

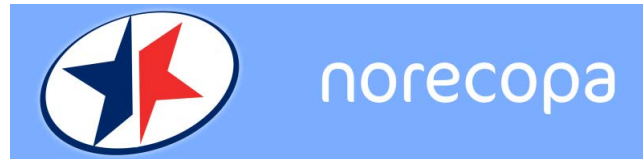
*FELASA Congress  
Brussels, 13 - 16 June 2016*

# **Norecopa: Guidelines, databases and other 3R-resources for animal research**

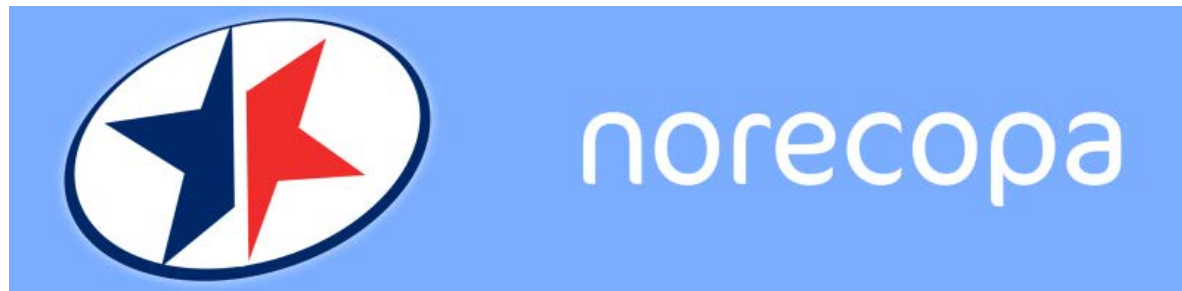
Adrian Smith

[adrian.smith@norecopa.no](mailto:adrian.smith@norecopa.no)

<http://norecopa.no>



National Consensus Platform for the  
Replacement, Reduction and Refinement of  
Animal Experiments



**a competence centre for the 3RS**

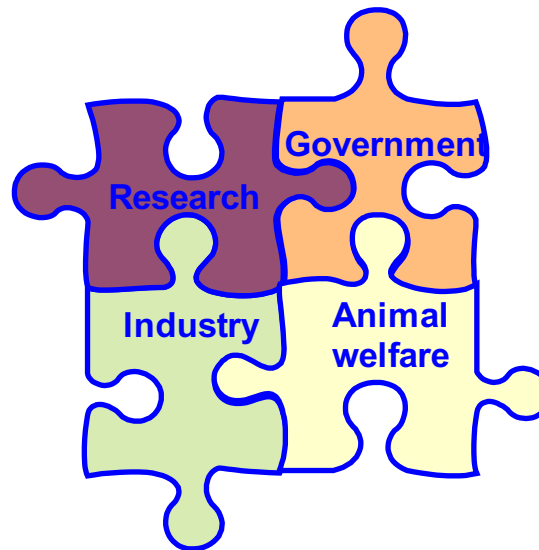
**Norecopa** is a member of **ecopa**

*European Consensus-Platform for Alternatives*

[www.ecopa.eu](http://www.ecopa.eu)



ecopa supports the establishment of National Consensus Platforms (NCPs) where all 4 stakeholders are equally represented:



## ***International consensus meetings***

*Harmonisation of the Care and Use of:*

*Fish (2005)*

*Wildlife (2008)*

*Fish (2009)*

*Agricultural animals (2012)*

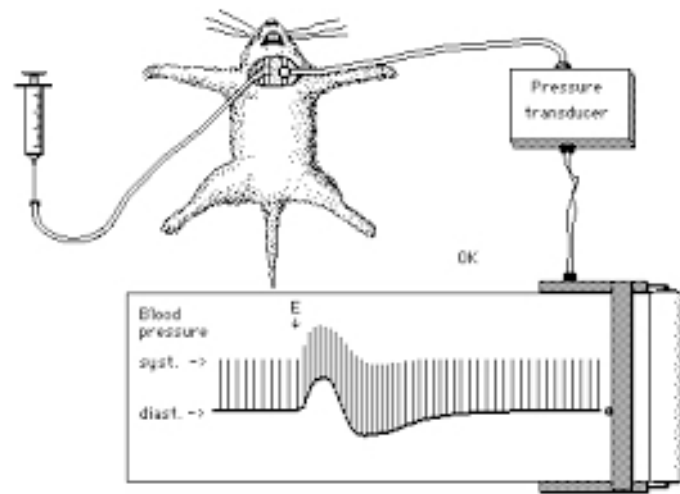
*Wildlife (2017)*

<http://norecopa.no/consensus-meetings>

*All presentations and consensus statements are on the internet: a lasting resource*

**[norecopa.no/FELASA2016](http://norecopa.no/FELASA2016)**

## A brief history



Pharmatutor



1991-96: Development of the NORINA database on Macs, using a simple application. Later sold as a stand-alone, platform-independent version on floppy discs.

1996-2005: Server at the Oslo veterinary school donated by Laboratory Animals Ltd. with a mirror site in Sydney, Australia. All pages written manually in HTML, with separate applications for all the support functions. Frequent crashes!

2005: Content moved to a Microsoft database platform and hosted externally. A separate site built for films and slide shows of procedures on laboratory animals

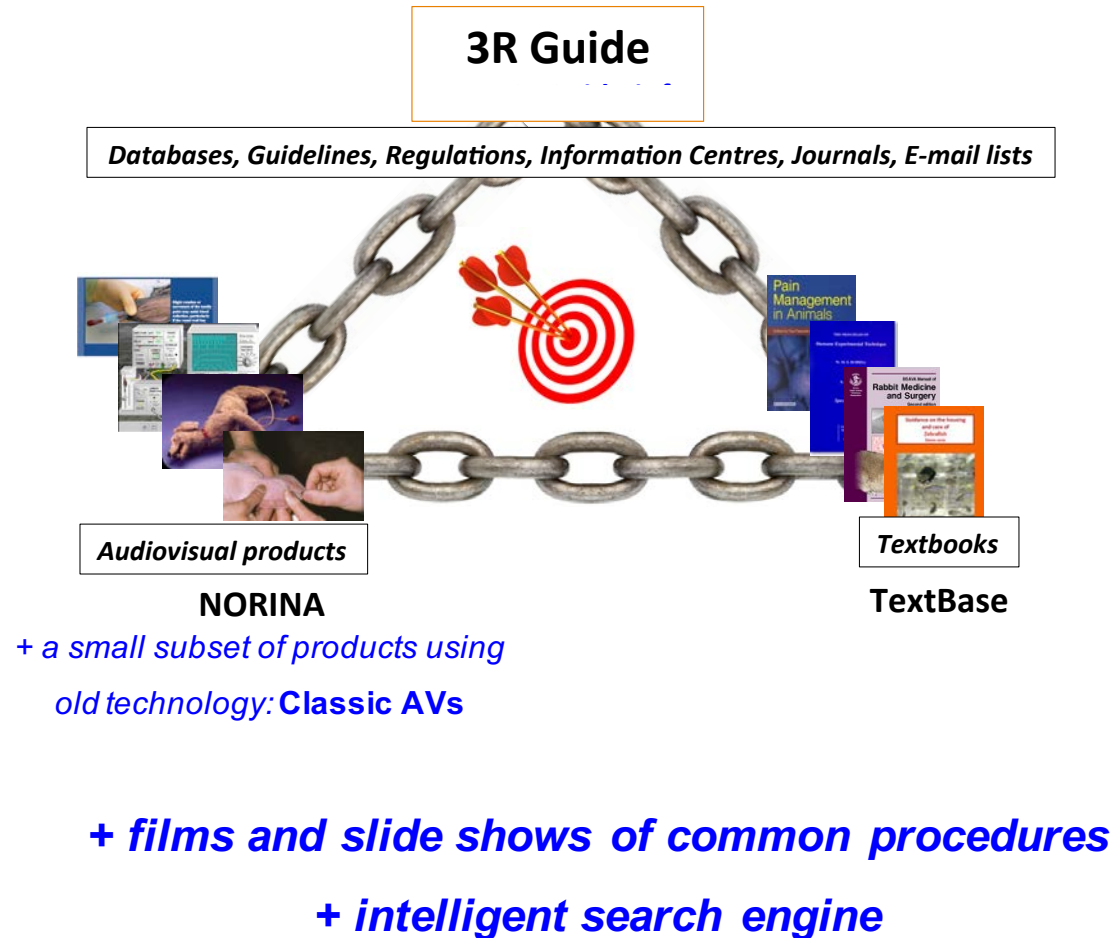
2007: Norecopa founded, with its own website

2015-16: Brand-new website built from scratch, with an intelligent search engine



ECVAM workshop, Neubiberg, Munich, September 1996:  
*Current status and future developments of databases on alternative methods.*

After 25 years, we ended up with 6 resources on different domains using different technologies





## A new website designed in 2015, launched 31 May 2016:



- Responsive – works equally well on mobile phones, tablets and desktop computers
- One (intelligent) search engine for everything – no longer a need to know the names of the databases
- Hand-picked material for quality and relevance to Laboratory Animal Science, 3Rs and welfare – based on 30 years of experience and networking in the field
- Designed to be an answer to the conclusions of so many presentations at congresses: “we need more guidelines”!
- Contains a newsfeed from European media (English- and Scandinavian-language articles on lab animal science)
- Films of common procedures
- The site will be made visually more interesting (with more images), but the focus so far has been on searchable and printable content, not entertainment value





*Some important technical specifications:*

- **Zero tolerance of dead links (404-errors)**

**'Do I have to make new bookmarks for your webpages?'**

**No!**

- **Automatic redirection of**

<http://oslovet.veths.no>

<http://oslovet.nvh.no>

and all the individual pages on these old domains

<http://oslovet.norecopa.no>

[www.3RGuide.info](http://www.3RGuide.info)

- **All searches and use of search filters generate unique and individual addresses, so you can document, and repeat, exactly the same search**



## Your feedback

- I have found a mistake on the current page
- I would like to give my opinion about the website
- I know of a resource which is not cited in 3R Guide
- I know of a product which is not cited in NORINA
- I know of a product which is not cited in TextBase
- I know of a product which is not cited in Classic AVs

**Name**

**Email**

**Comments**

Did you find what you were looking for?

Yes, I found it!

No, I did not!

Did you find what you were looking for?

No, I did not!

What are you looking for?

Please give us your feedback so we can improve the information on the page. Thank you in advance for your help. Please add your email address if you would like a reply.

Submit

Please contact us by email if you have any questions.



norecopa

NORSK ENGLISH

[About Norecopa](#) [Alternatives](#) [Databases & Guidelines](#) [Education & training](#) [Legislation](#) [Meetings](#) [News](#) [Other resources](#) [Species](#) [Feedback](#)

**Search all Norecopa's databases and webpages simultaneously:**

Add search term



[Welcome to Norecopa's new website!](#)

[Search engine help file](#)

More about Norecopa's databases: [3R Guide](#) - [NORINA](#) - [TextBase](#) - [Classic AVs](#)



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Search:

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[Anaesthesia and analgesia](#) | [Animal facilities](#) | [Animal welfare organisations](#) | [Blood sampling](#) | [Email discussion lists](#) | [Environmental enrichment](#) | [Ethics](#) | [Experimental design and statistical analysis](#) | [Harm-Benefit assessment](#) | [Health monitoring](#) | [Journals](#) | [Organisations](#) | [Severity classification](#) | [Suppliers](#) | [Systematic reviews](#)

norecopa.no / [Other resources](#)

Search all Norecopa's databases and webpages simultaneously:



# Organisations of relevance to animal research

## Organisations within Laboratory Animal Science

[AAALAC International](#) (Association for Assessment and Accreditation of Laboratory Animal Care International)

[AALAS](#) (American Association for Laboratory Animal Science)

[ACLAM](#) (American College of Laboratory Animal Medicine)

[ASLAP](#) (American Society of Laboratory Animal Practitioners)

Red links: external  
Blue link: internal

## Animals in research:



Fish



Farm animals



Laboratory animals



Wildlife and wild fish



Cephalopods



Other aquatic animals

## Norecopa promotes use of "The Three Rs":

### Replace

Replacement of animal experiments with alternatives

### Reduce

Reduction of the number of animals used in experiments

### Refine

Reduction of pain and suffering in animal experiments

## Norecopa aims for consensus between the four stakeholders:

Government and Regulatory Authorities - Research and teaching - Industry - Animal protection and welfare



## Who are you?

Are you a researcher, student or are you generally interested in animal welfare? Here you will find relevant information to help you achieve your goals.



## Contact oss

+47 41 22 09 49

post@norecopa.no



Norecopa on Facebook

## Street address

Ullevålsveien 68

0454 Oslo

## Postal address

% Norwegian Veterinary  
Institute

P.O. Box 750 Sentrum

N-0106 Oslo, Norway

Org.no. 992 199 199

Bank account: 7694 05 12030

(IBAN: NO51 7694 0512 030)

(payment must be marked  
'12025 Norecopa')

## Shortcuts

- > Give us some feedback!
- > 2010/63/EU
- > Information material
- > Norecopa's Board
- > Secretariat
- > Sponsors
- > Cookies & Privacy
- > Site map

## Resources developed in collaboration with:



Norges miljø- og  
biovitenskapelige  
universitet



U.S. Department  
of Agriculture

## Subscribe to our newsletter

Your email address:

- > Browse our latest newsletters



# The search engine

The screenshot shows a search engine interface. At the top, a search bar contains the text "Guidelines bleeding mice", which is highlighted in yellow and circled in red. To the right of the search bar is a blue "Search" button. Below the search bar, there is a "Help" button, a checked checkbox for "Enable synonyms and stemming", and a "Reset" button. Below the search bar, the text "Did you mean: guideline breeding mice(4)" is displayed. To the right of this text is a "Category" section, which is circled in red. The "Category" section lists various categories with checkboxes and counts: Agricultural animals (5), Anaesthesia (3), Anaesthesia and analgesia (4), Anatomy (175), Aquatic animals (4), Behaviour (4), Behavioural research (3), Biochemistry (7), Biology (4), Birds (5), Blood sampling (12), Cancer research (3), Design (7), Disease research (3), Dissection (7), and Education and training (3). Below the "Did you mean" text, there is an "Auto-complete function:" section, which is highlighted in yellow. This section shows a list of suggestions: "blood", "blood", "blood collection", "blood from", and "blood sampling". Below the "Auto-complete function:" section, there is a "Synonym list:" section, which is also highlighted in yellow. The synonym list includes: "Bleeding, bloodsampling, blood sampling, venepuncture, blood collection, phlebotomy". To the right of the "Category" section, the text "Categories, types, 3R relevance and many more" is displayed.

Categories, types, 3R  
relevance and many more

- An index of all the words on all the approx. 6,300 pages
- Fuzzy logic
- Boolean logic
- Wildcards
- Proximity searches
- Truncation



A help file available

Collaboration with US Department of Agriculture

## Jerry K-9 CPR Mannikin (Dog)

Record number: 8821 (legacy id: 4905)  
Category: [Handling \(TextBase\)](#) - [Medicine](#)  
Type: [Simulator](#)

A product line of animal CPR (Cardiopulmonary Resuscitation) training mannequins. Type: Simulator. Category: Handling & Veterinary Medicine.

[Jerry K-9 CPR Mannikin](#) is a full size dog for CPR (Cardiopulmonary Resuscitation) training. Features: Working lungs, artificial pulse, disposable and cleanable parts. Designed to perform CPR compressions, mouth-to-snout resuscitation. Also designed to splint and bandage. In addition, a non-removable, long oblique fracture of the right femoral leg bone can now be added to this mannikin. This will allow students to learn how to set and repair common K-9 fractures. This mannikin simulates a 60-70 lbs dog. Accessories included: Carrying case with kneeling pad, brush, 5 disposable lungs. This mannikin is a simplified version of [Critical Care Jerry](#).



**Comments & References:** Additional Disposable Lungs for Jerry: 24 disposable lungs: US\$128.00; 72 disposable lungs: US\$380.00. Suitable for training in the veterinary setting, search and rescue, veterinary schools, canine units and for pet owners. This item may be borrowed for up to 6 weeks through the Alternatives Loan System of the International Network for Humane Education (InterNICHE), free of charge, but return postage must be paid by the person who has borrowed the product. Please note that there are practical limitations on where some items can be sent. For more information, please contact [loansystem@interniche.org](mailto:loansystem@interniche.org). See also <http://www.interniche.org> for more information.

Item: 101

Price: US\$989.00. Loan Program: Free of charge  
Free of charge: Loan Program: Free of charge

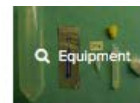
On loan: On loan

### Supplier

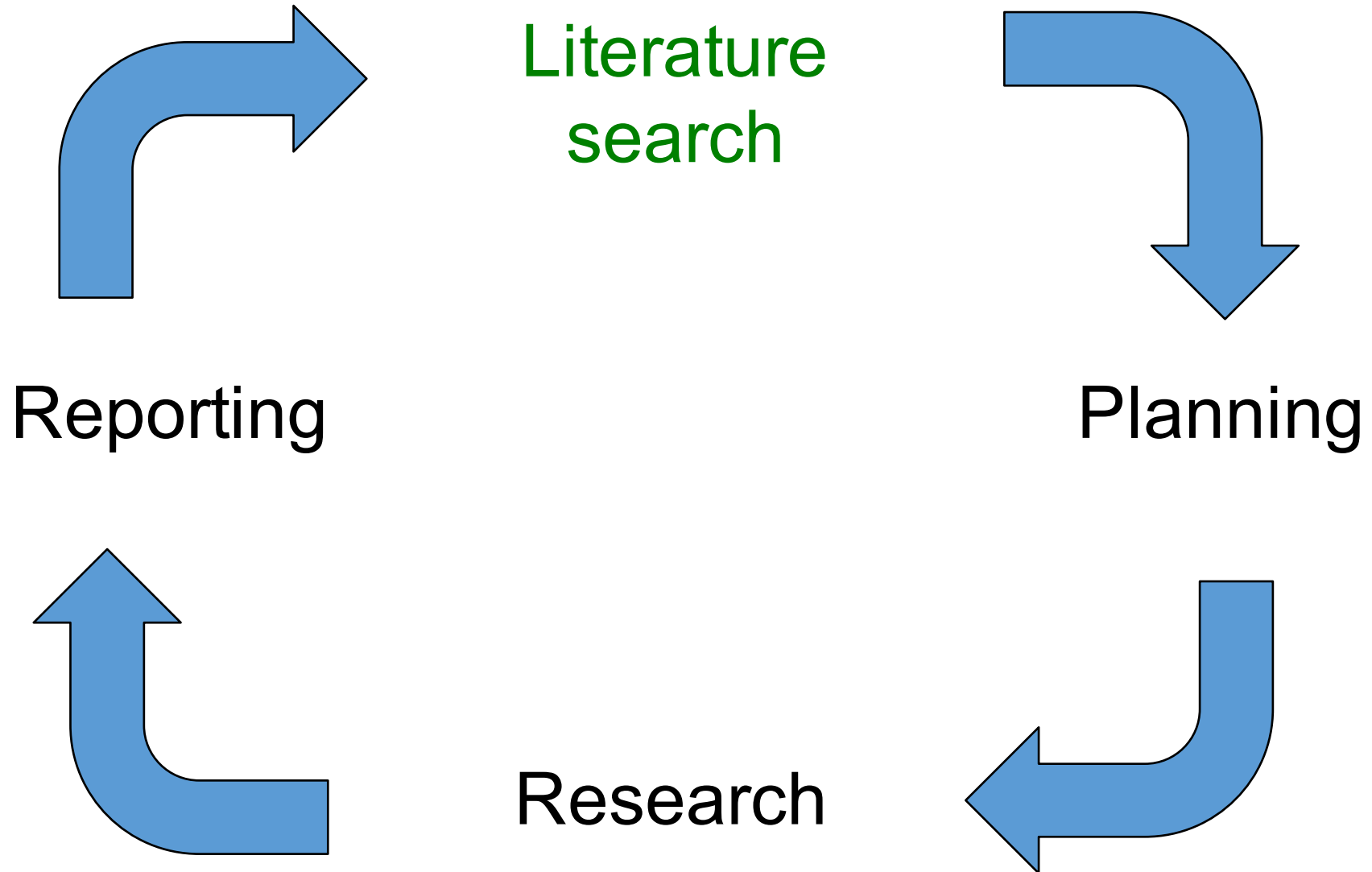
#### Rescue Critters, LLC

[All articles from Rescue Critters, LLC](#)

- > Address: 15635 Saticoy St. Unit A, Van Nuys, CA 91406, USA
- > Tel: Int-1-818-780-7860

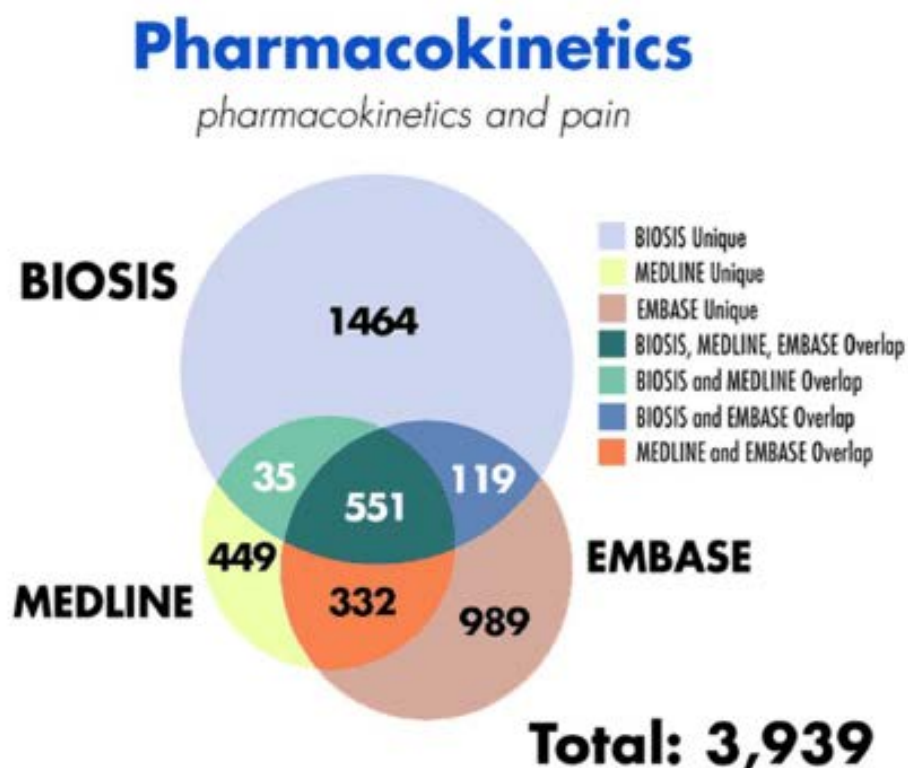


*Norecopa's website is designed to aid scientists in finding global 3R resources*



Correct literature searches are a vital part of the work to advance the 3Rs

# Why Search Multiple Databases?



Without *BIOSIS Previews*, you would be missing  
1,464 unique citations.

In addition to hundreds of journal article records,  
BIOSIS Unique records contain 415 Meeting records.



*Things have got worse rather than better after Google arrived:*

*You always get some results, even if you type in everything at once.*

*In many ways the situation was better earlier when searches had to be done manually with the help of a librarian*

*Action needed:*

*It is high time that all scientists received mandatory education in literature searching*

*Scientists should ensure that 3R advances are mentioned in the title or abstract*

Alice Tillema, Radboud University:  
How to construct a literature search

<http://norecopa.no/how-to-construct-a-literature-search.pdf>

# How to construct a literature search

Alice Tillema, Medical Library, Nijmegen

<http://libguides.ru.nl/norecopa>



Radboud University



Radboudumc  
university medical center



## ***How many of you conduct searches in PubMed / MEDLINE?***

*How many of you*

- *formulate a specific question and then determine which elements will be your search components (SC)*
- *use Word to make a list of search terms for every SC containing*
  - *MeSH terms*
  - *synonyms*
- *perform searches with separate strings for each SC:*
  - mice[MeSH] OR mice[tiab] OR mouse[tiab] OR murine[tiab]*
- *finally, combine the search strings (AND)*

## ***How many are familiar with SYRCLE's***

- *Step by step guide to systematically find all relevant animal studies*
- *Search filters for finding animal studies in PubMed and EMBASE*

*Encourage scientists to publish 3R-improvements somewhere where they are visible!*



[http://www.theodora.com/rodent\\_laboratory/blood\\_collection.html](http://www.theodora.com/rodent_laboratory/blood_collection.html)



photo: NMBU

*SCID-Hu mice immunized with a pneumococcal vaccine produce specific human antibodies and show increased resistance to infection.*

Search for 'bleeding mice' on Google and Norecopa.

The image shows a search interface for 'bleeding mice' on the Norecopa platform. The search bar at the top contains the text 'bleeding mice' and a magnifying glass icon. Below the search bar, there are tabs for 'All', 'Images', and 'Videos'. The main search area displays 'Search all Norecopa's databases and webpages simultaneously:' followed by a search bar containing 'bleeding mice' and a magnifying glass icon. Below this, there is a blue bar indicating '76 results'. The search results are listed below, including a PDF titled 'Methods of Blood Collection from Mice' from www.osa.sunysb.edu, a PDF titled 'Guidelines for Survival Bleeding of Mice and Rats' from oacu.od.nih.gov, a video titled 'How to obtain blood from mice' with a 3:46 duration, a PDF titled 'A rapid, simple, method for obtaining blood from mice' from ceua.ufsc.br, and a PDF titled 'Mouse : Decision tree for blood collection' from www.nc3rs.org.uk. On the right side, there are two panels: 'Search filters' and 'Browse the databases'. The 'Search filters' panel includes an 'Order by' dropdown menu set to 'Relevance', a checked checkbox for 'Enable synonyms and stemming', and a 'Database' section with a list of databases: eBooks (6), Free (5), Held at NMBU Oslo (contact kristine.hansen@nmbu.no) (5), Key products (6), On loan (2), and Reviewed. The 'Browse the databases' panel includes a 'Search in the databases' section with a list of search criteria: All Text, Title, Author, and Publisher.

bleeding mice

All Images Videos

About 4,760,000 results (0.3s)

[PDF] **Methods of Blood Collection from Mice**  
www.osa.sunysb.edu/dl...  
Collecting blood from mice...  
number of efficient methods...

[PDF] **Guidelines for Survival Bleeding of Mice and Rats**  
oacu.od.nih.gov/ARAC/doc...  
Guidelines for Survival Bleeding...  
investigators and National Institutes of Health...

**Blood sample collection from mice**  
www.ncbi.nlm.nih.gov › N...  
by S Parasuraman · 2010 ·  
It is important that blood sam...  
This method is recommende...

**How to obtain blood from mice**  
https://www.youtube.com/watch?v=...  
Dec 13, 2010  
See more  
Lancet

[PDF] **A rapid, simple, method for obtaining blood from mice**  
ceua.ufsc.br/files/2010/06/...  
Methods for obtaining blood...  
that allows investigators to o...

**Mouse : Decision tree for blood collection**  
https://www.nc3rs.org.uk/...  
How much blood does a mouse...  
bodyweight. A mouse weigh...

**Search all Norecopa's databases and webpages simultaneously:**

bleeding mice

Welcome to Norecopa's new website!  
Search engine help file

More about Norecopa's databases: [3R Guide](#) - [NORINA](#) - [TextBase](#) - [Classic AVs](#)

76 results

**NIH Animal Research Advisory Committee Guidelines for Survival Bleeding of Mice and Rats**  
3R Guide/10891  
These guidelines have been developed to assist investigators and National Institutes of Health (NIH) Animal Care and Use Committees (ACUC) in their choice and application of survival rodent bleeding techniques.

**Blood sampling**  
Blood sampling is one of the commonest procedures conducted on research animals, but it may cause pain, distress and lasting harm if the technique is poor, or if too much of the circulating blood volume is removed. Videos and slide series showing blood sampling techniques on several common laboratory animal species  
Links NC3Rs Microsite on blood sampling  
Films and slide shows on bleeding techniques...

**Blood Collection in Mice Using the Saphenous Vein - An Alternative to Retro Orbital Collection**  
NORINA/8641  
These web pages describe a method for blood collection from the saphenous vein of mice, rats, hamsters, gerbils, guinea-pigs, mink and ferrets. Type of record: Web pages. Category: Veterinary Medicine

**Search filters**

Order by:  
Relevance

Enable synonyms and stemming

**Browse the databases**

- eBooks (6)
- Free (5)
- Held at NMBU Oslo (contact kristine.hansen@nmbu.no) (5)
- Key products (6)
- On loan (2)
- Reviewed

**Database**

- 3R Guide (6)
- Classic AVs (6)
- Website (6)
- NORINA (35)
- TextBase (23)

**Search in the databases**

- All Text
- Title
- Author
- Publisher

Search all Norecopa's databases and webpages simultaneously:

bleeding mice

[Welcome to Norecopa's new website!](#)

[Search engine help file](#)

More about Norecopa's databases: [3R Guide](#) - [NORINA](#) - [TextBase](#) - [Classic AVs](#)

76 results

### NIH Animal Research Advisory Committee Guidelines for Survival Bleeding of Mice and Rats

3R Guide/10891

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#### Blood sampling

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### Blood Collection in Mice Using the Saphenous Vein - An Alternative to Retro Orbital Collection

NORINA/8641

These web pages describe a method for blood collection from the saphenous vein of mice, rats, hamsters, gerbils, guinea-pigs, mink and ferrets. Type of record: Web pages. Category: Veterinary Medicine

'Bleeding' not mentioned, but identified by the synonym list

## Search filters

Order by:

Relevance

Enable synonyms and stemming

### Browse the databases

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- Free (5)
- Held at NMBU Oslo (contact kristine.hansen@nmbu.no) (5)
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### Database

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### Search in the databases

- All Text
- Title
- Author
- Publisher



***Our vision:  
To aid dissemination of 3R resources between the different scientific fields***



<https://kmonadollaraday.files.wordpress.com/2011/03/information-silos.jpg>

There are lots of platforms...



...but are there enough trains?

**Norecopa aims to be a fast train to  
global 3R resources**



<http://www.london-gifts.co.uk>

Photo: <http://www.bbc.com/news/uk-england-london-35882068>



Norecopa, Norway's 3R centre: norecopa.no



USDA Animal Welfare Information Center  
awic.nal.usda.gov

## norecopa.no: a global overview of quality resources within laboratory animal science and welfare

Adrian Smith<sup>1</sup>, Karina Smith<sup>1</sup>, Øyvind Wærenskjold<sup>2</sup> & Tim Allen<sup>3</sup>

<sup>1</sup>Norecopa, P.O. Box 750 Sentrum, 0106 Oslo, Norway; <sup>2</sup>Bitfarm, Vigeveien 15A, 4639 Kristiansand, Norway; <sup>3</sup>Animal Welfare Information Center, National Agricultural Library, 10301 Baltimore Avenue, Beltsville, Maryland 20705, USA

### Quality resources in Laboratory Animal Science: where do I find them?

Increased focus on **the 3Rs** (Replacement, Reduction & Refinement) in Laboratory Animal Science and regulatory demands mean that scientists, committee members and animal house staff need easy access to relevant resources.

Norecopa has built a brand-new website and intelligent search engine which provide a global overview of selected quality resources. The site consists of three major databases and approx. 500 webpages.

✓ *The search engine returns hits from all these resources simultaneously. A large range of filters can be applied to narrow the list of hits. All searches generate unique web addresses (URLs), making it easy to document the searches which have been performed.*

norecopa.no/website-poster

### 3R Guide database and webpages

Databases, Guidelines, Regulations, Information Centres, Journals, E-mail lists



Audiovisual products

**NORINA**

Textbooks

**TextBase**

Please contact Adrian Smith ([adrian.smith@norecopa.no](mailto:adrian.smith@norecopa.no)) for more information.

We gratefully acknowledge the financial support of Dag Stiansen's Foundation, Laboratory Animals Ltd., the Nordic Society against Painful Animal Experiments, Novo Nordisk, the Scottish Accreditation Board and the US Department of Agriculture.

Graphics: colourbox.com

If you think it's expensive to hire a professional to do the job, wait until you hire an amateur. – Red Adair





### **Thanks to our main sponsors:**

- Standing Committee on Business Affairs, Norwegian Parliament
- Ministries of Agriculture and Fisheries
- Novo Nordisk
- Nordic Society Against Painful Experiments
- Scottish Accreditation Board
- Dag S. Stiansen Foundation
- Laboratory Animals Ltd.
- Norwegian Research Council

### **Funding of the NORINA database 1991-2016:**

*Nordic Society Against Painful Experiments, Dag S. Stiansen Foundation, The Norwegian Research Council, the Norwegian School of Veterinary Science, Laboratory Animals Ltd., RSPCA, UFAW, AstraZeneca, Solvay Pharmaceuticals, the Swedish Fund for Research without Animal Experiments, Norwegian Federation for Animal Protection, Allkopi, The Humane Society of the United States, St. Andrew Animal Fund, Microsurgical Developments Foundation, AAALAC International, LASA, NEAVS, Amersham Health*