

Center odličnosti
za translacijsko
medicino



Center of excellence
for translational
medicine

artemida.

Advanced Regional Translation of
Excellence into Medical Innovation
for Delayed Aging

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EXECUTIVE SUMMARY

The European Commission announced the grant agreement preparation for the 1st phase of the ARTEMIDA project within the Horizon 2020 WIDESPREAD-2014-1 TEAMING call. The ARTEMIDA project plans the development of a Centre of Excellence for Translational Medicine, a hub for a fully integrated research and innovation cluster for translational medicine in Central and South-East Europe, serving a population of over 100 million. Personalised treatment for aging-related neurodegenerative diseases, diabetes and cancer will be provided by developing regional capacities for identification of clinically relevant disease subtypes, predictive and prognostic biomarkers and novel molecular targets linked to oxidative stress. This research and innovation cluster will be achieved by a partnership between the leading scientific institutions Karolinska Institutet, Sweden and ELIXIR on the one hand and a consortium of foremost Slovenian biomed institutions lead by the University of Ljubljana with support from research and innovation partner institutions from 25 European states.

BACKGROUND

By 2025 more than 20% of the European population will be 65 years old, with the most rapidly growing population group being people over 80. Age-related diseases and disabilities pose an unprecedented challenge for the national healthcare budgets and the EU health systems. Many older people still work, especially in developing countries, where **in 2010, the labour force participation of persons aged 65 years or over was around 31%**. However, there are health disorders, characteristically associated with senescence (e.g., neurodegenerative disease, cancer and diabetes), which reduce productivity, decrease quality of life and impose exorbitant costs to healthcare budgets and society as a whole.

VISION

The vision of the ARTEMIDA (Advanced Regional Translation of Excellence into Medical Innovation for Delayed Aging) project is to develop by 2020 a Central and South-East European (C&SE) **Centre of Excellence for Translational Medicine (CETM)**, coordinated by the Faculty of Medicine, University of Ljubljana, that will harness, develop, exploit and market the significant potential for research and innovation of the region. In the following years the vision of CETM is to **form a hub for the ARTEMIDA network, with CETM collaborators from about 100 biomedical and health-related research and innovation institutions from 17 states in C&SE Europe, 8 additional European states and collaborators from the USA and Japan.**

PARTNERS

This long-term science and innovation strategy will be achieved by establishing a partnership between the leading scientific institutions of **Karolinska Institutet (KI)**, Sweden and **ELIXIR** - Europe's research infrastructure for life science data - and Slovenian institutions **University of Ljubljana**

(Faculty of Medicine as the coordinator, Faculty of Pharmacy, Biotechnical Faculty and Faculty of Arts), National Institute of Biology, National Institute of Chemistry, University Medical Centre Ljubljana, and five SMEs from Slovenia with collaborators from the other regions of C&SE Europe on the other hand. The C&SE European CETM will upgrade, integrate, exploit and market the regions' research and innovation potential in the field of aging with special reference to neurodegenerative diseases, diabetes and cancer. Collaborators from Albania, Bosnia and Hercegovina, Bulgaria, Croatia, Czech Republic, Greece, Hungary, Kosovo, Macedonia, Moldova, Montenegro, North-East Italy, Romania, Serbia, Slovak Republic and Turkey will participate in the CETM endeavours within the ARTEMIDA network enhancing capacities of a combined population of over 100 million.

OBJECTIVES

Scientific evidence supports an epidemiologic association between cancer, diabetes and age-related neurodegenerative diseases and studies are slowly revealing the mechanisms involved. Therefore, the objective of the CETM is to use the Teaming seed money to **become a C&SE European hub in terms of stimulating inter- and intra-regional networking of research and innovation clusters**, thus promoting collaboration on large scale research and innovation grant applications or clinical studies in the field of translational medicine with special focus on the association among cancer, diabetes and age-related neurodegenerative diseases. The interests of collaborators from C&SE Europe are documented in the 77 letters of Support for the CETM ARTEMIDA grant.

EXPECTED IMPACTS OF THE APPROVED ONE-YEAR ARTEMIDA TEAMING ACTIVITY

The expected impacts of the approved one-year activity will provide the necessary foundation in the form of an elaborated business plan for an efficient medium and long term execution of the Project in years 2 to 15. These preparatory activities will have the following impacts:

1. Creation of the **Centre of Excellence in Translational Medicine** as a hub for promoting, supporting, developing and coordinating research and innovation activities in Slovenia and in the wider C&SE European region through the ARTEMIDA network, thus in the long term serving a population of about 100 million.
2. Development of a properly functioning service-oriented administration, based on published ISO standards, as well as an education and training (ISO 10015:1999) system that is customer focused (ISO 10001:2007, ISO 10002:2014, ISO 10003:2007, ISO/TS 10004:2010), with the assistance of the leading scientific institutions KI and ELIXIR, that will promote research and innovation and serve as a model for C&SE Europe.
3. Establishing an internal system for monitoring and improvement of performance (ISO 9004:2009) and for developing and sustaining a corporate culture for the Centre that will promote employee loyalty, and for managing transitions for sustainable development thus ensuring its long term sustainability and contribution to a measurable and significant improvement in the research and innovation culture of the region.

SCIENTIFIC AND INNOVATION RELEVANCE OF THE PROPOSED CETM FOR THE EUROPEAN REGION

World-class biomedical and health-related research and innovation in the 21st century is only possible by combining resources of trained personnel, equipment, infrastructure and know-how on an inter-regional scale into fully integrated research and innovation clusters. **Research at the proposed CETM will focus on identification of clinically relevant disease subtypes, predictive and prognostic biomarkers and novel molecular targets for tailored therapeutic interventions for diseases linked to oxidative stress and age-related diseases and disabilities. Optimization and standardization of clinical and experimental protocols for translational research in the field of pharmacogenomics will enable personalized medicine for cancer, diabetes and neurodegenerative diseases.** Thus a sufficient critical mass of scientific output and resources will be achieved to engage in a path of sustained and innovative growth, building on newly developed capabilities and benefiting the participating regions by creating new, high added-value jobs, attracting investments into the local economy and securing a higher quality of life for the local community.

BENEFITS OF THE PROPOSED CETM

Benefits of the proposed CETM for the wider European region

1. The CETM will address the challenge of an ageing European population and an increasing chronic disease burden of neurodegenerative disorders, diabetes and cancer that are jeopardising the sustainability and equity of European health and care systems.
2. The CETM will contribute to breakthrough research and innovation in biomedical and health-related research with the translation of these findings into preventive, personalized curative, promotional and rehabilitative health care services to improve health outcomes, reduce health inequalities and to promote active and healthy ageing in Slovenia, the C&SE European region and wider area.
3. The advanced partnering organisations **Karolinska Institutet** and **ELIXIR** will provide the expertise and support and this will be combined with the research and innovation potential of the C&SE European region to accelerate the CETM's translational efforts, thus enabling a faster and more comprehensive contribution to active and healthy ageing in the European region.

Benefits of the proposed CETM for Slovenia and the C&SE European region

Although Slovenia and many countries in C&SE Europe have outstanding researchers in the field of biomedical and health-related research their research and innovation potential is limited by the current local policies and practices, size of their national economies and by the national pool of potential subjects available for medical research. These limitations cannot be overcome only by additional training, reorganization or a more efficient use of local resources. The proposed **CETM** will address these limitations by:

1. providing an innovation friendly environment and culture with a strict quality management system (ISO 9001:2008), service-oriented administration, education and training system (ISO 10015:1999) and meticulous project quality management (ISO 21500:2012).
2. upgrading, integrating and exploiting the research and innovation potential in the field of aging with special reference to neurodegenerative diseases, diabetes and cancer in Slovenia and through the **ARTEMIDA** project network also in C&SE Europe thus utilising the capacities of a combined population of over 100 million.

Benefits of the proposed CETM for the leading scientific institutions KI and ELIXIR

Four streams of benefits will accrue to the leading scientific institutions KI and ELIXIR from their association with the CETM:

1. based on the systematic **CETM** efforts to spread the ERA culture in the region, a new valuable source of young and competent researchers from the C&SE European research area will become available to the leading scientific institutions; after a training period at KI or EMBL-EBI (the largest Node in ELIXIR), these young and well trained researchers will be able to choose among several future career paths – continue their work at KI or ELIXIR, return to their native country or continue their careers at other leading scientific institutions in Europe or in the USA;
2. access to a C&SE European pool of patient data for clinical studies;
3. a fresh flow of new research and innovation approaches from qualified scientists from the C&SE European research area to the leading scientific institutions;
4. new partners that will be willing and qualified to participate in research and innovation actions initiated by KI or ELIXIR.

FURTHER STEPS

Submission of the detailed business plan for the **ARTEMIDA** project to the **European Commission** for the full funding approval in 2016.