CK2-dependent cytoskeletal regulation and molecular signaling of Neutrophil Extracellular Trap (NET) formation

Fact Sheet

Project Information

COAGULANT

Grant agreement ID: 796365

Project website

DOI
10.3030/796365

Project closed

EC signature date
2 May 2018

Start date
1 September 2018

End date
31 August 2021

Funded under
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost
€ 239 860,80

EU contribution
€ 239 860,80

Coordinated by
EBERHARD KARLS UNIVERSITAET TUEBINGEN
Germany

Objective

Platelets play an essential role in hemostasis but are also critically involved in acute arterial thrombotic occlusions leading to myocardial infarction or ischemic stroke and associated tissue fibrosis which are still the major cause of morbidity and disability in the European Union thus causing enormous costs in the health care system.
In the last years there is increasing evidence that primary hemostasis and

inflammatory atherothrombosis are crucially affected by leukocytes. Thereby the neutrophils represent the most abundant type of immune celly as almost 50% of all leukocytes belong to the neutrophil subset. The neutrophil extracellular trap (NET) formation is mainly know as pro-thrombotic factor in arterial thrombosis and is characterized by release of decondensed chromatin with incorporated histones and neutrophil elastases after neutrophil activation. Beside their pro-thrombotic effect, NETs were also recently described as inducer of tissue fibrosis in vivo thus contributing to cardiac tissue damage. Although tubulin and intermediate filament rearrangements in the cytoskeleton and nuclear envelope are a prerequisite for NET formation and chromatin release, nothing is know about the underlying molecular mechanisms and targets hitherto.
Tubulin dynamics and microtubules are known regulators of intermediate filaments in the nuclear envelope thus maintaining the nuclear integrity of cells. Thereby, the ubiquitous Casein kinase 2 (CK2) is an acknowledged upstream molecule of microtubule dynamics and stability in a wide variety of cells. For this reason, the role of the CK2 in microtubule and intermediate filament dynamics during NET formation and its impact on thrombo-occlusive tissue fibrosis in cardiovascular diseases will be investigated resulting in the identification of new molecular structures suitable for improved and personalized treatment of thrombo-occlusive events like myocardial infarction and ischemic stroke.

Fields of science (EuroSciVoc)

medical and health sciences > clinical medicine > angiology > **vascular diseases**

medical and health sciences > clinical medicine > cardiology > **cardiovascular diseases**

medical and health sciences > basic medicine > neurology > **stroke**

Programme(s)

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions MAIN PROGRAMME

H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

Topic(s)

MSCA-IF-2017 - Individual Fellowships

Call for proposal

H2020-MSCA-IF-2017

See other projects for this call

Funding Scheme

MSCA-IF-GF - Global Fellowships

Coordinator

EBERHARD KARLS UNIVERSITAET TUEBINGEN

Net EU contribution

€ 239 860,80

Total cost

€ 239 860,80

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GESCHWISTER-SCHOLL-PLATZ
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Region

Baden-Württemberg > Tübingen > Tübingen, Landkreis

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Partners (1)

PARTNER

CHILDREN'S HOSPITAL CORPORATION

United States

Net EU contribution

€ 0,00

Address

LONGWOOD AVENUE 300
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Activity type

Research Organisations

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 160 130,40

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