



RE-Place

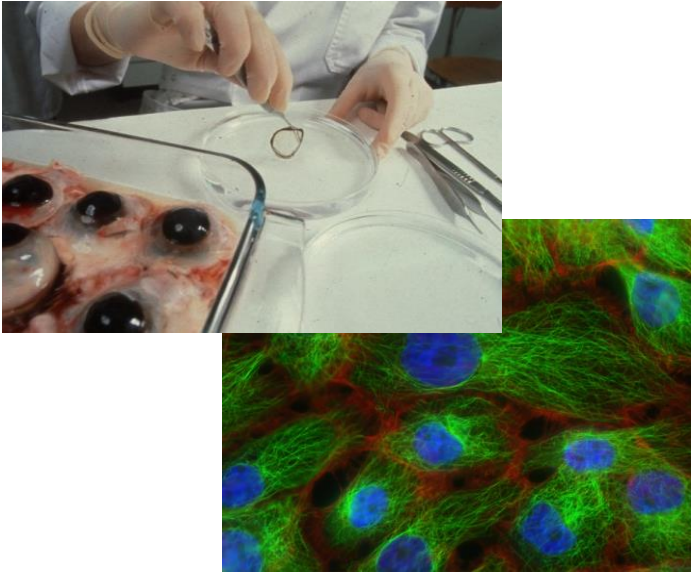
ALTERNATIVE METHODS TO
ANIMAL TESTING

Exploring the use of New Approach Methodologies in Belgium via the RE-Place database

M. Van Mulders, M. Everaert, V. Rogiers, B. Mertens

Mieke.VanMulders@sciensano.be

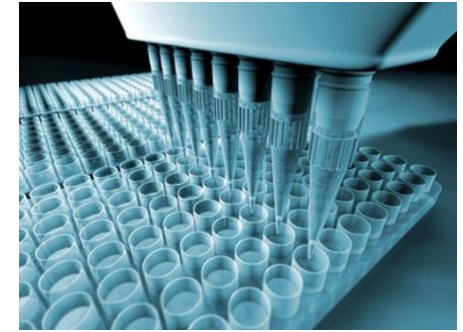
In vitro – ex vivo



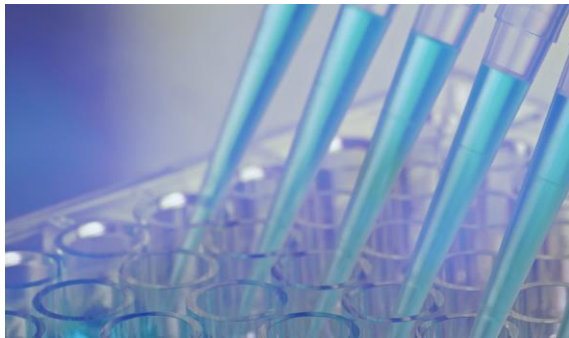
In silico



HTTS & -omics



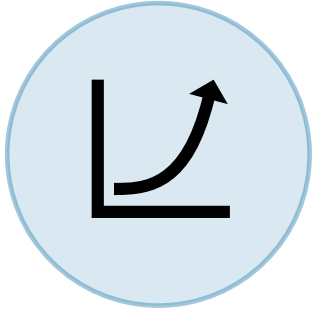
In chemico



Alternative *in vivo* models



Challenges related to the use of NAMs



Development and use is continuously evolving, leading to a lack of standardization



Limited to no regulatory framework



Lack of trust & training in new technologies



Difficult to find relevant, reliable and up-to-date information



Need to centralize all available knowledge



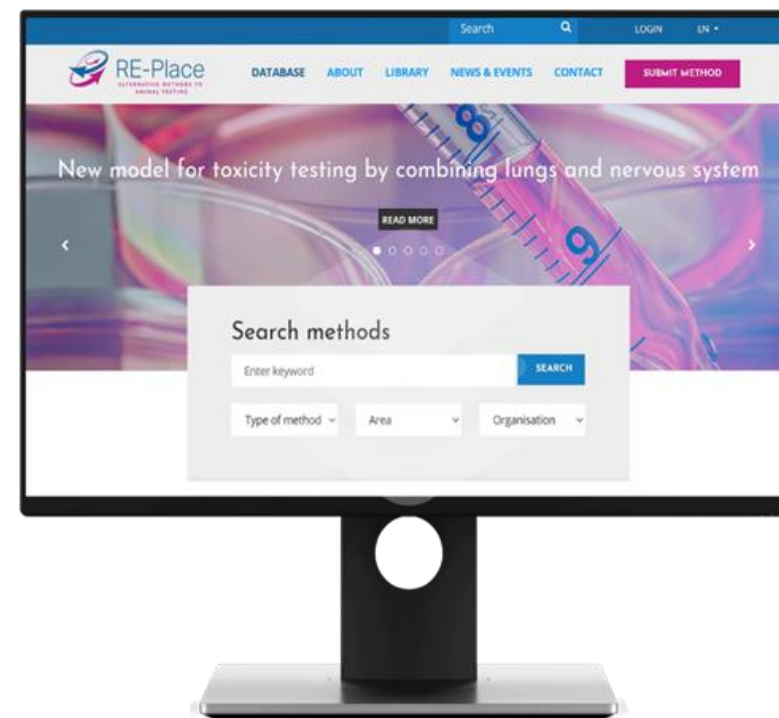
RE-Place

ALTERNATIVE METHODS TO
ANIMAL TESTING

The RE-Place project



Joint Flemish and Brussels initiative in Belgium



www.RE-Place.be

To create an extensive overview of all available expertise of NAMs in Belgium in ONE CENTRAL DATABASE

Call from the Flemish government

**Wetenschappelijk medewerker - Platform alternatieve methoden
dierproeven (m/v)**

WETENSCHAPPELIJK INSTITUUT VOLKSGEZONDHEID - Brussels



2010

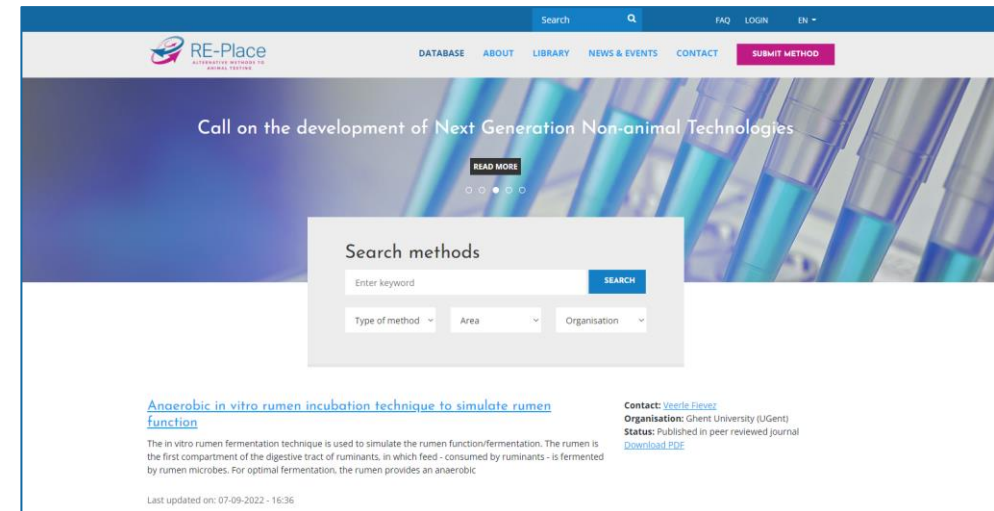
...

2016

Kick-off Symposium



Launch online tool



2010

...

2016

2017

2018

2019

Collaboration with Brussels Environment

Vacancy @VUB

Scientific collaborator for the RE-Place project



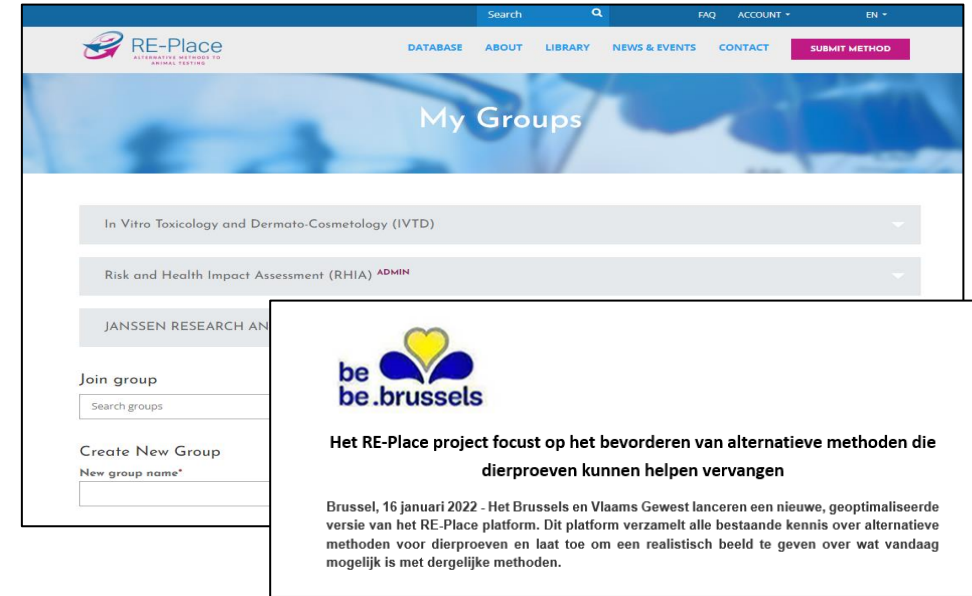
Promote the RE-Place project

Survey



Launch new features

Official Communication



2010

...

2016

2017

2018

2019


2020

2021

Expanding Scientific Impact

Boosting online meetings and
Onsite presentations

RE-Place: A Unique Project Collecting
Expertise on New Approach Methodologies

 Frontiers in Pharmacology
Published on 22 Jun 2022



Boosting Events



2010

...

2016

2017

2018

2019

2020

2021

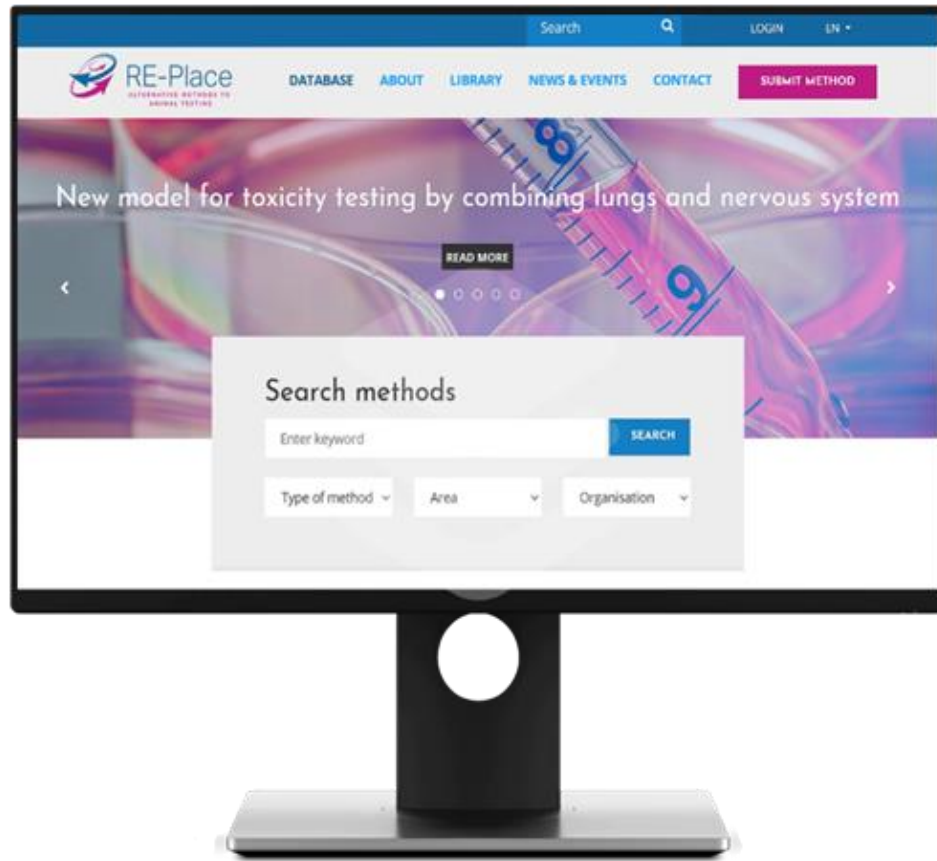
2022

2023

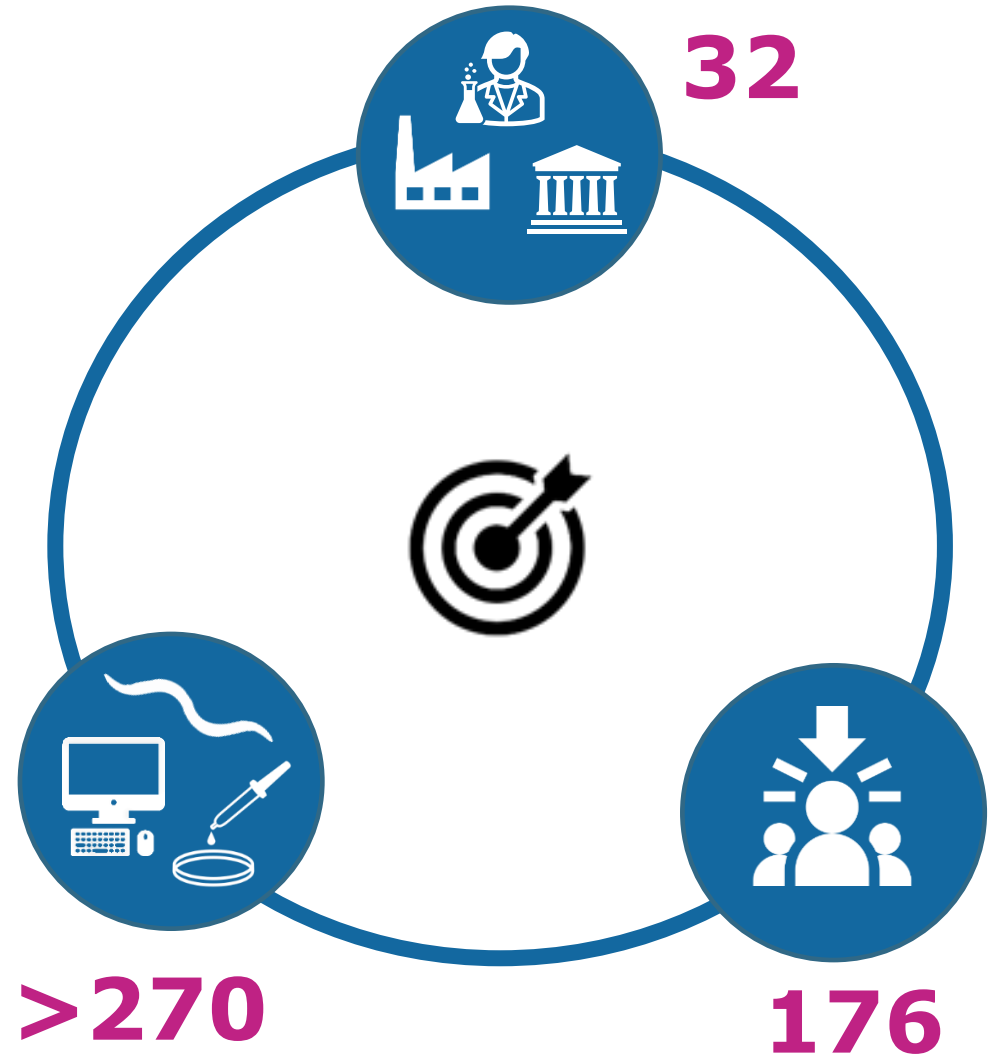


Exploring NAMs in the RE-Place database

Current status of the RE-Place database



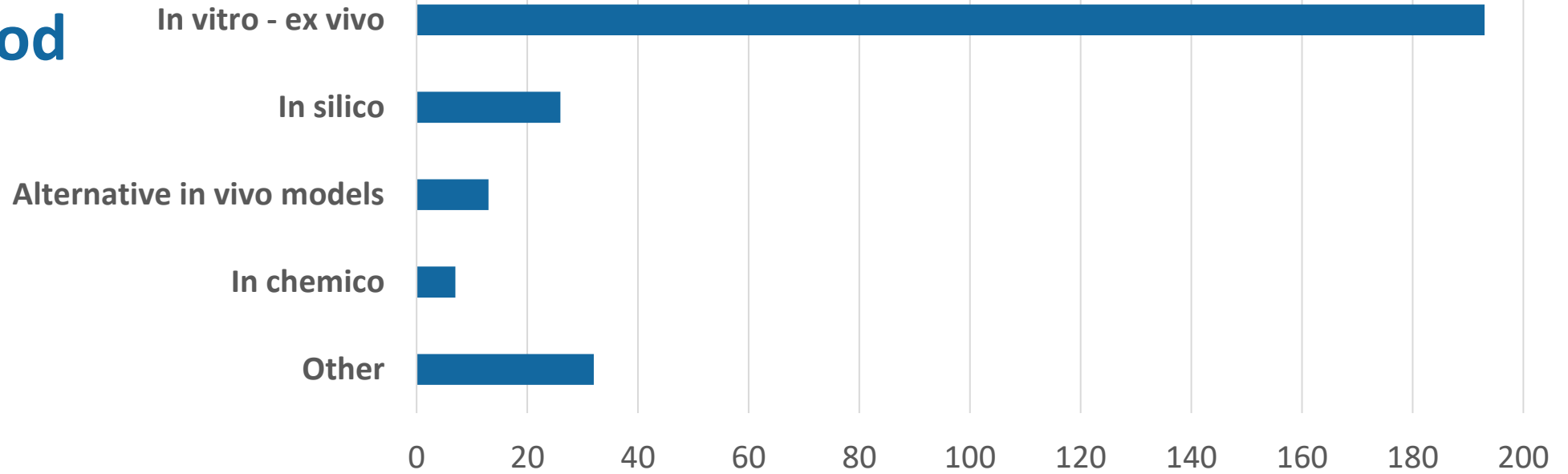
www.RE-Place.be



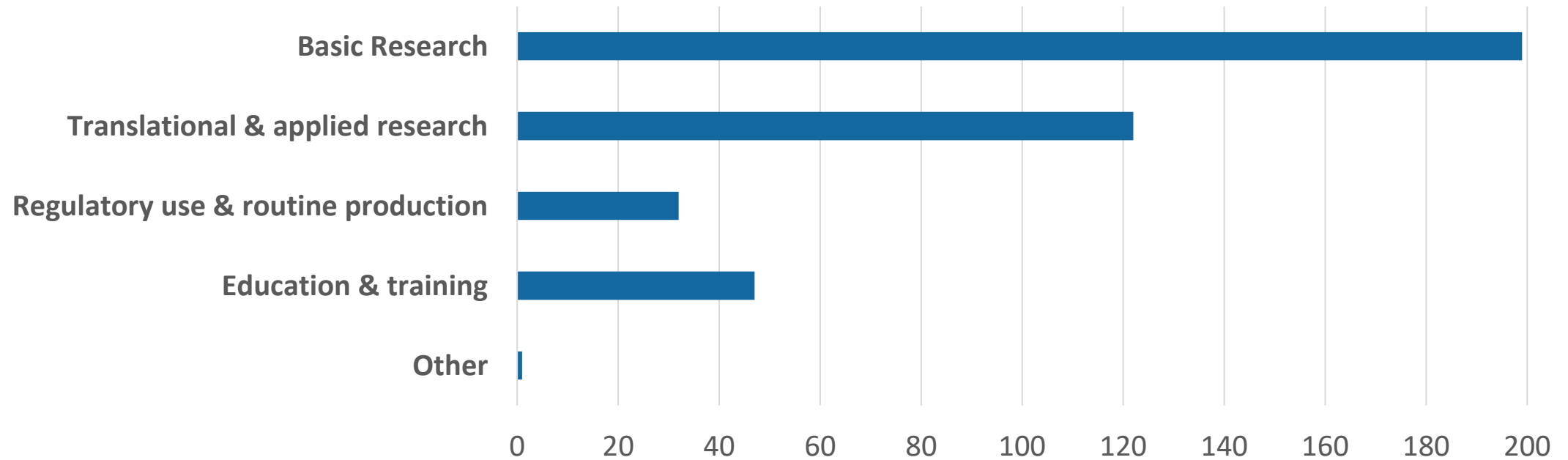
Organizations contributing to the RE-Place database



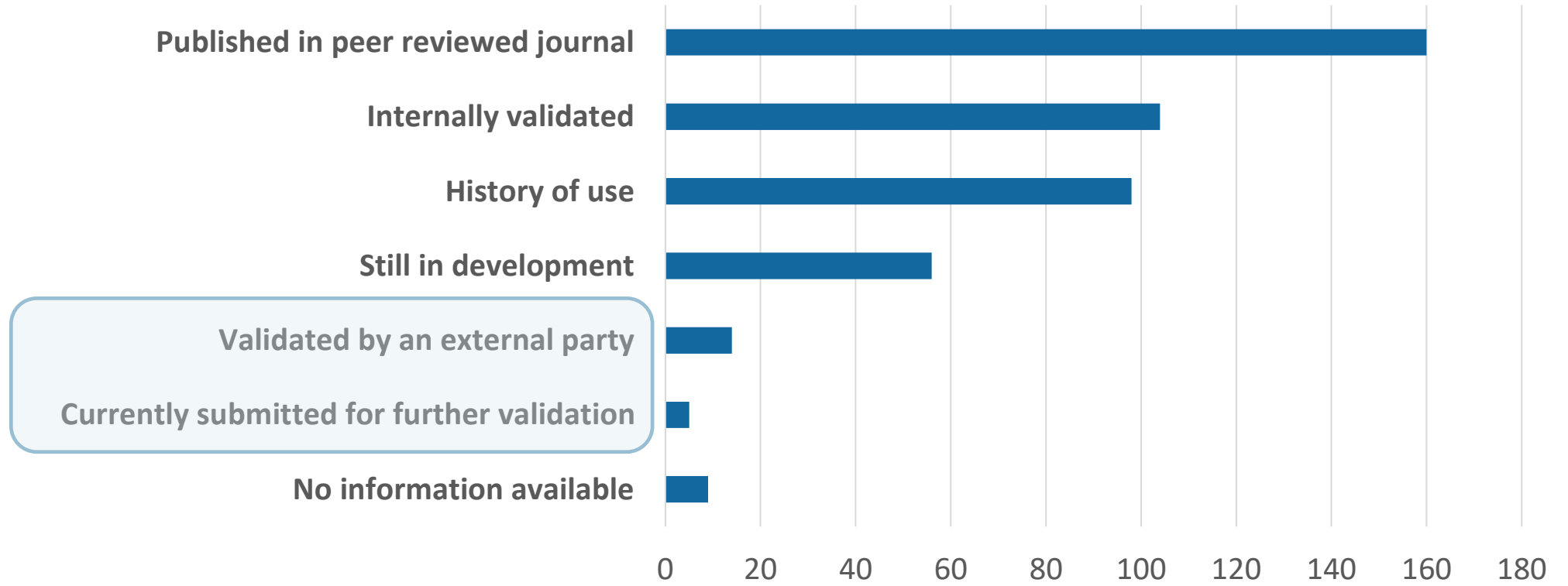
Type of Method



Area



Status





Help us improve transparency in spheroid research

[READ MORE](#)

Search methods

[Gelatin-Based Hybrid Hydrogels as Matrices for Organoid Culture](#)

The application of liver organoids is very promising in the field of liver tissue engineering; however, it is still facing some limitations. One of the current major limitations is the matrix in which they are cultured. The mainly undefined and murine-originated tumor matrices derived from

Last updated on: 22-01-2024 - 17:28

Contact: [Nathan Carpentier](#)

Organisation: Ghent University (UGent)

Status: Published in peer reviewed journal

[Download PDF](#)

[A model of inflamed primary human synoviocytes for the evaluation of compounds in the physiopathology of joint diseases](#)

The culture of primary human synoviocytes provides an excellent cellular model for studying the normal and pathological physiology of synoviocytes and the development of joint diseases. Human primary synoviocytes can either be provided by commercial suppliers or isolated from fresh biological

Last updated on: 17-01-2024 - 11:32

Contact: [Julie Verlings](#)

Organisation: ARTIALIS

Status: History of use, Internally validated

[Download PDF](#)

[Dermatophyte infection of Reconstructed Human Epidermis](#)

The method is about infection of human epidermis in culture by anthropophilic dermatophytes of Trichophyton rubrum species.

Last updated on: 19-12-2023 - 19:21

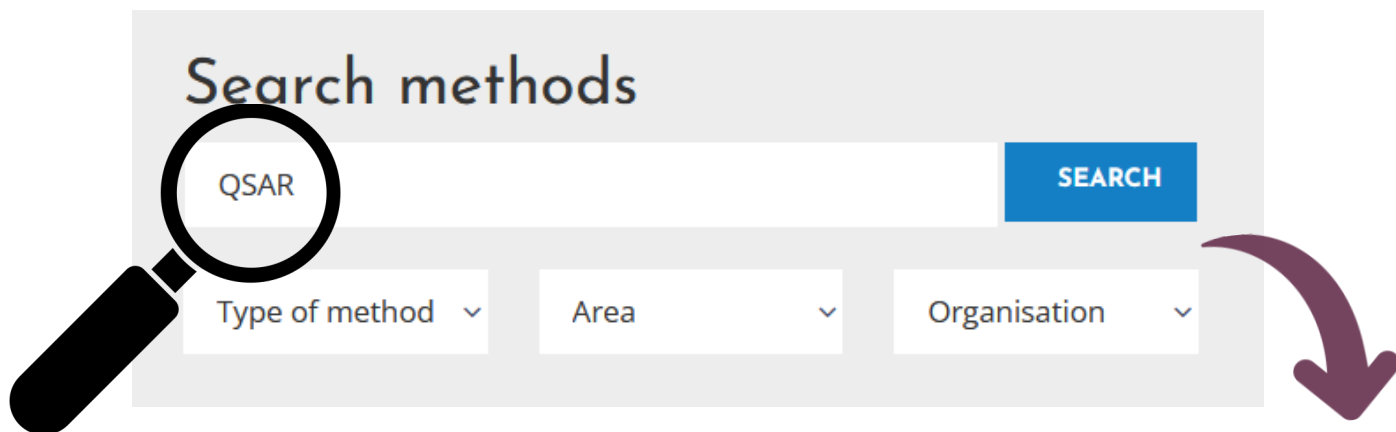
Contact: [Yves Poumay](#)

Organisation: Université de Namur (UNamur)

Status: Published in peer reviewed journal

[Download PDF](#)

1) Search for a specific technology in the RE-Place database



[Prediction of toxicological endpoints by QSAR modeling](#)

Quantitative Structure Activity Relationship modeling is generally used to construct models in which molecular descriptors of chemical compounds are used to predict endpoints/activities of interest. Commercial packages are available that can be implemented, but new models can be constructed if

Last updated on: 16-03-2022 - 13:49

[VERMEER FCM: a tool combining migration modelling and in silico hazard predictions for substances migrating from food contact materials](#)

For the risk assessment of compounds migrating from food contact materials (FCM), information on the exposure to the migrant as well as its possible hazards is needed. To support the evaluation of both starting products and NIAS from plastic FCM, the VERMEER FCM tool has been developed within the

Last updated on: 29-11-2022 - 14:46

Contact: [Geert Verheyen](#)

Organisation: Thomas More University of Applied Sciences

Status: Still in development, History of use, Published in peer reviewed journal

[Download PDF](#)

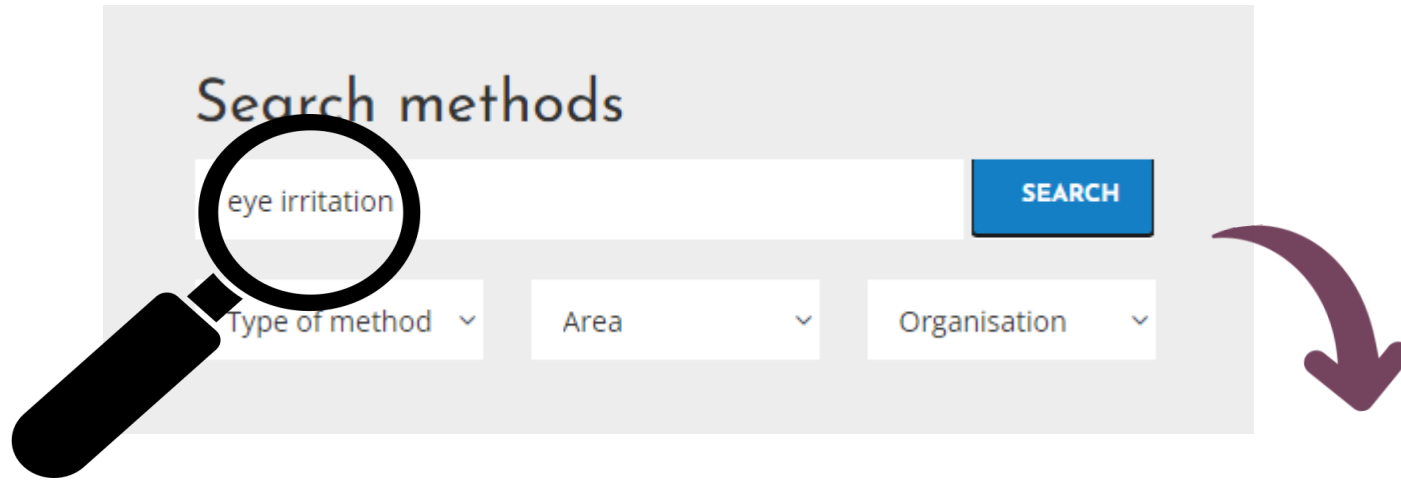
Contact: [Ilse Van Overmeire](#)

Organisation: Sciensano

Status: Internally validated

[Download PDF](#)

2) Search for a specific endpoint in the RE-Place database



[Bovine Corneal Opacity and Permeability Test Method for Identifying i\) Chemicals Inducing Serious Eye Damage and ii\) Chemicals Not Requiring Classification for Eye Irritation or Serious Eye Damage](#)

The Bovine Corneal Opacity and Permeability test method (BCOP) has been fully described in OECD TG 437. It is an in vitro test method that can be used to identify chemicals (substances or mixtures) as either 1) causing "serious eye damage" (category 1 of the Globally Harmonised System for the

Last updated on: 04-03-2021 - 16:26

[Vitreoretinal explant](#)

Retinal gene delivery via intravitreal injection is hampered by various physiological barriers present in the eye of which the vitreoretinal (VR) interface represents the most serious hurdle. We present a retinal explant model especially designed to study the role of this interface as a barrier for

Last updated on: 24-03-2020 - 16:26

Contact: [Sandra Verstraelen](#)

Organisation: Vlaamse Instelling voor Technologisch Onderzoek (VITO)

Status: Validated by an external party (e.g. OECD, EURL ECVAM,...)

[Download PDF](#)

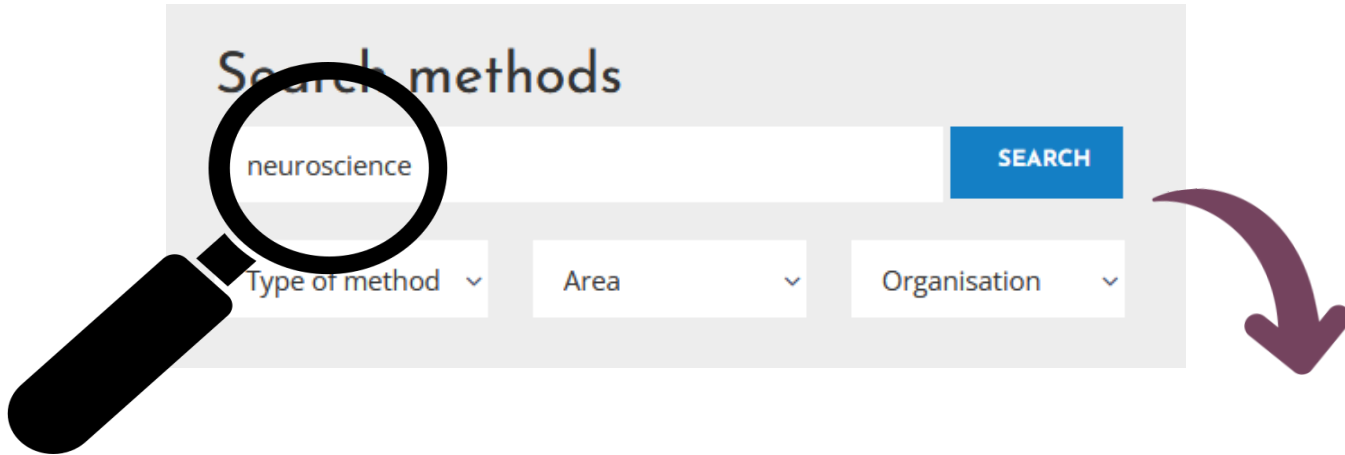
Contact: [Katrien Remaut](#)

Organisation: Ghent University (UGent)

Status: Published in peer reviewed journal

[Download PDF](#)

3) Search for a specific scientific domain in the RE-Place database



[Generation of mature human brain organoids for the study of neurodegenerative diseases](#)

The maturation of the human brain shows species-specific differences of neoteny when compared to lower mammals. This process encompasses a time window that expands from late embryonic stages to early adolescence. Major features of brain maturation are the acquisition of phenotypic complex traits such

Last updated on: 25-09-2023 - 14:38

[Cellular / Slice electrophysiology](#)

In this method, it is possible to use active/viable animal or human brain slices / cells (normal or disease model) to study the effects of different drugs on brain cells (neuron or glia) in diverse brain region.

Last updated on: 16-03-2022 - 14:28

Contact: [Ira Espuny Camacho](#)

Organisation: University of Liège (ULiège)

Status: Still in development, History of use

[Download PDF](#)

Contact: [Surajit Sahu](#)

Organisation: Vrije Universiteit Brussel (VUB)

Status: History of use, Published in peer reviewed journal

[Download PDF](#)



Add filters to refine your search



By Type of methods

Search methods

toxicology SEARCH

in vivo (1) ▾ Area ▾ Organisation ▾

[Fish acute embryo test for evaluation of thyroid hormone system disruption](#)

Thyroid hormone system disruption (THSD) has detrimental effects on both human and environmental health. As a rising number of chemicals are reported to interfere with the thyroid hormone system, there is an increasing need for fast and reliable evaluation methods to test for THSD. Currently,

Last updated on: 27-04-2023 - 16:41



By Area

Search methods

toxicology SEARCH

Type of method ▾ regulatory use - r ▾ Organisation ▾

[From a 3D-model of particle-induced granuloma-like structure to a simple macrophage bioassay predicting granulomagenic and fibrotic activity of particles](#)

Macrophages orchestrate reactive particle segregation, compact aggregates of immune cells and non-immune cells and promote fibrosis-surrounding granulomas. We developed a simple 3D in-vitro model that mimics granuloma formation and categorizes granuloma-inducing inorganic particles. Macrophage

Last updated on: 03-04-2023 - 11:21



Add filters to refine your search



By Organisation

Search methods

toxicology SEARCH

Type of method ▾ Area ▾ kantify (1) ▾

[In Silico ADMET prediction - ZeptoWard](#)

ZeptoWard is a Machine Learning solution (AI) which identifies the ADMET properties of compounds. It can accurately predict over 80 properties related to absorption, distribution, metabolism, excretion, and toxicity properties, how a specific compound or combination of compounds will perform. It can

Last updated on: 21-03-2023 - 13:34

Which type of information can you find in the RE-Place database?

Generation of human breast organoids using primary breast tissue

Scope of the method

The Method relates to
Human health

The Method is situated in
Basic Research

Type of method
In vitro - Ex vivo

This method makes use of
Human derived cells / tissues / organs

Specify the type of cells/tissues/organs
Primary breast tissue

Type of method & area

Method description

The protocol is aimed at developing primary human breast organoids that have a morphology similar to the one observed in the *in vivo* breast. This morphology encompasses a complex network organization composed of interconnected branches that terminate in TDLU-like structures. The organoids are derived from breast tissue reduction mammoplasties (tissue leftovers) by mechanical dissociation, followed by enzymatic digestion of the tissue to obtain small breast tissue fragments that are plated in hydrogels composed of different ECM proteins. By day 5 in culture, these organoids organize into a characteristic stick-shaped organoids. To mimic the menstrual cycle that occurs, on average, every 28 days, these cultures are supplemented with a different medium composition (after day 5) that includes ovarian hormones and other specific growth factors. By combining of the right ECM stiffness, close-to-physiological composition, and growth factor supplementation, breast organoids endowed with a complex morphology can be generated. This *in vitro* model will allow the study of several fundamental questions in the field of human breast biology and concomitantly, the reduction of animal usage.

Method status
Still in development
History of use
Published in peer reviewed journal

Details about the method

Contact person

[Beaunelle de Bruijn](#)

Organisations

Katholieke Universiteit Leuven (KUL)
Oncology
Belgium

Oncology - KU Leuven
Oncology
Belgium

Contact details from expert & organisation

References, associated documents and other information

References

Jelena R. Linnemann, Haruko Miura, Lisa K. Meixner, Martin Irmler, Uwe J. Kloos, Benjamin Hirschi, Harald S. Bartsch, Steffen Sass, Johannes Beckers, Fabian J. Theis, Christian Gabka, Karl Sotlar, Christina H. Scheel; Quantification of regenerative potential in primary human mammary epithelial cells. *Development* 15 September 2015; 142 (18): 3239–3251. doi: <https://doi.org/10.1242/dev.123554>

Sokol, E.S., Miller, D.H., Breggia, A. et al. Growth of human breast tissues from patient cells in 3D hydrogel scaffolds. *Breast Cancer Res* 18, 19 (2016). <https://doi.org/10.1186/s13058-016-0677-5>

Associated documents

Links

[Quantification of regenerative potential in primary human mammary epithelial ce...](#)

[Growth of human breast tissues from patient cells in 3D hydrogel scaffolds](#)

Link(s) to publication or protocols

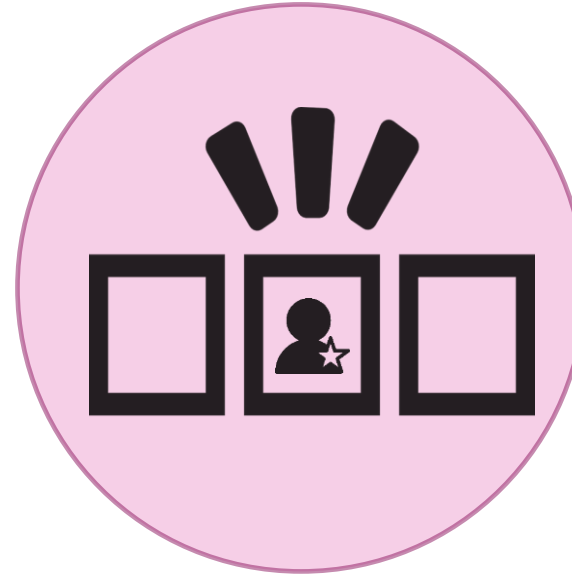


Knowledge sharing on NAMs

RE-Place aims to increase the visibility of..



Progress in the
field of NAMs



Experts working in
the field of NAMs

Via the RE-Place website

RE-Place
ALTERNATIVE METHODS TO ANIMAL TESTING

Search

FAQ LOGIN EN

DATABASE ABOUT LIBRARY NEWS & EVENTS CONTACT SUBMIT METHOD

Help us improve transparency in spheroid research

READ MORE

Search methods

Enter keyword SEARCH

Type of method Area Organisation

[Chick chorioallantoic membrane model](#)

Contact: [Luciana Cacciottola](#)
Organisation: Université Catholique de Louvain (UCL)
Status: Internally validated, Published in peer-reviewed journal
[Download PDF](#)

Last updated on: 24-01-2024 - 14:19

07/04/2024 - 10/04/2024

5TH INTERNATIONAL CONFERENCE ON DEVELOPMENTAL NEUROTOXICITY

Konstanz

08/04/2024 - 09/04/2024

3D ORGAN MODELLING IN HEALTH AND DISEASE

21/04/2024 - 23/04/2024

HACKATHON, 'HACK TO SAVE LIVES AND AVOID ANIMAL SUFFERING'

Utrecht [Read more](#)

30/04/2024 - 02/05/2024

CANCER MULTIOMICS AND COMPUTATIONAL BIOLOGY

Rehovot [Read more](#)

News

[Present your work during our Educational Webinars](#)

Posted on: 26/01/2024

[Monotonic dose-response testing for Nanomaterial toxicity](#)

Posted on: 21/11/2023

[Help us improve transparency in spheroid research](#)

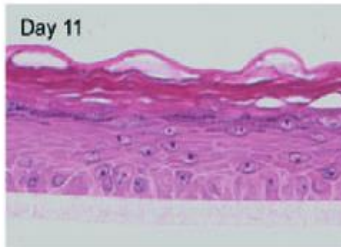
Posted on: 18/01/2024

[Highlights of the Joint 3R Symposium](#)

Posted on: 10/11/2023

Via the RE-Place newsletter

Methods in the Spotlight



Source: Frankart et al., 2012

Contact: Yves Poumay - UNamur

Reconstruction of Human Epidermis in Culture

This research group from the University of Namur cultures human epidermal keratinocytes and seeds them for tissue reconstruction at the air-liquid interface of a polycarbonate porous membrane. This model allows the production of human epidermal organoids and can be used to study the epidermal barrier in normal and pathological conditions. Other cell types like melanocytes can also be added to the reconstruction.

[More information](#)



Second Educational Webinar

Lea Hieronimus (UCLouvain)

From a 3D-model of particle-induced granuloma-like structure to a simple 2D-macrophage bloom predicting granulomagenic and fibrotic activity inhaled particles



Dr. Amar Van Laere

Metabolism and Health Effects of a CACO-2/HepG2 Coculture

Join us on Thursday the 14th of September

In order to promote the use of alternatives, we are organizing a series of Webinars, open to all interested parties including scientists and the public. Every session, two scientists will be given the opportunity to present their work. In the upcoming session, Lea Hieronimus (UCLouvain) and Amar Van Laere (UNamur) will present their PhD thesis topics, respectively the development of a 3D granuloma-like structure and the evaluation of metabolite production in a CACO-2/HepG2 Coculture.

Did you miss our first webinar? It is now available on our [YouTube channel](#).

[Register here](#)

Revision of the Guideline on the Principles of Regulatory Acceptance of 3Rs Testing Approaches



The European Medicines Agency (EMA) published a concept paper on the revision of the guideline on the principles of regulatory acceptance of 3Rs (replacement, reduction, refinement) testing approaches. The current guideline, adopted almost 7 years ago, aims to encourage stakeholders and authorities to initiate, support and accept development and use of 3Rs testing approaches. Due to the recent progress in scientific and regulatory knowledge, the guideline has been revised to provide specific acceptance criteria for example NAMs in defined contexts of use relevant to pharmaceutical development. The 3R working group of the EMA invites all stakeholders to give their [feedback](#) on this draft document during the public consultation period until 28 February 2024.

[More information](#)

Advanced course in reproductive toxicity testing

The Belgian Society of Toxicology and Ecotoxicology (BelTox) is organizing an advanced course on Reproductive Toxicity Testing themed NAM-based testing approaches. Topics include a comprehensive overview of DART testing, a deep dive into the revision of ICH guideline S5(R3) on the safety testing of pharmaceuticals, the 3R testing approaches and NAMs for reproductive toxicity testing of pharmaceuticals and chemicals, the qualification of alternative testing approaches for detecting MEFL, etc.

[More information](#)



Via the RE-Place social media channels



RE-Place, central database of New Approach Methodologies

634 abonnés
1 mois • 🔒

👉 Are you working with [#organonchip](#)? Are you interested in their validation? Did you know that EURL ECVAM created a catalogue of resources on organ-on-chip technologies?

These resources have been developed in collaboration with the Regulatory Advisory Board (RAB) and the European Organ-on-Chip Society ([EUROoCS](#)) support [#validation](#) and [#qualification](#) of organ-on-chip.

You can find the catalogue via the link in the comments 📌

[#Ooc](#) [#microfluidics](#) [#NAMs](#) [#alternativemethods](#)



Highlights Status report EURL ECVAM 2022

15 vues • il y a 7 mois



RE-Place, open access database collecti @REPLACEdat · Dec 1, 2023 ...

🐞 Do you have an idea to improve [#R&D](#) and reduce reliance on [#animalmodels](#) or [#refine](#) their use?

✉ Contact the CRACK IT team at crackitenquiries@nc3rs.org.uk

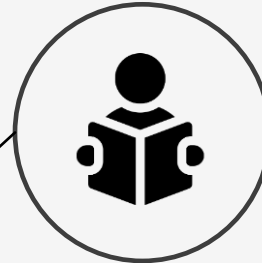
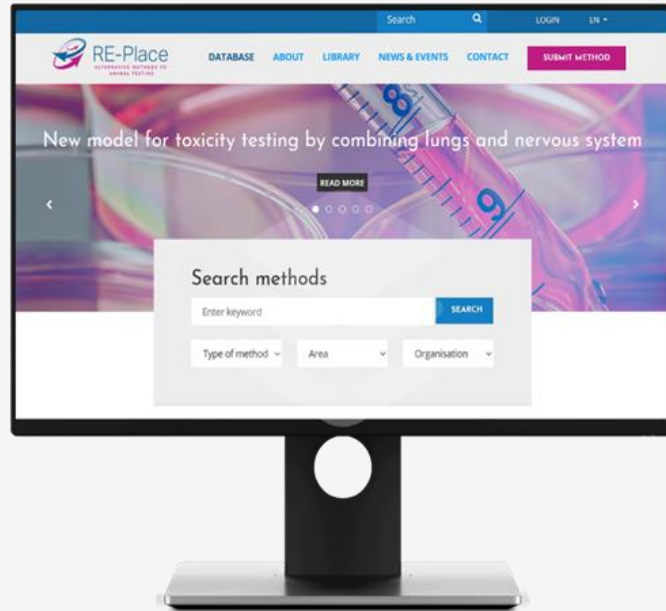
📅 Deadline for applications: Friday 16 February 2024



🗨️ 🔄 ❤️ 2 📊 36 📌 📤



RE-Place: knowledge sharing platform on NAMs



Learn more



Promote expertise

www.RE-Place.be
info@RE-Place.be