ANNEX I

of

ANNUAL IMPLEMENTATION PLAN 2011

ANNUAL SCIENTIFIC PRIORITIES

FOR 2011

In agreement with the Scientific Committee during its meeting of 1/2 December 2010 and with the States Representatives Group on 20 January 2011, the Scientific Priorities here below are indicative, and are based on the 2010 Scientific Priorities which were not or partially translated into Call Topics, a series of "Big Themes" proposed by the EFPIA companies which should be further refined during the revision process of the Scientific Research Agenda, and possible emerging scientific needs proposed by the EFPIA companies that will be part of the revised Scientific Research Agenda. Only part of the Scientific Priorities will be translated in Call topics.

1- The 2010 Scientific Priorities which were not or partially translated into Call Topics

- Assessment of drug-induced toxicity in relevant organs – surrogates for early drug failure

Objectives/Deliverables:
- Knowledge Management: share, pool and explore the growing but fragmented body of knowledge on drug induced toxicity and genetic variation on drug response
- Improve mechanistic understanding of organ specific drug injuries
- Identification of novel biomarkers, tools and assays with a high sensitivity and predictivity to aid preclinical to clinical translation from the mechanisms explored
- Introduction of a common set of validation principles to defining the utility of each model in pharmaceutical risk assessment, based on guide-lines recommended by the European Commission
- Qualification of candidate biomarkers, corresponding assays and diagnostic methods in close interaction with Regulatory Authorities

- Enhancing translation in neurological disease

Objectives/Deliverables:
- Identification of relevant animal models, assays and biomarkers resulting in better understanding of pathological processes and standardization of therapies for neurological diseases

- Confirmation of defined translational end-points (e.g. imaging) from animal studies in patients and vice versa
- Establishment of a network of European clinical sites with expertise in the specific disease areas allowing validation of the identified measures.

2- Series of "Big Themes" proposed by the EFPIA companies which will be further refined during the revision process of the Scientific Research Agenda

- Research on the development of a new European Medical Information System

Objectives/Deliverables:
- Improved safety through post marketing surveillance
- Exploiting new knowledge on rare diseases
- Tools for better integration of genetic information in clinical trials
- Methodologies for better patients' selection for clinical trials, enhancing multiplicity and flexibility in clinical trials
- Reduce healthcare cost
- Improve ability for patients to join clinical trials

- Research on Stem Cells for Drug Development and Toxicity Screening

Objectives/Deliverables:
- European centre for generation/banking of differentiation of human cells
- European Stem Cell Biobank, taking fully into account ongoing activities
  - Standardisation of nomenclature
  - Suggest common ethical, legal and social frames
- Anonymous patient clinical information (genetic and clinical disease)
- Avoid competition for patient's tissue access
- Accelerate improvement of the technology
- Accelerate fundamental knowledge (i.e. NS) specifically for non accessible tissues
- Systematic safety and biodistribution studies

- Research "Beyond High-Throughput screening"

Objectives/Deliverables:
- Evaluate new/ complementary tools for hit and lead generation in synergy with ongoing initiatives and integrating biological data and processes
- Provide tool compounds to academia for evaluation of new targets/pathways
- Compiled and enriched public screening library
- Methods to multi-target ligand design/optimization
- Small scale medicinal chemistry to support hit discovery and SAR optimization
- Basic compound profiling in a blinded way including minimal ADME and Tox. (*in silico, in vitro, in vivo*)

- Research on Disease heterogeneity / Taxonomy of disease

Objectives/Deliverables:

- To develop a paradigm for reclassifying human disease using molecular / genetic / proteomic etc. based on markers
- To select heterogeneous disease based on purely indistinct diagnostic criteria and re-address the taxonomy of the chosen disease or syndrome.
- To stratify patients into more homogenous segments based on molecular criteria
- To reduce complexity and cost of associated clinical trials and increased drug development success rates
- To aid medical practice with better treatment paradigms in the short term and in the longer term by enabling the development of new drugs

- Research on genetic mapping of extreme phenotypes

Objectives/Deliverables:
- Identification of human populations displaying extreme phenotypes of a human disease including populations with high consanguinity rates
- Genetic characterization of phenotypes to identify genes that both predispose and protect against the selected disease
- Linking genetic alterations with patient prognosis
- Studies to address a disease with significant unmet medical need where few drug treatment options are available (e.g. Dallas Heart Study identification of PCSK9 gene as both a protective (loss of function) and risk gene (gain of function)
- Identification of new targets for drug treatment to enable a better academic / clinical understanding of the genetics of human disease
- Significant contribution to reclassification of human diseases allowing for reducing disease heterogeneity and improved genetic counselling for predisposed populations

- Research on combination therapy development

Objectives/Deliverables:
- To develop new tools and methodologies for research on combination of drugs for complex diseases with unmet medical needs
- To overcome regulatory hurdles in the development of combination therapies
- To define new approaches for target selection and methods for toxicological and clinical studies based on combination therapies

3- Possible emerging scientific needs proposed by the EFPIA companies and that will be part of the revised Scientific Research Agenda

EFPIA may propose new priorities based on emerging needs which will be identified in the Scientific Research Agenda.