geography, international trade
• Spatial development, land use, regional planning
- Economics and business:
• Development, economic growth, competitiveness
• Economics and business: Econometrics, statistical methods applied to economics

The Action has started various activities to investigate the impact of the Corona virus crisis on co-working spaces and their users (freelancers etc.), also with regard to employment.

It has created a facebook group entitled: ""Coworkers in emergenza COVID-19"" (in Italian) which addresses the coworkers in Italy to understand the problems they are facing since the majority ... | Read more

Contacts: Prof. Ilaria Mariotti ✉

CA18216

Network for Research in Vascular Ageing (VascAgeNet)

Summary

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide, regardless of gender, ethnicity or income. The concept that vascular age, as opposed to chronological age, is better related to the prognosis of CVD is rapidly evolving. Arterial stiffness is an important component of vascular ageing and a potent CVD risk predictor, and as such is emerging as an appealing therapeutic target. Despite recent technological advances for the measurement of vascular ageing in clinical practice, unmet needs remain including: complexity of use and heterogeneity of approaches, insufficient validation in clinical settings, fragmentation of expertise, and lack of research driven studies regarding treatment and head-to-head comparisons between different techniques.

Therefore, the aim of the COST action is to establish a network which will work to refine, harmonise and promote the use of vascular ageing measures, in order to improve clinical practice and to reduce the burden of CVD globally. First, this will be achieved by refining the development of novel, ... | Read more

Offered expertise to the COVID-19 network

VascAgeNet would like to work on the following topic: the Action is launching a collaborative, multicentre research project in order to explore medium- and long-term vascular consequences of COVID-19 with the Artery Society. The study will be called CARTESIAN (Covid-19 ARTErial StIffness and vascular AgiNg). The primary goal of the project is to study the medium- and long-term effects (3-6 months and 1 year) of SARS-CoV-2 infection on arterial stiffness and central haemodynamics, and thus vascular aging (which is the core topic of CA18216).

Expertise available in the Action:
· clinical centres and medical doctors, medical engineering, mathematicians and clinical statistics, industry
... | Read more

Contacts: Dr Christopher Mayer ✉

CA18218

European Burden of Disease Network

Summary

What are the most relevant diseases in a country? Which risk factors are the strongest contributors to disease and death? How is the impact of different diseases evolving over time, and how does it compare between countries and within subnational units? As the need for prioritising the use of available resources constantly increases, a timely, sound and comprehensive answer to these fundamental questions is more than ever needed to inform public health decision making. Driven by the impact of the Global Burden of Disease study, several researchers and national and international health institutes have adopted the burden of disease approach to address these questions.

The complexity of the burden of disease approach however resulted in major disparities in research capacity across Europe. The burden-eu COST Action will address current challenges by 1) stimulating interaction between existing efforts, 2) supporting technical capacity building at country level, 3) providing a platform to support methodological advances, and 4) addressing the need for an actionable understanding of the process underlying knowledge translation.

The Action will have an interwoven structure of 3 vertical and 2 horizontal pillars. The vertical pillars focus on specific burden of disease applications – i.e., non-communicable diseases and injuries (WG1), communicable diseases (WG2), and risk factors (WG3). The horizontal pillars focus on cross-cutting and holistic activities – i.e., burden of disease methodology (WG4) and knowledge translation (WG5). While the vertical pillars reflect the current fragmented nature of the burden of disease universe, the horizontal pillars provide the much needed bridge between these different worlds.

Offered expertise to the COVID-19 network

CA18218 works on methodologies which allow to quantify the population health impact of diseases and risk factors.

Contacts: Prof Brecht Devleesschauwer ✉

CA18219

Research network for including geothermal technologies into decarbonized heating and cooling grids

Summary

The Action addresses the inclusion of geothermal technologies into district heating and cooling systems in Europe to foster the de-carbonization of the heating & cooling market. With regard to technological solutions, this network follows a strong bottom-up approach. Shallow-, intermediate as well as deep geothermal technologies are considered in monovalent or multivalent grids. Geothermal may act as a heating source, sink or storage and may be combined with other renewables (e.g. solar thermal), waste heat and other technologies like carbon capture and utilization. The Action covers networking, knowledge exchange & transfer, training and stakeholder interaction activities based on real life case studies to investigate and promote solutions and roadmaps for raising the RES share in public heating and cooling grids to at least 30% in 2030 and at least 50% in 2050.

Offered expertise to the COVID-19 network

CA18219 is addressing the geoscientific, technical and socio-economic boundary conditions for replacing fossil fuels and electricity / air chiller driven in heating and cooling grids. The Action would like to address the topic of improving living conditions in urban areas by reducing air pollutants due to the replacement of fossil fuels by geothermal energy. In addition, the Action addresses reducing urban heat islands by replacing air chillers by environmental friendly geo-cooling solutions; recent studies are indicating a correlation between increased shares of severe COVID-19 cases and low air quality in urban areas. The Action is looking for expertise on city planning, energy planning, environmental research, epidemiology for impact assessment and joint awareness raising campaigns.

Contacts: Mr Gregor Götzl ✉

CA18227

The Core Outcome Measures for Food Allergy (COMFA)

Summary

Food allergy is a major societal challenge in Europe. The disease affects 6%-8% of children under the age of 3 years, and 2-3% of adults and has a quality of life impact similar to other major chronic conditions. Food allergy is a major financial burden, with significant impact on healthcare, education, food and catering industries. New treatments for food allergy are in development. There is however no agreed set of Core Outcomes for evaluating these new treatments. This may prevent the development of effective treatments with marketing approvals from regulatory authorities, for food allergic Europeans.

Core Outcome sets ensure that trial outcomes are relevant to patients, clinicians, healthcare providers and regulators; and they allow trial outcomes to be combined in meta-analysis, so that new findings are capitalized on as soon as possible. The Core Outcome Measures for Food Allergy (COMFA) project is a multidisciplinary network involving all relevant stakeholders aiming to advance food allergy research and innovation by (a) defining the scope and applicability of food allergy Core Outcome sets; (b) developing Core Outcome sets and measurement tools for food allergy; (c) reaching a ... | Read more

Offered expertise to the COVID-19 network

In the COVID-19 context COMFA aims to
1) assess the attitudes towards and understanding of the risks of COVID-19/SARS-CoV-2 and preventative strategies among the general population, including healthcare providers
2) determine the levels of stress, anxiety, and coping mechanisms employed related to COVID-19/SARS-CoV-2 and social distancing/forced isolation policies to help deter infection spread
3) determine how COVID-19/SARS-CoV-2 impacts health utility as measured by a standardized generic health utility index

The Action Chair is also leading a clinical research team in Moscow, which is aiming to collect data from the COVID patients.
As a consortium, COMFA has experts in various fields, including immunology, psychology, epidemiology and COS development. It is open to any collaborations.

Contacts: Dr Daniel Munblit ✉

CA18231

Multi3Generation: Multi-task, Multilingual, Multi-modal Language Generation

Summary

Language generation (LG) is a crucial technology if machines are to communicate with humans seamlessly using human natural language. A great number of different tasks within Natural Language Processing (NLP) are language generation tasks, and being able to effectively perform these tasks implies (1) that machines are equipped with world knowledge that can require multi-modal processing and reasoning (e.g. textual, visual and auditory inputs, or sensory data streams), and (2) the study of strong, novel Machine Learning (ML) methods (e.g. structured prediction, generative models), since virtually all state-of-the-art NLP models are learned from data. Moreover, human languages can differ wildly in their surface realisation (i.e. scripts) as well as their internal structure (i.e. grammar), which suggests that multilinguality is a central goal if machines are to perform seamless language generation. Language generation technologies would greatly benefit both public and private services offered to EU citizens in a multilingual Europe, and have strong economic and societal impacts.

Offered expertise to the COVID-19 network

Multi3Generation has identified the following topics of interest: 1) automatic conversion of language used by professionals (e.g., doctors) into common language that is better understood by a non-expert in the terminology of the technical and scientific field, such as doctor-to-patient communication. This implies transforming formal into informal language and deciphering of technical or complex texts (or speech) into texts (or speech) that use regular language easier to understand by regular language users/speakers. Collaboration could involve other COST Actions such as CA18209 and CA19102; 2) pragmatic linguistic approach to address a real and current need dramatically highlighted by the COVID-19 pandemic and stay-at-home policy effect on education. As a long-term effect of this crisis, it is expected that the levels of telework will increase, and so will distance and self-learning, ... | Read more

Contacts: Dr Anabela Barreiro ✉

CA18236

Multi-disciplinary innovation for social change

Summary

In an increasingly complex and rapidly changing world, traditional disciplinary approaches to the framing and resolution of social and economic problems deliver ever diminishing returns. Discussions abound, therefore, about how best to educate and prepare graduates for the fresh challenges of the 21st century. Knowledge Alliances between Higher Education Institutions (HEIs) and enterprises which aim to foster innovation, entrepreneurship, creativity, employability, knowledge exchange and/or multidisciplinary teaching and learning are therefore becoming increasingly necessary and relevant. The challenge is to determine what we should teach in the future and how it should be taught. The aim of this Action is to demonstrate, through the adoption of Multi-Disciplinary Innovation (MDI) methods, how we can respond to social problems with a design-led approach which has a problem-oriented ethos, ... | Read more

Offered expertise to the COVID-19 network

Some examples of ongoing activities amongst the members of CA18236 related to COVID-19:
- rural resilience during COVID-19
- social entrepreneurship for local change
- tourism in post COVID-19
- festival culture – history and perspectives beyond Corona
- liberty as a concept in community video by a grassroot FREEkey Group as part of Disability / Studies / and Social / Innovation Lab
- help and support to micro and small companies and entrepreneurs
- a book project to forecast future socio-economic consequences of COVID-19 pandemics
- a study examining publications and patents on COVID-19 by using data mining techniques with infection chain classification of WHO
- students' behavior, as well as their readiness to use E-learning during the COVID-19 pandemic
- a study analysing the experience of ex-offenders in lockdown compared to the imprisonment
- a webinar "Multi-disciplinary innovation in a pandemic" on the 5th of June.

This online webinar organised by CA18236, free and open to anyone, could be of interest to other COST Action members and especially to those who are interested in the social economy dimension. The webinar will have a COVID19 axis.

Contacts: Dr Katri-Liis Lepik ✉

CA19106

Multi-Sectoral Responses to Child Abuse and Neglect in Europe: Incidence and Trends (Euro-CAN)

Summary

In Europe, millions of children experience abuse or neglect at the hands of those who should care for them. Yet, how many of these children get help, which services they receive by which agency remains largely unknown. Moreover, countries are hardly aware which maltreatment turns fatal. This constitutes a major knowledge gap that is likely due to inconsistent ways of surveying and reporting on child maltreatment services across Europe. Without this information, we cannot know how the systems work, what additional preventive efforts are required, if the interventions fit the victims' needs or if the most vulnerable groups are properly identified. The proposed project addresses this gap by creating a network of experts in child maltreatment and relevant stakeholders and links them in working groups, in order to promote the development of a rigorous, consistent, and comparable methodology for the collection of surveillance data on child maltreatment and maltreatment-related fatalities. Researchers, policymakers, administrators and practitioners will identify best-practice methods of surveillance and recommend efficient ways of implementing them across Europe. Importantly, this network will invite youth and adult survivors of child maltreatment to collaborate in all working group decision-making processes. The four working groups within this network will focus on: 1) definition and operationalization of child maltreatment; 2) promoting secondary analyses; 3) participatory approaches to child maltreatment surveillance; and 4) implementation and dissemination. Final products of these projects will include guidelines for implementation of best practices in child maltreatment surveillance across Europe.

Offered expertise to the COVID-19 network

Euro-CAN will start in autumn 2020. The Action will set up a dedicated working group looking at how the lockdown due to the COVID-19 pandemic impacts child abuse.

Contacts: Prof. Andreas Jud ✉

CA19118

High-performance Carbon-based composites with Smart properties for Advanced Sensing Applications (EsSENce)

Summary

The goal of EsSENce is to develop an innovation scientific hub at European and International level, focusing on advanced composite materials reinforced with Carbon based (nano)materials (CNMs). The sharing of ideas and results will boost the development of high-performance composites with sensing properties. Special focus will be given in the utilisation of these materials for the introduction of smart properties to the final composites and their application in the field of sensors development. The aim of EsSENce hub, defined as a collaborative community, is to gather together scientific partners, research groups, technology providers and industrial key players aiming to enhance creativity and collaboration among them, by positioning the entrepreneurial individuals at the centre. Indeed, by building a community with diversity both in the broad sense (gender, ethnicity) and with regards to heterogeneous knowledge, the emergence of novel ideas and practices is fostered thus leading to unique and viable innovations. EsSENce activities will focus on the promotion of the successful results from the involved partners and the utilization of the synergistic effect to improve exploitation and dissemination of knowledge. Dissemination and management actions will be organised to attract the interest of research and industry for higher awareness.

Offered expertise to the COVID-19 network

In CA19118's activities it is foreseen to use nanomaterials for sensing devices that can be applied in the medical sector, as well as the fabrication of advanced composites that can be used as consumables for the healthcare system. The Action's activities can be complementary to those of the other Actions involved in the Network of Actions against COVID-19. More detailed information is available here.

Contacts: Prof. Costas A. Charitidis ✉

CA19134

Distributed Knowledge Graphs

Summary

Knowledge Graphs are a flexible way to represent interlinked information about virtually anything. People from a variety of application domains including biomedical research, public and open data, linguistics, journalism, and manufacturing publish, use, and investigate knowledge graphs. As the publication is done in a decentralised fashion across the web, the knowledge graphs form a distributed system. Due to the ever-increasing uptake of Knowledge Graph technologies in recent years, there are new challenges for research and development including dealing with the scale and the degree of distribution of knowledge graphs, while monitoring and maintaining data quality and privacy. Tackling these research challenges will need a stronger collaboration within the research community, and a joint effort to establish a more functional, decentralized Web of Data.

The main aim of the Action is therefore to create a research community for deployable Distributed Knowledge Graph technologies that are standards-based, and open, ... | Read more

Offered expertise to the COVID-19 network

"Distributed Knowledge Graphs" is interested in connecting to other efforts around COVID-19. CA19134 deals with technologies that allow for the integration of data from different sources, and for data analytics. This is useful for data like those on COVID-19, which originate from different sources and need to be linked, integrated, put into context, and finally analysed. Although the technologies in the Action are domain-independent, some people in the network have specific experience with working with data from the biomedical domain. It may be worthwhile to investigate how teams that have the actual interesting data available (hospitals with patient records, biomedical researchers with treatment data, public bodies with case information, ...) can work with our technologies. In the MoU, hackathons and datathons are described, which could investigate exactly that. Based on the connection to people with data, it could also be interesting to involve people with questions (epidemiologists, public bodies, journalists, ...), but first of all we need access to data to apply the methods we are working on.

Contacts: Dr Tobias Käfer ✉

CA19140

Focused Ion Technology for Nanomaterials (FIT4NANO)

Summary

The aim of the Action is to create a coordinated effort in the field of ion beam based nanoengineering that will put European researchers and commercial businesses at the forefront of the quickly moving field of functional nanostructured materials. The Action will unite developers and practitioners of focused ion beam technology to enable them to build the most efficient tool sets and application techniques for the identification, fabrication and characterization of next generation functional nanomaterials. The Action will develop ion sources and instrumentation for the sub 10 nm fabrication and materials analysis. These objectives will be reached through Europe wide networking between researchers from theoretical and experimental groups traditionally not interacting closely. The challenge to overcome is the increasing fragmentation of the FIB landscape between operators of established technologies, developers providing new techniques and methods and designers of functional nanomaterials not aware of the possibilities provided by these emerging focused ion beam technology and methods.

Offered expertise to the COVID-19 network

FIT4NANO can provide expertise and instruments for bio sample preparation and new analysis methods based on FIB technology. A mixture of groups is involved that either develop new FIB instrumentation, working directly with biological samples, or apply FIB techniques for the investigation of new analysis methods for biological research. FIT4NANO is focusing on the development of new tools and applications in the field of Focused Ion Beams. In this context it can provide expertise for the preparation of biological samples for subsequent SEM, TEM or other analyses. In particular the Action would be interested in input on the requirements that such a sample preparation would set. A strong group within the Action has a bio background that includes but is not limited to the preparation and imaging of tissue, individual cells, bacteria, phages and viruses. New instrumental demands set by the delicate preparation and analysis conditions required for a successful study of viruses and Corona viruses in particular will be solved by the instrument development part of the Action. Several groups are already cooperating with other Actions (e.g. CA17121 COMULIS) and/or have expressed an interest in receiving COVID-19 related samples (inactivated).

Contacts: Dr Gregor Hlawacek ✉

Further information

CA15105

European Medicines Shortages Research Network - addressing supply problems to patients (Medicines Shortages)

This Action encourages systematic sharing of information and research about past, ongoing and future shortages of medicines and nutritional products. It aims to respond to clinical, financial and quality of life interests, to achieve analytical clarity on disruption causes, to simulate decision making in medicines production and trade, to highlight restrictive legal and economic frameworks, to disclose disincentives in the supply chain such as conflicts of interest or problematic cost-benefit ratios, and to reflect on best coping practices.

In light of the ongoing COVID pandemic, CA15105 seeks to cooperate in finding multidisciplinary solutions to mitigate and prevent problems caused by disrupted global supply chains, higher demand, economic hardships and new epidemiological challenges which can affect supplies of medicines and pose threat of medicines' shortages - now and in the "new normal" economies and health care systems.

Multiple forms of cooperation with other COST Actions are possible, including e.g. the following aspects:

- finding effective ways to communicate on drug shortages and create early warning systems - on the level of governmental agencies, pharmacies and health care facilities, citizens and patients;
- exploring the possibility of building mathematical models which could help to predict and assess probability of shortages of medicines;
- in-depth studies of economic and legislative factors, including pandewmic-stimulated crises, parallel trade issues, national and EU legislation, foreseen changes in functioning of health care units of various types, etc;
- joint applications for research grants;
- joint publications of results of studies.

CA15109

European Cooperation for Statistics of Network Data Science (COSTNET)

COSTNET is involved in Network Data Science and some participants are involved in governmental bodies advising their governments on the outbreak:

- Statistical Modelling: Prof. Goeran Kauermann (LMU, Munich) would like to work on Nowcasting deadly infections and surveillance System to detect regional outbreaks. He is looking for Epidemiology/public health management expertise.

- Modelling and inference of infectious disease: Prof. Ernst C. Wit Action Chair (USI, Lugano, Switzerland) is working on estimation of infection fatality Rate in the early stages of an epidemic and biostatistical modelling and analysis.

- Prof. Mirjam Kretzschmar is working on modelling to assess the effectiveness of contact tracing for COVID-19 and on individual based modelling or social networks and spread of COVID-19 in the context of social distancing measures

- Prof. Lasse Leskelä and Prof. Mikko Kivelä are working on covid-19 modelling in Finland are already sharing ideas on these matters with several international research groups via direct informal channels, but perhaps a COST-coordinated central effort could bring added value:

- Incorporating population movement data (from telecom operators, road traffic censors, statistics offices) to compartmental and agent-based SEIR-type epidemic models, to derive more accurate, e.g. municipality-level, predictions of epidemic spread within a country, and to analyze effects of movement restrictions. Combining such traffic data from multiple sources requires new types of statistical models and methods.
- Developing new multipartite epidemic models where schools, workplaces, households are explicitly modelled. The challenge is to develop models with suitable spatial and temporal granularity, so that the model parameters can be inferred with reasonable confidence, and the input data needed to fit such models do not compromise the privacy of individuals.

- Prof. Remco van der Hofstad and Prof. Nelly Litvak (University of Eindhoven) are looking into the use of mobility data from cell phones to investigate the effect of restriction measures on the spread of infections, as well as on how to design the optimal lock-down regions that minimize the spread of a disease given a certain number of infections throughout the country.

They only have Dutch data (and only up to 2019), yet this is still very interesting, and they're collaborating with Mezuro, a company that has the data, as well as Ilionix, a data science company that is creating a dashboard to monitor the spread of disease. Also, Hans Heesterbeek, one of the best epidemiologists in the Netherlands, has been closely involved. They are in touch with Michele Vespe from Eurostat to compare the activities.

- Prof. Nuno Pombo (University of the Beira Interior, Portugal) is offering his expertise in software engineering, mHealth, and predictive algorithms.

- Prof. Gesine Reinert, Action vice chair (Oxford University) is looking into the spread of epidemics on networks and the effect of contact tracing in collaboration with Frank Ball, Thomas House and others.

CA15223

Modifying plants to produce interfering RNA (iPLANTA)

iPLANTA offers expertise on plant disease and pest resistance, interfering RNA, and silencing genes of virus replication.RNAi technology can be applied to silence genes of virus replication and infection so to control them. The efficiency of this technology has been demonstrated to control different pests and diseases, including virus in plants.

Results have also been obtained with a view to control viruses in humans, but the application of this technology remains limited as the development and application of vaccines is considered much more efficient. In the case of COVID-19 it has not yet been possible to develop a vaccine and this will probably still take a long time. It may therefore be important to also consider the RNAi technique to develop new products that can allow disease control at least in the early stages of development.

It is with this objective that, thanks to the skills developed within the iPlanta, an interdisciplinary collaboration has been activated with the aim to test the effectiveness of RNAi-based sequences and formulations in controlling COVID-19 infection on in vitro cultured human cell lines.

Prof. Tiziana Pandolfini, from the Department of Biotechnology - Verona University (IT), has designed four short (30bp) dsRNA sequences targeting the genome sequence of the COVID-19 strain published last January in Nature by a Chinese group. With the bioinformatic approach, the absence of risk of off-target effects on human genome has also been verified.

The dsRNA sequences have been synthetized and delivered to the human virology laboratory lead by Prof. Stefano Menzo, Faculty of Medicine – Marche Polytechnic University (IT). Preliminary experiments have been carried out by applying the dsRNA sequences prepared with different transfecting formulations, at different concentrations, on human cell lines after being infected with COVID-19 virus.

The preliminary results were not significant. Research is continuing to try and understand if response efficiency can be improved by better promoting the penetration of dsRNA into cells. To this end, Dr. Giovanna Mobbili of the Department of Biology of the Polytechnic University of Marche (IT), is proposing new materials for new formulations that can improve the penetration capacity of dsRNA in the human cell. Furthermore, Prof. Pandolfini is studying new dsRNA sequences targeting other structural genes of COVID-19.

CA16111

International Ethnic and Immigrant Minorities' Survey Data Network

The substantive focus of CA16111 is removed from COVID-19 but as a result of contacts created within the Action, the Chair is currently collaborating with the main research infrastructure project of H2020 for the Social Sciences and Humanities (SSHOC). In the context of SSHOC they are discussing the possibility of creating an online portal for COVID-19 related research and resources within EOSC as well. The Chair is also collaborating with the Research Data Alliance (RDA) in the drafting of a report on recommendations on how to share data on COVID-19 in the domain of the social sciences and the humanities. In the context of the Action itself we could use our EMM Survey Register to record all surveys that are being undertaken on the impact of COVID-19 on ethnic and migrant minorities across Europe.

Hence the interest to be included in any initiative or critical mass opportunities within the context of COST:

- Topic: methodologically, open data, data sharing and FAIR data in the context of the social sciences; substantively, on migration and political dynamics, but more widely on comparative politics and on how governments respond to "unexpected shocks" and to public opinion.

- Expertise offered: in relation to social science data and methods, to political dynamics / political responses to the crisis, and comparative public policy approaches to the crisis.

- Expertise looked for: in the context of the discussions within SSHOC, very interested in getting computer science expertise that could contribute to the rapid creation of a portal; but also voluntary collaborations to compile a wide range of social science data that are being generated with common standards.

CA16112

Personalized Nutrition in aging society: redox control of major age-related diseases

The Action is a broadly multidisciplinary network with epidemiological, biological, biochemical, chemical, clinical, medicinal and therapeutical aspects. It thus has a clear interest in the ability of natural compounds to positively modulate age-related diseases with a focus on polyphenolic-type compounds with redox activity. Some of them have already shown to display broad antiviral properties (entry inhibitor, anti-inflammatory ...) and a few compounds are currently being analysed on COV-SARS-2 by some of the Action's participants. For example, some natural compounds are currently under spotlights such as quercetin in Canada.

Potential inputs of the Action into the COVID network would be:

Antivirals

- Search for some natural compounds that can block host entry of COVID-19 (CovidS-Ace2 receptor interaction ...)
- Evaluation of polyphenols metabolites that can block host entry of COVID-19 (CovidS-Ace2 receptor interaction)
- Building a natural compound library within COST Nutredox to start a Nutredox-based screening (Virtual in silico modelling (who?) and experimental assays (who?))
- Investigate in depth polyphenols known for their antiviral activities in particular with respect to enveloped pathogens, synthesize these compounds in bulk for testing, and synthesize analogues with increased activities
- Ladanein or quercetin have proven in vitro to display anti-SARS-cov-2 activities
- Drug delivery systems to improve drug oral bioavailability as well as drug targeting to tissues

Epidemiology (nutrition & COVID-19)

- Interrelationships between usual dietary and lifestyle habits (questionnaires, dietary assessment focused to antioxidant intake) and presence /absence of illness and antibodies (via ELISA and PCR)
- Epidemiological and biochemical assessment (elderly, children, adolescents and middle aged people) to see if overweight middle aged people display high sensibility to the COVID-19
- Discuss the potential protective role of nutrition in elderly people against their chronic diseases and COVID-19 infection
- Regulation by natural compounds of the innate/ acquired antiviral immunity

Biology

- Expertise on vascular and cerebrovascular renin angiotensin system including ACE enzymatic activity study (specifically ACE1 but models can be derived to ACE2)
- Drug Screening on ACE2 activity from cell model, ex vivo models to in vivo experimentation (vascular and intestinal levels)
- Modification of ACE2 activity under inflammation and oxidative stress
- Test peptides from Whey's digistat against SARS-Cov-2.

CA16215

European network for the promotion of portable, affordable and simple analytical platforms

Ege University Faculty of Science, Turkey

Contact: Ozan Unsalan

We are currently focusing on some docking studies of various types of ligands (around 1500) over various COVID-19 PDB (Protein Data Bank) files. We need really good processors in order to speed up our computations. Normally with PC-supported 16 GB processors with 4 CPUs, it takes a very long time. If there is some opportunity for us, I am sure we can save enough time to proceed to good results. If there are some facilities for us to access such computational resources and time we would very much appreciate it. The main plan is increasing the number of ligands up to 300.000 or 400.000 for virtual screening purposes with high performance computation resources. This means, the more power, the less time, the better results!

National University of Ireland Maynooth, Ireland

Contact: Eithne Dempsey

Interested in development of a lateral flow electrochemical antibody screen for SARS CoV 2 antibodies.

Dublin City University, Ireland

Contact: David Kinahan

Primary area of research is centrifugal microfluidics, automating solid-phase DNA purification and on-disc DNA amplification (using LAMP). This technology and approach is closely related to molecular testing for COVID-19.

Altadeva, France

- Contact: Please contact Action Chair for further information.

We're working with our colleagues in Kinshasa to develop the diagnosis of SARS-CoV-2 in the mobile laboratory we have developed. Our goal is to make the product even more efficient.

Cranfield University, United Kingdom

Contact: Zhugen Yang

Example - published paper "Can a Paper-Based Device Trace COVID-19 Sources with Wastewater-Based Epidemiology?" (https://pubs.acs.org/doi/full/10.1021/acs.est.0c01174)

International Iberian Nanotechnology Laboratory, Portugal

Contact: Lorena Diéguez

We are working on developing various strategies for diagnosis based on molecular, immune and physical detection. Proposals have been submitted to the European IMI call, as well as to national calls in Spain

and Portugal.

Nanosolar Plasmonics Ltd, Turkey

Contact: Hasan Kurt

Current studies (submitted projects):

- Developing synthetic affinity agents (ssDNA aptamer) against SARS-CoV-2 spike protein
- Lateral flow biosensors for anti-SARS-CoV-2 IgG/IgM immunoresponse proteins
- Lateral flow biosensors for SARS-CoV-2 spike protein

Topics we can help with:

- Surface resonance plasmon (SPR) based affinity analysis of aptamers, antibodies, proteins and recombinant proteins
- UPLC-MS/MS analysis of aptamers, antibodies, proteins and recombinant proteins

Sabancı University Nanotechnology Research and Application Center, Turkey

Contact: Meral Yuce

Topics I can help with affinity/function analysis of oligonucleotides, antibodies, proteins related to the COVID-19 diagnosis, and their testing in various platforms for kit development. Primary/secondary structure analysis of the developed biotechnological products testing/DNA/RNAvaccine/drug. All in BSL2.

International University of Sarajevo, Bosnia and Herzegovina

Contact: Emir Karamehmedovic

The objective of my project is to provide an economical point-of-care device for rapid and selective virus detection. I have a microfluidic platform that uses isotachophoresis (ITP) for sample focusing and fluorescence in situ hybridization for specific detection of very low concentrations of DNA/RNA. The device has the potential to perform non-target dependent diagnostic tests of pathogens in less than 15 min. Sample preparation, compared to PCR, does not involve polymerizing oligonucleotides, making it less complex, faster, cheaper and more feasible to conduct on site.

The platform has already been tested on bacterial 16s rRNA as well as synthetic DNA. Detection of viral RNA is plausible. I would like to have a collaboration with a biomolecular laboratory that would perform tests and optimize viral RNA extraction and detection.

Development of the device is done together with the Canadian company Doric Lenses.

University of Genoa, Italy

Contact: Claudio Larosa

I'm interested to participate in this expert task due to my activities and background in material science. I have a degree in pharmacy and pharmaceutical technologies with a PhD in biophysical science. I'm interested to make in-house small prototypes in particular biosensor devices. It will be interesting for our group of researchers to develop a portable low-cost dispositive to detect virus or its biomarkers in human exudate as a possible device to detect contamination agents. In particular adapting free software and USB cards in our prevision will make available a device destined for use by citizens with an intuitive approach.

- Contact: Please contact Action Chair for further information.

Currently working on a prediction model from existing data, which can be done in a CSV or XLS file, and we perform AI and machine learning data analysis. Also developing a questionnaire that records input from users and provides recommendations about their condition, whether they have COVID-19 or not, before they need to go and test themselves.

University of Veterinary and Pharmaceutical Sciences Brno, Chech Republic

Contact: Rene Kizek

I am interested to start a collaboration on portable detection of SARS. My experiences are nanomedicine and nanoparticles as detection surface with electrochemical detection.

ENEA, Italy

Contact: Saverio de Vito

Our activities regard the development of distributed and portable particulate matter sensing systems. As per now, multiple evidence is accumulating about the possibility of particulate matter acting as a carrier, and in fact there is (it has been recorded) a significant correlation of COVID speed of spread among the population and particulate matter pollution. Portable AQ analyzer may play a role in determining local environmental susceptibility to infection (both outdoor and indoor e.g. schools and hospitals) in so called phase II.

Alongside we can put at work:

a. our expertise in GIS air pollution data analysis and data driven forecasting

b. our pattern recognition on IoT systems expertise for improving low-cost diagnostic tool precision/accuracy/usability for the elderly.

CA16116

Wearable Robots for Augmentation, Assistance or Substitution of Human Motor Functions

A part of this network is involved in rehabilitation robotics/functional movement therapy devices; under the current COVID-19 situation there seem to be certain related needs, especially for:

- solutions for COVID-19/ICU patients to prevent muscle loss due to inactivity, or to provide suitable rehabilitation practice post ICU,
- solutions to maintain (neuro-)rehabilitation services while facing certain restrictions in the clinical environment: tele-rehabilitation or robot-mediated rehabilitation.

Several of these solutions are in place in different degrees of development, up to certified product status.

Often, diverse barriers (traditional clinical ways of working, reimbursement models, ...) hinder a fast adoption of such innovations. Considering the current urgent situation and the pressure on the healthcare systems, this may be a good time to faster adopt new solutions, in order to relieve such pressures.

Inside the network there are different technical stakeholders relevant to this perspective, but not for example healthcare authorities or insurers. If other COST networks could somehow contribute to this more organizational side of the problem, a communication might be fruitful.

The network is also exploring similar activities in the H2020 context, such as AI-Robotics COVID initiative, and DIH-HERO special COVID project call (not as COST Action, but with certain participants inside the COST Action network).

CA16231

European Network on Vaccine Adjuvants (ENOVA)

ENOVA would like to work on the following topics:

- Development of COVID-19 vaccines using different adjuvant systems
- Development of different versions of the S protein from SARS-CoV-2 virus produced by recombinant baculovirus vectors in the insects CrisBio© technology platform
- Development of COVID-19 vaccines using different adjuvant systems
- Testing of immune response of the different single or multimeric recombinant S protein versions generated in the insects CrisBio© platform using different adjuvants
- Testing of prime-boost immunization regimes using adenovirus vectors and recombinant proteins in animal models
- How to secure fast development of novel vaccine technologies including supply of adjuvants and production of vaccine antigens
- Formulation for an mRNA and DNA vaccine
- Covid or other virus infections or virus vaccine projects
- Drug Discovery and development (antivirals)
- SARS-CoV-2 virulence
- Protein nanoparticle-based vaccine
- Biological effect of pyrrole-based macrocycles on virus replication
- Contribution on every effort related to animal coronaviruses

Expertise offered:

- Scale-up production of subunit vaccines with TopBac improved baculovirus vectors and CrisBio© technology. CrisBio© is based on high yield vaccine production using insect pupae as natural bioreactors
- Molecular virology, design of animal vaccine efficacy in animal model assays
- Provisioning of different adjuvants on an open-access basis:
  - i. SWE (oil-in-water emulsion) available at GMP grade
  - ii. LQ (liposome/QS21 saponin combination) available as GMP-grade
- Optimization/characterization of vaccine formulations
- Vaccine research and development expertise
- Supply of adjuvants
- Expression of antigens

- Evaluation in animal models
- Formulation, characterization and in vitro testing of lipid and polymeric carrier systems for RNA and DNA vaccines
- Virological and immunological assays (in an official COVID testing lab)
- Animal models (mice, hamsters, ferrets, pigs)
- Virus bioinformatics
- Candidate molecules (one of which has already been tested in humans)
- Experience in structure-based drug design
- Recombinant production, structural biology, protein engineering
- Immunization of mice using different routes (i.m., s.c., i.d., i.p., i.v., intranasal)
- Neutralization assays using SARS-CoV-2 in a BSL 3 lab to test vaccine efficacy
- Experience with protein and vector-based vaccines
- Organic synthesis (mostly of macrocycles and cyclophanes, heterocalixarenes and other 'supramolecules')
- Expertise with all the classical diagnostic assays related to viruses, such as ELISA and PCR

Expertise the Action is looking for:

- Advice on selection, and sourcing of adjuvants
- COVID-19 target antigens
- Animal models for challenge studies
- Expertise in human cell models for expression of proteins, expertise in mRNA expression
- Experts that can test the biological activity of organic compounds on virus, as well as suggest chemical modification of proposed structures
- Experts who have the facilities for experiments with cultured viruses

CA17104

New diagnostic and therapeutic tools against multidrug resistant tumors (STRATAGEM)

In the COVID-19 context, STRATAGEM would benefit from expertise in virology (particularly for this type of virus) in institutions with Biosafety Level 2 labs, to test the antiviral effect of novel compounds. We are already in contact with other Actions with a view to collaborate. The network is focusing on SARS-CoV-2 research in therapy, using the different protein components as targets:

- Hit identification
- Drug and clinical trial compound's repurposing
- PROTAC development
- Activity optimization for known drugs (not yet started). The idea behind this part concerns the fine tuning of the molecular structure of known drugs by applying small modifications able to improve the compound's activity
- All these points are carried out by applying computational techniques (mainly 3D receptor-based approaches) and organic synthesis
- Organoid culture to test the drugs in static and dynamic conditions

This activity is performed through a well-developed collaboration via the COST Action, as there are other groups in STRATAGEM that are focusing on the therapeutic area of COVID-19.

CA17107

European Network to connect research and innovation efforts on advanced Smart Textiles (CONTEXT)

CONTEXT members are working on:

- Textile materials for personal protection
- Production of the COVID-19 protection products – those which can be produced by sewing
- Combining the people & technologies. Connection between companies, R&D institutes and end-users with different skills
- Sharing novelties inside the group of experts
- Development of solutions for protective equipment based on fiber-based materials
- Looking for new fabrics/combinations for masks and solutions to reuse disposable masks
- Establishment of requirements for protective equipment development
- Synthesis of biological active compounds with antibacterial and anticancer activity
- Development of nanoparticles

CONTEXT members offer expertise on:

- Processes for functional and smart textiles
- Sewing; having the network & contacts to garment (protection products against COVID-19) producers in different EU countries
- Knowledge on fiber-based materials and composites
- Fibrenamics digital Plataform to link R&D institutes, companies and end-users
- Standards and fabrication for PPEs
- Expertise of creating polymer solutions and mixed with nanoparticles
- Expertise in 3D printing and R2R ultrasonic welding
- Application of textile chemistry in functionalization of different textile materials with antimicrobial compounds
- New bioactive compounds

CONTEXT is looking for:

- Database of producers of protection materials – nonwovens; according to EN149 and EN14683; including prices, delivery time; technical parameters
- Industrial partners
- Consortiums for the development of the next generation of PPEs
- Labs with certification capabilities. Fast responsive Institutes for testing & certification are needed
- Specialists in the field of microbiology and biomedicine for the study of new biologically active substances deposited on textile materials.

CA18120

Reliable roadmap for certification of bonded primary structures

1. Members of CA18120 have expertise on nanoparticles and thin films with antibacterial properties, and materials with anti-virus/bacterial properties for implementation in aircraft and building structures. The idea is to offer this expertise in order to collaborate with other groups that can provide sufficient experience in e.g., biosensors (sensors that can detect RNA changes) for virus detection (early?) in order to protect workers in manufacturing plants, but also in public transportation.

a. Offer: Technology to create films and nanoparticles that can impregnate materials and provide antibacterial properties and multisensor systems for surface contamination analysis

b. Request: Technology in biosensors, microbiology, virology, biochemistry

2. Offer of lab facilities – most of the participants of CA18120 have access to significant experimental facilities and infrastructure. They can offer these facilities to other groups that are interested to use them in the frame of any collaboration

a. Offer: Extensive network of laboratory facilities, able to perform testing at different scales from micro to full structural scale, at different environmental conditions

b. Request: collaboration with COST Actions that need experimental facilities for proof of concept or experimental validation and implementation of ideas

3. Several of our group members have expertise with methods that allow the improvement of the adhesion in e.g., 3D manufacturing by implementing mechanical interlocking systems (at different scales). This expertise can assist groups that work with rapid 3D manufacturing of medical devices and protective equipment.

a. Offer: Expertise in mechanical methods to improve adhesion

b. Request: Collaboration with groups working on adhesion of materials in 3D additive manufacturing / collagen systems, chemical methods etc.

4. Group members can offer expertise in feasibility of internal aircraft structures and space modifications to achieve the necessary requirements for social distancing.

a. Offer: Expertise in internal aircraft space design

b. Request: /

5. Many group members are giving online courses during this semester due to the COVID-19. Most of them record the classes. It could be a good idea if some of the courses provided would be selected (after the permission of the owner) to create an online course portfolio with relevant material for CA18120. This can be open access for anyone interested.

CA18122

European Cholangiocarcinoma Network

The multidisciplinary group of European Cholangiocarcinoma Network could study the influence of the new SARS-CoV2 coronavirus on different models and/or cell lines using novel methodologies and/or analysis models. Above all, and due to the nature of this COST Action, one could study the effects of this new pathogen on the liver, its functions and attached or directly connected organs. In addition, experts can also study the new drugs, synthesized by this consortium, or replacements, through theoretical calculations and their interaction with the target regions of the virus, as well as their way of acting on the different target functions.

The following partners are involved (see also further below):

University College London (UCL), Institute for Liver and Digestive Health, Division of Medicine (United Kingdom).

Institute for Digestive Research, Lithuanian University of Health Sciences, Academy of Medicine (Lithuania).

Humanitas University Division of Internal Medicine and Hepatology, Humanitas Research Hospital Hepatobiliary Immunopathology Lab, Humanitas Research Center (Italy).

Koc University (Turkey).

Research Institute for Medicines (iMed.ULisboa), Faculty of Pharmacy, University of Lisbon (Portugal).

STITCH - Sapienza information-based Technology InnovaTion Center for Health, Sapienza University of Rome (Italy).

Basque Country University (EHU / UPV), Donostia International Physics Center (DIPC) (Spain).

Center for Liver Disease, Division of Gastroenterology and Hepatology, IRCCS Cà Granda Ospedale Maggiore Policlinico, University of Milan (Italy).

Barcelona Clinic Liver Cancer (BCLC) Group, Liver Unit Hospital Clinic Barcelona, IDIBAPS, University of Barcelona, Spain. Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd) (Spain).

University College London (UCL), Institute for Liver and Digestive Health, Division of Medicine

Contact: Pilar Acedo

Topic on which we'd like to work:

Basic science studies evaluating changes induced by COVID-19 infection using CCA models. Clinical-related work:

- Histological and molecular analysis of tissue samples
- Isolation and profiling of extracellular vesicles from serum/plasma/urine samples
- Biomarker studies, including fibro-inflammatory markers
- Help obtaining and analysing relevant patient samples for diverse studies coordinated by this COST Action
- If there are COVID-19 related studies, then simple audit / outcome studies are possible

Expertise we can offer:

We have expertise in clinical medicine, in the areas of Gastroenterology and Hepatology. We are creating a biobank of serum, plasma and urine samples from patients at risk of developing HPB cancers or confirmed cases. We also carry out basic research. Thus, we could contribute to proteomics and transcriptomics analysis, pharmacogenomics (through access to patient-derived models), drug testing validation, and development of novel therapeutic strategies.

Expertise we're looking for:

Groups with expertise in developing and characterizing patient-derived models such as PDXs or organoids for the development of novel therapeutic tools and/or protocols, including molecular profiling for precision cancer therapies. Moreover, we would like to collaborate closely with other groups working on early diagnosis biomarkers.

Institute for Digestive Research, Lithuanian University of Health Sciences, Academy of Medicine

Contact: Prof. Dr. Juozas Kupčinskas

Topic on which we'd like to work:

3-D organoid models, microRNA and microbiome sequencing and data analysis.

Expertise we can offer:

MicroRNA sequencing and functional analysis, microbiome sequencing bioinformatics analysis.

Expertise we're looking for:

3-D organoid as well as co-cultures development, culturing, visualisation, analysis, etc.

Humanitas University Division of Internal Medicine and Hepatology, Humanitas Research Hospital Hepatobiliary Immunopathology Lab, Humanitas Research Center

Contact: Ana Lleo

Topic on which we'd like to work:

Impact of COVID-19 (infection/pandemic) on Autoimmune Liver Disease Patients

Impact of COVID-19 (infection/pandemic) on Liver

Cancer Patients

Expertise we can offer:

Clinical management of Liver Diseases, Multidisciplinary Management of Liver Cancer and Liver Immunology Lab (basic research).

Expertise we're looking for:

Bioinformatics and biostatistics and Artificial Intelligence.

KOC UNIVERSITY

Contact: Havva Yagci Acar

Topic on which we'd like to work:

My expertise and ongoing research is suitable for diagnosis/sensors as well as anti-viral therapies using nanomedicine.

Expertise we can offer:

Synthesis of drug conjugates, targeted nanoparticles, fluorescent assays, phototherapies, anti-microbial agents.

Expertise we're looking for:

Labs capable of working with COVID-19, molecular biology groups that would provide molecular targets, antibodies, etc.

Research Institute for Medicines (iMed.ULisboa), Faculty of Pharmacy, University of Lisbon

Contact: Cecília Rodrigues

Topic on which we'd like to work:

Repurposing of anti-inflammatory drugs to treat COVID-19.

Expertise we can offer:

Investigation of causality of immunogenic cell death and inflammation in SARS-CoV-2 infection and in experimental acute respiratory distress syndrome (e.g. intratracheal instillation of LPS; LPS-treated alveolar macrophages) by fully characterising multifunctional roles of DPP4i and RIPK1/3i, including cell specificity, immune contribution to inflammation and fibrosis. We will apply knockout paradigms (casp-1-/-, dpp4-/-, ripk3-/-) and phenotype/histology/omics platforms centred on immune response and cytokine profiling. CRISPR-Cas9 strategies will establish target engagement.

Expertise we're looking for:

Given the high number of type 2 diabetic patients with COVID-19 and the wide use of DPP4i in diabetes, the association between DPP4i and COVID-19 warrants further investigation. We're looking for epidemiology expertise, datasets and patient samples (serum) to mount evidence of association between DPP4i and COVID-19 metabolic/cardiorespiratory severity in type 2 diabetic patients.

STITCH - Sapienza information-based Technology InnovaTion Center for Health, Sapienza University of Rome.

Contact: Vincenzo Cardinale

Topic on which we'd like to work:

Innovative diagnostics using nanotechnology sensors.

Innovative strategies for remote monitoring (telemedicine) and teleducation.

Gut-Liver axis in the progression of COVID-19: innovative biomarkers for prognosis and targets for therapy.

Clinical Trial with probiotics to prevent the progression of COVID-19.

Expertise we can offer:

Designing and development of nanotechnology sensors

Existing platform for remote monitoring tailored for COVID-19 patients plus resources for a platform for teleducation

Expertise in the management of COVID-19 patients and clinical and biochemical data of almost 400 hospitalized patients plus biobank of samples

Expertise in Gut-Liver axis studies, expertise in multi-parametric ultrasound-based investigations of liver and gut

In vitro technologies including normal hepatic and biliary cells, stem cells and organoids

Expertise we're looking for:

Expert collaboration in international consortium of nanotechnology applied to COVID-19

Expert collaboration in international consortium for the implementation of remote monitoring and teleducation (telehealth applied to COVID-19 ad other conditions).

Expert collaboration and access to clinical data and biobank of samples (serum, plasma, faeces) in order to implement the knowledge of gut-liver axis contribution to the progression of COVID-19 in search for new biomarkers and targets.

Basque Country University (EHU / UPV), Donostia International Physics Center (DIPC)

Contact: Prof. Fernando P. Cossío

Topic on which we'd like to work:

We could apply our experience in the design and synthesis of new chemical entities with potential biological activity in the fight against different types of cancer to the design and synthesis of new compounds, to prepare a new family of chemical entities, or to study the existence of other molecules, in the fight against COVID-19 or another type of virus.

Expertise we can offer:

Docking studies, NMR, HPLC, etc. Microwave synthesis techniques, photo-synthesis, etc.

Expertise we're looking for:

In vitro and in vivo tests in order to know the capacity of chemical entities, to validate docking studies and to synthesize new chemical compounds with greater activity.

- Center for Liver Disease, Division of Gastroenterology and Hepatology, IRCCS Cà Granda Ospedale Maggiore Policlinico, University of Milan & Barcelona Clinic Liver Cancer (BCLC) Group, Liver Unit Hospital Clinic Barcelona, IDIBAPS, University of Barcelona, Spain. Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd)

  Contact: Massimo Iavarone, Alejandro Forner and Maria Reig

Topic on which we'd like to work:

Identify the impact of COVID-19 pandemic in the clinical practice (stop screening program, diagnostic and staging delays, criteria to maintain the imaging follow-up in treated liver cancer patients).

Evaluate the rate of tumour progression while treatment has been delayed.

Events and outcome of Liver Cancer Patients with COVID-19 infection under any nonsystemic therapy.

Events and outcome of Liver Cancer patients with COVID-19 infection under different systemic treatments.

Expertise we can offer:

Extensive experience in the early diagnosis of various liver conditions such as advanced hepatocellular carcinoma. Also, we can offer different samples of newly detected liver mass during the COVID-19 pandemic: Patients >= 18 years old, the COVID-19 infection should be acquired prior to liver cancer diagnosis, a new diagnosis of hepatocellular carcinoma or intrahepatic. cholangiocarcinoma in the context of COVID19 infection. Hepatocellular carcinoma Patients: Patients >= 18 years old, diagnosis of hepatocellular carcinoma done before the date of COVID-19 infection. Finally, Intrahepatic Cholangiocarcinoma Patients: Patients >= 18 years old, diagnosis of Cholangiocarcinoma done before the date of COVID-19 infection.

Expertise we're looking for:

The following variables are requested in each cohort:

1. Cohort A: Newly detected liver mass during COVID-19 pandemic: Patients >= 18 years old, the COVID19 infection should be acquired prior to liver cancer diagnosis, new diagnosis of hepatocellular carcinoma or intrahepatic cholangiocarcinoma in the context of COVID-19 infection.

2. Cohort B: Hepatocellular carcinoma Patients: Patients >= 18 years old, diagnosis of hepatocellular carcinoma done before the date of COVID-19 infection.

3. Cohort C: Intrahepatic Cholangiocarcinoma Patients: Patients >= 18 years old, diagnosis of Cholangiocarcinoma done before the date of COVID-19 infection.

CA18202

Network for Equilibria and Chemical Thermodynamics Advanced Research (NECTAR)

NECTAR participants are keen to offer their unconditional help to support other scientists fighting all over Europe and the world, against COVID-19.

As for its structure and expertise, the participants cannot say at this moment that they would like to work in any particular field, but they can offer their expertise in many chemical (and chemically oriented) disciplines to support other studies.

NECTAR's network is mainly composed by Analytical, Physical, Inorganic, Organic and Medicinal Chemists, including some Chemical Engineers and Biologists.

They have expertise on:

- solution chemistry, chemical equilibria and speciation analysis (drugs in biological fluids);
- thermodynamics of chemical interactions (including peptides, protein and XNA-interactions with drugs);
- use, development and optimisation of analytical techniques (spectrometric techniques including NMR, X-Ray, etc, electrochemistry, MS spectrometry, thermal analysis and calorimetry, sensors including immunosensors);
- design, synthesis, purification and characterisation of organic and organometallic compounds (drugs, metallodrugs, peptides and proteins);
- use of chemometrical tools for big data analysis;
- theoretical chemical calculations, including Drug design and QSAR.

The Action does not work directly on COVID-19 research, but it can offer support and laboratories for chemically investigating drugs and metallodrugs and COVID-related molecules to verify interactions with designed ligands and complexes, to specifically target the disease. If needed, some medicinal chemists of our network can collect a library of compounds already developed in their laboratories for other purposes, for eventual testing against COVID-19.

CA18214

The Geography of New Working Spaces and the Impact on the Periphery

The Action has expertise available on

- Social and economic geography:
- Social, cultural and economic geography, international trade
- Spatial development, land use, regional planning
- Economics and business:
- Development, economic growth, competitiveness
- Economics and business: Econometrics, statistical methods applied to economics

The Action has started various activities to investigate the impact of the Corona virus crisis on co-working spaces and their users (freelancers etc.), also with regard to employment.

It has created a Facebook group entitled: "Coworkers in emergenza COVID-19" (in Italian) which addresses the co-workers in Italy to understand the problems they are facing since the majority of coworking spaces is closed, and the policy measures they would like to be put in place by the government.

The Action participants have organised a series of webinars on this issue where academics, policy makers, coworking managers and co-workers are interviewed. The webinars are published on the Facebook page of the network. Moreover, they are launching a survey addressed to coworking managers in phase 1, phase 2 and phase 3 of the pandemic to measure the effects in the short, medium and long run. The survey will be sent to the coworking managers worldwide.

CA18216

Network for Research in Vascular Ageing (VascAgeNet)

VascAgeNet would like to work on the following topic: the Action is launching a collaborative, multicentre research project in order to explore medium- and long-term vascular consequences of COVID-19 with the Artery Society. The study will be called CARTESIAN (Covid-19 ARTErial StIffness and vascular AgiNg). The primary goal of the project is to study the medium- and long-term effects (3-6 months and 1 year) of SARS-CoV-2 infection on arterial stiffness and central haemodynamics, and thus vascular aging (which is the core topic of CA18216).

Expertise available in the Action:

- clinical centres and medical doctors, medical engineering, mathematicians and clinical statistics, industry
- an extensive network of clinicians either frontline or indirectly in contact with COVID-19 patients
- expertise from clinicians in the medical domain, i.e. engineers related to modelling the cardiovascular system, basic researchers about the physiological background and companies translating knowledge to device
- new insights and data from our study

Expertise the Action is looking for:

- additional clinical centres participating in the study
- upfront insights from related studies and other research dealing with COVID-19
- exchange of information on topics related to our study

CA18231

Multi3Generation: Multi-task, Multilingual, Multi-modal Language Generation

Multi3Generation has identified the following topics of interest:

1) automatic conversion of language used by professionals (e.g., doctors) into common language that is better understood by a non-expert in the terminology of the technical and scientific field, such as doctor-to-patient communication. This implies transforming formal into informal language and deciphering of technical or complex texts (or speech) into texts (or speech) that use regular language easier to understand by regular language users/speakers. Collaboration could involve other COST Actions such as CA18209 and CA19102;
2) pragmatic linguistic approach to address a real and current need dramatically highlighted by the COVID-19 pandemic and stay-at-home policy effect on education. As a long-term effect of this crisis, it is expected that the levels of telework will increase, and so will distance and self-learning, which can bring new learning paradigms that are beneficial to students who have been excluded from that privilege due to poverty or discriminatory social conditions. Improvement of different levels of literacy, reaching in particular children who are at a competitive disadvantage due to lack of access to human language technology.

CA19118

High-performance Carbon-based composites with Smart properties for Advanced Sensing Applications (EsSENce)

NTUA

In our activities we have foreseen the use of nanomaterials for sensing devices that can be applied in the medical sector, as well as the fabrication of advanced composites that can be used as consumables for the healthcare system.

According to the above, our activities can be complementary to the Actions that are already involved in the inter-COST Network against COVID-19, thus I would also like to join the Network and contribute to COVID-19 research.

University of Ghent

Support via design and development of components via 3DPrinting, including also testing possibilities. Focus is on connection tubes and masks, but we also got requests for possible support on respirator units.

INEGI

Individual Protection Equipment and Collective Protection Equipment (face-shields supports, 3D-printed and Injection Moulded; Hands-Free doorknobs; ventilator accessories design).

Non-Invasive Ventilators Equipment: Helmet-CPAP (Continuous Positive Air Pressure), in particular, in the design, materials selection and manufacturing and integration strategies for the Helmet of the CPAP module.

Cleaning-Disinfection Tunnels; Other medical parts (nasopharyngeal swabs).

CTAG

Manufacturing visors with our 3D printing services (around 30 per day)/created a 3D model of visors able to be manufactured by injection moulding process and Plascies purchased the mould/We are now able to manufacture around one thousand units per day/ Homologation is in process. Trials to manufacture by 3D printing other small parts for respirators and filtered masks, but this is not as evolved as the visors/develop a new low-cost model of respirators using components from the automotive industry. This department is also manufacturing electronic plaques for sanitary equipment. Further info.

University of Luxembourg and Cardiff University

Spin-off, http://www.ariana-tech.com collaborating with the Weizmann institute in Israel on agent-based modelling and parameter estimation for epidemiological models.

ICMA-CSIC/University of Zaragoza & CIBER-BBN

Working on a sensor for COVID based on LFIA and plasmic nanoparticles. We are adapting some technology developed under a previous ERC-POC project. This COVID project is funded by CSIC, and involves 4 CSIC institutes and 2 hospitals with a global budget of 700 K during 1 year.

Institut Català de Nanociència i Nanotecnologia (ICN2)

Working on COVID-19 diagnostics with financial support from our institute. Organised a dedicated event on Biosensors for Pandemics with the focus on COVID-19 diagnostics.

University of Malta

Online COVID-19 Risk Assessment Tool, available at covid19check.gov.mt. This tool prompts the user with a few questions related to age, type and onset of symptoms, exposure to diagnosed people, chronic conditions, and determines the risk of being infected, as well as offers guidance based on the user's specific situation. UM academics from the Faculty of Dental Surgery have developed digital methodology to design 3D printed masks based on the face scans of healthcare professionals. Set-up a makeshift production line to keep up with the rising demand for hardware to disinfect and reuse Personal Protective Equipment (PPE) used by front line health care workers. The device harnesses Ultraviolet Germicidal Irradiation (UVGI), which is emerging as a powerful weapon in the arsenal against the novel coronavirus and is being deployed widely to disinfect respirators.

University of Tunis El Manar Tunis

Develop lateral flow immunochromatograhy strips (IgG, IgM), electrochemical biosensors (proteins S and N), electrochemical RNA biosensors for COVID-19.

Chemistry Department, University of Pristina

Electrochemical sensors based on nanostructured carbon materials for analysis of organic compounds. An Ignite project for pharmaceutical product analysis in collaboration with Nano - Alb unit in Tirana. We are keen to engage with the international network and expand our research profile such as COVID-19.

École Polytechnique Fédérale de Lausanne, AlpesLaser

Helping out the Swiss task force on the topic of masks, testing, properties, how long can we use them, various decontamination treatments, etc., mostly on the polymer/textile side of the matter of course.

Avanzare

Testing some masterbatch (in an acredited/certified laboratory) using a standard and a modification of the standard using Human Coronavirus 229E. We also have a patent application.

Dallara

Dallara was involved in the design of valves to convert sporting good masks (i.E. Decathlon) in C-Pap ones. Dallara has decided to release for free the CAD so that everyone could print with DDM technique the valve thus contributing to the solution of this crisis. Now Dallara is in contact with medical associations, to produce these valves to help them in the treatment of COVID in poor countries.

Itainnova

Materials & Components group at ITAINNOVA is collaborating in initiatives related to mechanical and performance testing of emergency ventilators and disposable masks, tissue disinfection and rapid prototyping of parts. Big Data group at ITAINNOVA has developed an AI Chatbot for responding to the doubts on the virus and EMC group is testing compatibility on emergency ventilators.

Damascus University, Physics Department

Fabrication of Nanofilter face masks (by electrospinning method) anti filtration and effective against bacteria and viruses whose sizes are under 100nm; Synthesis of metal/metal oxide nanoparticles (Ag, ZnO, CuO, TiO2, MgO, etc.) antibacterial and antiviral applications; Synthesis of Carbon quantum dots for medical diagnostic applications.

Institute of Metals and Technology

Proposal of two main points:

1. Surface nanostructuring via laser texturing and composite polymer coatings (i. e. TiO2 nanoparticle/ biocompatible polymer) to tailor wettability and roughness;

2. Additive Manufacturing Selective Laser Melting of Stainless Steel with Silver or Copper.

Politehnica University of Bucharest

Two projects in the COVID-19 context: https://attract-eu.com/attract-technologies-help-fight-covid-19/

Vinca Nuclear Institute

Performing sterilization of the workspace and vehicles using ozone, contributing to prevention and suppression of the COVID-19 pandemic effects: www.ozonecare.org.

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