agence d'évaluation de la recherche
et de l'enseignement supérieur

Section des Unités de recherche

AERES report on
The federative structure:

Institut Européen de Chimie Biologie

University or school:

Université Bordeaux 1

Université Bordeaux 2

CNRS

INSERM

May 2010

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AERES report on the research unit

Institut Européen de Chimie Biologie

From the

Université Bordeaux 1

Université Bordeaux 2

CNRS

INSERM

Le Président
de l'AERES

Jean-François Dhainaut

Section des unités
de recherche

Le Directeur

Pierre Glorieux

May 2010

Federative Structure

Name of the unit: Institut Europen de Chimie Biologie UMS 3033+US001 (IECB)

Requested label: UMS+US001

No. in case of renewal:

Unit director: Mr J-J TOULME

Members of the expert committee

Chairperson:

Mr Jay S. SIEGEL, University of Zurich, CH

Reviewers:

Mr Horst VOGEL, EPF Lausanne, CH

Mr I MAREK, Technion-Israel Institute of Technology, Israël

Mr S NEIDLE, School of Pharmacy, University of London, UK

Reviewer(s) nominated by the staff evaluation committees (CNU, CoNRS, CSS INSERM ...):

Mrs Agnes DELMAS, Université d'Orléans (CoNRS)

Representatives present during the visit

Scientific delegate representing AERES:

M. P. DUMY

Report

1 • Introduction

The European Institute of Chemistry and Biology (IECB = Institut Européen de Chimie et Biologie) open at Fall 1998, brings together scientists of different culture to develop outstanding projects at the biology-chemistry interface, particularly -but not only- in the field of biomedical research. Today IECB hosts the teams of 15 group leaders in synthetic organic and bioorganic chemistry, chemical and structural biology, molecular or cellular biology in a brand new Institute located on the Pessac campus of the University of Bordeaux. It is important to note that these teams are also attached to research units (UMR 5248, 5255, 5095, U862, 869, 889) which belong to University Bordeaux I, University Bordeaux II, CNRS and/or INSERM. Importantly enough teams have to move away after an incubation period, generally ten years.

State of the art technological platforms, notably in structural biology are located in the IECB building but made available to outside researchers. These technical platforms as well as the shared facilities (administration) constitute the so-called "IECB Support Unit", are recognized as an "Unité de Service" (UMS3033/US001) by the 4 trustees. Large equipments are attached to this Unit; dedicated engineers and technicians are affiliated to UMS3033/US001. In contrast to research teams UMS3033/US001 is permanent.

Since its birth more than 10 years ago, Institut Européen de Chimie et Biologie (IECB) implemented a number of criteria and principles that were uncommon in the French Research System when IECB was created (recruitment of group leader by scientific advisory board for ten years with evaluation after 2, 6 and 10 years). Consequently, IECB could not be classified as a research unit according to the French system rules. Since the 15 group leaders are also attached to a given research unit, their scientific activities were assessed by proper AERES's committee during the visit of the corresponding unit. Consequently, it was decided that IECB (teams + UMS3033/US001) can be regarded as a federative structure and its AERES assessment follows this view.

- Date and conduct of the visit :

It was not possible to arrange a visit of IECB for all of the 7 AERES committee (UMR 5248, UMR 5255, UMR 5095, U862, U869, U889), therefore IECB was visited and directors were interviewed November 25th 2009 afternoon during the assessment of UMR-5248 whose 7 group leaders are hosted in IECB.

- History and geographical location of the unit and brief description of its field of study and activities :

The European Institute of Chemistry and Biology (IECB = Institut Européen de Chimie et Biologie) open at Fall 1998, brings together scientists of different culture to develop outstanding projects at the biology-chemistry interface, particularly -but not only- in the field of biomedical research. Today IECB is located in a brand new Institute located on the Pessac campus of the University of Bordeaux. State of the art technological platforms, notably in structural biology are located in the IECB building but made available to outside researchers. Fifteen groups are working at IECB in four different poles: structural biology, bioorganic chemistry, molecular recognition and biology. The IECB concept is now validated through a full ten years cycle, including the move of teams at the end of the incubation period, from IECB to another Institute in Bordeaux. Group leaders were attracted to IECB from all over the world through a highly competitive procedure, under the umbrella of the SAB with the everlasting support of trustees and partners. IECB researchers get access to in house well equipped technical platforms for developing inter-team and interdisciplinary projects, most of them being funded by money raised through competitive national calls. A set of large instruments and facilities available at IECB are organized as Platforms operated by technicians from the Unité de soutien or from partner research units (see above). These platforms benefit from the scientific expertise of both IECB group leaders and scientists outside the Institute. This covers equipment and facilities in cell/molecular biology/biochemistry and in structural biology. Platforms are intended to serve both the IECB community and external users.

- Management Team:

The management team is composed of the director (JJ Toulmé) and vice director (I Huc).

The recruitment of group leaders as well as their activity once at IECB, is carried out under the responsibility of an external advisory board (SAB) that guarantees scientific excellence. The organization and the rules according to which IECB is running were elaborated in order to give the group leaders of international origin a large autonomy, to foster the interactions between scientists with different backgrounds and to promote the mobility and the exchanges. The application of these rules aims at developing a research institute of high scientific standards, internationally recognized.

Typically every year six to ten candidates, pre-selected after an international call, are interviewed at IECB by the SAB. On average 3-4 candidates are short-listed by the SAB, on the basis of the quality and the innovative aspect of their scientific project as well as on their capacity to manage a group and to develop interdisciplinary contacts. With the support of IECB trustees (CNRS, Inserm, Universities of Bordeaux 1 and 2) and partners (*Conseil Régional d'Aquitaine)* a package is offered to 1-2 of the recommended candidates that might include salaries (group leader, post-doc, PhD fellowship), money for equipments and consumables as well as a functional laboratory space.

The activity of the group leaders is then evaluated by the SAB after 2, 6 and 10 years that is very generally the longest lifetime for an IECB team. Indeed IECB teams are not permanent even though group leaders have permanent CNRS, Inserm or University positions. For allowing a smooth transition every IECB team is administratively affiliated to a CNRS or Inserm research unit whose largest part is generally outside IECB. Consequently a group leaving IECB at the end of the incubation primarily considers the site of the "mother" unit for relocation. In addition this dual connection - IECB and outside Unit- promotes exchanges between IECB and the scientific community in Bordeaux. Both partners take advantage of this process: the mother unit benefits from an interdisciplinary expertise through the incubated team and IECB frees space for groups with additional eventually new born expertise.

A board of directors ensures the contact with the trustees and the SAB and coordinates the organization of the Institute with the help of a steering committee that meets every other week (J.J. Toulmé, I. Huc, E. Génot, M. Laguerre). Every month the assembly of group leaders is informed of the activity during the past month and contribute to the preparation of forthcoming events and actions. A formal meeting with the 4 trustees is organized twice a year for questions related to management, staff positions, funding and scientific policy.

- Staff belonging to the federative structure : (according to the dossier submitted to AERES):

The staff includes 12 permanent people acting as technical and administrative support of the federative strcture in addition to the director that is the unique researcher:

3 ITA CNRS (1 IR, 1 IE, 1 AI); 2 IATOSS Univ Bordeaux 1 (1 IE, 2 AJT); 1 IATOSS Univ Bordeaux 2 (T) and 6 ITA INSERM (2 IE, 3 T, 1 AJT) who are administratively rattached to UMS3033/US001.

2 • Assessment of the federative structure

- Overall opinion :

IECB is an interdisciplinary institute with well recognized scientists in chemistry, biophysics and biology whose research activity is excellent with 270 publications published in high impact journals (JACS, FASEB J, Angew. Chem., PLoS Biol., Nature Neurosci, Oncogene, Human Mol Genet., Cell Biol, Proc. Nat. Acad. Sci…). Up to 25 publications have been co-authored by members of at least two teams of the Institute over this contract.

IECB is implicated in numerous networks where the lab heads are coordinators. It demonstrated capable to generate a lot of grants for science and large scale equipments. A very great dynamism and a very great motivation emanate from IECB which show people happy to make research and capable to go beyond the frontiers.

IECB is now in a mature situation after 10 years of life; it is well positioned within the research organisation in Bordeaux and is one of its key actors. Albeit based on atypical rules in the French system, It can now be stated that this incubator for young teams "hotel à projet" is successful not only locally in Bordeaux but also at national and international level.

- Strengths and opportunities:

IECB represents a unique Institute in the Bordeaux campus, with an interdisciplinary composition, dedicated to excellence for topics that are on the cutting edge. The promotion of the chemistry and biology interface is, after 10 years, one of the most impressive success and strength of IECB which makes the Bordeaux campus highly visible. It operates impressive platform in structural and cellular biology and networking capabilities. A Unique demonstrated capacity to attract talented leaders and to support them.

- Weaknesses and threats:

The fast growth in terms of persons and equipments make its management more demanding especially for the cost for running the institute (infrastructure, renewal of equipment and maintenance).

The potential departure of the founding group leaders may generate a dangerous disequilibrium on the scientific visibility of the Institute.

- Recommandations :

Pursue the policy of fund raising, take advantage of the organisation of trustees and national opening and increase links with private partners to ensure coverage of the institute cost. In the same vein, the modality of search for the new IECB director must be though.

New recruitments of leader for a good overlap should be done ahead in time in particular in organic chemistry and nanosciences.

Continues the scientific animation inside and outside IECB to develop an increasing international visibility.

3 • Detailed assessments: :

IECB presents a unique platform where 15 different research groups are working in 4 different axes: structural biology, organic and bioorganic chemistry, molecular recognition and molecular and cell biology. These 4 axes are interconnected by interdisciplinary common projects working on frequently related to major human pathologies: cancer, diabetes, neurological diseases. Several of them were supported by IECB following an internal call evaluated by the SAB. A number of European and National “competitive” funding (FP, ERA, ANR, emergence INSERM…) funding gathered jointly by several group leaders emphasizes the excellence and the promotion of the chemistry-biology interface at IECB as well as in Bordeaux.

The overall research activity is excellent with 270 publications published in high impact journals (JACS, FASEB J, Angew. Chem., PLoS Biol., Nature Neurosci, Oncogene, Human Mol Genet, Cell Biol, Proc. Nat. Acad. Sci…). Up to 25 publications have been co-authored by members of at least two teams of the Institute over this contract.

The institute has an outstanding technical platform in structural biology (NMR, X-ray, SPR, mass spectroscopy, electron microscopy…) which is labelled at national level "IBiSA émergente".

- Assessment of the scientific activity resulting from federative synergy:

Up to 25 publications have been co-authored by members of at least two teams of the Institute over this contract. A number of European and National "competitive" funding (FP, ERA, ANR, emergence INSERM…) funding obtained jointly by several group leaders emphasizes the excellence and the promotion of the chemistry-biology interface at IECB as well as in Bordeaux. IECB promotes interdisciplinary (at least 2 teams) project through internal call. Clearly, there is a strong synergy being at IECB (in terms of publications, grants etc…), most of the projects are interdisciplinary, exhibit balanced risks and are on the cutting hedge. The overall issue is a very good efficiency and an increasing international visibility of most of group leaders.

- Reality and quality of scientific animation :

Each group has regular group meetings and the department has weekly seminars and colloquium with outstanding speakers. 200 seminars were given and 5 workshops organized (Young researcher workshop, Annual workshop of candidates for group leader positions, RNA club..). In addition, IECB also hosted some larger events organized by IECB's group leaders or by other laboratories on campus (Workshop on Membrane Structure/Dynamics in Development and Cell Signalling, New Trends in Molecular and Materials Sciences, Summer school "Mechanisms of drug action").

Overall, IECB demonstrates a real scientific life and animation.

- Relevance and quality of the technical platforms, equipments & shared facilities :

A set of large instruments and facilities available at IECB are organized as Platforms operated by technicians from the Unité de soutien or from partner research units. These platforms benefit from the scientific expertise of both IECB group leaders and scientists outside the Institute. This covers equipment and facilities in cell/molecular biology/biochemistry and in structural biology. Platforms serve both the IECB community and external users. In addition, a number of medium sized routine instruments are shared by IECB teams and are only occasionally used by external users. This includes routine NMR instruments (300 MHz), and other spectrometers (IR, UV) or chromatographic instruments (HPLC, GC…).

The technical platform in structural biology (NMR, X-ray, SPR, mass spectroscopy, electron microscopy…) has been evaluated by the GIS IBiSA national committee in June 2009 and will benefit for two years of the « plateforme IBiSA émergente » status.

The technical platforms and shared equipments are simply outstanding and should be an example to follow not only for all institutions in France but also in Europe.

- Utilization/Valorization of the results of research :

Research with strong technology transfert are labelled by "pôle de compétitivité Prod'Innov" and "cancéropole Grand Sud-Ouest".

IECB group leaders contribute to technology transfer in the field of bio/nano-technology. The company "Fluofarma" dedicated to antitumor drug screening was created 5 years ago by former IECB group leaders and develops active collaborations with several IECB groups. A "Technology Transfer Unit", "Novaptech", develops aptamer-based tools for both academic laboratories and industry. "Annexin Tools" a start-up whose activity is dedicated to nanotechnology application of annexin is being launched as well.

IECB also has a number of collaborations and linkages with industry particularly pharmaceutical industry, agro/food industry.

- Relevance of the project.

The project is relevant and registers within the scope of IECB policy and makes it continues to grow (attract 2 new teams per year, technical platform). Up to 17 teams are running in 2010. Inter-teams projects (at least 2 teams) are described and are excellent.

IECB also plans to purchase new equipments to maintain the quality and level of the platforms. This plans fit well with the existing platform inside IECB as well as outside.