



The EU Reference Laboratory for alternatives to animal testing (EURL ECVAM) of the European Commission's Joint Research Centre

**Webinars 'Novel in-vitro model as alternative to in-vivo toxoid
vaccines testing: *Clostridium septicum* vaccine as proof of concept',
9 & 10 March 2021**

*Marlies Halder and colleagues
EC, Joint Research Centre, Italy*



JRC Mission

As the science and knowledge service of the Commission
our mission is to support EU policies with independent evidence
throughout the whole policy cycle.

JRC sites

Headquarters in **Brussels**
and research facilities located
in **5 Member States**:

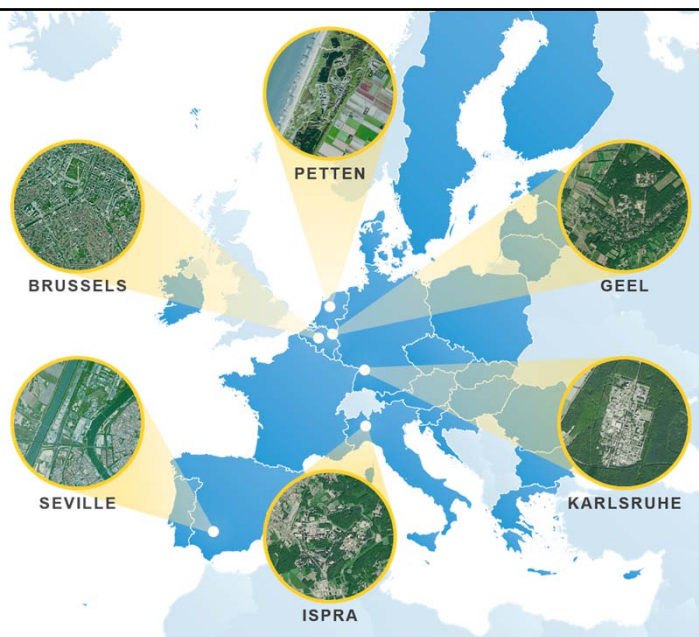
Belgium (Geel)

Germany (Karlsruhe)

Italy (Ispra)

The Netherlands (Petten)

Spain (Seville)



3



Duties and tasks of EURL ECVAM

Directive 2010/63/EU on protection of
animals used for scientific purposes



Validation



Research



Dissemination



Promotion

Replacement, Reduction and Refinement of animal use in science

4



EU report on the statistics on the use of animals for scientific purposes

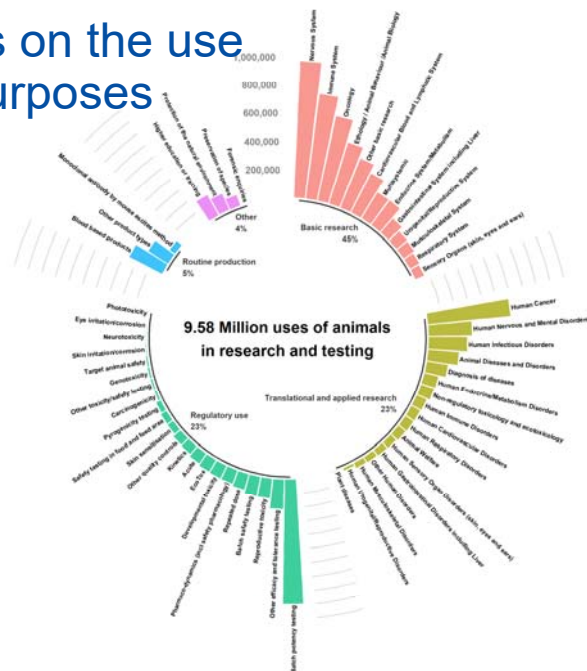
Research represents **68%** of animal uses for scientific purposes

Regulatory use accounts for **23%**

Quality control related use: **11.8%**

	2015	2016	2017
Batch potency testing	1,032,235	945,013	892,723
Batch safety testing	228,817	152,443	139,602
Other quality controls	24,931	81,280	64,083
Pyrogenicity testing	46,553	39,434	35,172
Total	1,332,536	1,218,170	1,131,580

Table 2.7: Quality control related uses by type of use



Review of non-animal models used in basic and applied research

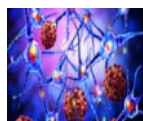
- ❖ Describe state-of-art and build a knowledgebase of models and methods
- ❖ Meta-analyses to understand approaches and inform strategies



Immunogenicity testing for advanced therapy medicinal products



Cardiovascular diseases



Autoimmune Diseases



Immune Oncology Models



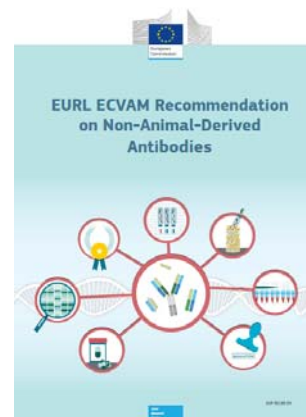
Neurodegenerative Disorders

Better antibodies without using animals?

“Animals should no longer be used for the development and production of antibodies for research, regulatory, diagnostic and therapeutic applications.”

“In the EU, the provisions of Directive 2010/63/EU should be respected and EU countries should no longer authorise the development and production of antibodies through animal immunisation, where robust, legitimate scientific justification is lacking.”

<https://ec.europa.eu/jrc/en/eurl/ecvam/faqs/non-animal-derived-antibodies>



[10.2760/80554 \(online\)](https://ec.europa.eu/jrc/en/eurl/ecvam/faqs/non-animal-derived-antibodies)



IMI2 Project - Vaccine batch to vaccine batch comparison by consistency testing

Vac2vac

- 5-years (03/2016 – 02/2021)
- Public-private consortium with 22 partners
- Aims at development & validation of non-animal methods for the quality control of vaccines
- EURL ECVAM leads workpackage related to validation process
 - Template for method description / qualification
 - Workshop on validation process (<https://doi.org/10.1016/j.biologicals.2018.01.003>)
 - How to move from “old” control strategy to consistency approach based control strategy
 - Small-scale validation studies

www.vac2vac.eu



IMI2 Joint Undertaking
grant agreement
N°115924



VICH Guidelines on criteria for waivers of general batch safety tests

- EURL ECVAM topic leader on behalf of EMA

Animal species	Inactivated vaccines	Live vaccines
Target animals	GL50R (2017) 1 st release in 2013	GL55 (2017)
Laboratory animals (mice, guinea pigs)	GL59 (2020)	

Despite their deletion, general safety tests are still performed in Europe since they may be required outside of Europe!



Collaboration with EPAA, EDQM, NC3Rs/WHO



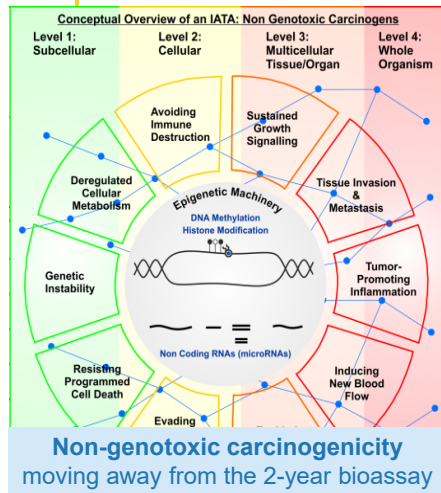
- Clostridial vaccines for veterinary use
- Human rabies vaccines
- Harmonisation of 3Rs in biologicals
- and others ...
- https://ec.europa.eu/growth/sectors/chemicals/epaa/project-platform_en



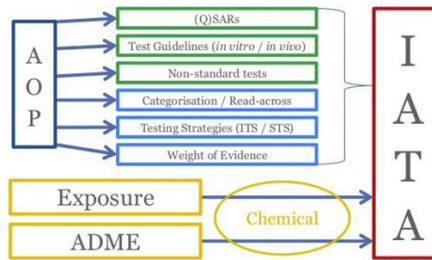
- Review of animal use requirements in WHO biologics guidelines
- <https://nc3rs.org.uk/review-animal-use-requirements-who-biologics-guidelines>



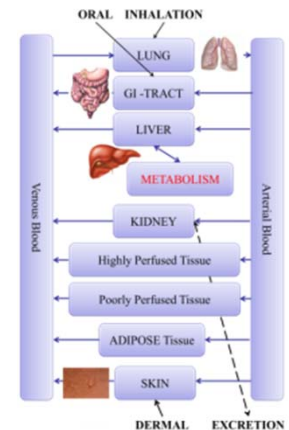
Collaboration with OECD - 1



OECD Guidance on application and interpretation of **in vitro** developmental neurotoxicity (DNT) assays



Overview of Concepts and Available Guidance related to Integrated Approaches to Testing and Assessment (IATA)

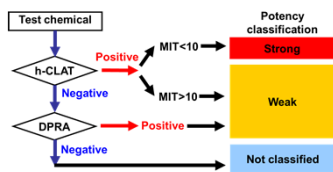


OECD Guidance on the Characterisation, Validation and Reporting of **physiologically based kinetic models**



Collaboration with OECD - 2

Defined Approaches for **skin sensitisation**



Test Guideline 458

Stably Transfected Human Androgen Receptor Transcriptional Activation Assay for Detection of Androgenic Agonist and Antagonist Activity of Chemicals

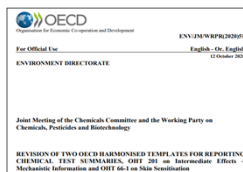
OECD Harmonised Template 201: OHT 201 for Intermediate effects



HCL 0.032 M method
Determination of relative metal release using a simple simulated gastric fluid



- Use and analysis of control fish in fish toxicity studies
- IATA to replace acute fish toxicity test
- TG using fish cells to test acute fish toxicity



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Alternatives at United Nations level The Globally Harmonized System of Classification and Labelling of Chemicals



Informal Working Group on non-animal testing methods



Skin corrosion/irritation ✓



Severe eye damage/eye irritation



Skin sensitisation

Next



Tracking from submission to acceptance

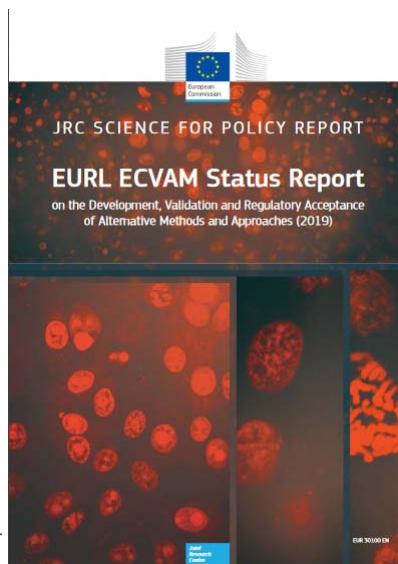
- **TSAR = Tracking System for Alternative Methods towards Regulatory acceptance**
- Methods from ICATM* partners
 - EU, USA, Japan, Canada, South Korea, and Brazil
- Access to method descriptions, key records, status, comments

<https://tsar.jrc.ec.europa.eu/>

*International Cooperation on Alternative Test Methods



More information on our activities



[10.2760/25602 \(online\)](https://ec.europa.eu/jrc/en/science-update/innovation-collaboration-education-drive-progress-alternatives-animal-testing)

<https://ec.europa.eu/jrc/en/science-update/innovation-collaboration-education-drive-progress-alternatives-animal-testing>



Thanks and stay in touch!



ec.europa.eu/jrc



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