

ORIENTATION PAPER

Proposed priorities for health research 2011

Working document – not legally binding

***WARNING: This is a working document, which can change until its publication.
Applicants must refer only to the final published document.***

II	CONTENT	7
1.	BIOTECHNOLOGY, GENERIC TOOLS AND MEDICAL TECHNOLOGIES FOR HUMAN HEALTH	7
1.1	<i>High-throughput research</i>	7
1.2	<i>Detection, diagnosis and monitoring</i>	9
1.3	<i>Suitability, safety, efficacy of therapies</i>	9
1.4	<i>Innovative therapeutic approaches and interventions</i>	9
2.	TRANSLATING RESEARCH FOR HUMAN HEALTH	14
2.1	<i>Integrating biological data and processes: large-scale data gathering, systems biology</i>	15
2.1.1	Large-scale data gathering	15
2.1.2	SYSTEMS BIOLOGY	19
2.2	<i>Research on the brain and related diseases, human development and ageing</i>	19
2.2.1	Brain and brain-related diseases	19
2.2.2	Human development and ageing	22
2.3	<i>Translational research in major infectious diseases: to confront major threats to public health</i>	25
2.3.1	Anti-microbial drug resistance	25
2.3.2	HIV/AIDS, malaria and tuberculosis	28
2.3.3	Potentially new and re-emerging epidemics	28
2.3.4	Neglected infectious diseases	30
2.4	<i>Translational research in other major diseases</i>	30
2.4.1	Cancer	30
2.4.2	Cardiovascular diseases	32
2.4.3	Diabetes and obesity	34
2.4.4	Rare diseases	37
2.4.5	Other chronic diseases	37
3.	OPTIMISING THE DELIVERY OF HEALTHCARE TO EUROPEAN CITIZENS	38
3.1	<i>Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate use of behavioural and organisational interventions and new health therapies and technologies</i>	38
3.2	<i>Quality, efficiency and solidarity of healthcare systems including transitional health systems</i>	38
3.3	<i>Health promotion</i>	38
3.4	<i>International public health & health systems</i>	40
4.	OTHER ACTIONS ACROSS THE HEALTH THEME	43
4.1	<i>Coordination and support actions across the theme</i>	43
4.2	<i>Responding to EU policy needs</i>	45

INTRODUCTION

Major efforts in 2011 concentrating on small and medium enterprise (SME) dedicated priorities will contribute to the new Commission's emphasis, as outlined in the Europe 2020 strategy for smart, sustainable and inclusive growth¹, on "competitiveness for the future" including "boosting the new sources of growth..." which "requires a strengthening of Europe's industrial base" (Barroso, 2009²). Whereas, two high impact research initiatives as pilot projects (with a maximum of EUR 30 million each) in the fields of epigenomics and immunisation will both contribute to the "European innovation economy" (i-conomy)³ and contribute to the completion of the European Research Area (ERA). Both, the SME orientation of the 2011 health research and the large pilot projects present excellent potential for innovation.

KEY RESEARCH CHALLENGES

The priorities for health research 2011 focus on the following key research challenges:

1) Increasing innovation and competitiveness of European health-related industries and services by attracting higher SME participation

In view of the current economic and societal challenges it is of utmost importance to tackle key health research targets. A major effort on SME participation will stimulate innovation, increase the participation of SMEs in clinical trials, increase the drive to develop of new therapies, technologies and drugs to marketable products, and thus create a considerable European added value in the European health research area. Research-intensive SMEs must be attracted to participate in the Health theme to ensure that new research and development (R&D) findings are brought to the market and to patients.

To boost SME participation both quantitatively and qualitatively, a number of SME dedicated priorities are included with opportunities for SMEs not only to participate, but to take leading roles in projects. To ensure a bottom-up and innovative approach, the priorities are broadly defined and proposals will be evaluated using the two-stage submission and evaluation procedure.

2) Two pilot actions for high impact research initiatives (large-scale integrating research projects, up to EUR 30 million)

Epigenomics. This pilot action will be launched to integrate several components, such as epigenomic mapping in health and diseases, high-throughput technology, diagnostic tools, targeted intervention drug screening in the context of comparative clinical trials. This integrated research effort should contribute to understanding diseases and the impact of lifestyle on health. It will integrate research activities and structure the ERA in a global context on an unprecedented scale in this emerging field of research.

Immunisation strategies and applications. The aim is to apply advanced technologies to the study of human immune responses under conditions of health and disease and to

¹ <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf> (March 2010)

² Political Guidelines for the New Commission, J.M. Barroso, 2009.

³ Innovation Summit of the Lisbon Council, 5 March 2010

develop improved immunisation strategies depending on the pathological condition. Newly generated knowledge should lead to the development of rational strategies in immunisation. Different means of immunisation (systemic, local, mucosal) using different platforms and formulations will be investigated and will have significant effects on the effectiveness of new interventions.

3) Supporting innovative clinical trials⁴ to verify safety and efficacy

The aim is to strengthen clinical research in Europe in a number of areas with unmet medical needs. Specific actions under clinical trials listed in this document (especially under investigator-driven clinical trials) will have a major European added value into translating research to clinical practice. The objective is increasing therapeutic options for patients, stimulating the implementation of best practice in all Member States (MS) and in establishing the basis for a coherent programme addressing the issue of personalized medicine and improved therapeutic outcomes.

4) How lifestyle affects health and how can this be mitigated

Lifestyle factors (nutrition, environment, stress, smoking, alcohol and drug intake, exercise, etc.) have a considerable, but not always well understood, impact on a variety of health issues. A coordinated effort is needed to achieve a better understanding of the underlying causes, mechanisms and possible mitigating factors or interventions for better health. This effort will be supported throughout this document in particular in area 3.3 "health promotion" of the activity "Optimising the delivery of health care".

Brain-related diseases, including lifestyle-related health issues. The focus is on lifestyle-related health problems such as addiction as well as other mental health issues not yet covered by the previous calls such as compulsive disorders in children. In the area of neurodegenerative diseases, in particular Alzheimer's disease, a set of priorities is foreseen to complement the objectives and actions of the Joint Programming initiative thereby contributing to ERA objectives.

Lifestyle determinants: diabetes, obesity and cardiovascular diseases. The emphasis is on clinical trials, prevention, epidemiology and controlled intervention. Actions include research on lifestyle and/or therapeutic approaches for diabetes; controlled intervention trials on lifestyle changes and concomitant therapeutic intervention on high-risk populations and on epidemiological studies on obesity. Coordination with Theme 2 'Food, Agriculture and fisheries, and Biotechnology' ('KBBE') is foreseen on diet/nutrition and disease development. There could be a strong component of international cooperation, through global approaches, on diabetes / obesity and on early life programming.

Social determinants of health. The size scale, persistence and increase in the differences in health of people living in different parts of the EU and between socially advantaged and disadvantaged EU citizens represents a challenge to the EU's commitment to solidarity and equality of opportunity. Tackling health inequalities requires a coordinated response across relevant policy areas, as reflected in the Commission Communication on Solidarity in Health⁵, and more inter-sectoral and interdisciplinary research to support actions addressing health inequalities taking into account differences in lifestyle. This approach also applies to

⁴ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

⁵ Solidarity in Health - Reducing Health Inequalities in the EU" (20th October 2009)

low and middle income countries where the societal and economic challenges and the related burden of disease are even greater.

5) Global health issues

This document also covers the complementary policy objective of addressing specific global health issues. Greater focus will be placed on **antimicrobial resistance** and continuing to address **emerging epidemics**. In antimicrobial resistance the aim will be to further focus on understanding of the evolution and the transfer of antibiotic resistance as well as antimicrobial drug resistance in Gram negative infections, the development of tools to control microbial biofilms and the development of multi-analyte diagnostics. Concerning emerging epidemics, transmission and immunology issues, as well as behavioural aspects relevant to preparation for and action during pandemics are also addressed in priorities listed in this document.

International Cooperation

International cooperation continues to be an integral part of the Health Theme with many opportunities throughout this document to include international cooperation partner countries. In particular, in the area of diabetes / obesity and on early life programming, the need for a global approach encompassing several regions of the world such as the Mediterranean region, Sub-Saharan Africa, Latin America, Asia, etc. is envisioned.

In recognition of the opening of NIH⁶ programmes to European researchers, participants established in the *United States of America* are eligible for funding and participation for all priorities described in this document.

Special international cooperation actions (SICA) target research activities in the areas of proteomics (Russia), human genetics (EECA), infectious diseases (Latin America and Asia), cancer (India), diabetes/obesity (integrated initiative with multiple international partners), addressing health inequalities, health systems, supporting the realisation of the Millennium Development Goals (MDG). The area of comprehensive and integrated interventions and programmes to improve reproductive health and health equity will be undertaken as well as a focus on capacity building. Furthermore, programme level cooperation, where the *cooperating countries finance their own complementary projects*, will be pursued with individual countries (such as Brazil, Russia, India, Mexico and Australia).

Socio-economic dimension of research

Where relevant, account should be taken of possible socio-economic impacts of research, including its intended and unintended consequences and the inherent risks and opportunities. A sound understanding of this issue should be demonstrated both at the level of research design and research management. In this context, where appropriate, the projects should ensure engagement of relevant stakeholders (e.g., user groups, civil society organisations, policy-makers) as well as cultivate a multi-disciplinary approach (including, where relevant researchers from social sciences and humanities). Projects raising ethical or security concerns are also encouraged to pay attention to wider public outreach.

Gender dimension

⁶ National Institute of Health of the US Department of Health and Human Services

The pursuit of scientific knowledge and its technical application towards society requires the talent, perspectives and insight that can only be assured by increasing diversity in the research workforce. Therefore, all projects are encouraged to have a balanced participation of women and men in their research activities and to raise awareness on combating gender prejudices and stereotypes. When human beings are involved as users, gender differences may exist. These will be addressed as an integral part of the research to ensure the highest level of scientific quality. In addition, specific actions to promote gender equality in research can be financed as part of the proposal, as specified in Appendix 7 of the Negotiation Guidance Notes [ftp://ftp.cordis.europa.eu/pub/fp7/docs/negotiation_en.pdf]".

Specific information

With regard to submission, evaluation and selection procedures, both single-stage as well as two-stage submission and evaluation procedures will be used in separate calls. The relevant call is indicated for each priority. It is particularly important that applicants address the potential ethical issues of their proposals, both in the proposed methodology and the possible implications of the results. The specific requirements for addressing ethical issues⁷ are described in the Guide for Applicants (Annex 4, section 4). The differences of gender/sex in research (risk factors, biological mechanisms, causes, clinical features, consequences and treatment of diseases and disorders) must be considered where appropriate.

Funding schemes: There is a range of funding schemes available. The forms of the grants to be used for the various funding schemes will be described in the guides for applicants. For each funding scheme there are upper limits on the requested EU contribution (see priority description in section II for details). **It is important to note that funding limits will be applied as eligibility criteria. Proposals that do not respect this limit will be considered ineligible.** Furthermore, proposals responding to a Specific International Cooperation Actions (SICA) must involve at least two participants from different Member States or Associated States plus two from different International Cooperation Partner Countries (ICPC)⁸, (see details in descriptions of the priorities in section II). After fulfilling this condition, however, any other countries may participate.

⁷ http://cordis.europa.eu/fp7/ethics_en.html

⁸ With the exception of Brazil, China, India and Russia, for which the required two or more ICPC participants can be located in the same country but at least two different participants must come from two different provinces, republics, states or oblasts within Brazil, China, India or Russia.

II CONTENT

1. BIOTECHNOLOGY, GENERIC TOOLS AND MEDICAL TECHNOLOGIES FOR HUMAN HEALTH

This activity aims at developing and validating the necessary tools and technologies that will enable the production of new knowledge and its translation into practical applications in the area of health and medicine.

1.1 HIGH-THROUGHPUT RESEARCH

The objective is to catalyse progress in developing new research tools for modern biology including fundamental genomics that will significantly enhance data generation and improve data and specimen (bio-banks) standardisation, acquisition and analysis. The focus is on new technologies for: sequencing; gene expression, genotyping and phenotyping; structural and functional genomics; bioinformatics and systems biology; other 'omics'.

Note: Depending on the priorities listed below, applicants will have to follow the rules for single- or two-stage submission procedure.

1.1-1: SME-targeted research for developing tools and technologies for high-throughput research. Two-stage. Research should focus on the development and improvement of high throughput research tools and technologies. The proposed activities should also take into account quality control aspects as appropriate. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The development of new and improved tools and technologies will support the competitiveness of Europe in the areas of "-omics" research and systems biology, and their applications are expected to have an important impact in medicine and in the biotechnology industry (in particular for SME's).

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals in which research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities, but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

1.1-2: Genome-based biomarkers for patient stratification and pharmacogenomic strategies. Two-stage. The objective of this SME-driven research is to distinguish responders and/or adverse responders from non-responders to drugs that are already established treatments through the identification and characterisation of genome-based biomarkers. The research may focus on adults, children and/or the elderly where appropriate. Ethical, social, legal and public health aspects, as well as health technology assessments (health economics, cost effectiveness) will be considered. The research should lead to validated pharmacogenomic methods to predict responses to drug treatment, avoid chronicity, prevent relapse and reduce adverse effects. Research should focus on a disease where there is evidence of variable clinical response(s) to existing drugs and where an unmet need for effective intervention is pressing. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: Better definition of treatment populations for clinical trials

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals demonstrating that research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

HEALTH.2011.1.1-3: High-throughput proteomics for human health and disease. Single-stage. The project should develop improved tools and technologies for proteomics, addressing the challenges and bottlenecks in high-throughput data generation and data analysis. The project results should be applicable to studying proteins relevant to human health and disease in different *in vivo* and *in vitro* model systems (cells, tissues, organisms). Cooperation with a complementary future project(s) from Russia will be an obligation, and a part of the budget should be set aside for this cooperation (*e.g.* for participation in meetings). **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The project should aim to strengthen scientific cooperation between the EU, FP7 associated countries (AC), and the countries of the EECA regions, in particular Russia. The initiative will address key issues in proteomics and should contribute to structuring the participation of the respective scientific communities in large-scale proteomics initiatives. The project will benefit from mutual exchange of information, researchers and a

combination of efforts and thus will need to bring together scientists from participating countries. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

Specific feature: It is expected that the Russian Federal Agency for Science and Innovations (FASI) will fund complementary project(s) that will closely cooperate with the EU funded project.

1.2 DETECTION, DIAGNOSIS AND MONITORING

Closed in 2011

1.3 SUITABILITY, SAFETY, EFFICACY OF THERAPIES

Closed in 2011

1.4 INNOVATIVE THERAPEUTIC APPROACHES AND INTERVENTIONS

For this call for proposals, priorities focus on regenerative medicine, protein scaffolds as alternatives to antibodies and oligo-nucleotides, immunisation strategies and international cooperation.

Regenerative medicine aims to restore the function of diseased or injured tissues and organs by cell transplantation or by the activation of endogenous cells. It also offers possibilities for addressing the complex problems of an ageing population and has the potential to combat rising healthcare costs. It is a high-value new technology likely to enhance European competitiveness in particular in view of the recent adoption of a European Regulation on advanced therapy medicinal products.

To meet the challenges and promise of regenerative medicine, two priorities for medium-sized Collaborative Projects are presented. One concerns therapy itself and aims to drive translation of promising therapeutic approaches along the pathway to practical clinical use. The other priority focuses on the tools and technologies required to enable progress in regenerative medicine. Substantial involvement of SMEs is a prerequisite in both cases.

Priorities also aim to exploit progress in the development of innovative protein binding scaffolds as alternatives to classical antibodies and oligo-nucleotides. Substantial involvement of SMEs is also required.

Immunisation is addressed through a high-impact initiative that aims to apply advanced technologies to the development of new immunisation strategies.

For international cooperation, a priority concerned with therapy of chronic inflammatory autoimmune diseases with participation of Brazilian teams is described.

Note: Depending on the priorities listed below, applicants should follow the rules for single- or two-stage submission procedure.

1.4-1: Regenerative medicine clinical trials⁹. Two-stage. Research should aim to develop regenerative therapies, involve SMEs and test promising products or techniques in the clinic. Since it is intended to encourage regenerative medicine as an approach, proposals may address any justified disease or condition. Execution of clinical/in-patient trials should represent a central part of the project. To indicate real promise, pre-clinical or early clinical results should be already available. Rigorous toxicology studies should precede clinical trials. The biological basis of product mode of action should already be known but may be further developed during the project. Up-scaling, good manufacturing practice (GMP) and regulatory work should be included as appropriate. It is preferred that clinical work starts at an early stage of the project, in which case regulatory affairs, including investigational medicinal product dossier (IMPD) status should be indicated in the proposal. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The main impact of this work shall depend on the extent to which regenerative medicine is tested in the clinic and adopted in practice. Projects may target any justified specific disease or condition but are required to aid the establishment of the regenerative approach to therapy. Research must be multidisciplinary and must involve the European biotechnology industry, and in particular the SME sector; it should also address regulatory issues as appropriate. A strong participation from the clinical and/or industrial sector (especially SMEs) in the projects should help ensuring exploitation of the results in this area/priority. The degree of such participation will be considered during the evaluation.

1.4-2: Tools, technologies and devices for application in regenerative medicine. Two-stage. This priority focuses on tools, technologies and devices that enable the development of innovative regenerative therapies and their application in the clinic. Projects should be directed towards the preparation, delivery or follow-up of regenerative medicine treatment; they should also address scale-up, regulatory work and clinical investigations as appropriate. Research should be multidisciplinary and consortia should be constructed so that results can be exploited by clinical and/or industrial sectors (especially SMEs) as appropriate. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: Projects should lead to new tools, technologies or devices which will assist the establishment of regenerative therapies in the clinic. Projects must involve the European biotechnology industry, especially the SME sector.

⁹ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals demonstrating that research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

1.4-3: Development and production of new, high-affinity protein scaffolds for therapeutic use. Two-stage. Research should focus on the development and production of new high-affinity, non-immunoglobulin protein scaffolds as an alternative to antibodies or oligonucleotides. Projects should aim at developing new, efficient and safe therapies by combining high specificity with stable production characteristics. Projects should include preclinical studies, methods for scale-up and GMP as appropriate, should combine academic, clinical and industrial expertise and implement a translational approach towards clinical trials (clinical proof-of-concept and/or phase I/II clinical studies). A strong level of SME participation is required. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The potential impact of projects will be judged on the basis of the advantages displayed by the new materials by comparison with classical antibodies or oligonucleotides. Successful projects should demonstrate clinical proof of concept and safety, particularly lack of immunogenicity. Scale-up and production methods should also be demonstrated. Benefits for the SME sector will also need to be displayed.

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 15% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

1.4-4: High impact initiative for better immunisation. Single-stage. The aim is to apply advanced technologies to study human immune responses under conditions of health and disease. New knowledge generated by the project should be used to develop informed and rational strategies and technologies with wide potential applications for immune stimulation, or modulation of immune responses, depending on the pathological condition. Research should be targeted to prevention or cure of infections but aspects of age-dependent immune senescence or gender specific responses may also be addressed, to understand and inform targeted immune modulation.

Major research questions, such as, molecular signatures of immune protection, the relationship between systemic and local immune responses, and the interplay between immune adaptive and innate mechanisms, should be integrated and research capacities be harnessed to develop immunisation strategies and vaccines designed to elicit the specifically desired human immune responses.

Dedicated project components should focus on:

- adjuvants and immune modulators, platforms and delivery technologies with improved effectiveness and safety;
- routes of immunisation (systemic, local, mucosal, transdermal);
- efficacy- and longevity-enhancing immunisation schemes (prime boost approaches, age related aspects of immune responses, specific target groups);
- rational design of therapeutic vaccines.

The applications-orientated concept of the programme implies that technological, methodological and clinical research components of the programme will determine the research agendas followed by underpinning immunology research. This overall conceptual orientation should be reflected in substantial and influential participation of industry active in the area of vaccines and immune modulating products. In particular, involvement of research intensive SMEs is required.

A dedicated project component should aim to establish and implement European training curricula for translational immunology and vaccinology research. Synergy with pertinent existing training schemes and support structures is encouraged.

The proposal should include a management structure appropriate for the scope of the project. The project should launch calls to add new subprojects and/or partners in defined areas as required. While building on the support given by an optimum number of core institutions participating in the project, the programme management should be sufficiently independent from partner institutions in order to allow the programme to develop its own momentum, corporate identity and visibility. Careful consideration should be given to the governance of the programme, with due involvement of external expertise and relevant stakeholders.

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project)

Requested EU contribution per project: Maximum EUR 30 000 000

Only up to one proposal can be selected.

Expected impact: The project should lead to new interventions modulating the human immune response to prevent, alleviate or cure disease. It should structure this area of research in such a way that it favours enhanced exploitation by European industries. Longer-term sustainability of the programme could also be achieved. To this end elaboration of appropriate interfaces for co-funding by other agencies, including Member State and Associated State national programmes could be a major outcome.

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 15% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation,*

before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

1.4-5: New therapeutic approaches in chronic inflammatory and autoimmune diseases.

Single-stage. Projects should aim to develop innovative strategies to therapy based on various approaches, such as small molecules, antibodies, peptides or cells, where understanding of mechanism of action has already been established. Proposals should include validation in relevant pre-clinical models and, if possible, early assessment in humans. The selected project should capitalise on the strong experience available in Brazil and Europe in the fields of immunology and immunopathology. Cooperation with related national and international projects in Brazil should be ensured and a part of the budget should be set aside for this cooperation and for training activities. Industrial participation is required and this will be considered in the evaluation of the proposal. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: max EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The main impact of this work should be the extent to which new, innovative therapeutic approaches for these diseases can be tested in relevant preclinical models or in humans. Projects are expected to lead to more links and to closer cooperation between Member States, Associated Countries and Brazil than is the case for traditional FP projects.

Special feature: It is expected that the Brazilian authorities will issue a complementary call to finance Brazilian projects in this field and that the EU funded project will cooperate closely with those and other related projects.

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimated EU contribution going to industry is 15% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

2. TRANSLATING RESEARCH FOR HUMAN HEALTH

This activity aims at increasing knowledge of biological processes and mechanisms involved in normal health and in specific disease situations, to transpose this knowledge into clinical applications including disease control and treatment, and to ensure that clinical (including epidemiological) data guide further research.

Innovative clinical trials¹⁰ to verify safety and efficacy

Specific actions under clinical trials will have a major European added value in translating research into clinical practice, increasing therapeutic options for patients, stimulating the implementation of best practices in all Member States (MS) and in establishing the basis for a coherent programme addressing the issue of personalized medicine and improved therapeutic outcomes. Currently, the majority of clinical trials are performed by health-related industries during the development of novel products such as new pharmaceuticals. Nevertheless, clinical trials initiated by academic investigators are of high relevance for public health. This document lists several priorities for clinical trials, most being investigator-driven clinical trials. The aim is to strengthen clinical research in Europe in a number of areas with unmet medical needs.

Topics for clinical trials can be found in a number of areas of the work programme including regenerative medicine, brain-related diseases, human development and ageing, antimicrobial drug resistance, cancer, cardiovascular diseases, diabetes and obesity, and off-patent medicines for children.

In areas where the focus is on investigator-driven clinical trials, it is considered that the use of the definition of the typical phases of clinical trials in the context of the development of new drugs (phase I to phase III – approval – post-marketing or phase IV trials) is only of limited utility. For example, clinical trials on life-style interventions do not fit into the phase definitions. Such trials may for example be funded in the priority 2.4.3-1. Where drug interventions will be tested, depending on the individual priority it is expected that most studies to be funded will be phase II trials, if the intervention to be tested is used outside its approved indication, or phase IV trials if the intervention is used within its marketing authorisation. In particular, it is foreseen that comparative effectiveness trials (phase IV) will be funded in several priorities. If evidence warranting advanced clinical testing is already available, phase III trials can also be supported. For priority 1.4-1 it is expected that phase I or II trials will be funded. The priority 4.2-1 "Off patent Medicines for Children" specifically funds phase III clinical trials. In all cases, the maximum available EU contribution needs to be considered.

As no minimum or maximum duration for projects to be funded under FP7 is foreseen, applicants should properly evaluate the time needed to conclude their study, including relatively short durations, such as 1-3 years, when deemed appropriate; unnecessary addition of participants to projects or inappropriate study duration will be penalised in the evaluation process. As for all FP7 projects, evolution of consortia is in principle possible. However, no additional funding can be made available during the implementation of a project; major

¹⁰ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

changes that cannot be peer reviewed are discouraged, as the fact that the original proposal was evaluated and selected by the experts needs to be considered.

The early involvement of patients¹¹ and their advocacy groups in the planning, implementation, and monitoring of a clinical trial is considered important so that patients' needs are appropriately considered. This may also increase the rate of enrolment of trial participants and can have a positive effect on the performance of the clinical trial. All studies must carefully consider the ethical and regulatory framework at European and national level for the conduct of clinical trials.

Clinical trials can be carried out internally by a participant or outsourced to a third party (subcontractor).

1) When carried out internally:

- *the participant may either charge his actual costs of the trials; or*
- *where it is difficult to substantiate each of the actual costs involved for each individual test, the participant may opt to charge an average cost per patient or test or type of test, calculated with a methodology based on its actual costs and that is auditable.*

2) The participant may also propose to outsource the performance of the clinical trials to a third party by means of a subcontract:

- *either on a commercial basis, for which a price is agreed upon by the participant and the third party.*
- *either on a cost basis, on a non-commercial basis, that is where the third party charges only its costs to the participant who reimburses them fully and is in turn reimbursed by the Commission according to the applicable funding rate.*

Participants are reminded that it is up to them to demonstrate that their choice of a third party secures the best value for money, for example by providing the various offers requested, or, if a long term-cooperation with that third party to carry out such tests pre-exists, to demonstrate its added value.

Participants that are public bodies are reminded that the selection of such a third party has to follow their internal rules and applicable legislation, in particular those related to public procurement, as a matter of eligibility.

2.1 INTEGRATING BIOLOGICAL DATA AND PROCESSES: LARGE-SCALE DATA GATHERING, SYSTEMS BIOLOGY

2.1.1 Large-scale data gathering

The objective is to use high-throughput technologies to generate data for elucidating the function of genes and gene products and their interactions and control by epigenetic and other mechanisms in complex networks in important biological processes.

¹¹ <http://www.eu-patient.eu/Initatives-Policy/Projects/ValuePlus/Resources/Value-Resources/>

In the post-genome era the "-omic" technologies are advancing to the bedside. Personalized medicine is taking advantage of the cutting edge "-omics" technologies (genomics, proteomics, structural biology, interactomics, metabolomics, pharmacogenomics) to enable new approaches in diagnosis, drug development, and individualized therapy. There is a need to streamline the research in order to understand and evaluate predisposition to diseases before onset. The selected projects will set up the necessary data resource and technological platforms for developing personalized medicine approaches.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

2.1.1-1: High impact initiative on the human epigenome. Single-stage. This research project should aim to characterise the human epigenome in human health and disease. This project should address how histone modifications, nucleosome positioning and remodelling, DNA methylation, and small and non-coding RNAs are governing the way in which genomic information is organized within the cell and how these phenomena play a role in regulating gene expression and in controlling specific cellular functions in health and disease. This large effort should involve several components under the same management structure: data generation, research, technology development, networking and training to foster the competitiveness of European research on epigenetics. The envisioned components are:

Generation of reference epigenome maps in health and diseases. This project component should implement powerful and standardised high throughput approaches to generate at least 100 reference human epigenomes in conditions relevant to human health and diseases. This large data gathering component should follow the International Human Epigenome Consortium (IHEC) policies concerning data release and accessibility.

Identification and validation of epigenetics makers in human disease(s). This project component should address the epigenetic mechanisms at the origin of human disease(s) and where appropriate may in part rely on studies performed on relevant model organisms. The important aspect of this action will be to demonstrate causality between the epigenetic changes and disease whether the mechanism is direct or indirect as an expression of genomic alteration. Where relevant the influence of environmental and life-style factors should be considered. This component should also identify and validate important epigenetic markers of human diseases that will open avenues for new diagnostic tools and for therapeutic approaches.

High throughput technologies for epigenome mapping in health and disease. The project component should catalyse the development of technologies that will accelerate high throughput epigenome mapping. The project should decrease substantially the cost of epigenetic mapping thereby making these approaches feasible for future clinical use. Research-intensive SMEs involvement is required for this component and this will be considered in the evaluation of the proposal.

Identification of new compounds interfering with the regulators of epigenetics profiles. This research-intensive SME-based component should screen for new compounds interfering with the enzymes that are important regulators of epigenetic mechanisms.

Networking activities. The research activities should be linked together through a networking component that should facilitate the flow of knowledge between basic research and the more applied research component (technology development and compounds

screening). The HIP will also develop an open-access data management strategy to enable data storage and dissemination. The consortium should establish a common website and database that will increase the visibility and relevance to the scientific community of this important European effort.

Training and communication. This multi-component project should also implement a joint training programme that will offer training opportunities across the spectrum of research (from basic to applied research). Importantly, this project should implement a communication plan to the public and other stakeholders (scientific community, industry and patient associations).

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project)

Requested EU contribution per project: Maximum EUR 30 000 000.

Only up to one proposal can be selected.

Expected impact: This project should aim at structuring European epigenetic research. Furthermore, this project should generate the technology, knowledge and know-how that should increase Europe's competitive position in exploiting the vast amount of epigenome data that will become available in the near future. This project should deliver important new high throughput technologies that will decrease the cost of epigenetic mapping and will facilitate in the medium to long-term the introduction of these approaches in a clinical environment. The project should also deliver new compounds that will modulate the activities of important regulators of epigenetic mechanisms in health and disease. These new compounds would represent important tools for the characterisation of the epigenetic mechanisms that are involved in disease. Importantly, by its size and its networking component, this project should have a strong impact on European Research Area in this fast growing epigenetic research field and should allow researchers crossing the borders of different disciplines in epigenetic research.

Finally, the training programme will prepare the next generation of scientists to fully exploit the vast amount of data that will soon be generated in human epigenome research worldwide.

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 15% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

2.1.1-2: Proteins and their interactions in health and disease. Two-stage. The project should gather a large amount of data on proteins relevant to human health and disease and their interactions in order to obtain an integrated view of biological processes. The research proposed may range from studying large multi-protein machineries and their structure-function relationships at cellular level to analysing protein-protein interactions at the pathway level. The time component should also be considered. The computational and experimental aspect may be combined as required to achieve the project goals. New technological developments may be encompassed as necessary. The optimal public access and use of data generated within the project should be ensured for the benefit of the broad scientific

community. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

One or more proposals can be selected.

Expected impact: The project will aim to gather, organise and analyse data and in doing so will integrate proteomics, interactomics, structural biology and cell biology communities to provide the basis for global understanding of cellular processes. The project(s) should help to understand how important pathways and systems function in order to facilitate disease prevention, diagnosis and therapy. The ultimate project outcome should be in building the necessary knowledge base for personalised medicine. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.1.1-3: Large-scale genomics approaches to identify host determinants of infectious diseases. Two-stage. The project should aim at identifying host genetic markers predicting susceptibility and severity for infectious diseases utilising primarily large-scale biobanks and patient databases and, when appropriate, well established animal models for functional validation. The focus will be on multidisciplinary approaches bringing together areas such as high-throughput genomics, immunogenetics, infectious diseases, microbiology, bioinformatics and public health genomics. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

Only up to one proposal can be selected.

Expected impact: This project should meet bio-medical research and clinical needs. The genomic markers should have the potential for subsequent clinical validation and exploitation in public health. A strong participation of SMEs in the project should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.1.1.-4: Population genetics studies on cardio-metabolic disorders in EU/AC and EECA populations. Single stage. The aim of this project is to study genetic predisposition to cardio-metabolic disorders, such as metabolic syndrome, arterial thrombosis, type 1 and type 2 diabetes, hypertension, stroke and pregnancy-related disorders in different EU/AC and EECA populations. The project should evaluate the prevalence of gene variants in patients and control groups in various populations and compare obtained results with clinical data. This will allow the identification of population/patient groups which are at high risk for disease and complications and help in optimising therapeutic approaches. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Specific International Cooperation Action (SICA), Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

Only up to one proposal can be selected.

Expected impact: This project is expected to lead to a much closer cooperation between the EU/AC and EECA countries than is the case for traditional FP projects, while helping identifying genetic differences between various populations that predispose individuals to cardio-metabolic diseases.

2.1.2 SYSTEMS BIOLOGY

Closed in 2011

2.2 RESEARCH ON THE BRAIN AND RELATED DISEASES, HUMAN DEVELOPMENT AND AGEING

2.2.1 Brain and brain-related diseases

The objectives are to better understand the integrated structure and dynamics of the brain, and to study brain diseases including relevant age related illness (*e.g.* dementia, Parkinson's disease) and search for new therapies. The focus will be on gaining a global understanding of the brain by exploring brain functions, from molecules to cognition including neuroinformatics, and brain dysfunction, from synaptic impairment to neurodegeneration. Research will address neurological and psychiatric diseases and disorders, including regenerative and restorative therapeutic approaches.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

2.2.1-1: Investigator-driven clinical trials¹² for childhood-onset neurodegenerative diseases. Two-stage. Support will be provided to clinical trials for primary neurodegenerative diseases that develop during childhood, *i.e.* up to 18 years of age. Human pharmacokinetics, pharmacodynamics, efficacy and/or safety studies should be included. In this document several priorities for investigator-driven, multicentre, prospective, controlled clinical trials are called for. The outcomes must be relevant for patients and change clinical practice. Pilot studies and systematic reviews will not be funded. Applicants must demonstrate that clinical trials are appropriately powered to produce statistically significant evidence. Gender aspects and differences related to age subgroups should be appropriately considered. The clinical trials to be supported must be registered in a publicly accessible clinical trials registry. The applications must consider the relevant governance issues for clinical trials such as good clinical practice and respect of the appropriate international, European and national legislation and guidelines. Patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials should be involved. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

¹² <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The successful projects should contribute to supporting research on child health, an overarching objective across the Health theme. These projects are also expected to improve current therapeutic strategies for children and adolescents affected by these diseases. Funded clinical trials must provide concrete outcomes that lead to clear benefits for patients. A strong participation of industry, in particular SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.2.1-2: Understanding the role of neuroinflammation in neurodegenerative diseases.

Two-stage. An accumulating body of evidence indicates an active role of neuroinflammation not only in classical neuroinflammatory diseases like multiple sclerosis, but also in the pathophysiology of progressive neurodegenerative disorders. The successful project(s) should elucidate the link between neuroinflammation and neurodegeneration. The ultimate goal should be the identification of viable targets for the development of neurodegenerative disease therapeutics and/or the validation of protective strategies for neurons and axons that may improve disease outcome in patients. Inclusion of early phase clinical trials to prove the benefit of immunomodulatory therapies will be considered an asset. Transmissible and infectious diseases are excluded. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

One or more proposals can be selected.

Expected impact: The funded projects should contribute to better understanding of brain dysfunction, help in structuring European research efforts and lead to a better management of costly neuroinflammatory and subsequent neurodegenerative diseases with a potential to reduce healthcare costs while improving the health of European citizens. A strong participation of clinical centres, research-intensive SMEs and industry in the projects should help ensuring innovation in this area/priority. The degree of such participation will be considered during the evaluation.

2.2.1-3: Addictive and/or compulsive behaviour in children and adolescents: translating pre-clinical results into therapies. Two-stage.

The projects should focus on one or more paediatric and adolescent neuropsychiatric disorders characterized by addictive and/or compulsive behaviour such as addiction, obsessive compulsive disorders and tic disorders. In addition to increasing our knowledge of the pathogenesis and mechanisms of these disorders, the successful project is expected to have well-specified clinical relevance. To this end, pre-clinical studies in relevant animal models and humans should be complemented by cohort studies for evaluating and validating of preventive and/or therapeutic strategies. The cohorts should take into account inequalities by gender, ethnicity and socioeconomic status. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The successful project(s) should lead to the identification of susceptibility factors for addictive and/or compulsive behaviour in children and adolescents, and to a better understanding of the underlying mechanisms of these disorders. Project results will have help in developing new strategies for targeted prevention and health care management, new therapies, and ultimately lead to disease prevention or a significant decrease in the incidence of these diseases. A strong participation of SMEs and industry in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs and industry will be considered during the evaluation.

2.2.1-4: Creating clinical and molecular tools for experimental therapy of paediatric neurodegenerative disorders causing childhood dementia in Europe and India. Single-stage. Collaborative research should address one or more of the neurodegenerative diseases causing childhood dementia such as mitochondrial disorders, amino- and organic acid disorders, NCL and leukodystrophies, which are important issues for child health in both Europe and India. The project should undertake a multidisciplinary approach to study these diseases. It should include aspects such as prevalence, quantitative description of natural histories, characterization of molecular basis and pathophysiology in relevant models, and development of new testing and screening methods applicable to the wider community. The project should take advantage of the diversity of clinical manifestations and genetic basis in different population groups of Europe and India and should aim at the prevention, early detection and innovative therapies of these diseases. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project)

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The project is expected to contribute to the description of the natural course and the clinical spectrum, prevention, early detection and evaluation of innovative therapies of paediatric neurodegenerative diseases in Europe and India, which might take place through gene- and or enzyme-based therapies, early detection and identification of high risk populations. A close cooperation between Europe and India is expected to result from the projects. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

Special feature: It is expected that the Indian Council of Medical Research will issue a complementary call to support Indian projects in this field and that the funded projects will cooperate closely. The cooperation may also include joint meetings, exchange of scientists, technology transfer, etc.

2.2.1-5: ERA-Net on disease-related neurosciences. ERANET single-stage. This action should improve the linking and efficient integration and coordination of national/regional programmes for disease-related neuroscience research, building on previous activities in this

field. The action should include a strategy leading to the mutual opening of national/regional programmes to the participants and to the implementation of a series of joint transnational calls, as well as activities aimed at fostering the development of disease-related neuroscience research programmes in non-participant Member States and Associated States. Due consideration should be given to the enlarged European Research Area. In the research area of neurodegenerative diseases, in particular Alzheimer's disease, a Joint Programming initiative has been initiated. The ERA-Net should perform work complementary to the implementation of the Joint Programming initiative. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (coordinating action).

Requested EU contribution per project: Maximum EUR 2 000 000.

Only up to one proposal can be selected.

Expected impact: This action should deepen and extend the coordination of European research in disease-related neurosciences in fields complementary to the ones implemented by the Joint Programming initiative in the area of neurodegenerative diseases, in particular Alzheimer's disease.

Additional eligibility and specific evaluation criteria for an ERA-NET: Please refer to Annex 4 of the work programme.

2.2.2 Human development and ageing

Europe currently has the highest proportion of older people in the world and is expected to maintain this leading position for the next 50 years.

Increase in longevity has not been accompanied by an increase in disease-free life expectancy and research into human development and ageing is indeed among the important cross-cutting issues for the Health programme in FP7. Research on the basic mechanisms of development and ageing is required to improve health and quality of life during the life course through the use of a wide variety of methodologies and tools aimed at better understanding the processes of life-long development and healthy ageing.

The focus will be on the study of human and model systems, including interactions with factors such as environment, genetics, behaviour, lifestyle and gender to gain a clear understanding of the mechanisms that lead to the development of age-related disorders and therefore of age-related therapies.

Note: Applicants under this area should follow the rules for the two-stage submission procedure .

2.2.2-1: Investigator-driven clinical trials¹³ for therapeutic interventions in elderly populations. Two-stage. Elderly people are susceptible to a wide range of medical

¹³ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

conditions, including Alzheimer's and Parkinson's disease, cancer, cardiovascular disease, pulmonary diseases, muscular diseases, bone diseases, endocrine disorders and psychiatric disorders, which can often be associated (co-morbidity). Thus, the therapeutic armamentarium needs to be tailored to their specific needs and conditions. Multicentre clinical trials should contribute to provide evidence for best practice in the use of *concomitant multi-modal therapies in an elderly population*. Successful consortia should ensure that a sufficient number of patients from different age ranges and health status can be recruited. In this document several priorities for investigator-driven, multicentre, prospective, controlled clinical trials are called for. Aspects of comparative effectiveness research should be included in the design of clinical trials. The outcomes must be relevant for patients and change clinical practice. Pilot studies and systematic reviews will not be funded. Applicants must demonstrate that clinical trials are appropriately powered to produce statistically significant evidence. Gender aspects should be appropriately considered. The clinical trials to be supported must be registered in a publicly accessible clinical trials registry. The applications must consider the relevant governance issues for clinical trials such as good clinical practice and respect of the appropriate international, European and national legislation and guidelines. Patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials, should be involved. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused project)

Requested EU contribution per project: Maximum EUR 6 000 000

One or more proposals can be selected.

Expected impact: The funded projects should contribute to better clinical management of the elderly with the potential to reduce healthcare costs while ultimately improving healthy ageing of European senior citizens. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.2.2-2: Linking human development and ageing. Two-stage. Knowledge of biological mechanisms occurring during the early stages of life, including pre- and perinatal phases, have proved to be important for understanding and potentially predicting changes occurring later in life and those affecting health or disease status during the entire lifetime of individuals. Research should aim at linking studies of early developmental processes with those on longevity and ageing, focussing on the identification of genes and pathways that are relevant in both early development and adult life. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project)

Requested EU contribution per project: Maximum EUR 3.000.000

One or more proposals can be selected.

Expected impact: The successful projects will have to contribute to the understanding of human biological variation across the lifespan in health and disease by studying genes and pathways. Ultimately this knowledge will have to be translated to the detection of early deviations of health and should be instrumental in allowing intervention when a condition is still reversible. A strong participation of SMEs in the projects should help ensuring innovation

in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

DRAFT

2.3 TRANSLATIONAL RESEARCH IN MAJOR INFECTIOUS DISEASES: TO CONFRONT MAJOR THREATS TO PUBLIC HEALTH

2.3.1 Anti-microbial drug resistance

The strategic objective of this area is to confront the increasing emergence and spread of antimicrobial drug resistant pathogens in Europe and in a multi-disciplinary approach through the development of effective infection prevention and control strategies. Clinical trials of off-patent antibiotics will take into account not only clinical outcome, but also impact on resistance development. Focus on microbial ecology will allow for a better understanding of the dynamics and evolution of resistance traits and thereby reveal for new intervention opportunities. A multi-disciplinary integrated effort will be made to address the public health threat posed by Gram negative multi-drug resistant bacteria. SMEs will be mobilized to develop new technologies for diagnostic tests and for controlling biofilm formation in the clinical environment.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

2.3.1-1 Investigator-driven clinical trials¹⁴ of off-patent antibiotics. Two-stage. Research should aim at defining optimal treatment regimens (including drug choice, combinations, dosing, duration of therapy, PK/PD, individualisation) of off-patent antimicrobial agents for therapy of difficult-to-treat infections caused by multi-drug resistant bacterial pathogens in order to maximise clinical benefit and minimise selection for resistance. Research-intensive SME participation is highly encouraged and this will be considered in the evaluation of the proposal. In this document several priorities for investigator-driven, multicentre, prospective, controlled clinical trials are called for. The outcomes must be relevant for patients and change clinical practice. Pilot studies and systematic reviews will not be funded. Applicants must demonstrate that clinical trials are appropriately powered to produce statistically significant evidence. Gender aspects and differences related to age subgroups should be appropriately considered. The clinical trials to be supported must be registered in a publicly accessible clinical trials registry. The applications must consider the relevant governance issues for clinical trials such as good clinical practice and respect of the appropriate international, European and national legislation and guidelines. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: These types of studies should allow for the identification of optimal treatment regimens by off-patent antibiotics of infections caused by multi-drug resistant bacterial pathogens, as well as an improved standardisation of such treatments. Not only

¹⁴ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

clinical outcome, but also impact on drug resistance should be taken into account. Where relevant, patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials should be involved. The degree of such participation will be considered during the evaluation..

2.3.1-2: Multi-disciplinary research on the evolution and transfer of antibiotic resistance. Single-stage. Research should aim to study the human microbiome with its vast number of bacterial species that forms a reservoir in which antibiotic resistance emerges in human pathogens. The resistance genes that are present in the human microbiome need to be characterized, and their potential to transfer to other pathogenic or non-pathogenic bacteria needs to be investigated. The dynamics and evolution of the interaction between the resistant and non-resistant human microbiome over time needs to be addressed using for instance metagenomics or other state-of-the-art techniques. Research should also aim to elucidate interactions of the human microbiome with environmental, animal and food reservoirs. Part of the effort could be devoted to identifying and characterizing novel zoonotic bacteria appearing in resistance reservoirs. The characterization of the resistance reservoirs should provide deeper knowledge on the evolution and transfer of resistance and establish methods that allow for the prediction of the flow of genes and organisms between different environments and future resistance trends. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

Only up to one proposal can be selected.

Expected impact: This multidisciplinary research is likely to elucidate the relationship between different reservoirs of resistant pathogenic bacteria and thereby open up avenues for novel intervention approaches. A strong participation of SMEs in the project should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.3.1-3 Management of Gram negative multi-drug resistant infections. Single-stage. Research should focus on innovative methods aimed at a better control of Gram negative multi-drug resistant infections both in health-care settings as well as in the community. Hospital- and community-based intervention studies will be performed; the link to carriage and colonization, dynamics of transmission, and the clinical impact of measures to decrease the burden of resistant strains will be addressed. Research will include evaluation of rapid tests for reliable detection of Gram negative multi-drug resistant infections, including clonal identification and resistance in order to direct empiric therapy and infection control measures. Observational studies should be carried out to understand the role of gastro-intestinal carriage in causing infection and in resistance gene transfer among Gram negative organisms. Research will also include evaluation of population-based interventions to control the spread of Gram negative multi-drug resistant organisms in the community and hospital settings, including new decolonization approaches, test of efficacy of different decolonization regimens in clinical trials, ecology and evolution of resistance in the gastro-intestinal tract including measures to preserve the gut flora and prevent the spread of resistance. Research will also determine optimal treatment regimens for common infectious disease conditions

(e.g. urinary tract infection, hospital-acquired infections). Mathematical models of the within-host interaction between the multi-resistant and non-resistant Gram negative bacterial microbiome and their dynamics and evolution will be established, as well as models allowing the prediction of future spread using different macro-epidemiologic scenarios. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

Only up to one proposal can be selected.

Expected impact: This research should improve the management of Gram negative multi-drug resistant infections in the community as well as in health-care settings. Research aimed at a better understanding of the transmission and detection will benefit patients by decreasing infection rates and/or improving recovery. Furthermore, improved management of Gram negative infections is expected to retard the development of multi-drug resistance. A strong participation of SMEs in the project should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.3.1-4 Development of multi-analyte diagnostic tests. Two-stage. Research should aim to develop novel diagnostic tools. Managing the problem of bacterial resistance relies on the rapid identification of resistant pathogens in a clinical setting. The vast numbers of pathogenic bacteria that can contain a variety of resistance mechanisms underline the need for multi-analyte diagnostic tests that are fast and reliable. Tests should aim to distinguish bacteria from viruses, should detect markers for severity of infection and identify resistance/susceptibility patterns. The availability of robust diagnostic tests is required to allow an evidence-based system of antibiotic resistance management. The development of such diagnostic tools and their introduction in clinical settings should be aimed for, with the ultimate goal to tailor antibiotic prescription to the individual patient. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

Requested EU contribution per project: Maximum. EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The availability of multi-analyte diagnostic tests is expected to allow for antibiotic prescription that takes both the type of infection of the patient, and the presence of resistant pathogens in the clinical setting into account. Such improved prescription should speed up patient recovery and retard the development of multi-drug resistance.

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals demonstrating that research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities, but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or

more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

2.3.1-5 Development of tools to control microbial biofilms with relevance to clinical drug resistance. Two-stage. Research should aim at the development of tools to control biofilms . The formation of biofilms of pathogenic bacteria and fungi affects sensitivity and resistance to antibacterial and antifungal drugs and therefore represents a clinical problem. Novel tools that allow the disruption of biofilms and decrease infection rates would be useful. Such tools aimed at controlling biofilms should allow the development of strategies aimed at improving patient management. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

Requested EU contribution per project: Maximum EUR 3 000 000

One or more proposals can be selected

Expected impact: The availability of tools to control biofilm formation is expected to allow for a better management of infections caused by pathogenic bacteria and fungi. Tools that disrupt biofilms or prevent their formation will improve the treatment of infections caused by pathogenic bacteria and fungi.

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals demonstrating that research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities, but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

2.3.2 HIV/AIDS, malaria and tuberculosis

Closed in 2011

2.3.3 Potentially new and re-emerging epidemics

The focus will be on confronting emerging pathogens with pandemic potential. The results of research in this area will integrate European scientific excellence and make Europe better prepared for emerging epidemics. Understanding the crucial factors needed for the influenza and other serious zoonotic pathogens to cross the species barrier as well as spread from human to human is a fundamental element for the development of new control strategies and in pandemic preparedness planning. A comprehensive effort on Dengue fever, on the rise largely due to climate change, will take stock of Europe's research competence to develop

new control measures. Finally, the 2009 influenza H1N1 pandemic has demonstrated a general underestimation of the need for evidence based communication tools.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

2.3.3-1: Identification of factors promoting the emergence of pathogens with human pandemic potential from pathogens with a zoonotic background and related prevention strategies. Two-stage.

Cross-disciplinary research should aim to identify the factors that render various zoonotic pathogens with human pandemic potential prone to cross the species-barrier and further to gain human-human transmissibility. Research should focus on pathogenicity, infectivity and transmissibility and take into account both pathogen and host factors as well as ecological factors in the human/animal interface. Research could address influenza, but could also involve other zoonotic pathogens. The project should bring together the veterinary and human field, should establish pathogen information sharing platforms and should include a strong training component to foster cross-disciplinary knowledge in the field.

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

Only up to one proposal can be selected.

Expected impact: Research should contribute to a better understanding of the emergence and transmission of pathogens with pandemic potential and improve preparedness planning, in particular modelling and prediction, but also the development of appropriate intervention measures.

2.3.3-2: Comprehensive control of Dengue fever under changing climatic conditions. Single-stage.

Research should develop innovative tools for one or more of the following aspects: better diagnosis, surveillance, development of treatment, prevention and vaccination strategies, prevention, and/or prediction and prevention of the spread of Dengue fever to previously uninfected regions (including Europe), in the context of climate change. Research may also include studies on the underlying pathogenesis with respect to viral and host factors that can predict disease severity and prepare for further development of new vaccines, antiviral compounds and more targeted treatment schemes. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Specific International Cooperation Action (**SICA**), Collaborative Project (small or medium-scale focused research project) target regions: Latin America and Asia).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: Better tools, and the use thereof, for improved comprehensive control of Dengue fever at a global level. Participation from both SICA target regions and SMEs in the projects should help ensuring innovation and exploitation of the results in this area/priority. The degree of such participation will be considered during the evaluation.

2.3.3-3: Development of an evidence-based behavioural and communication package to respond to major epidemic outbreaks. Two-stage. Research should focus on behavioural research and how human behaviour influences disease transmission, vaccine acceptance and antiviral therapy acceptance in the general population in a crisis situation. Research should focus on developing appropriate communication methods, especially regarding complicated messages and advice based on uncertainties, a changing epidemiological picture and information gaps. Particular attention should be paid to addressing knowledge and attitudes towards vaccination for a better understanding of the level of acceptable risk in vaccination in relation to the perceived risk of disease. The project should develop and test strategies to support vaccine uptake with special focus on new communication strategies for health professionals/agencies to engage with vaccine-resistant groups. The objective is to set up an integrated research project involving social sciences, behavioural sciences, communication, media expertise and civil society. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 2 000 000.

One or more proposals can be selected.

Expected impact: This research should lead to a better communication preparedness for the next major epidemic outbreak and minimize deviations between perceived and intended messages during the full course of the pandemic.

2.3.4 Neglected infectious diseases

Closed in 2011

2.4 TRANSLATIONAL RESEARCH IN OTHER MAJOR DISEASES

2.4.1 Cancer

With an estimated 3.2 million new cases and 1.7 million deaths each year, cancer remains an important public health problem in Europe for cancer patients, their families as well as health care systems across Europe. With the ageing of the European population these numbers are predicted to steadily increase. Research in this policy area will focus on disease aetiology, identification and validation of drug targets and prevention, early diagnosis and treatment biomarkers as well as on assessment of preventive, diagnostic, prognostic, and therapeutic interventions. In the long term, this area will contribute to reducing cancer incidence and mortality and to improving quality-of-life and care with fewer side-effects to patients.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

2.4.1-1: Investigator-driven treatment trials¹⁵ for rare¹⁶ cancers. Two-stage. Research must focus on either solid or haematological rare cancers which are defined as cancers affecting not more than five in ten thousand persons in the European Union. The successful consortium will perform multicentre clinical trials aiming at the validation of novel therapeutic strategies, which improve patient survival. The following requirements and exclusions apply: endpoints, entry and exclusion criteria must be clearly described. *Clinical studies into off-patent medicinal products under the paediatric use marketing authorisation (PUMA) initiative and into devices are excluded.* The outcome of the research should be relevant for patients and lead to changes in clinical practice. Applicants must demonstrate that clinical trials are appropriately powered to produce robust evidence and a biostatistician must be part of the consortium. Gender aspects and differences related to age groups should be appropriately considered. The clinical trials to be supported must be registered in a publicly accessible clinical trials registry and their results published in peer reviewed journals. The applications must consider the relevant governance issues for clinical trials such as good clinical practice and respect of the appropriate international, European and national legislation and guidelines. Patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials, should be involved. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Impact: The results of research in this area will have to ultimately benefit patient survival, integrate investigator-driven, clinical research networks on rare cancers as well as structure European scientific excellence and competitiveness on rare cancers. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.1-2: Translational research on cancers with poor prognosis. Two-stage. Collaborative research must either focus on stomach cancer, ovarian cancer, brain cancer or multiple myeloma. The successful consortium will reverse-translate clinical observations concerning treatment failure into innovative cancer models closely mimicking the disease, while validating better therapeutic strategies that increase patient survival. Consortia must include clinical expertise to guarantee a clinical proof-of-principle. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The results of research in this area will ultimately contribute to reducing patient mortality for a number of difficult-to-treat cancers with low survival rates and

¹⁵ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

¹⁶ Official EU definition of rare diseases: http://ec.europa.eu/health/ph_threats/non_com/docs/rare_com_en.pdf

integrate basic-clinical European scientific excellence. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.1-3: Epidemiology and aetiology of infection-related cancers. Single-stage.

Collaborative research should address one or more of the prevalent infectious agents that cause cancers of major public health importance in India as well as in Europe, such as human *papilloma* virus, *hepatitis B* and *C* viruses, and/or *Helicobacter pylori*. The project must integrate different disciplines relevant to the study of both infection and cancer and include aspects such as prevalence of infection in different population groups, determinants of infection, clearance and re-infection, environmental cofactors in the carcinogenic process, mechanisms of infection-related cancers, and development of new testing and screening methods applicable to the wider community. In addition, the project must take advantage of the diversity of risk factors, cofactors and cancer incidence in different population groups of Europe and India. The project should focus on the prevention and early detection of infection-related cancers in Europe and India, addressing both established and putative associations between infectious agents and cancers. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The results of research in this area should contribute to prevention and early treatment of infection-related cancers in Europe and India, which is likely to be facilitated through vaccination, early detection and identification of high-risk populations. Close cooperation between Europe and India is expected to result from the projects. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation..

Specific feature: It is expected that the Indian Council of Medical Research will issue a complementary call to support Indian projects in this field and that the funded projects will commence at the same time and will cooperate closely. The cooperation may also include joint meetings, workshops, exchange of scientists, technology transfer, etc.

2.4.2 Cardiovascular diseases

Cardiovascular diseases (CVD) remain the number one cause of death worldwide. The huge social and economic burden of CVD morbidity becomes an even bigger challenge as the European population ages. Despite the progress of medical science of the past few decades, the management of many CVD have not been sufficiently explored and there is a need to produce further improvements. Therefore, the focus of this area in the current programme is on prevention and treatment strategies relevant to the everyday reality of clinical practice.

Note: applicants under this area should follow the rules for two-stage submission procedure.

2.4.2-1: Investigator-driven clinical trials¹⁷ for the management of cardiovascular diseases. Two-stage. Research should aim to address insufficiently explored aspects of cardiovascular disease management, including novel treatments for stroke. Multicentre, controlled, interventional, treatment trials will be supported. Novelty, main research questions/hypotheses and study endpoints must be well described to allow definitive results to be translated into clinical cardiovascular practice. In this document several priorities for investigator-driven, multicentre, prospective, controlled clinical trials are called for. *Aspects of comparative effectiveness research should be included in the design of clinical trials.* The outcomes must be relevant for patients and change clinical practice. *Pilot studies and systematic reviews will not be funded.* Applicants must demonstrate that clinical trials are appropriately powered to produce statistically significant evidence. Gender aspects and differences related to age groups should be appropriately considered. The clinical trials to be supported must be registered in a publicly accessible clinical trials registry. The applications must consider the relevant governance issues for clinical trials such as good clinical practice and respect of the appropriate international, European and national legislation and guidelines. Patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials, should be involved. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (large-scale integrating project).

Requested EU contribution per project: Maximum EUR 12 000 000.

One or more proposals can be selected.

Expected impact: These projects are expected to provide tangible outcomes and new evidence for recommendations to be used in the management guidelines of specific cardiovascular diseases and to demonstrate clear benefits for individual patients, doctors and society at large. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.2-2: Evaluation and validation studies of clinically useful biomarkers in prevention and management of cardiovascular diseases. Two-stage. Existing and emerging biomarkers and related mechanisms should be exploited to improve identification, risk assessment, clinical decision making and clinical outcomes. Cost effectiveness, safety, validity and incremental benefit over existing risk prediction methods and life style determinants of investigated biomarkers must be demonstrated. The impact of biomarkers on cardiovascular disease risk prediction will need to be assessed across different European populations as they have different lifestyles (e.g. dietary patterns) and varying biomarker levels. Multidisciplinary research consortia must use state-of-the-art translational research, epidemiological and diagnostic technology (such as imaging technology) and knowledge. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

¹⁷ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: Assessment of cardiovascular risk in individuals is complementary to public health activities that aim to reduce the overall population risk of cardiovascular disease by promoting a healthy lifestyle (diet, exercise, avoidance of smoking). The results of research should lead to improved cardiovascular risk prediction and contribute to the development of personalised and predictive medicine.

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals demonstrating that research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities, but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*

2.4.3 Diabetes and obesity

The focus will be on aetiologies of the different types of diabetes, and their related prevention and treatment. For the latter, the focus will be on multidisciplinary approaches including genetics, life style and epidemiology. For both diabetes and obesity, special attention will be given to juvenile diseases and factors operating in childhood. It is expected that the following priorities will contribute not only to research breakthroughs in diabetes/obesity treatments but also in prevention and treatment of complications. Considering the reduction in life expectancy resulting from these diseases, particular attention should be given to paediatric aspects, when ever possible. As a healthy life-style is a pre-requisite for any containment of the steadily increasing costs of diabetes/obesity, projects should also consider how their results will contribute to societal issues in relation to these diseases.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

2.4.3-1: Investigator-driven clinical trials¹⁸ to reduce diabetes complications. Two-stage.

The successful consortium will perform multicentre, clinical trials in order to establish the best regimen to reduce diabetes complications of neurodegenerative, micro-vascular, immunological, and/or hepatic origin, at the earliest possible stage. In this document several priorities for investigator-driven, multicentre, prospective, controlled clinical trials are called for. *Aspects of comparative effectiveness research should be included in the design of clinical trials.* Psychological factors can be considered. The outcomes must be relevant for patients and change clinical practice. This includes the appropriate collection of toxicology data. Pilot

¹⁸ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

studies and systematic reviews will not be funded. Applicants must demonstrate that clinical trials are appropriately powered to produce statistically significant evidence. Gender aspects and differences related to age groups should be appropriately considered. The clinical trials to be supported must be registered in a publicly accessible clinical trials registry. The applications must consider the relevant governance issues for clinical trials such as good clinical practice and respect of the appropriate international, European and national legislation and guidelines. Patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials, should be involved. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The successful trials should provide tangible outcomes by focusing on end-points relevant to the patient and establishing evidence for recommendations to improve clinical practice when appropriate. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.3-2 Development of novel treatment strategies based on knowledge of cellular dysfunction. Two-stage. The aim is to use knowledge of cell dysfunction to develop innovative therapeutic strategies for Type 1 or Type 2 diabetes that halt destruction and facilitate recovery of functionally impaired metabolic tissues, particularly beta cells and brown adipocytes. Research should be multidisciplinary and might be based on use of information on genetics and genomics of diabetes development. Interaction between organs and between tissues should be considered where appropriate. Clinical work can be included. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: It is expected that the successful project will translate state-of-the-art knowledge on the role of cellular dysfunction in the pathogenesis of diabetes into novel treatment strategies. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.3-3: Molecular and physiological effects of lifestyle factors on diabetes/obesity. Two-stage. Research should aim at multi-disciplinary approaches that capitalise on genetic, epigenetic, proteomic, metabolomic, physiological, and clinical disciplines to gain insight into factors behind the divergent effects of life-style factors on metabolism. The project should focus on state-of-the-art technologies to accelerate the translation of experimental and clinical discoveries to link novel targets and pathways with phenotype and genotype to define the lifestyle factors on metabolic health. Animal models can be used, but only in addition to

human studies. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: It is expected that the project will have access to collections of genetic and physiological material from well-characterised humans, including individuals predisposed to the development of Type 2 diabetes. Academic efforts should be interlinked with the European biotech/pharmaceutical sector to have the greatest possible impact on European citizens health. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.3-4: Genetic and environmental factors in obesity and/or diabetes in specific populations. Two-stage. The research should aim at understanding the genetic and environmental factors causing variations in prevalence and incidence of metabolic disorders in specific, well characterised populations that show a significantly altered risk of developing metabolic disorders in a new place or situation. The successful project should be based on new comparisons between populations in their original and new environment, *e.g.* as immigrant populations. Emphasis should be placed on the role of genetic, environmental and/or lifestyle factors, as well as their interactions, on the incidence, prevalence, and age of onset of metabolic disorders. Each project should focus on a particular geographical region. The European Commission services will ask all selected projects at the negotiation stage to interact together and with related projects from selected third countries. Proposers should take into account existing EU funded projects, including from the FP6 Food-Agri-Biotech programme, such that overlap be avoided. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Specific International Cooperation Action (**SICA**), Collaborative Project (small or medium-scale focused research project) target regions: Mediterranean countries, Africa, Asia, Latin-America).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The selected project are expected to ultimately guide lifestyle intervention programmes, including but not limited to diet and physical activity, taking into account situations of malnutrition and possible multigenerational effect. Findings will need to be relevant for populations, both in their home countries and immigrant populations in Europe and throughout the world. It is expected that novel genetic and other risk factors for diabetes and obesity will be identified will lead to improved diagnosis and treatment and possibly the development of novel therapeutic targets. The cooperation between the selected projects and other national projects from selected third countries will ensure a global impact beyond the specific populations studied. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

2.4.3-5: ERA-NET on diabetes prevention and treatment. ERANET single-stage. The creation of an ERA-NET in diabetes prevention and treatment will help in overcoming the fragmentation of research activities, programmes and policies across Europe and contribute to increased sharing of best practices and best use of public health resources. It will bring together national funders involved in diabetes prevention and create synergies by uniting vast amounts of data, resources and know-how which exist in several Member States or associated countries. It shall serve to identify important challenges and solutions, to better integrate and rationalise resources as well as to improve the use of existing infrastructures in Europe in the field of diabetes prevention and treatment. Furthermore it should integrate as appropriate international projects, both EU funded and not, that address research on diabetes and its prevention and treatment. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (coordinating action).

Requested EU contribution per project: Maximum EUR 2 000 000.

Only up to one proposal can be selected.

Expected impact: This action should improve the linking and efficient integration and coordination of national/regional programmes where relevant. It should also provide a forum for exchange of information and best practices between Member States, helping to create national diabetes prevention programmes in countries which do not have one yet. Where relevant, it should help the establishment of joint, transnational calls, with due consideration for socio-economics aspects, public health costs and impact. The inclusion of existing and future international projects on the subject is expected to leverage on resources and avoid duplication. It is also expected that further coordination efforts in the area of diabetes prevention will help extend partnership, pool resources for funding and implement research activities in a synergistic manner. Ultimately, the cooperation shall lead to a self-sustainable and long lasting network of funders in the area of diabetes prevention, enabling the translation of information gained from innovative research and experiences into policy, social and economic benefits.

Additional eligibility and specific evaluation criteria for an ERA-NET: Please refer to Annex 4 of the work programme.

2.4.4 Rare diseases

Closed in 2011

2.4.5 Other chronic diseases

Closed in 2011

3. OPTIMISING THE DELIVERY OF HEALTHCARE TO EUROPEAN CITIZENS

3.1 TRANSLATING THE RESULTS OF CLINICAL RESEARCH OUTCOME INTO CLINICAL PRACTICE INCLUDING BETTER USE OF MEDECINES, AND APPROPRIATE USE OF BEHAVIOURAL AND ORGANISATIONAL INTERVENTIONS AND NEW HEALTH THERAPIES AND TECHNOLOGIES

Closed in 2011

3.2 QUALITY, EFFICIENCY AND SOLIDARITY OF HEALTHCARE SYSTEMS INCLUDING TRANSITIONAL HEALTH SYSTEMS

Closed in 2011

3.3 HEALTH PROMOTION

The focus is on the reduction of inequities in the determinants of health and on the transfer of knowledge in health promotion. It will be addressed via bottom-up priorities that invite investigator-driven innovative research proposals in these evolving and highly relevant fields of health research. Proposals should address *one or several* of the range of major scientific issues that are identified in the priority description and propose innovative means to advance the science in this field.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

3.3-1: Developing methodologies to reduce inequities in the determinants of health. Two-stage. Research should identify and evaluate policy and programme interventions with the potential to reduce inequities in the determinants of health and health services and opportunities to transfer the findings of research to potential users with maximum effectiveness. Proposals could address the strategic drivers of reductions in health disparities, the differential health effects of policy interventions, and the impact of alternative options for enhancing equity. They could also identify and validate innovative research methodologies to evaluate 'natural policy experiments' in which the introduction of a specific policy provides the opportunity for a quasi-experimental design or a comparative analysis that can be used to identify the policy's impact on different social groups including vulnerable groups (*e.g.* changes in social security systems; national responses to financial crisis; health equity assessments of urban renewal initiatives). Methodologies to generate, assess, and classify scientific evidence on the effectiveness including replication of complex or system-oriented interventions could be developed. Research is further needed on how people most affected by social determinants of health can be most effectively involved in the design, implementation, and evaluation of research methods. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: This research should establish the empirically tested theoretical basis for better understanding how to effectively address inequities in the determinants of health. Appropriate and multidisciplinary research methodologies and designs should be developed to build a robust evidence base that can integrate research from different theoretical or methodological origins.

3.3-2: Analysis of integrated strategies for sustainable behaviour change. Two-stage. The aim is to define generalisable, effective, and sustainable behaviour change interventions that can be effectively translated into health promotion practice. Research on behaviour change in its widest sense is called for. Multi-level intervention approaches that integrate individual, community, organisational, and societal systems should be analysed with respect to their effectiveness and the relevant context variables recognizing the wide range of influences on individuals and behaviours. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected Impact: This research should define the factors necessary for establishing effective interventions in health promotion practice, at different levels taking into account varying contexts - individual, family, organisational, and environments that can change the behaviours, lifestyles, life skills and empowerment, and self-management of disease; critical for reducing the occurrence of the most prevalent chronic diseases or improving their management in a sustainable way and improving quality of life.

3.3-3: Developing and implementing methods for the transfer of research into policy in the fields of health promotion and disease prevention. Single-stage. Public health research in Europe has produced considerable evidence supporting health promotion and disease prevention. The successful project under this priority should support the knowledge translation of research findings and results for health promotion and disease prevention to improve the impact of EU-funded research¹⁹. The aim should be to develop and assess innovative integrative approaches employing evidence-informed policy-making methods, by reaching out to relevant projects, linking research findings and results to relevant policy makers and other stakeholders that include feedback loops. The processes of identifying needs for research evidence, finding and assessing such research evidence and the pathways to bring such evidence into decision-making practices should be taken into account. The issue of insufficient research evidence should be addressed and, due to the experimental nature of this research, the design needs to include an in-built monitoring and evaluation process that documents and critically analyses the impact and other important aspects of the chosen

¹⁹ Examples for such knowledge transfer illustrated by European projects include: <ftp://ftp.cordis.europa.eu/pub/fp7/ssh/docs/20080619en.pdf> and http://cordis.europa.eu/fetch?CALLER=FP6_PROJ&ACTION=D&DOC=257&CAT=PROJ&QUERY=01285ee050eb:b956:645c8600&RCN=80005

approach as well as the policies themselves. The timeframe should span a 5 year period, taking into account projects selected in future calls addressing health promotion and disease prevention²⁰. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

Only up to one proposal can be selected.

Expected impact: Increased use of research in decision making at the population level within the fields of health promotion and disease prevention is expected and should increase the impact of EU funded public health research. The consortium should include public health institutions in the first instance, as bodies engaged in the development of public health research and strategies and their implementation, to reach out to relevant projects, engaging with relevant stakeholders and to communicate research findings and results so as to be exploited in novel and innovative ways by the project, identifying synergies between researchers and target users of such research and helping identify future research priorities.

3.3-4: A road-map for mental health research in Europe. Single-stage. The aim should be to address a coordinated and comprehensive approach to promote and integrate research on the biological, epidemiological, social and public health aspects of mental health and well being in Europe. Member States' existing research programmes are to be examined, recent advances as well as the identification of gaps in knowledge taken into account and potential roadmaps for the future of mental health research in Europe to be developed, set within a life course perspective. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (coordinating action).

Requested EU contribution per project: Maximum EUR 2 000 000

Only up to one proposal can be selected.

Expected impact: The results from this action should lead to a comprehensive strategy at the European level setting out a coordinated approach to promote and integrate research on the biological, epidemiological, social and public health aspects of mental health in Europe.

3.4 INTERNATIONAL PUBLIC HEALTH & HEALTH SYSTEMS

The specific cooperation actions in this area focus on the priorities agreed through bi-regional dialogues in third countries/regions and international fora, as well as within the context of Millennium Development Goals. This call will focus on health services research with a particular angle on maternal and child health, reproductive health, and health equity.

A coordinated research priority on health inequalities affecting mothers and children aims to foster multilateral cooperation between Europe, Africa, and Latin America.

²⁰ Overview of EU funded Health Research projects under the 3rd pillar - "Better Care for European and Beyond - EU FP7 Public Health Projects" ftp://ftp.cordis.europa.eu/pub/fp7/docs/eu-fp7-public-health-projects_en.pdf

Note: applicants under this area should follow the rules for single-stage submission procedure.

3.4-1: Development and assessment of comprehensive and integrated interventions and programmes to improve reproductive health and health equity. Single-stage. Research under this priority should aim at creating evidence for best practices in developing and implementing integrated and comprehensive reproductive health programs, following a life time approach and addressing the key areas of reproductive health, such as adolescent health, control of sexually transmitted diseases, assistance in achieving the desired fertility, and maternal and newborn health. The research is expected to go beyond the assessment of specific single interventions and should focus on the community effectiveness of reproductive health intervention packages and/or operational programmes, set in a health systems context. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Specific International Cooperation Action (SICA), Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: The project is expected to generate, summarize and disseminate evidence on strategies, programmes, and best practice in reproductive health promotion and care. This evidence should help policy makers and programme managers on all levels, as well as other stakeholders and the community to provide and use reproductive health services more effectively and equitably.

3.4-2: Building sustainable capacity for research for health and its social determinants in low and & middle income countries. Single-stage. The Coordination Action should develop and implement a concept for the sustainable development of capacity for research for health and its social determinants in close collaboration with institutions in ICPC countries and a substantial element of South-South cooperation. Topical areas to be covered should be identified through a training needs assessment with all stakeholders as part of the project and may include – among others – epidemiology and demography, health economics, environmental health, evaluation sciences, medical anthropology, and community-based health care. Interdisciplinary courses may also be considered. Emphasis should be given to establishing and supporting excellent academic teaching and research networks. Active participation of young researchers in regional and international fora, as well as exchange between research institutions, could be considered. The aim is to achieve a balanced level of participation for ICPC countries. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination-Support Action (coordinating action).

Requested EU contribution per project: Maximum EUR 2 000 000.

One or more proposals can be selected.

Expected impact: To promote health scientists from ICPC countries along with their institutions and research networks in order to create a sustainable and attractive research landscape for interdisciplinary research for health and its social determinants.

3.4-3: Multilateral cooperation between Europe, Africa and Latin America on public health and health services research. Single-stage. This Coordination Action is aimed at creating links between "North-South" and "South-South" efforts in addressing health inequalities in developing countries. It should map and analyse current and planned activities and strategies in order to provide evidence on best practice and policy advice for the development of future interventions and programmes in this area. Furthermore, the project should identify further research needs and pay – among others – attention to health inequalities affecting children, adolescents and mothers (families). The EU grant shall cover the participation of the European, African and Latin American partners other than partners from Brazil. The cooperation with a complementary future coordinating action from Brazil will be an obligation. This complementary action of Brazilian and possible additional African partners is expected to be covered through funds from the Brazilian side through a complementary call on the same priority. Participation of other countries with substantial health services cooperation with Africa is welcomed. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (coordinating action).

Requested EU contribution per project: Maximum EUR 2 000 000.

Only one proposal can be selected.

Expected impact: The project should provide evidence on best practice and policy advice for the development of future public health and health systems interventions, with particular emphasis on the transfer of knowledge and experience through a triangular cooperation between Europe, Africa and Latin America. The project is expected to involve stakeholders, foster synergies and enhance the capacity for related public health and health policy research.

Special feature: It is expected that the Brazilian authorities will issue a complementary call to finance a Brazilian coordinating action in this field and that the EU funded action will cooperate closely with those and other related actions.

4. OTHER ACTIONS ACROSS THE HEALTH THEME

4.1 COORDINATION AND SUPPORT ACTIONS ACROSS THE THEME

The objective of these actions is to contribute to the implementation of the Framework programmes and the preparation of future European Union (Community) research and technological development policy. The focus of this area in this document will be on assessing future needs, impact assessment and dissemination of results.

Note: applicants under this area should follow the rules for the single-stage submission procedure.

4.1-1: Networking of major research institutions to coordinate communication actions aimed at the media and the general public. Single-stage. The objective is to network major research institutions and the commission services to coordinate their communication actions regarding EU-funded research in order that their actions have a greater impact on its visibility in the general public. Proposals should include the collection, sharing and distribution of information about research results in a timely way through multilingual, communication-oriented information networks a coordinated, multinational press and public relations strategy on research emanating from EU-funded projects, and the adaptation of the contents/language/media to relevant target audiences. The potential applications and benefits for the citizens should be particularly highlighted. Successful applications should involve or coordinate a sufficient critical mass of communication services from research institutions and SME organisations in different countries participating in EU-funded health research projects. Some examples of activities could include the generation and efficient distribution of press kits for journalists from general and specialised media, a multipartner coordination and repository of press releases, 'wiki' pages of projects, databases of scientific images, early alert system about communicable project results among partner institutions and to the Commission, newsletters, etc. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (coordinating action).

Requested EU contribution per project: Maximum EUR 2 000 000.

Only up to one proposal can be selected.

Expected impact: A European-wide strategy and better networking is expected to help to communicate more efficiently the results and benefits of European collaborative research to general audiences, either directly or through the information multipliers (press and media, including the internet and social networks). A considerable part of the results generated by European health research are still communicated only through highly specialised scientific/technical publications and websites (by the scientists themselves) or through local press releases (by their institutional communication services). These are often only released in the country of the research institution where the first author of the primary publication works, often with poor or no reference to the EU-funded multinational consortium that facilitated the achievement of those results. The involvement of the press and communication officers from the different partner institutions should follow the networking that already occurs at the

scientific level in EU-funded projects. As a result, an increase in quality and quantity of the communication actions, a better coordination of resources and messages, and a proper acknowledgement of the European dimension of collaborative health research should be achieved.

4.1-2: Targeting publication bias. Single-stage. The objective is to explore, identify and overcome failure to publish negative results, especially from clinical trials. Failure to publish negative results or unsuccessful experiments has major ramifications for the health of EU citizens and there is an ethical imperative and a significant challenge to ensure that finite health research resources are better used, avoiding replication of previous experiments leading to better use of resources. Applicants should propose well-structured, innovative approaches to define and evaluate publication bias and the impact it has on research. These approaches should include the inventory of existing sites and publications, presentation of current data on impact of the failure to published negative results via surveys and/or analysis of literature, evaluation of study protocols, conference abstracts and discussions with key opinion leaders and stakeholders, such as research journal publishers, study registries, research institutions, funding bodies, regulators and industry. Interaction with major journals and international groups acting in medical publication should be sought in order to identify ways to change practice and provide insights on how to avoid duplication of research efforts and allow a more effective funding of health research. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (supporting action).

Requested EU contribution per project: Maximum EUR 500 000.

One or more proposals can be selected.

Expected impact: Publication bias is commonly understood as the failure to publish entire studies with negative results, particularly referring to clinical trials. Although the importance of bias is increasingly being recognised, more empirical evidence is needed to gain insight into this issue, in order to evaluate an important primary source of information on planned studies. The supporting action should assess the impact and seek ways to detect effectively and reduce the impact of non-publication of negative studies and study results, and provide insights on how to avoid duplication of research efforts and allow a more effective funding of health research.

4.1-3: Linking EU and Latin American policy making institutions in the field of health research. Single-stage. The project will establish a roadmap for cooperative health research between the EU and Latin America for regional scale evidence-based policy making based on needs and opportunities for cooperation. Furthermore, this project should address the coordination of regional and international funding efforts, fund management and fund raising and link with other FP7 and EU Member States' actions in the region. The project will address capacity building for priority setting of funding programmes and relevant research management to reduce the gap between knowledge generation and implementation in clinical practice. It should empower national research systems at the policy and management levels. A substantial element of South-South cooperation is expected and collaboration with European Health national contact points (NCPs), as well as relevant EU Member States' science

contacts in the region. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Action (coordinating action)

Requested EU contribution: Maximum EUR 2 000 000.

Only up to one proposal can be selected.

Expected Impact: The expected project duration is 5 years in order to create a major impact in this field. The project should explore the case for creating a body that coordinates national and international health research funding in the region and with the EU. It should establish a forum for interaction between the local research policy level and the EU member states and EU cooperation efforts in health research with Latin-America.

4.1-4: Organisation of supporting actions and events related to the Presidency of the European Union. Single-stage. An integral part of the Health Theme's activity is to organise, together with successive EU presidencies, events of a strategic nature. The proposed Support Action(s) should contribute to conferences or other appropriate events to be held in a Member State which will hold a forthcoming Presidency of the European Union, specifically 2012 and 2013 Presidencies, in any area of the Health Theme. In order to ensure high political and strategic relevance, the active involvement of the competent National Authority(ies) will be evaluated under criteria 'Quality' and 'Impact'. The proposed Support Action(s) should address priorities that are of high relevance at the date of its taking place. An appropriate equilibrium should be present in the proposed action(s), with balanced presentation of various research, societal and industrial elements and points of view. Participation of non-EU stakeholders is possible. Outreach activities may be included such as *e.g.* a press programme and/or an event dedicated to raising awareness on a specific topic in schools. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Coordination and Support Actions (supporting actions).

Requested EU contribution per project: Maximum EUR 100 000

One or more proposals can be selected.

Expected impact: (i) Review of research, industrial and/or societal developments linked to the areas of the Health Theme on specific programme level as appropriate; (ii) sharing of information and comparison of points of views; (iii) support to the activity of various stakeholders: ethicists, researchers, industrialists, investors, museums and/or schools.

4.2 RESPONDING TO EU POLICY NEEDS

The objective of these actions is to contribute to the support and follow-up of other European Union Community policies.

Note: Depending on the priorities listed below, applicants should follow the rules for single or two-stage submission procedure.

4.2-1: Investigator-driven clinical trials²¹ on off-patent medicines for children. Single-stage. Research is expected to increase the availability of off-patent medicines for children as well as the level of information of these molecules to the general population. Project(s) will be required to conduct appropriate clinical trials in children using older off-patent medicines with particular reference to the following criteria as appropriate: Particular priority is attached to products for:

- neonates
- oncology in infants
- paediatric epilepsy syndromes

The outcomes must be relevant for patients and change clinical practice. Pilot studies and systematic reviews will not be funded. Clinical trials must be appropriately powered to produce statistically significant evidence. Gender aspects and differences related to age subgroups should be appropriately considered. The applications must consider the relevant governance issues for clinical trials such as Good Clinical Practice (GCP) and respect of the appropriate international, European and national legislation and guidelines. Patient advocacy groups, which can contribute to the quality, feasibility and impact of clinical trials should be involved. New data on efficacy, safety and the pharmacokinetic profiles are required as set out on the current version of the Paediatric Medicines' Priority List available at: <http://www.emea.europa.eu/pdfs/human/paediatrics/41493609en.pdf>. In view of many facilities offered by the European Medicines' Agency (EMA), such as fee reductions, exemptions and deferrals for advice obtained in the context of Marketing Authorisation Applications (MAAs), including PUMAs (Paediatric Use Marketing Authorisation). **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The expected result should lead either in whole or in part to a Paediatric Use Marketing Authorisation (PUMA) application. The PUMA is a type of marketing authorisation devised specifically in the Paediatric Medicines Regulation for off-patent medicinal products developed exclusively for use in children. It covers the indication and appropriate formulation for children and benefits from an intellectual property right (IPR) of 10 years of market protection that can be applied to off-patent medicines to stimulate innovation. It should provide a means for awarding the incentive of data protection and is of particular interest to SMEs. A strong participation of SMEs in the projects should help ensuring innovation in this area/priority. The degree of active participation of research-intensive SMEs will be considered during the evaluation.

4.2-2: Adverse Drug Reaction Research. Single-stage. Experience with medicines that have been marketed for many years has shown that potentially serious adverse events only become apparent long after they have been launched. Such effects are often caused by the

²¹ <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

physicochemical characteristics of the molecules involved. This has obvious implications for entire classes of molecules that often belong to different therapeutic classes and the research of selected proposal(s) should generate new knowledge on potentially life threatening drug adverse events that affect these different body systems. Although more than one proposal can be selected from each of the following themes, research in each of the proposals should focus on only one molecule and the stated adverse event(s):

- Epoetins: Risk of tumour growth progression and thromboembolic events in cancer patients and cardiovascular and cancer risk in chronic kidney disease.
- Insulin/insulin analogues and cancer
- Anti-diabetes drugs: cardio/cerebrovascular adverse effects and pancreatitis/pancreatic cancer.
- Asthma treatments (long- & short-acting β -agonists and anti-cholinergics): risk of myocardial ischemia and long-term safety especially in children.
- Gadolinium containing contrast agents: nephrogenic systemic fibrosis

Further details of the expected deliverables may be found at: <http://www.emea.europa.eu/htms/human/phv/communications.htm>

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: Collaborative Project (small or medium-scale focused research project).

Requested EU contribution per project: Maximum EUR 3 000 000.

One or more proposals can be selected.

Expected impact: Project results should lead to important new knowledge on major and serious adverse drug reactions that constitute public health concerns i.e. those impacting on the balance of benefits and risks of medicinal products. This should be directed towards regulatory decisions on marketing authorisations for medicinal products including the warnings in product information for doctors and patients. A safer and more effective use of medicines should result with positive implications for public health.

4.2-3: New methodologies for clinical trials²² in personalised medicine Single-stage.

Research should aim to develop new or improved methodologies for clinical trials in small populations with the aim to assess personalised medicine approaches. These new methodologies should be cost effective without compromising the assessment of the efficacy and safety of the treatment. The project should also address access to, and the use of already existing data e.g. from biobanks, registries and other appropriate sources. Clinical trials as such will not be funded. **Note:** Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria.

Funding scheme: SME-targeted Collaborative Project.

Requested EU contribution per project: Maximum EUR 3 000 000

²² <http://ec.europa.eu/enterprise/sectors/pharmaceuticals/documents/eudralex/vol-10/>

Please consult also the text for clinical trials provided in the introduction to activity 2. Translating research for human health in this document on pages 14/15

One or more proposals can be selected.

Expected Impact: The optimisation of new clinical trial methodologies should facilitate the rapid uptake of new and emerging personalised medicine approaches, and improve the use of existing treatments. Research should be multidisciplinary and must involve the European biotechnology industry, and in particular the SME sector. It should also address regulatory issues as appropriate.

Specific feature: SME-targeted research is designed to encourage SME efforts towards research and innovation. Priority will be given to proposals demonstrating that research intensive SMEs play a leading role. The projects will be led by SMEs with R&D capacities, but the coordinator does not need to be an SME. The expected project results should clearly be of interest and potential benefit to SME(s).

Additional eligibility criterion: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 30-50% or more of the total estimated EU contribution for the project as a whole. *This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.*