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Report on CBIOS (Research center in Biosciences and health technologies)

CBIOS, created in 2011, is a research center that belongs to the private Portuguese university *Universidade Lusófona*, located in Lisbon, Portugal. This center is recognized and funded by the national agency for R&D which last ranked CBIOS as "Good". At this stage, the center foresees to achieve the rank of "Excellent" and in this context has arranged an external scientific advisory board (SAB) to advise them to achieve this goal in their next evaluation.

As members of such SAB, and after visiting CBIOS, we have been requested to write this report.

CBIOS develops **Integrated Health Strategies** by applying the competence of all its members in four research domains:

- Natural Bioactive and Circular Economy
- Models and Molecular Mechanisms
- Formulation Technologies and Digital Solutions
- Nutrition and Well-being

Currently, the CBIOS research groups interact very closely with each other. Their research lines and experimental skills promote the development of new competitive projects, as well as multidisciplinary PhD theses.

The University's research budget comes not only from the University's own stakeholders, private funding, but also from the national foundation FCT. However, according to the interests of CBIOS researchers, there is a need to further increase their national and international funding.

Next, we will put forward, to our understanding, which are the strong points of CBIOS and which are those that need to be strengthened, together with some suggestions to improve them:

Strong Points:

- Research members:

- There is a good number of **integrated PhD members- thirty-** of which **7 are full researchers**. There is also a good equilibrium among senior and younger members which favors the future generational change. This group is potentially entitled to apply and obtain funding from national, European and international institutions which will help increase and boost the mission of CBIOS.
- There is a **positive increasing trend in the number of PhD students** that join CBIOS during the past years. There are currently **twenty-two** PhD students. The improvement in this number can be interpreted as that the integrated PhD members are consolidating their positions and are obtaining funding to improve their laboratories and incorporate new members to their teams.
- They have incorporated a **science manager** that has highly contributed to improve

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different organization and management activities (eg. organizing meetings, research for new funding opportunities, outreach, etc).

- They have also incorporated a **lab manager** that implements the management of the laboratories (eg. acquisition and maintenance of equipment, supervision of technicians, logistics, etc).
- It should also be noted that there is a **good gender balance** among the researchers at CBIOS, which is in line with the standards of the UE and puts forward the interest of CBIOS in incorporating women in their institution.

- **Multidisciplinary and integrative research:** CBIOS develops a multidisciplinary (pharmacology, therapeutics, phytochemistry, food sciences, drug development, drug delivery...) integrative research which is supported by the background of its members and joint research projects and publications.

- **Internationalization:** The research team of CBIOS is represented in a wide range of international programs and networks (COST, Red CYTED, EEMCO group, EIA...) and they also actively participate in organizing activities within these networks. All these activities give visibility to CBIOS internationally and provides the culture media necessary to achieve scientific collaborations and apply for international joint programs. Furthermore, they have created joint programs with Portuguese speaking countries like Brazil and Angola.

- **Dissemination:**

- **Organization of biannual meetings** where they present their major lines of research and results (eg. Lusophone meeting on innovative delivery systems and Bio.Natural meeting) and workshops (eg. Cell migration Workshop, Fundamental cell culture).
- **CBIOS Newsletter:** with this initiative CBIOS community and associated members are aware of the activities that are being developed, which improves visibility and awareness among the different representatives of CBIOS.
- A **Promotional video** has been created to give an overview of the facilities and activities that are being currently run at CBIOS.
- **Social media:** CBIOS is on Twitter, LinkedIn, Facebook, Instagram; they are all platforms where society can have access to the main activities that are going on in the institution.
- **Web page.** www.cbios.ulosofona.pt

- **Publications:**

It is noticeable that during the period 2018-2021, 93 articles were published in peer review SCI journals in Q1 (48% were in top 10% journals); most of them are open access which greatly contributes to dissemination of their research. The interdisciplinary nature of CBIOS is also reflected in the different areas in which they publish their results (eg. pharmacology, physiology, medicinal chemistry, biochemistry dermatology, toxicology). The increase in publications is in concordance with the increase in number of citations and, thereby, with CBIOS's international visibility.

Points that need to be strengthen and suggestions for improvement:

- **Improve human and material resources.** To grow as Institution it is important to be able to achieve funding to incorporate to CBIOS highly qualified personnel, state of the art equipment and develop innovative projects. There are many calls from private (Foundations and pharmaceutical companies) and public (National, European and international) organizations that can provide interesting opportunities for funding. To be updated with this information, to find partners and to fulfil all the requirements of new proposals there is already a **project manager** but **there is a need to hire more people with this profile to improve human and material resources**. Project managers could also improve the transfer of knowledge by helping with the licensing of patents derived from CBIOS research.
- CBIOS has reached the expertise, knowledge, and scientific maturity to develop their own **PhD program** as for now they depend on other institutions for their PhD students to obtain their degree. We therefore highly recommend to pursue this issue.
- There is also a need to **gain more laboratory space and new equipment** to be able to expand their research lines and increase research personnel (undergraduate, PhD and postgraduate students).

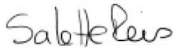
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