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| **A - Caracterização do LA** | **LA** | 1. Nome/Designação do LA | ***Associate Laboratory on Biotechnology, Bioengineering and Microelectromechanical Systems*** |
| | | 2. Acrónimo do LA | ***LABBELS*** |
| | | 3. Referência FCT | LA/P/0029/2020 |
| | | 4. Coordenador do LA | Nome; contactos (e-mail, telefone) |
| | | 5. Data da atribuição do estatuto de LA | 01/01/2021 |
| | | 6. Webpage | http://www.labbels.uminho.pt/ |
| | | 7. Classificação FCT | Excelente |
| | | 8. Financiamento Complementar FCT Total | 2.497.506,00 |
| | **Unidade de I&D Principal** | 1. Nome/Designação da Unidade de I&D | Centro de Engenharia Biológica |
| | | 2. Acrónimo | CEB |
| | | 3. Personalidade jurídica | pertence à Universidade do Minho |
| | | 4. Coordenador | Nuno Cerca; diretor@ceb.uminho.pt; 933152721 |
| | | 5. Contactos gerais | Campus de Gualtar, 4710-057 Braga |
| | | 6. Webpage | www.ceb.uminho.pt |
| | | 7. Classificação FCT | Excelente |
| | | 8. Financiamento Base FCT Total | 2.549.294,00 |
| | | 9. Financiamento Programático FCT Total | 485.000,00 |
| | **Outras Unidades de I&D** | 1. Nome/Designação da Unidade de I&D | Centre for Microelectromechanical systems |
| | | 2. Acrónimo | CMEMS |
| | | 3. Personalidade jurídica | pertence à Universidade do Minho |
| | | 4. Coordenador da Unidade | Paulo Mateus Mendes; paulo.mendes@dei.uminho.pt, 962443367 |
| | | 5. Contactos gerais da Unidade | Morada, e-mail geral, telefone |
| | | 6. Webpage | www.cmems.uminho.pt |
| | | 7. Classificação FCT | Excelente |
| | | 8. Financiamento Base FCT Total | 577.494,60 |
| | | 9. Financiamento Programático FCT Total | 285.000,00 |
| | **Unidade de Gestão Principal** | 1. Nome/Designação | Universidade do Minho |
| | | 2. Personalidade jurídica | Fundação |
| | **Outras Unidades de Gestão Participantes** | 1. Nome/Designação | n/a |
| | | 2. Personalidade jurídica | (e.g: Pública, Privada, Associativa, Cooperativa, Fundação, Outra |

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| **B - Constituição da equipa de investigação do LA** | N.º de investigadores integrados com PhD | 150 | |
| | N.º de ETIs integrados | 130,2 | |
| | N.º de técnicos | 20 | |
| | N.º de doutorandos | 180 | estimativa |
| | N.º de outros colaboradores com PhD | | |
| | N.º de outros colaboradores sem PhD | | |

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| **C - Missão do LA** | 1. Mission Statement/Objetivos principais | LABBELS is an Associate Laboratory based at the University of Minho linking the 4 well established thematic lines at the Centre of Biological Engineering (CEB) - Industrial Biotechnology, Environmental Biotechnology, Health Biotechnology and Bioengineering, and Food Biotechnology, with the clear-cut expertise in computational modelling, micro/nano fabrication, smart devices integration and testing, of the |

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| **D - Áreas Científicas** | 1. Área Científica 1 | Industrial Biotechnology |
| | 2. Área Científica 2 | Environmental Biotechnology |
| | 3. Área Científica 3 | Medical Biotechnology |
| | 4. Área Científica 4 | Agricultural Biotechnology |
| | 5. Área científica 5 | Electrical Engineering, Electronic Engineering, Information Engineering |

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| **E - Palavras-chave** | 1. Palavra-chave 1 | Industrial Biotechnology |
| | 2. Palavra-chave 2 | Environmental Biotechnology |
| | 3. Palavra-chave 3 | Health Biotechnology |
| | 4. Palavra-chave 4 | Food Biotechnology |
| | 5. Palavra-chave 5 | Microelectromechanical systems |

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| **F - Linhas Temáticas** | 1. Linha Temática 1 | 1. Designação da LT | ***Industrial Biotechnology*** |
| | | 2. Coordenador da LT | José António Teixeira |
| | | 3. Contactos do Coordenador | jateixeira@deb.uminho.pt |
| | | 4. Descrição da LT | TL1 established ambitious goals for the next 5-10 years that contribute to accelerating the decarbonisation of the economy, to the circular economy and to the promotion of biorefineries: 1. to develop a process (TRL 2-3) using microalgae/cyanobacteria, to directly mitigate methane emission while producing value added compounds potentially used in the food industry; 2. to demonstrate and optimize at pilot scale (TRL 4-5) a novel biotechnological process that converts food waste into fish feed ingredients, using biogas produced by AD as intermediate; 3. to develop a nitrogen marine biorefinery. 4. to develop a lignocellulosic biomass biorefinery targeted to obtain biofuels, chemicals and biomaterials and in support of a bio-based economy, namely through CEB's participation in Collaborative Laboratories (e.g. CoLab BioREF) and in Biomass and Bioenergy Research Infrastructure. 5. Production of production of protein active ingredients by fermentation |
| | 2. Linha Temática 2 | 1. Designação da LT | ***Environmental Biotechnology*** |
| | | 2. Coordenador da LT | Eugénio Campos Ferreira |
| | | 3. Contactos do Coordenador | ecferreira@reitoria.uminho.pt |
| | | 4. Descrição da LT | TL2 established ambitious goals for the next 5-10 years, including: 1. to turn the North of Portugal a Water Smart Territory; 2. to promote and support the implementation of Sustainable Biogas Plants linked to nitrogen/phosphorous biorefineries in order to recover energy (biomethane injected in the NG grid) and manage nutrients from agriculture effluents, food waste, biowaste, sewage sludge in single or co-digestion; 3. To implement a program of boosting the energy autonomy in wastewater treatment plants by co digesting, whenever possible, alternative biodegradable waste/wastewater in sludge digesters. A present example is already in place in the WWTP of Paço de Sousa where the energy autonomy increased from 35 to 98% by co-digesting the sewage sludge with an industrial by-product, a strategy that resulted from a collaboration with members of LABBELS. |
| | 3. Linha Temática 3 | 1. Designação da LT | ***Health Biotechnology*** |
| | | 2. Coordenador da LT | Joana Azeredo |
| | | 3. Contactos do Coordenador | jazeredo@deb.uminho.pt |
| | | 4. Descrição da LT | TL3 and TL5 (Microelectromechanical systems) have established complementary goals for the next 5-10 years to address two major health related strategic challenges, as detailed bellow: 1. Aging and quality of life. Development of electronic devices coupled to biologic sensors for fast, early and accurate identification of diseases, such as cancer, infectious diseases and neurological disorders. 2. Digital society. To promote the deployment of internet of things everywhere, from logistics to healthcare sector. 3. Development of health related principles for application of hair and skin cosmetics. |
| | 4. Linha Temática 4 | 1. Designação da LT | ***Food Biotechnology*** |
| | | 2. Coordenador da LT | António Vicente |
| | | 3. Contactos do Coordenador | Avicente@deb.uminho.pt |
| | | 4. Descrição da LT | TL4 established ambitious goals for the next 5-10 years, including: 1. Widen and diversifying the business opportunities associated with the efficient and, whenever possible, regenerative use of local resources (particularly those related with e.g. forest biomass and by-products of food processing) 2. Implementing programmes oriented to support the creation of pilot-scale, prototypes or scale-up solutions targeting the objective of achieving a circular bioeconomy 3. Supporting research and innovation linked to biodiversity projects in this area (e.g. the RCI Project Algavalor, or the Mobilizing Project ValorMar) is a clear demonstration of its capabilities in this domain that will be reinforced in the subsequent years (TRL 4-6); 4. Supporting research and innovation linked to food quality control and safety |
| | 5. Linha Temática 5 | 1. Designação da LT | ***Microelectromechanical Systems*** |
| | | 2. Coordenador da LT | José Higino Correia |
| | | 3. Contactos do Coordenador | higino.correia@dei.uminho.pt |
| | | 4. Descrição da LT | TL5 established ambitious goals for the next 5-10 years, including: 1. Digital transition in health. 2. Optimizing the Ocean Government. 3. Ensuring the sustainability of marine resources. 4. Improving communication skills and sensing smart territories and creating a network of smart cities 5. Implementing a transversal platform of Internet of Things sensors in the ports, roads and railways for the hinterland, and autonomous operating equipment, automatically interconnected with the Single Logistics Window and all systems of the actors involved in the logistics networks, managed by advanced cognitive systems, with capacity for decision making in operations and automatic tracking of goods and transport equipment. |