

# PANACHE NEWSLETTER

ISSUE  
#1



## editorial

Dear Reader,

Welcome to the first issue of the PANACHE newsletter!

PANACHE stands for “*Production of next generation modulators of pannexins and connexins as novel therapeutics in the treatment of inflammatory cardiovascular, hepatic and joint disease*”. PANACHE is a 4-years multidisciplinary collaborative project funded by the European Union’s Horizon 2020 Future and Emerging Technologies (FET) programme that aims at the development of new anti-inflammatory drugs for the treatment of cardiovascular, liver and joints diseases.

Through this periodic newsletter, we invite you to learn more about the project, including its research teams, results, activities and events. Stay tuned to PANACHE by subscribing to our newsletter, by visiting our webpage and by following us on Twitter, Instagram, Facebook and LinkedIn.

We hope you will enjoy this inaugural newsletter!

The PANACHE consortium.

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## about PANACHE

PANACHE is a 4-years multidisciplinary international project that aims at the development of new anti-inflammatory drugs

The modulation of membrane-bound proteins by drugs is receiving increasing attention from both academia and industry. Among such proteins are pannexin1 (Panx1), connexin (Cx) 43 and Cx32 that form (hemi)channels at the plasma membrane surface. These connexin and pannexin (hemi)channels mediate cellular communication and have emerged as key players in inflammation. This carries translational relevance, as connexin and pannexin (hemi)channel inhibition could represent an innovative strategy for the treatment of a plethora of diseases. However, a hurdle in clinical exploration is the lack of appropriate connexin and pannexin (hemi)channel inhibitors.

PANACHE therefore is a timely project, since it will generate a novel generation of connexin and pannexin (hemi)channel inhibitors as potential drugs. This will be accomplished by joining academic and industrial scientists from the chemical, chemo-informatics and biomedical fields as well as by relying on *in vitro* and *in silico* studies, animal experimentation and testing human material.

PANACHE will allow taking a leap forward to the realization of its long-term vision, namely the production of metabolically robust and selective connexin and pannexin (hemi)channel inhibitors that can be used for the establishment of a generic approach to synergize current therapy of hard-to-treat inflammatory diseases.



### 4 years

1 March 2020 - 29 February 2024



### 3.5 million €

3.503.628,75€ granted by the EU



### 5 partners

1 industrial and 4 academic partners



### 3 countries

Belgium, Spain, Switzerland

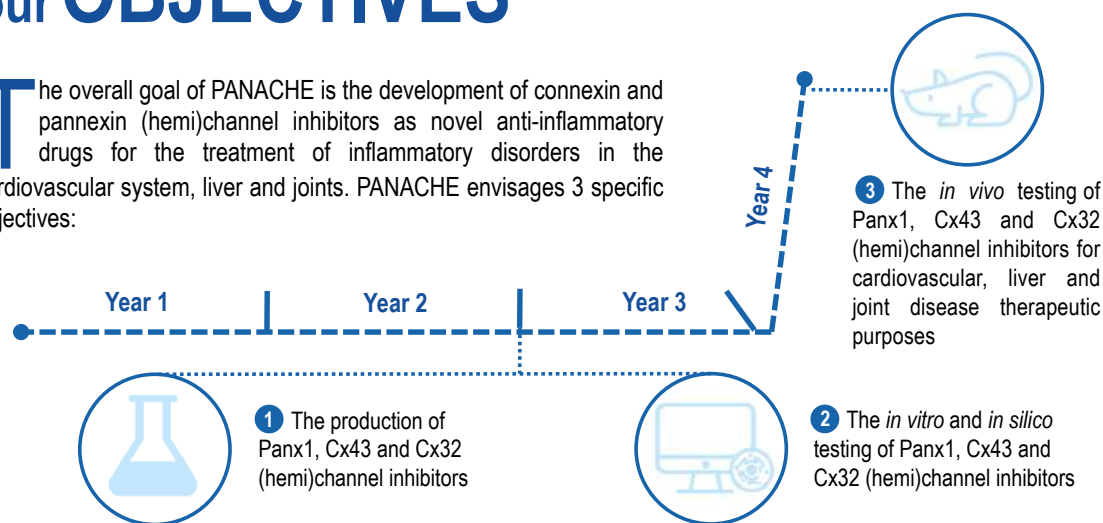
## our VISION

The long-term vision of PANACHE is the production of an unprecedented set of connexin and pannexin (hemi)channel inhibitors that can be used for the establishment of a mechanistically-anchored and generic approach to synergize current therapy of hard-to-treat inflammatory diseases. For proof-of-concept purposes, focus will be put on inflammatory disorders in the cardiovascular system, liver and joints.

The scope of PANACHE is, however, much broader, as these innovative connexin and pannexin (hemi)channel inhibitors are anticipated to be equally applicable for the therapy of a number of other inflammatory disorders in which Panx1, Cx43 and Cx32 are known to be involved. Such applications will be tested in follow-up initiatives of PANACHE, thereby realizing its long-term vision.

## our OBJECTIVES

The overall goal of PANACHE is the development of connexin and pannexin (hemi)channel inhibitors as novel anti-inflammatory drugs for the treatment of inflammatory disorders in the cardiovascular system, liver and joints. PANACHE envisages 3 specific objectives:

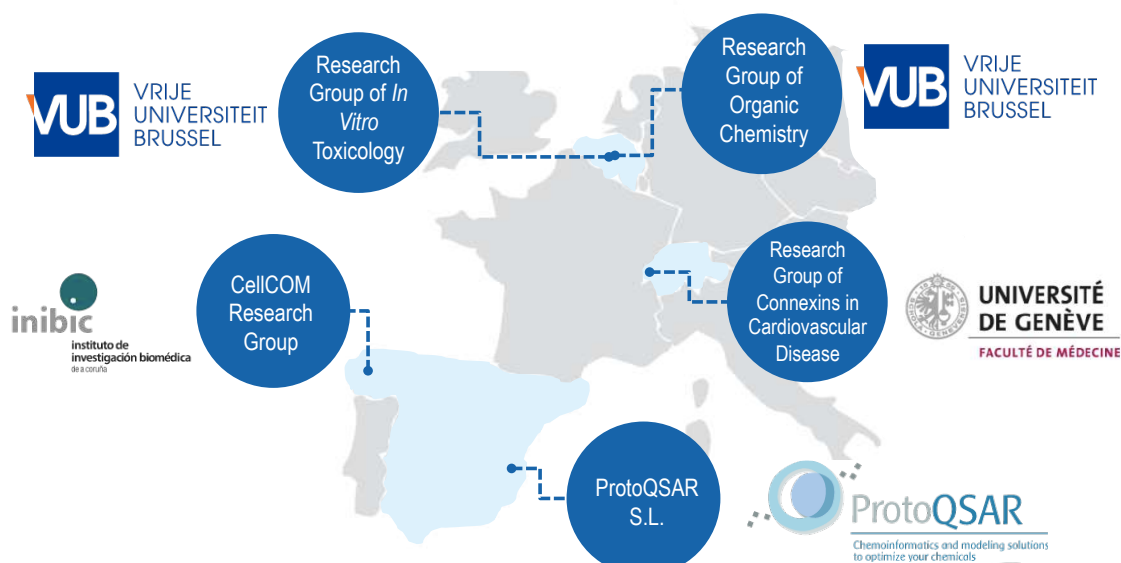


## the CONSORTIUM

The PANACHE consortium consists of 4 academic partners and 1 industrial partner from 3 European countries (Belgium, Spain and Switzerland). The consortium is coordinated by the Research Group of *In Vitro* Toxicology of the Vrije Universiteit Brussel (VUB)-Belgium. The consortium joins experts in 3 different disciplines, namely bio-organic chemistry (VUB Research

Group of Organic Chemistry), chemo-informatics (ProtoQSAR S.L.) and biomedical research, as well as 3 biomedical subdisciplines, in particular cardiovascular (Research Group of Connexins in Cardiovascular Disease), liver (VUB Research Group of *In Vitro* Toxicology) and joint research (CellCOM Research Group).

To learn more about the consortium members please visit [www.panache-project.eu](http://www.panache-project.eu)



## PARTNER in the spotlight

### The Research Group of *In Vitro* Toxicology

The Research Group of *In Vitro* Toxicology is part of the Department of Pharmaceutical and Pharmacological Sciences of the Vrije Universiteit Brussel (VUB)-Belgium.

This team leads 2 research tracks that are both focused on the liver. The experimental hepatology research track investigates connexin and pannexin (hemi)channels as targets and biomarkers in liver disease. The *in vitro*

toxicology research track studies mechanisms of liver toxicity as the basis for the development of liver-based *in vitro* models for safety testing of chemicals.

The team has many publications in international peer-reviewed journals and books, and coordinates several national and international projects, some of which funded by the European Research Council (ERC) and the Marie Skłodowska-Curie Actions (MSCA) programme.



**Prof. Mathieu Vinken, Ph.D., Pharm.D., E.R.T (Belgium)**

Project coordinator of PANACHE. He is associate professor affiliated to the Department of Pharmaceutical and Pharmacological Sciences of the VUB and visiting professor at the Department of Pathology of the Faculty of Veterinary Sciences of the University of São Paulo-Brazil. He has a background in pharmaceutical sciences, holds a doctoral degree in experimental *in vitro* toxicology, is a European Registered Toxicologist and a trained chemical risk assessor. He has more than 170 publications in peer-reviewed journals and coordinates several national and international research projects.

**Andrés Tabernilla, Ph.D. (Spain)**



Postdoctoral researcher at VUB. He is a biologist with a master degree in biomedical research and a doctoral degree in health sciences. With a background in molecular biology, he leads the liver *in vitro* and *in vivo* testing in PANACHE.



**Anne Caufriez, M. Pharm. Sci. (Belgium)**

Predocctoral researcher at VUB. She is a pharmacist with a master degree in drug development. She develops Panx1 channel inhibitors in PANACHE.



**Denise Böck, M. Sci. (Germany)**

Predocctoral researcher at VUB. She has a bachelor degree in chemistry and a master degree in biochemistry. She develops Cx43 (hemi)channel inhibitors in PANACHE.



**Dinja De Win, B. Sci. (Belgium)**

Laboratory technician at VUB. She has a bachelor degree in pharmaceutical and biomedical laboratory technology. She assists in the liver *in vitro* and *in vivo* testing in PANACHE.



**Tâmara Prandini, Ph.D. (Brazil)**

Laboratory technician at VUB. She has a master degree in genetic and molecular biology, and doctoral degree in molecular biology. She assists in the liver *in vitro* and *in vivo* testing in PANACHE.

To learn more about the group and its members please visit [www.mathieuvinken.com](http://www.mathieuvinken.com)

## ROLE in PANACHE

The VUB Research Group of *In Vitro* Toxicology is project coordinator of PANACHE and leader of the liver therapeutic testing work package. The team is responsible for testing the efficacy and selectivity of the connexin and pannexin (hemi)channel inhibitors in liver-based *in vitro* systems. Furthermore, the team will test the connexin and pannexin (hemi)channel inhibitors

in human-relevant mouse models of acute and chronic liver disease either alone or in combination with anti-inflammatory drugs currently used in clinical settings. Finally, as project coordinator, the team is in charge of the dissemination, communication and exploitation of the project activities and results.

## LATEST event

### PANACHE kick-off meeting

The kick-off meeting of the PANACHE project took place on 6 March 2020 at VUB-Belgium. The meeting was attended by all partners from Belgium, Spain and Switzerland.

During the first part of the meeting, an overview was provided of the scientific goals and plan as well as regarding activities related to dissemination, exploitation and communication. Furthermore, practicalities related to financing, meetings and reporting were discussed.

The second part of the meeting was fully devoted to individual presentations by the partners, focused on their background, expertise and role in PANACHE.

Throughout the meeting, several interviews took place and shooting was done for the PANACHE promotion movie, which will be released around summer 2020.

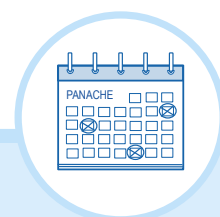
The PANACHE consortium will now start its research activities targeted towards the development and testing of new anti-inflammatory drugs.



#### ◀ Picture of the PANACHE consortium taken during the kick-off meeting

*Front row (left to right):* Támara Prandini, Axelle Cooreman, Anne Caufriez, Mathieu Vinken, María Mayán and Denise Böck. *Back row (left to right):* Andrés Tabernilla, Stephen J. Barigye, Charlotte Martin, Rafael Gozalbes, Steven Ballet, Raf Van Campenhout, Brenda Kwak, Kaat Leroy and Arthur Lamouroux.

## UPCOMING event



### Targeting pannexins and connexins in inflammatory and age-related degenerative disorders

**When:** 5-9 October 2020

**Where:** A Coruña-Spain

**Organizer:** María D. Mayán - CellCOM research group of the Institute of Biomedical Research of A Coruña-Spain

This 5-days international event is focused on pannexins and connexins, and their role in inflammatory and age-related degenerative disorders. The event consists of a symposium with experts

in the pannexin and connexin field, and a satellite workshop, called Science Xpression, recommended for young researchers who want to improve their scientific communication skills.

**For more information about the event please visit [www.scienceexpression.com](http://www.scienceexpression.com)**

# STAY tuned



For all of you who want to know more about connexin and pannexin (hemi)channels, this is your section! You will find a selection of relevant recent publications, including those published by the PANACHE consortium.

## CONSORTIUM publications

**HEPATOLOGY** 

Cooreman *et al.* (IVTD)

**Connexin and pannexin (hemi)channels: emerging targets in the treatment of liver disease**

[Click here to read more](#)

Cell Death  
& Disease

Varela-Eirin *et al.* (INIBIC)

**Targeting of chondrocyte plasticity via connexin43 modulation attenuates cellular senescence and fosters a pro-regenerative environment in osteoarthritis**

[Click here to read more](#)

**SCIENTIFIC REPORTS**

Molica F. *et al.* (UNIGE)

**Pannexin1 links lymphatic function to lipid metabolism and atherosclerosis**

[Click here to read more](#)

## RELEVANT publications selected from PubMed

 eLife

Michalski K. *et al.*

**The Cryo-EM structure of pannexin 1 reveals unique motifs for ion selection and inhibition**

[Click here to read more](#)

Cell Research

Jin Q. *et al.*

**The Cryo-EM structures of human pannexin 1 channel**

[Click here to read more](#)

nature structural  
& molecular biology

Deng Z. *et al.*

**The Cryo-EM structures of the ATP release channel pannexin 1**

[Click here to read more](#)

nature

Medina C.B. *et al.*

**Metabolites released from apoptotic cells act as tissue messengers**

[Click here to read more](#)



## KEEPING UP WITH PANACHE!

Stay tuned to our latest news, results and activities



[www.panache-project.eu](http://www.panache-project.eu)



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FET project PANACHE



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