**An in silico-based approach to improve the efficacy and precision of drug REPurpOsing TRIALs for a mechanism-based patient cohort with predominant cerebro-cardiovascular phenotypes**

# D4.3 Project brochure and professional templates

| | |
|---|---|
| Project acronym: | REPO-TRIAL |
| Grant Agreement: | 777111 |
| Project Duration: | 01 February 2018 – 31 January 2023 (60 months) |
| | |
| Version: | V1 |
| Date: | 20/09/2018 |
| WP Leader: | Hermann Mucke (9 HMPC) |
| Authors: | Magdalena Kosch (10 concentris) |
| | |
| Due date of deliverable | Month 9 (31.10.2018) |
| Actual submission date | 20/09/2018 |

## Abbreviations

| | |
|---|---|
| **UM** | Universiteit Maastricht |
| **UNEW** | University of Newcastle upon Tyne |
| **UKE** | Universitaetsklinikum Essen |
| **MHH** | Medizinische Hochschule Hannover |
| **UMCU** | Universitair Medisch Centrum Utrecht |
| **BIOCRATES** | Biocrates Life Sciences AG |
| **SomaLogic** | Somalogic Limited |
| **HMPC** | Mucke Hermann |
| **concentris** | concentris Research Management GmbH |
| **TUM** | Technische Universität München |

## Table of Contents

## 1. Executive summary

The REPO-TRIAL project uses different channels to inform about the project and increase its visibility:

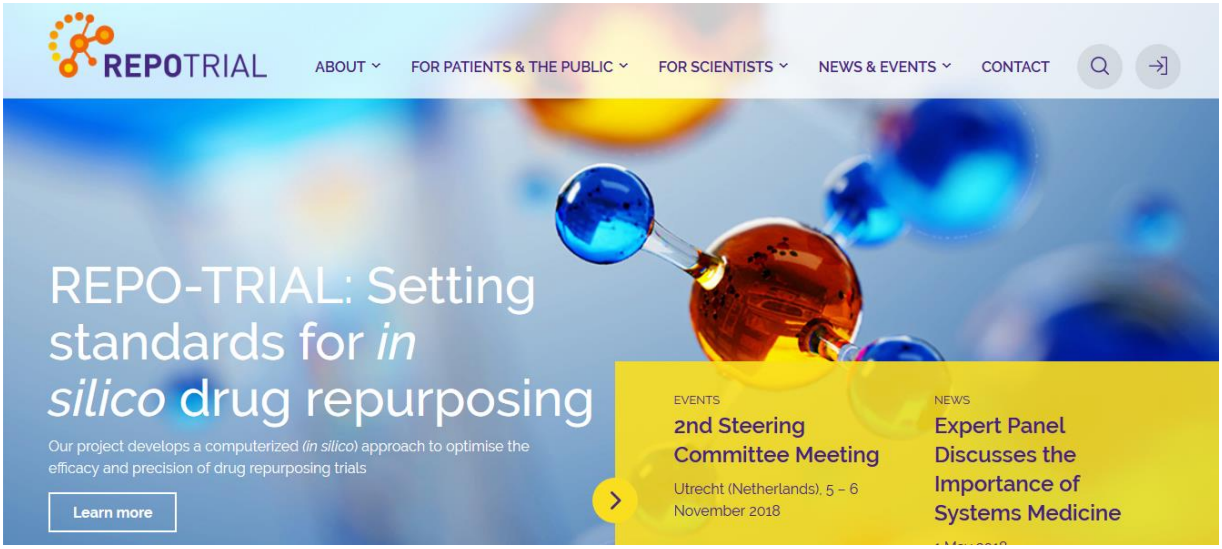
- Project website: https://repo-trial.eu/
- Twitter account: @RepoTrialH2020; https://twitter.com/RepoTrialH2020
- LinkedIN Group: https://www.linkedin.com/groups/13592014
- Project brochure

## 2. Deliverable report

### 2.1. REPO-TRIAL website

REPO-TRIAL developed a project website with a public part which outlines the project and informs on the project activities. In addition to project-specific information, one section is dedicated to the general public, patients and their families providing a brief overview on the topic, as well as a section dedicated to interested scientists as well as contact information of the REPO-TRIAL colleagues.

https://repo-trial.eu/




**Screenshot: REPO-TRIAL website**

### 2.2. Twitter account

@RepoTrialH2020 or https://twitter.com/RepoTrialH2020

The REPO-TRIAL twitter account is used by all REPO-TRIAL colleagues to share their news on the project. The idea is to share micro news and snips of information from all work packages and areas of REPO-TRIAL as well as highlights from the field of research.

Within the coming months we will make great efforts to attract more followers.

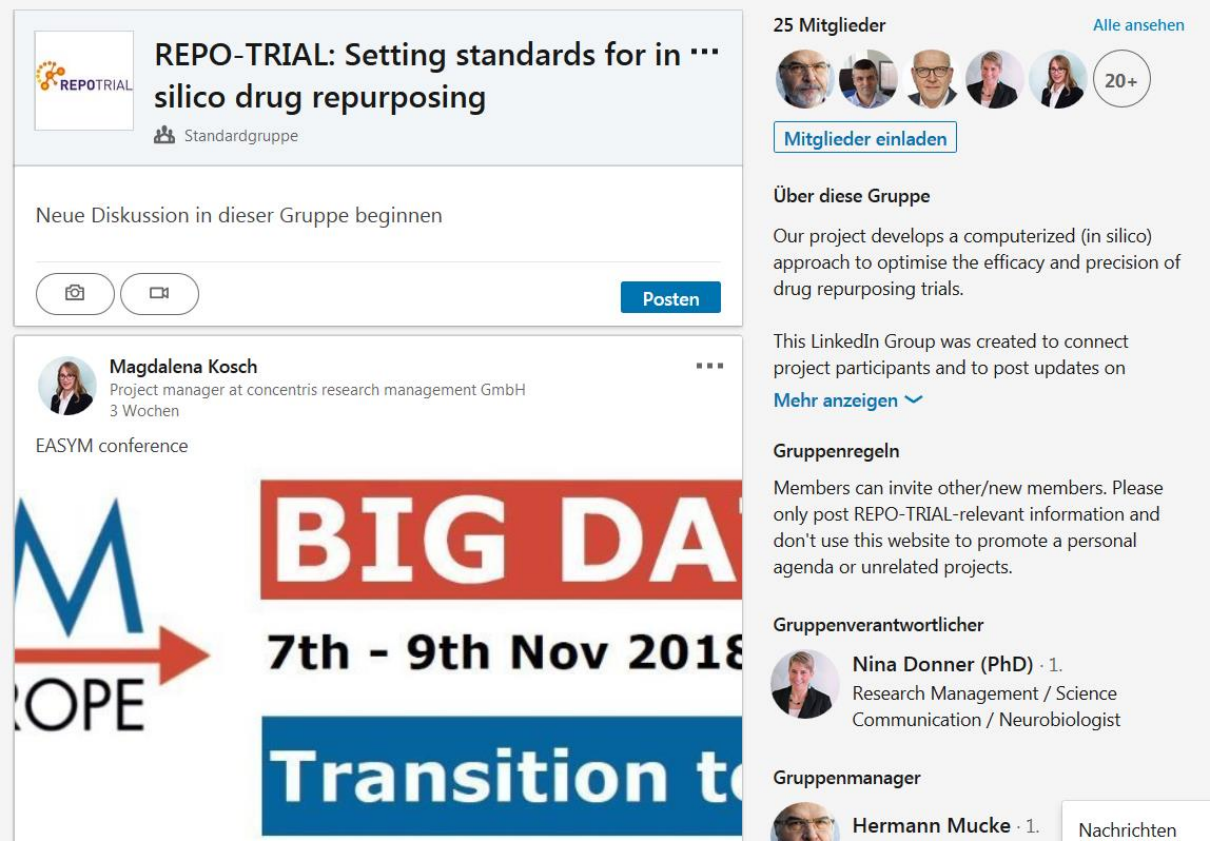

**Screenshot: REPO-TRIAL twitter account**

### 2.3. LinkedIN group

https://www.linkedin.com/groups/13592014

REPO-TRIAL is also represented on LinkedIN with a group where news on the project, news on conferences of interest and interesting articles on the research area are shared. LinkedIN reaches a slightly different audience and we want to increase the visibility of the project using this channel.

As a next step, we will make great efforts to attract members and offer a platform for lively discussion.




**Screenshot: REPO-TRIAL LinkedIn group**

### 2.4. Project brochure

WP4 created a REPO-TRIAL project flyer which serves to introduce the project by outlining our visions and goals as well as summarizing the impact and benefits in a "why it matters" section. The flyer further helps to direct attention to the website, Twitter and LinkedIN group for further information.

It is available as a web and print version which is used for dissemination at conferences, research institutes and information stands (among others), and is also available for download from the website.

The web version of the REPO-TRIAL flyer is attached to this report.

## 3. Acknowledgement and Disclaimer

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 777111.



## 4. Annex: web version of the project brochure

REPOTRIAL

# REPO-TRIAL:
## Setting standards for *in silico* drug repurposing

EFFICACY | PRECISION | SAFETY

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 777111.

# OUR VISION

*De novo* drug design requires 10 to 15 years until market entry. We want to help patients faster and more efficiently. In comparison to *de novo* drug design, drug repurposing can happen much faster, costs less, and imposes a lower risk. The time for validation of a known drug's potential new purpose is significantly reduced because

- less or no animal experiments are required
- clinical studies can be conducted sooner
- potential side effects are already known.

REPO-TRIAL aims to improve the efficacy and precision of predicting new applications for approved drugs by using a revolutionary *in silico* approach. We use computer-based algorithms and an innovative definition of diseases to screen for potentially beneficial effects of approved drugs in mechanistically related disease phenotypes.

We then validate promising *in silico*-repurposed candidate drugs up to the clinical level. The algorithms that we use to identify mechanistically related disease phenotypes may indicate utility in completely different organs or areas of the human body than the original was used for. This systems-based whole-body approach will create virtual patient cohorts.

Finally, we will validate *in silico* repurposed drugs in actual clinical studies with real patients and high precision. Because validation of all new drug repurposing opportunities would be unrealistic, we will focus on a patient cohort that the REPO-TRIAL consortium understands very well. These patients

- display metabolic and cerebro-cardiovascular disease phenotypes, such as stroke, diabetes, Alzheimer's disease etc.
- are positive for a specific panel of diagnostic blood biomarkers that can be measured in the laboratory.

With this approach, we envision to significantly improve two biomedical product classes: drugs and diagnostics. Known drugs may eventually be used to treat diseases beyond their initially intended disease spectrum and beyond the indication(s) that previously justified their application.

Scientifically, REPO-TRIAL will contribute to a deeper understanding of the molecular mechanisms underlying certain diseases that, until recently, were merely categorised by an array of symptoms. In summary, we are confident that REPO-TRIAL will provide rapid patient benefits, reduce drug development time and costs, and decrease overall risk.

*IN SILICO*
DRUG REPURPOSING
HAPPENS FASTER,
COSTS LESS,
AND IMPOSES
A LOWER RISK

## OUR GOALS

- To reduce the size and duration, and increase the precision of human clinical trials by mechanistic, bio-marker-based patient stratification
- To significantly reduce animal testing, and enhance its precision, reproducibility and relevance
- To lower the development costs and shorten the time to market by immediately repurposing relevant registered drugs

## OUR GOALS

- To provide databases of virtual patients with cerebro-cardiovascular disease phenotypes
- To validate our approach by achieving clinical proof of concept in up to three relevant and high medical-need indications of cerebro-cardiovascular disease phenotypes
- To provide open access *in silico* models for similar scenarios to the R&D community

## WHY IT MATTERS

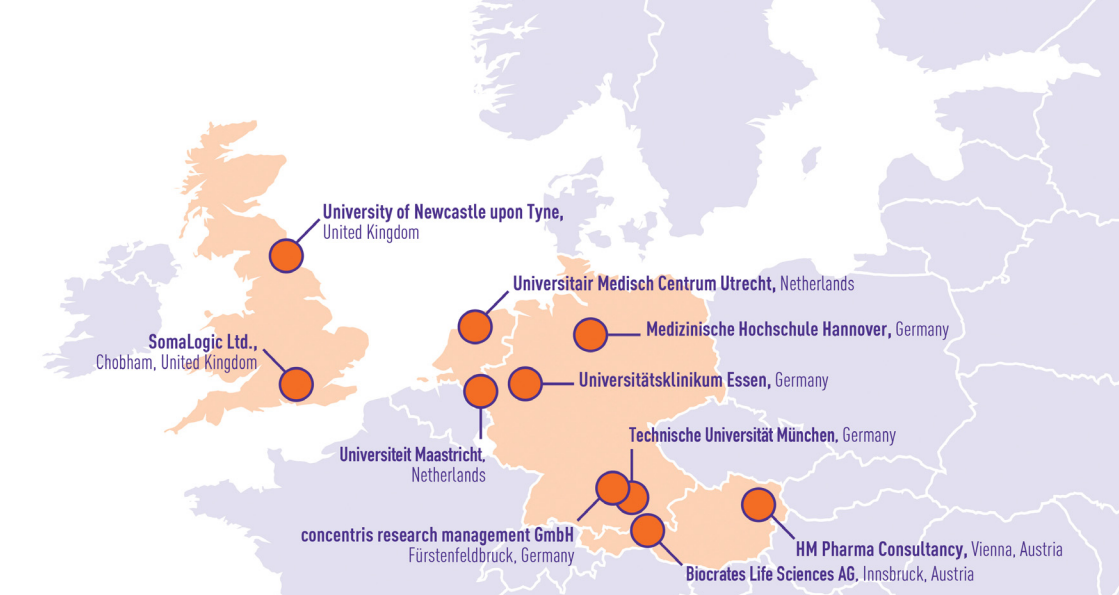
The R&D field faces a serious crisis. The development and approval of novel drugs has slowed down dramatically despite an ever growing mountain of biological knowledge.

At the same time, the costs of R&D have skyrocketed. The average cost until market entry of a new drug is now as high as 3.8 billion US Dollars.

Efficacy and safety are the two key factors determining a successful pharmaceutical outcome, but severe deficiencies in both are the culprits for the current crisis. The observed efficacy is often much lower than the expected one because an alarming disconnect between preclinical and clinical trials exists. Low reproducibility of preclinical experiments, statistical flaws, and a strong publication bias towards positive data worsen the problem.

As a result, many allegedly promising drug candidates don't make it through phase I or II of clinical testing because they don't have a strong benefit-to-risk ratio, and because unwanted side effects, of course, weigh heavier when the desired treatment effect doesn't occur.

Our approach will set new standards for the efficacy and precision of *in silico* drug repurposing.




# MEMBERS

**REPO-TRIAL** is an international, EU-funded research project that brings together 10 transdisciplinary institutions from 4 different countries.

# BASIC FACTS AND FIGURES

| | |
|---|---|
| **FULL PROJECT TITLE** | An *in silico*-based approach to improve the efficacy and precision of drug REPurpOsing TRIALs for a mechanism-based patient cohort with predominant cerebro-cardiovascular phenotypes |
| **START DATE** | 01 Feb 2018 |
| **DURATION TIME** | 5 years |
| **PARTICIPANTS** | 10 institutions from 4 different European countries |
| **EC FUNDING** | 5.5 million € (5,536,775 €) |
| **PROJECT WEBSITE** | www.repo-trial.eu |

# CONTACT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