

Evaluation Panel: HEALTH SCIENCES - Biomedicine and Molecular Biology

Panel Members

Hinrich Gronemeyer (Chair)	Institute of Genetics and Molecular and Cellular Biology (IGBMC), Université de Strasbourg, France
Alexandre Reymond	Center for Integrative Genomics, University of Lausanne, Switzerland
Ana Cumano	Institut Pasteur, Paris, France
Andreas Ladurner	Biomedical Center Munich (BMC), Ludwig Maximilians University of Munich, Germany
Marcos Malumbres	Centro Nacional de Investigaciones Oncológicas (CNIO), Madrid, Spain
Mario Clerici	University of Milan and Don Carlo Gnocchi Foundation, Milan, Italy
Michele Goodhardt	CNRS - Université Denis Diderot (Paris VII), Inserm, Paris, France
Narender Ramnani	Royal Holloway, University of London, Surrey, United Kingdom
Paola Giunti	University College London, Institute of Neurology, United Kingdom
Paul A. Townsend	Manchester Cancer Research Centre, University of Manchester, United Kingdom

R&D Units

Centro de Inovação em Biomedicina e Biotecnologia (CIBB)	Universidade de Coimbra (UC)
Centro de Investigação em Biociências e Tecnologias da Saúde (CBIOS)	COFAC, Cooperativa de Formação e Animação Cultural, CRL (COFAC)
Centro de Investigação em Biomedicina (CBMR)	Universidade do Algarve (UAIG)
Centro de Investigação em Ciências da Saúde (CICS-UBI)	Universidade da Beira Interior (UBI)
Instituto de Biomedicina – Aveiro (iBiMED)	Universidade de Aveiro (UA)
Instituto de Biosistemas & Ciências Integrativas (BioISI)	FCiências.ID - Associação para a Investigação e Desenvolvimento de Ciências (FCiências.ID)
Instituto de Investigação do Medicamento (iMed.Ulisboa)	Faculdade de Farmácia da Universidade de Lisboa (FF/ULisboa)
Instituto de Investigação e Formação Avançada em Ciências e Tecnologias da Saúde (IINFACETS)	Cooperativa de Ensino Superior Politécnico e Universitário, CRL (CESPU)
Instituto de Investigação e Inovação em Saúde (i3S)	Universidade do Porto (UP)
Instituto de Medicina Molecular (iMM)	Instituto de Medicina Molecular (iMM/FM/ULisboa)
Instituto Gulbenkian de Ciência (IGC)	Fundação Calouste Gulbenkian (FCG)
Laboratório Associado, Instituto de Ciências da Vida e da Saúde / Grupo de Investigação em Biomateriais, Biodegradáveis e Biomiméticos (ICVS/3Bs – LA)	Universidade do Minho (UM)
Programa Champalimaud de Investigação (CR)	Fundação D. Anna de Sommer Champalimaud e Dr. Carlos Montez Champalimaud (FC)

Evaluation Panel: HEALTH SCIENCES - Biomedicine and Molecular Biology

R&D Unit: Instituto de Investigação e Inovação em Saúde (i3S)

Coordinator: Mário Adolfo Monteiro Rocha Barbosa

Integrated PhD Researchers: 431

Overall Quality Grade: EXCELLENT

Evaluation Criteria Ratings

- (A) Quality, merit, relevance and internationalization of the R&D activities of the Integrated Researchers in the R&D Unit Application: 5
- (B) Merit of the team of Integrated Researchers: 5
- (C) Appropriateness of objectives, strategy, plan of activities and organization: 5

Base Funding for (2020-2023): 7038 K€

Recommended Programmatic Support

PhD Fellowships: 21

Programmatic Funding: 1915 K€, including for 5 (3 Junior, 2 Auxiliar) New PhD Researchers Contracts.

Justification, Comments and Recommendations

i3S is a young research center that was created in 2015 by the fusion of three R&D Units, the Institute for Molecular and Cell Biology (IBMC), Institute for Biomedical Engineering (INEB), and Institute of Pathology and Molecular Immunology of UPorto (IPATIMUP). The Panel wishes to commend the Unit and its direction for the successful merger which has created an impressive center for basic and applied biomedical research that is fully competitive at highest international level and endowed with an outstanding mode of operation.

The scientific structure of i3S comprises three thematic lines: Cancer, Host Interaction & Response, and Neurobiology and Neurologic Disorders. These research areas are subjected to studies covering Molecular and Cellular Biology, Genetics, Immunology, Pathology and Bioengineering in order to foster our understanding of the molecular and cellular basis of living systems in normal physiology and its deviations in pathological states to pave the way to the development of novel diagnostic and therapeutic strategies. The Panel is fully supportive of this modern scientific organization which fosters multi-disciplinary and cross-border thinking and suggests a reflection about enforcing the computational biology resources and expertise, which can elegantly bridge the various activities and facilitate a more sophisticated understanding of the extremely complex cellular and organismal regulatory circuits at the basis of (patho)physiological phenomena.

Moreover, the Panel was fully convinced by the organizational structure and operation of i3S which supports the above scientific organization. It appreciates that the Center will become a legal entity in 2019 after concluding ongoing discussions with the university. Following up on the brief discussion with the Rector of UPorto the Panel wishes to emphasize that the prestige gained by Porto University and the region through the presence of such a center of excellence should translate in a significantly stronger support, including the attribution of positions to researchers.

The science at i3S is outstanding, albeit with the inevitable variation between teams. The attribution of multiple ERC grants, among other distinctions, illustrates the international top quality of science done at the i3S. The Panel was very impressed by the outstanding short presentations illustrating work done in the three thematic lines. However, the significant variation in the performance of teams warrants continuous attention. In this respect, the Panel appreciates the regular monitoring of teams (see below). Notable breakthrough discoveries at i3S comprise the functional links between cell division and genome (in)stability, mechanisms involved in neurodegeneration, and advances in the mechanistic understanding of T cell differentiation. The i3S is an international reference center for Hereditary Diffuse Gastric Cancer and develops and for genetic diagnosis. The latter activity includes the development of genetic diagnosis tools.

The Panel would like to congratulate i3S for establishing principles of operation, which are available to all members of the Unit. This is a unique feature of i3S which should be adapted by all major R&D Units in the country. These principles of operation concern particularly the scientific evaluation of all teams every 4 years by external experts chosen by the external scientific advisory board, the space allocation rules and the definition of authorship. Indeed, the Panel noted that i3S is apparently the only Unit that has established authorship guidelines in line with the recommendations of the

International Committee of Medical Journal Editors and of the Council of Science Editors. Importantly, these guidelines specify, among other points, the individual contribution and scientific responsibility of all authors and the possibility of mediation in case of conflict. The Panel fully supports the anticipated establishment of an Ethics and Responsible Conduct in Research Committee, which should go into operation as soon as possible, given the many cases of improper scientific conduct in biomedical and biological sciences throughout the world that is increasingly worrying the public. The 2018 survey of the scientific platforms is another appreciated unique operational feature of i3S. It may actually be complemented by the regular assessment of the actual need of particular platforms and the creation of new services for emerging new technologies, such as genome editing. This could be done by a Technology Assessment Committee composed of technologically/computationally experienced PIs.

The Panel also endorses the transversal activities at the i3S and the translation to the clinical diagnosis lab which was visited.

Training is excellent at i3S. This is not only supported by the contribution to three ITNs but was also evident from the discussion of Panel members with the Post-docs and PhD students who are highly enthusiastic and motivated. Indeed, they organize by themselves a variety of events, ranging from scientific seminars and meetings to fundraising activities, with the support of the direction. Notably, i3S was the only Unit that provided detailed statistics of the performance of PhD students, revealing that all of them had at least one first authorship on an original publication and that PhD students at i3S published on average 2.8 original peer-reviewed publications.

The plan of activities 2018 to 2022 was rated excellent by the Panel, albeit it was – most likely due to space restriction – rather general. However, the Panel fully supports the key elements specified in the scientific strategy, the institutional integration and development of an autonomous legally recognized i3S center, career development support for young PIs and beyond, the refinement (i.e., controlled expansion together with controlled reduction) of the technological platforms, the expansion of internationalization efforts, the continued support for training and career development, the dedication to translational research (“bench to bedside”) and reinforcement of the Comprehensive Cancer Center with the Porto Oncology Hospital, open science efforts and the continued refinement of the operational tools praised further above.

Based on the excellent training at i3S and the performance of the PhD students in the past the Panel decided that this is an outstanding center for training, which provides optimal conditions to learn top level science, and recommends the attribution of 21 PhD fellowships to i3S. This is very far from the requested number of fellowships (168) which is however completely unrealistic given the total number of fellowships to be awarded in all areas through this FCT Program. The i3S leadership may decide the actual distribution of the fellowships to the various PhD programs.

The same is true for the hiring of researchers with a PhD. The Unit has requested 12 which is unrealistic. The Panel attributes 3 Junior (i.e., post-docs) and 2 Auxiliar (i.e., PI) Researcher contracts to the i3S which is – like the 21 PhD fellowships – among the highest numbers attributed to a R&D Unit by this Panel. Given the excellence of research and the need to recruit excellent young scientists both as post-docs and new PIs in view of the turn over subsequent to external evaluation, this numbers appear fully justified to the Panel.

The Unit has requested support for additional costs, related to the function and staffing of the scientific core platforms, management, informatics systems, administration, technology transfer, etc. These costs exceed by far the amount that can be awarded to a R&D Unit through this FCT Program. Nevertheless, based on the excellent structural organization of the Unit which is expensive but also at the basis of the excellent science and training, the Panel recommends a substantial support in Programmatic Funding, which is the highest sum attributed by this Panel.