

Explanatory memorandum for high impact research initiatives in Health research implemented by using the large-scale integrating collaborative project funding scheme

These projects informally known as HIP will be part of the single-stage call with the same deadline as for all other single-stage topics in this call.

1. Concept and features

- The projects will be assembled around a programmatic approach towards a clearly cut-out research area of the health theme, typically comprising several research components which are interrelated.
- They are driven by the need to produce high impact outcomes, either direct results that can be implemented in already existing products or technologies (for instance, rational vaccination schedules for existing or new vaccines), innovations relevant to industry, or society-relevant products and methods, or European contributions to global cooperative efforts. Thus, HIPs should be able to implement coherent and ambitious research strategies addressing the whole spectrum of research from basic (knowledge generation) to translational research and products.
- These projects will allow synergies between the different research components, linked from the outset, a feature that would not be achievable if these components would be funded as separate projects.
- They will plan and implement a common research programme that is jointly managed by institutions in the respective fields; hence the most competent European players are recruited into the planning and implementation of a thematic area.
- Clear impact indicators will be agreed upon with the HIP consortium at the start of the project, thus allowing effective impact assessment in the follow-up of the respective HIP project.
- These consortia should have sufficient flexibility to be able to anticipate and accommodate new scientific advances, and to plan and execute the corresponding activities in the best way to ensure timely delivery of results. New partners can be added to the consortium to carry out these new scientific advances provided that the rules for competitive calls are respected (Annex II of the FP7 grant agreement).
- The HIP project should manage important horizontal activities such as training, dissemination and data management.
- Requirement: strong participation of SMEs from the onset of the project (i.e. with at least 15% of the budget going to SMEs in the project from the start) and more generally from industry.
- The HIP project should have a transparent and efficient governance structure, including an independent external advisory group, the membership of which would be agreed between the consortium and the Commission services, to advise and monitor the work plan and to supervise the evaluation of proposals in response to competitive calls, if such calls are needed. NB: competitive calls are not a requirement, but will be accepted if duly justified.

- The consortium should have a dedicated management team able to supervise internal procedures and to successfully implement the complex scientific programme.

2. High impact research initiative project topics under the Health research 2010 call for 2011

High impact research initiative for better immunisation - thematic context and key issues

- Vaccines are the most cost-effective health intervention capable to dramatically reduce morbidity and mortality, even to eradicate target diseases (e.g. smallpox) worldwide. The need for vaccines as a key tool to control epidemics has been highlighted recently in the context of emerging pandemics.
- The global vaccine market is proportionally outgrowing that of drugs. Europe has traditionally been the leader in global vaccine manufacture. This European strength needs to be maintained and reinforced.
- Currently development and application of vaccines often follow costly try-and-error approaches, since a sound knowledge base as to why and how existing or new vaccines are effective is missing, and many questions remain unanswered as to what is the best route of vaccination, at what intervals should be vaccinated, what is the length of protection, which factors elicit long-term protection, what immunological features of specific target population must be catered for, and how do vaccine responses vary with age, gender or genetic background.
- Identified knowledge gaps of crucial importance for the development and application of vaccines, such as formulation and administration, recruitment at different sites of immunisation, accommodating age-related aspects (the elderly and newborns), and other such aspects, are the research focus of this HIP project, to promote the development of better, safer and more cost-efficient vaccines. This HIP shall offer the opportunity to better exploit synergies and cross fertilization between different research fields, ranging from basic and clinical immunology, novel adjuvants, formulation and delivery technologies and to routes and schemes of immunization.
- Age-dependent variations in human immune responses including to vaccination constitute a challenge when developing vaccines for target populations like children or the elderly. Research under the HIP should aim to understand the immunological mechanisms bringing about different immune responses in specific age groups in order to impact on the design and development of vaccines for specific target tailor vaccines to the respective age group.
 - The regulatory requirements for testing and approving vaccines have become more difficult in the recent decade and impose high financial risks on vaccine developers. This HIP should develop tools and relevant models which permit better prediction of efficacy of vaccines thus reducing the risk of failure and financial investment that is needed.
 - Increasingly chronic infectious diseases pose challenges to European health systems (TB, HIV, Hepatitis B/C, CMV, EBV, HPV etc). Some of these diseases may be considered for treatment with therapeutic vaccines and thus promise to have good

exploitation potential. Understanding how to induce immune responses that lead to long-lasting memory in therapeutic vaccination, can generate a range of new therapeutic products.

- The HIP project should sustain Europe's prominent role and strong tradition in immunology research by establishing training curricula in translational immunology and vaccinology research, and by building up a new generation of researchers more used to working with a broad range of new technologies.

High impact research initiative on the human epigenome

- Epigenetics knowledge will have a big impact on how we will address the prevention, cure or therapy of these diseases, in particular the so-called "life style diseases" (e.g. depression, type 2 diabetes). Indeed, there is increasing scientific evidence that the environmental influence on our health (e.g. nutrition, stress) is associated with changes in epigenetic profiles that may play important roles in the development and pathogenesis of these "life style diseases".
- Importantly, epigenetic changes are potentially reversible by life-style modifications or drug treatments. However, to maximize the potential of such therapeutic approaches, it is critical that there be a more comprehensive characterization of the epigenetic changes (characterization of the epigenomes) that occur during normal development, adult cell renewal, disease, and of the relationships between genetic and epigenetic variation and their impact on health.
- Recently, world leaders in epigenetics research decided to launch the International Human Epigenome Consortium (IHEC) (Nature, Vol 463, pg 587, 4 February 2010). This initiative received strong support of funding agencies from US, Canada, Europe and Asia. Strong financial commitments have already been made in North America and Asia towards IHEC. Therefore, it is important that Europe also invests in this area in order to be a major player in this international initiative.
- Importantly, by its size and its networking component, this project should have a strong impact on the European Research Area in the fast growing field of epigenetic research and should allow researchers to cross the borders between different disciplines in epigenetic research. This HIP should also develop an open-access data management strategy to enable data storage and dissemination. Thereby, the HIP epigenome programme should increase the European research competitive position at the international level, including within the recently launched IHEC initiative.
- This HIP should also train a new generation of researchers across the whole spectrum of research that will take place in the HIP, thereby preparing them to be ready to exploit the vast amount of data that will soon be generated in the IHEC initiative.
- This HIP should provide potential synergies between the different research components and give the opportunity to test and use the new high-throughput epigenetic mapping technologies within the epigenome mapping component.

3. Evaluation and selection of HIP projects

Acknowledgements of receipts for HIPs will include the indicative week for possible hearings with coordinators of proposals above threshold.

Remote individual evaluations by at least **7 independent experts** (thus going well beyond the legal minimum requirement of 3 experts).

Thresholds for evaluation criteria:

Criterion	Minimum threshold
S/T quality	3/5
Implementation	3/5
Impact	3/5
Overall threshold	10/15

Consensus group meeting in Brussels: decision on proposals passing thresholds/proposals failing one of the thresholds. For all proposals above thresholds, the evaluators will prepare a **list of questions** on aspects requiring further clarification. This list will be sent to the coordinator, together with an **invitation to a hearing** which will take place at the final evaluation panel meeting in Brussels (about 2-4 weeks after the invitation is sent).

Panel meeting:

- **Hearings**
Hearings will provide input to clarify further the proposals and to help the panel establish the final scores and ranking of proposals. Coordinators will not present their proposals as such, but will provide explanations and clarifications to the questions raised by the evaluation consensus group in the invitation letter to the coordinator.
- **Ranking**
Following the hearings, the final discussion between the evaluators will result in the establishment of a priority list. An evaluation summary report will be produced for each proposal, taking into account the evaluation results also covering the outcome of the hearing.

This evaluation process will be followed by **independent observers, as is the usual practice in the Health theme.**