

COMMISSION OF THE EUROPEAN COMMUNITIES

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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

*Participation by the Commission in the
International Human Frontier Science Program Organisation*

The Commission hereby informs the Council and the European Parliament of its intention to represent the EEC as a "Management Supporting Party" of the International Human Frontier Science Program Organisation, for the trial period to 31.3.92.

1. The Human Frontier Science Program (HFSP) is a basic research funding programme in higher order brain functions and molecular level approaches to biological functions. It promotes an international (worldwide) and interdisciplinary approach to basic research on the characteristics and mechanisms of living organisms, and will potentially provide seeds and tools for the science and technology of the 21st century. It is intended that research results should be used for the benefit of all mankind.
2. Based on an initiative presented by the Japanese government to the Venice Economic Summit of June 1987, the Programme was subsequently designed by an international committee of eminent scientists, and finally became operational in 1989, for a trial period of three years to 31.3.1992. Its founder members are the Summit participant (G7) countries, and the Commission, representing the European Community, has been invited to join.
3. The two main research areas are brain functions including perception, cognition, memory, learning, etc., and biological functions through molecular level approaches, including molecular recognition/response, energy conversion, etc. A list of some 60 specific priority research topics has been established for the trial period, and is annexed to this note.
4. The Programme consists of the following activities:
 - Grants - to support international joint research teams; projects for support are selected by an international peer review committee.
 - Fellowships - to enable scientists to work abroad;
 - Workshops - international meetings to exchange views and discuss new discoveries.
5. To administer the Programme a new organisation ("a.s.b.l." under French private law) has been set up, with an international Secretariat located in Strasbourg. HFSP directional management is entrusted to a Board of Trustees (government representatives, two Members nominated by each Management Supporting Party) and a Council of Scientists.
6. Programme finance during the trial period is provided mainly by the Government of Japan, with some contributions (in cash or kind) from most of the other Management Supporting Parties.

7. *HFSP is of inherent scientific interest for the European Community, and its overall ambitions relate coherently to the objectives of the EC's Framework Programme. Most of the research fields it targets are being addressed within existing EC programmes, e.g. BRIDGE, SCIENCE, ESPRIT, HUMAN GENOME, MEDICAL RESEARCH. It is important that these programmes maintain interface with related frontier research throughout the world.*
8. *The Human Frontier Science Programme is rapidly taking on a global dimension. Switzerland, Sweden and Australia have already applied to join and any individual country may apply for membership as a Management Supporting Party, scientific capability being the principal criterion for participation.*
9. *The Commission considers it appropriate to ensure full and balanced European Community participation in HFSP operations, both in order to be able to influence the Programme's evolution, and to derive maximum benefit for all Member States, only four of which are at present members in their own right.*
10. *HFSP is likely to have significant implications for the future of many industries. While its vocation is to promote basic research in the targeted fields, the time delay between significant research breakthroughs and their industrial exploitation could be quite short. Research in brain functioning and molecular biology presently enjoys rapid expansion, and spectacular progress is expected to continue for several years, making significant impacts throughout the fields of biotechnology (including medical and health-related applications) and information technology.*
11. *Specifically in information technologies, areas such as the following could be rapidly affected: the mathematical basis for neural networks technology, parallel computing, complex databases, learning systems, pattern recognition, and constraint satisfaction systems for speech, vision and robotics, and expert systems using neural nets.*
12. *New insights resulting from the HFSP in the field of molecular level approaches to biological functions may find equally rapid applications in the pharmaceutical, chemical and agricultural industries. At the same time HFSP will lead to increased demand for specific laboratory equipment and instrumentation, which, because of the frontier technology involved, will lead to the development of more general commercial applications.*
13. *Because of the industrial potential of the HFSP, measures for the dissemination of results to European industry should be taken, including using and developing the mechanisms already set up within the Community's R & D programmes. It is envisaged that a Commission interservices group would be set up to follow the evolution of the HFSP, including the aspect of technology transfer to European industry, and to monitor balanced benefit from the dissemination of the programme's results.*
14. *In order that the EEC shall become a "Management Supporting Party" of the International Human Frontier Science Program Organisation, the Commission will nominate two Members to the Board of Trustees, propose two scientists to serve on the Council of Scientists, make nominations to the Scientific Review Committees, and generally give positive support to the Programme.*

15. *As initial support measures for the Programme, a number of EC Scientific Training fellowships (existing programmes) will be allocated to HFSP-related research areas, and international workshops will be organised on related state-of-the-art topics. The cost of these activities will be met either from budget line 7394, "International Co-operation and COST Activities", or from specific programme budget lines, depending on the subject. The cost of attending meetings of the various IHFSP0 committees will be met by the Organisation itself.*
16. *Since the International HFSP Organisation is a private non-governmental association, registered in Strasbourg under French civil legislation, the legal basis for the participation of the Commission, representing the European Economic Community as a "Management Supporting Party" is Art. 211 of the EEC Treaty.*
17. *At the end of the trial period the Commission will assess the extent to which HFSP's objectives are being achieved and evaluate the degree of benefit for EC Member States. If it is then judged of value to continue participating in the Programme, a further communication will be made to Council and Parliament.*

HUMAN FRONTIER SCIENCE PROGRAMME

Research Areas

A. Basic Research for the Elucidation of Brain Functions

A-1 PERCEPTION AND COGNITION

- 1. Visual Perception
- 2. Non-Visual Perception
- 3. Multi-modal Perception
- 4. Supra-modal Cognition
- 5. Cognitive Psychology
- 6. Models of Perception and Cognition
- 7. Others

A-2 MOVEMENT AND BEHAVIOUR

- 1. Mechanism of Motor Programming
- 2. Cognitive Control of Movement
- 3. Adaptive Control of Movement
- 4. Innate Behaviour
- 5. Emotional Behaviour
- 6. Intellectual Behaviour
- 7. Functional Molecules in Behaviour
- 8. Others

A-3 MEMORY AND LEARNING

- 1. Procedural Memory and Skill Learning
- 2. Cognitive Memory
- 3. Cognitive Learning
- 4. Development and Aging of Memory
- 5. Development of Learning
- 6. Synaptic Mechanism of Memory and Learning
- 7. Models of Memory and Learning
- 8. Others

A-4 LANGUAGE AND THINKING

- 1. Animal Communication
- 2. Neuropsychology of Language
- 3. Neural Mechanism of Thinking
- 4. Attention and Consciousness
- 5. Language Learning
- 6. Functional Localization of Language and Thinking
- 7. Models of Learning and Thinking
- 8. Others

B. Basic Research for the Elucidation of Biological Functions
through Molecular Level Approaches

B-1 EXPRESSION OF GENETIC INFORMATION

1. DNA Replication and Cell Cycle Control
2. Transcription
3. Translational Control
4. Cis Elements and Motif
5. Trans Elements
6. Gene Rearrangements and Recombination
7. Others

B-2 MORPHOGENESIS

1. Homeo-Box and related Genes
2. Extracellular Matrix
3. Developmental Genes
4. Growth Factors and Functional Hierarchies
5. Cell Adhesion and Cell Migration
6. Organogenesis
7. Others

B-3 MOLECULAR RECOGNITION AND RESPONSES

1. Molecular Level Research in Immunology
2. Molecular Level Research in Neurobiology
3. Receptor-Ligand Interaction
4. Protein-Protein Interaction
5. Protein-Nucleic Acid Interaction
6. Protein or Nucleic Acid Molecular Recognition
7. Higher order Structures
8. Others

B-4 ENERGY CONVERSION

1. Membrane Electronics
2. Phosphorylation Systems
3. Photobiology
4. Biological Motility
5. Fixation of Nitrogen
6. Others

C. Supporting Methods

Some Examples:

- High-speed and Efficient DNA Sequencing
- Three Dimensional Structure Determination of Proteins
- Non-Invasive Measurement of Biological Functions
- Measurement of Dynamic Structure of Biological Functions
- Ultra-Micromanipulation