CELSA
Central Europe Leuven Strategic Alliance

CELSA - Collaborative research project - Application form - COVER PAGE

1. Identification of the principal investigator – co-ordinator
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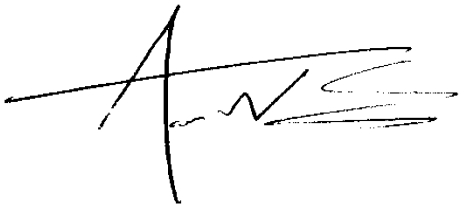
Signature[1]: 

2. Identification of the second investigator
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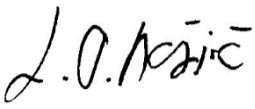
Signature[1]: 

3. Identification of third and fourth co-investigator(s) (if applicable) Expand table if more than four research units are involved.	
Third co-investigator	**Fourth co-investigator**
Full name:	Full name:
Faculty/Department:	Faculty/Department:
Research unit within Faculty/Department:	Research unit within Faculty/Department:
Address:	Address:

University:	University:
Tel:	Tel:
Fax:	Fax:
email:	email:
Signature[1]:	Signature[1]:

[1] Faxed signatures will be accepted.

3. Non confidential and public friendly summary (max. 2000 characters)

Project title:

Discovery of new leads modulating voltage gated potassium ion channels as emerging cancer targets

Summary:

Cancer remains an important cause of mortality and economic losses worldwide. Conventional cancer therapies are often limited by severe side effects and resistance development. For an improved cancer therapy approach, a permanent need for the discovery of new-generation, refined anticancer agents is needed, as well as the elucidation of novel cancer targets.

This project will focus on the genetic, biological and chemical data available in cancer research of selected cancer types, and forward this knowledge into the design and synthesis of new leads for emerging 'drug-able' cancer targets, in particular the voltage gated potassium ion channels human Ether-à-go-go-1 (hEag1) and human Shaker-type 1.3 (hK_v1.3), for the treatment of non-Hodgkin lymphomas and solid tumours.

It is generally known that K_v1.3 channels regulate the membrane potential of human T lymphocytes and provide the electrochemical driving force for Ca^{2+} influx, which is necessary for important downstream effector functions such as cytokine production and proliferation, often implicated in the development of cancer.

The Eag1 channel is also a member of the voltage gated potassium channel family (but not Shaker-type) and is expressed mainly in the brain, at low levels in placenta, testis and adrenal gland, and only transiently in myoblasts. Recently, several studies have suggested that Eag1 is selectively expressed in various tumour tissues: Eag1 plays important roles in cancer proliferation, malignant transformation, invasion, metastasis, recurrence, and prognosis. Therefore, it has become a new molecular target for tumour diagnosis, prognosis evaluation, and cancer-targeted therapy.

The aim of this CELSA project will thus be to develop new selective and high affinity small molecule modulators for the emerging cancer targets hK_v1.3 and hEag1, using drug-design methods with the aid of new homology models of human K_v1.3 and Eag1 channels.

4. List 5 key words

cancer, computer-aided drug design (CADD), anticancer leads; voltage gated potassium channel (K_v1.3); Ether-à-go-go-1 potassium channel (Eag1)