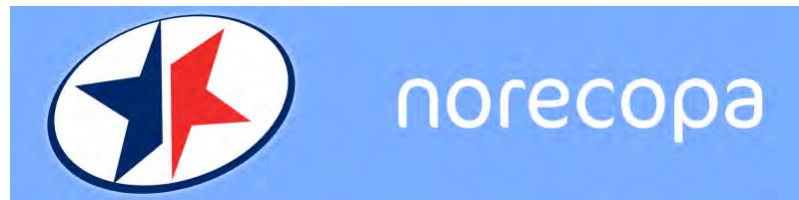
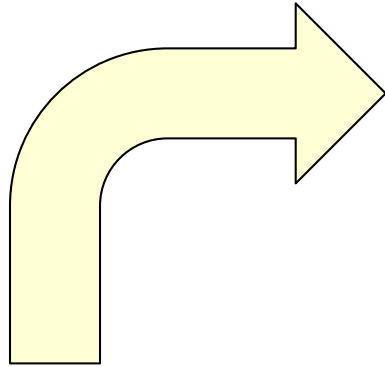


Tools for better 3R-searches

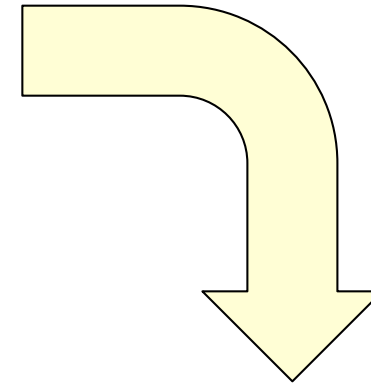
Adrian Smith
adrian.smith@norecopa.no



www.norecopa.no

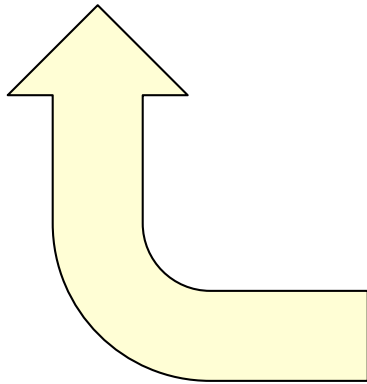


Literature
search

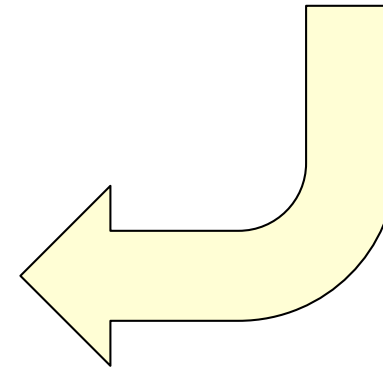


Reporting

Planning



Research



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

- *Many scientists need help with a literature search*
- *“What’s the problem? We have the internet!”*



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The Surface Web

*The Deep (Invisible)
Web*

The Surface Web is useful for

- Searching for a specific document which we know exists
- Looking for a starting-point for information on a specific topic
- Finding "grey literature" (e.g. "unpublished" reports)

'The thing about quotes on the Internet is that you cannot confirm their validity'

Abraham Lincoln

The Deep Web

Many times larger than the Surface Web, material may be:

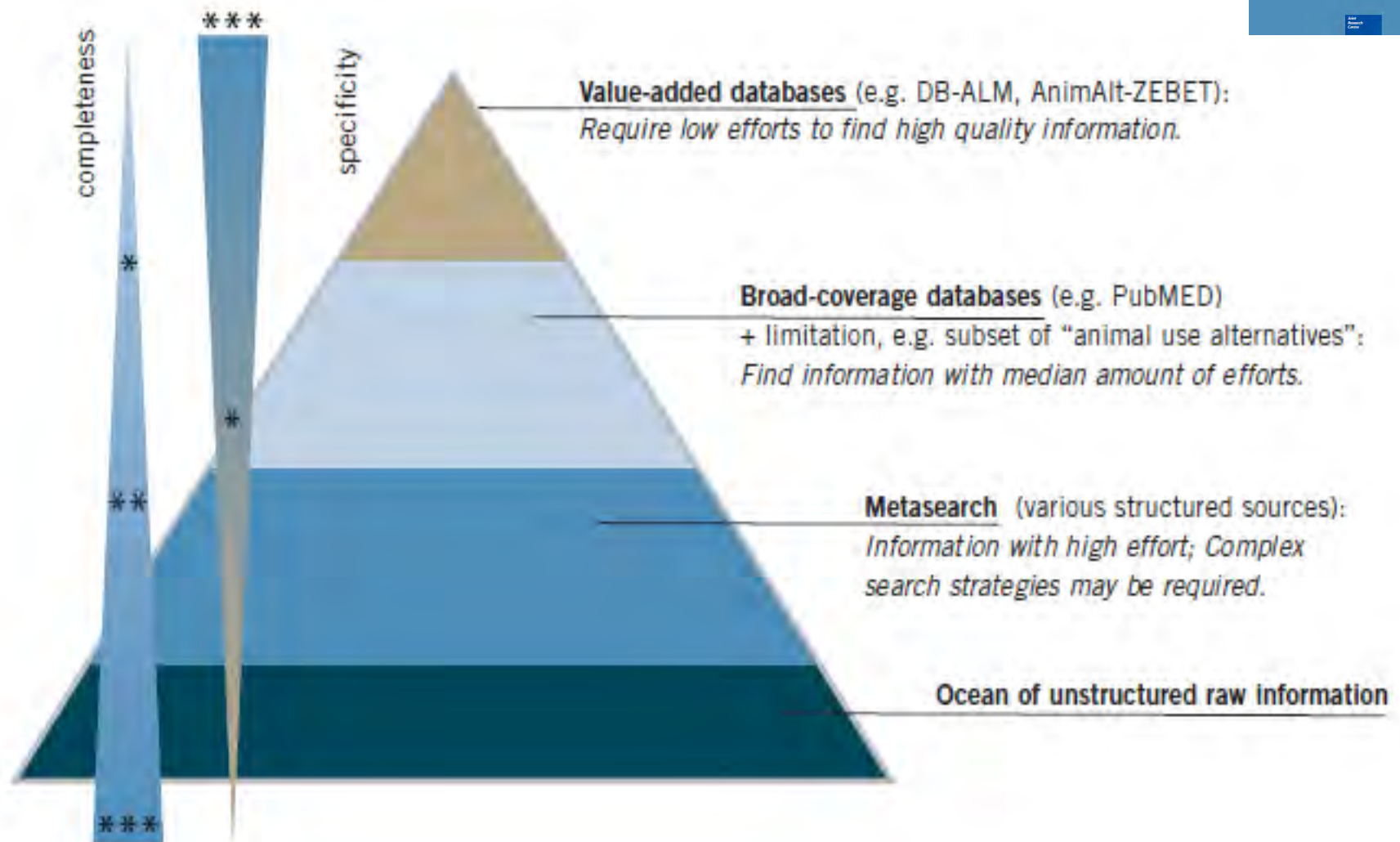
- Encrypted
- Registration/subscription
- Password-protected databases
- Not formatted for, or accessible by, standard search engines e.g. text in image or video files
- Material on company intranets

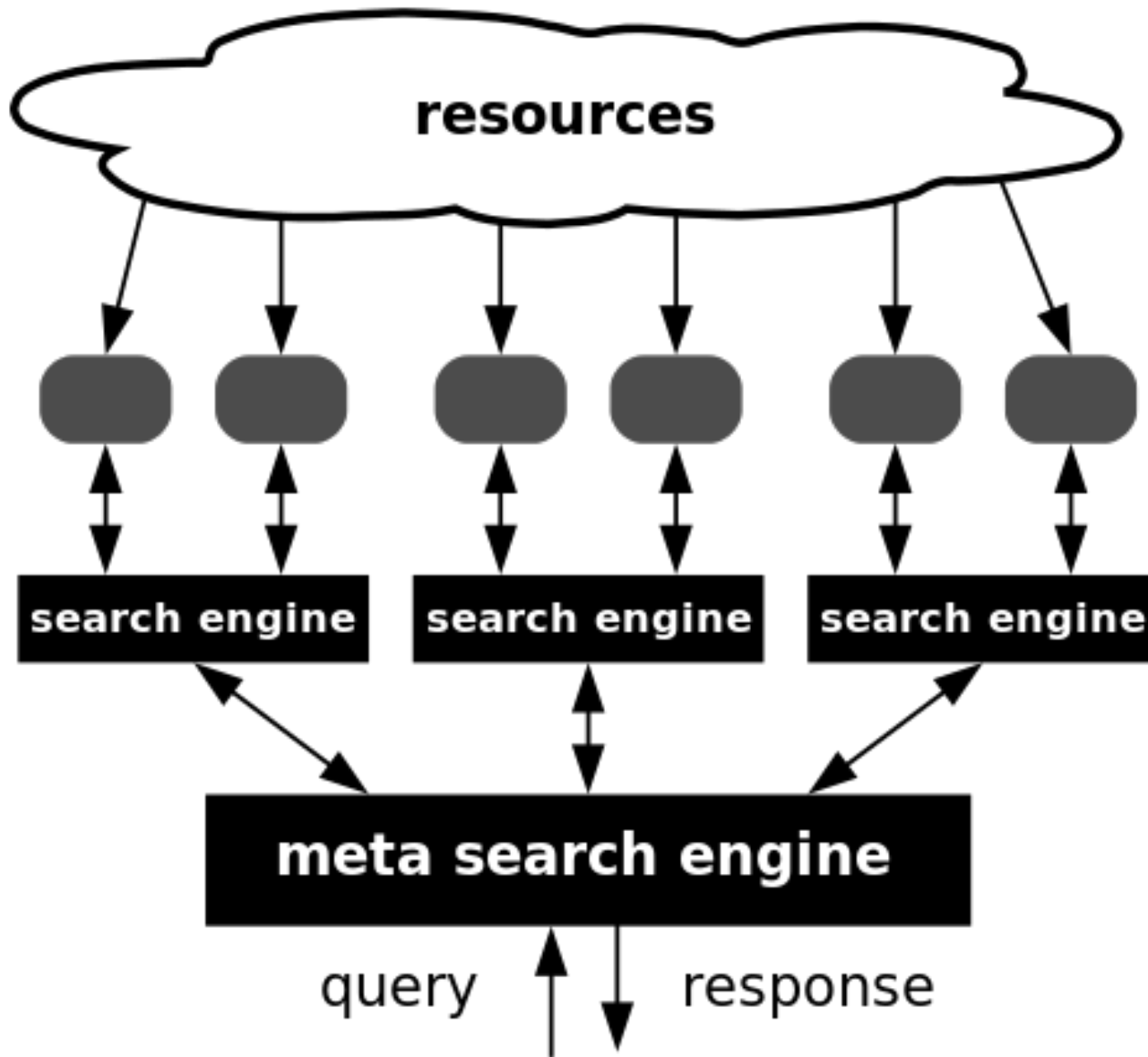


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Principles of setting up a search

- Efficiency (specificity) – minimise the number of irrelevant or poor-quality results
- Effectivity (selectivity) – maximise the number of high-quality results





http://en.wikipedia.org/wiki/Metasearch_engine

The key is to adopt a structured approach

Systematic searches, part of a systematic review!



Identifying search terms: Thesauri and synonyms

A thesaurus is a closed list of terms used to index and search databases. Often a good idea to start a search with a database using a thesaurus.

- “animal use alternatives” in the NLM MeSH (Medical Subject Headings) used by MEDLINE/PubMed
- NAL’s thesaurus for alternatives to animals
<http://www.nal.usda.gov/awic/alternatives/alternativeanimalusethesaurus.htm>
- EURL ECVAM’s thesaurus (focus on *in vitro* toxicology):
http://ecvam-dbalm.jrc.ec.europa.eu/f_main.cfm?idmm=7



Sample searches are available

<http://awic.nal.usda.gov/literature-searching-and-databases/sample-searches>

Sample Searches

Sample Literature Searches for Alternatives

The search strategies below are provided as examples of how to structure a search. They are examples only and should not be interpreted as all inclusive, exact or the only way to retrieve information on the subject.

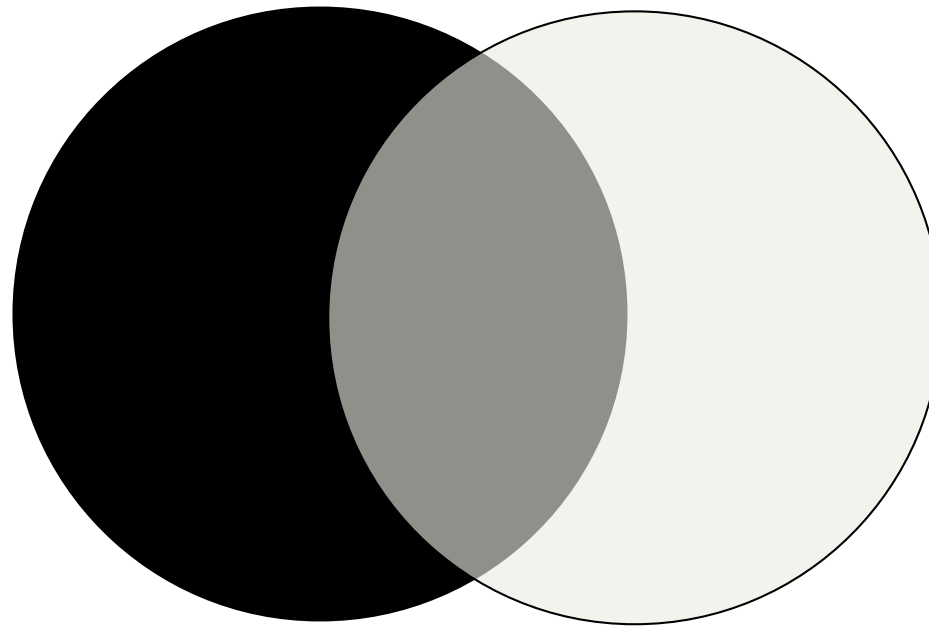
Also remember that the search methodology will also depend on the search engine used.

- [Osteomyelitis](#)
- [Trauma Life Support Training Course](#)
- [Delivery of Test Articles to Mouse Lungs](#)

Please review the [literature search instructions](#) (PDF | 103KB) for more information on database selection, terminology, etc.

Set	Terms	Items
1	osteomyelit*	23636
2	"L fucose" OR "arachidonic acid"	54910
3	#1 AND #2	5
4	acute NEAR/3 (osteomyelitis OR osteomyelitic)	1554
5	"staph aureus" OR "s aureus" OR "staphylococcal aureus"	39743
6	#4 AND #5	75
7	trauma* OR posttrauma*	348717
8	#7 AND #5	374
9	#8 AND #1	57
10	vitro OR culture OR (isolated NEAR/4 (bone OR tibia))	2689101
11	#10 AND #1	1673
12	#11 AND #5	196
13	ketamine OR xylazine OR acepromazine OR buprenorphine OR yohimbine	41546
14	#13 AND #1	7
15	#13 AND #2	83
16	imaging OR noninvasive OR "non invasive" OR biomarker*	934240
17	#16 AND #1	2973
18	model* OR mouse OR mice OR rat OR rats OR rabbit* OR pig OR pigs OR rodent* OR rabbit*	8398084
19	#17 AND #18	119

Boolean logic



Transgenic AND Mice
(grey)

Transgenic OR Mice
(everything)

Transgenic NOT Mice
(black)

Truncation and the use of wildcards
(e.g. * or ? or !, check which ones work!)

e.g. TRANSGEN*

Transgene(s)

Transgenic(s)

Wildcards may lead to unwanted results:
Transgender

Transgenic AND (mice OR rats OR (pigs NOT guinea))

protection NEAR animals NEAR scientific



sensitisation

Nettet

Bilder

Videoer

Nyheter

Google Maps

Mer ▾

Innstillinger

Omtrent 612 000 resultater (0,21 sekunder)

[Sensitization - Wikipedia, the free encyclopedia](#)

en.wikipedia.org/wiki/Sensitization ▾ [Oversett denne siden](#)

Sensitization is a non-associative learning process in which repeated administrations of a stimulus results in the progressive amplification of a response.

[Neural substrates of sensitization](#) - [Cause](#) - [History](#) - [See also](#)

[sensitisation - definition of sensitisation by The Free Dictionary](#)

www.thefreedictionary.com/sensitisation ▾ [Oversett denne siden](#)

Noun, 1. **sensitisation** - the state of being sensitive (as to an antigen). sensitization · irritation - (pathology) abnormal sensitivity to stimulation; "any food produced ...



US National Library of Medicine
National Institutes of Health

PubMed



sensitisation



RSS

[Save search](#)

[Advanced](#)

Article types

[Clinical Trial](#)

[Review](#)

[Customize ...](#)

Text availability

[Abstract](#)

[Summary](#) ▾ [20 per page](#) ▾ [Sort by Most Recent](#) ▾

Results: 1 to 20 of 3045

[← First](#) [← Prev](#) [P](#)

★ Did you mean: [sensitization](#) (42637 items)

sensitisation

Enable synonyms and stemming

Database: Search in:

2 results

Order by:

Relevance

Progress in the Reduction, Refinement and Replacement of Animal Experimentation

TextBase/6884

Proceedings of the 3rd World Congress on Alternatives and Animal Use in the Life Sciences, Bologna, Italy, 29 August-2 September 1999.

Author: Balls, M; van Zeller, A.-M. & Halder, M. **Publisher:** Elsevier

sensitisation

Respiratory Pharmacology

NORINA/858

An interactive program based on pulmonary function tests in guinea pig to teach the fundamental pharmacology of the airway. Computer program.

Category: Pharmacology (animal) & Physiology (animal).

Author: David Dewhurst, Clive Page, Steve Fox & Helen Jones **Supplier:** Sheffield BioScience Programs, Dr. David Dewhurst

sensitised



semantic search to avoid animal experiments



refine search

- Explore current query
- Filter Suggestions
 - Sensitisation 289,798
 - Rat 39,415
 - Mouse 34,593
 - Skin Sensitisation 11,499
 - Cells, Cultured 41,777
 - more
- Find concepts in Knowledge Base
- 3Rs Searches
 - 3Rs Alternative Methods (by Area of Use) 15,712
 - Animal Species 107,425
 - Animal Test Method 2,613
 - Cultured Cells, Tissues, Etc. 68,592
 - In Vitro Endpoint 72,206
 - In Vitro Endpoint Detection Method 14,640
 - Toxicological Endpoint 289,798
 - Validation of Test Methods 7,175
- Toxicological Information Searches
 - IUCLID 5, Chapter 7
 - 7.1. Toxicokinetics, metabolism and distribution
 - 7.2. Acute toxicity 6,291
 - 7.3. Irritation / corrosion 5,700
 - 7.4. Sensitisation 44,078
 - 7.5. Repeated dose toxicity 2,034
 - 7.6. Genetic toxicity 7,720
 - 7.7. Carcinogenicity 36,491
 - 7.8. Toxicity to reproduction 61,469
 - 7.9. Specific investigations 50,355
 - 7.10. Exposure related observations in humans
 - 7.11. Toxic effects on livestock and pets 3,181
 - 7.12. Additional toxicological information 15,052
- See also OECD TGs
- Author list is empty. Click to limit your result to less than ?

Sensitisation[go3r]

show abstracts documents statistics clipboard

289,798 documents found

Evaluation of combinations of in vitro sensitization test descriptors for the artificial neural network-based risk assessment model of skin sensitization.

Authors: Hirota, Miori, et al.

Journal: Journal of applied toxicology : JAT (J Appl Toxicol), 2015

UNASSIGNED: The skin sensitization potential of chemicals has been determined with the use of the murine local lymph node a:

PubMed 25824844 Related Articles Read Full Text

Affiliation: Shiseido Research Center, Shiseido Co. Ltd., 2-2-1 Hayabuchi, Tsuzuki-ku, Yokohama-shi, Kanagawa, 224-8558, Japan.

Skin sensitisation--moving forward with non-animal testing strategies for regulatory purposes in the EU.

Authors: Basketter, David, et al.

Journal: Regulatory toxicology and pharmacology : RTP (Regul Toxicol Pharmacol), Vol. 67 (3): 531-5, 2013

Based on these considerations, a follow up activity was agreed upon to explore an example of an Integrated Testing Strategy for s hazard identification purposes in the context of REACH submissions.

PubMed 24140884 Related Articles Read Full Text

Affiliation: DABMEB Consultancy Ltd., Sharnbrook MK44 1PR, UK. Electronic address: dabmeboconsultancytd@me.com.

final report of the safety assessment of niacin amide and niacin

Anonymous

Int J Toxicol

Intelligent (semantic) search engines

e.g. search.norecopa.no

May use some or all of these:

- fuzzy logic ("breeding" / "bleeding")
- Boolean logic
- a synonym list
- an autocomplete function (cardiac)

The trick is to weight these different functions correctly

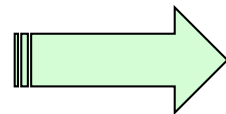
<http://oslovet.norecopa.no/helpfile.pdf>

AJ Smith & T Allen, 2005

***The use of Databases, Information Centres and
Guidelines when planning research that may
involve animals***

Animal Welfare, 14 (4): 347-359

www.nal.usda.gov/awic/newsletters/v13n3/AWICBulletinV13N3.pdf



3R Guide



3R Guide
www.3RGuide.info

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



Audiovisual products

Textbooks

NORINA
oslovet.norecopa.no/NORINA

TextBase
oslovet.norecopa.no/textbase

Intelligent search engine:
search.norecopa.no

Intelligent (semantic) search engines

e.g. www.go3R.org

The screenshot shows the Go3R website interface. The browser window displays several tabs, including 'Inbox - dr.jonrichmond@', 'Inbox (1) - sab.companys', 'Go3R', and 'Windows - How to take S...'. The Go3R website features a search bar with the text 'All' and a 'find' button. A sidebar on the left contains 'my search' and 'what' sections with various filters and search results. The main content area displays the Go3R logo, the tagline 'semantic search to avoid animal experiments', and a hand holding a white mouse. Logos for partners like BfR, Technische Universität Dresden, and IUCILID 5 are visible on the right. The footer includes links for Help, Contact, Terms Of Use, Imprint & Disclaimer, BMBF Project, and copyright information for Transinsight GmbH.

The EURL ECVAM Search Guide

Can be ordered free of
charge from

bookshop.europa.eu



Contents

- Data sheets on
 - Journals
 - Databases
 - Open Access resources
 - Organisations
 - Internet search engines



Contents

- Data Retrieval Procedures
(basic principles)
- Check-list for searching for information on alternative methods
- Tables comparing the features of
 - Databases
 - Journals
 - Organisations



Contents

Seven Golden Steps to Successful Searching

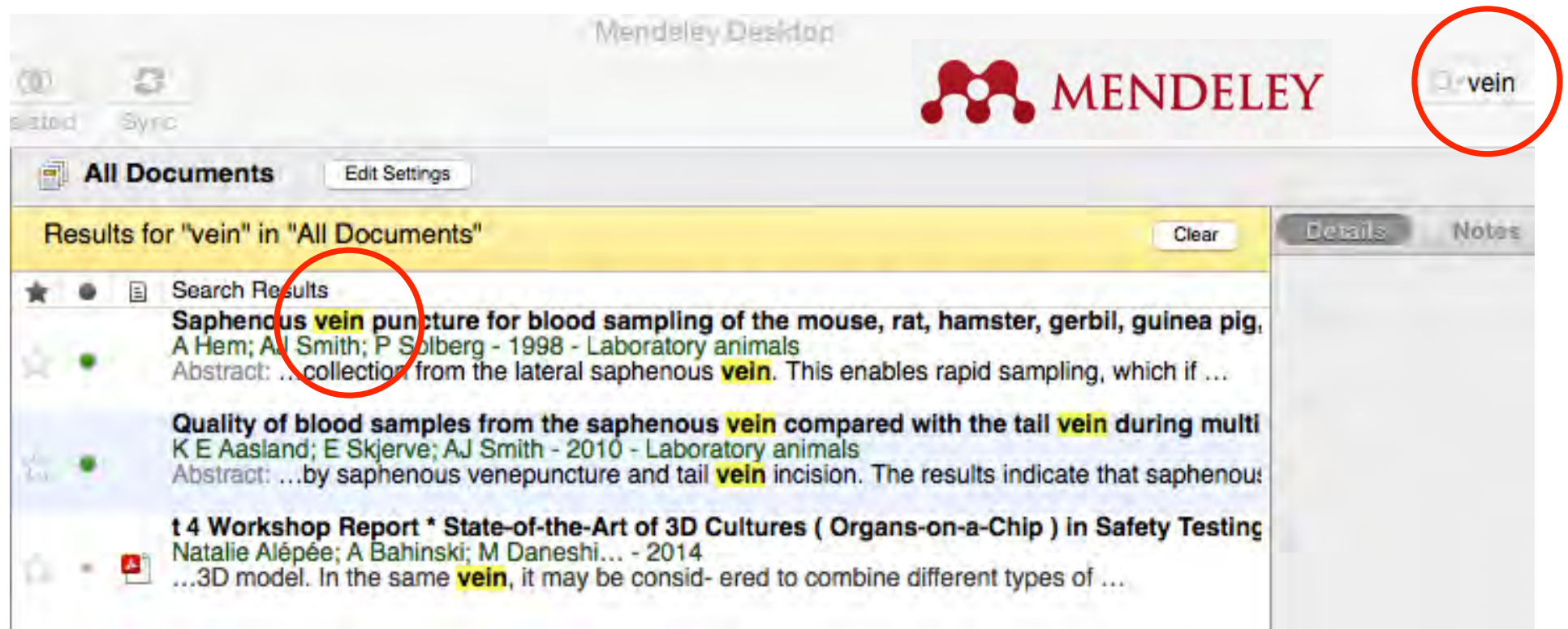
1. Clearly define and be aware of your specific information need
2. Identify the fundamental components of your scientific approach
3. Choose the most appropriate information resources
4. Compile relevant and necessary search terms
5. Start your search with a simple query in a 3Rs specific context
6. Limit search results from more extensive resources
7. Broaden the search horizon



Archive your searches so you can document them and avoid repeating them

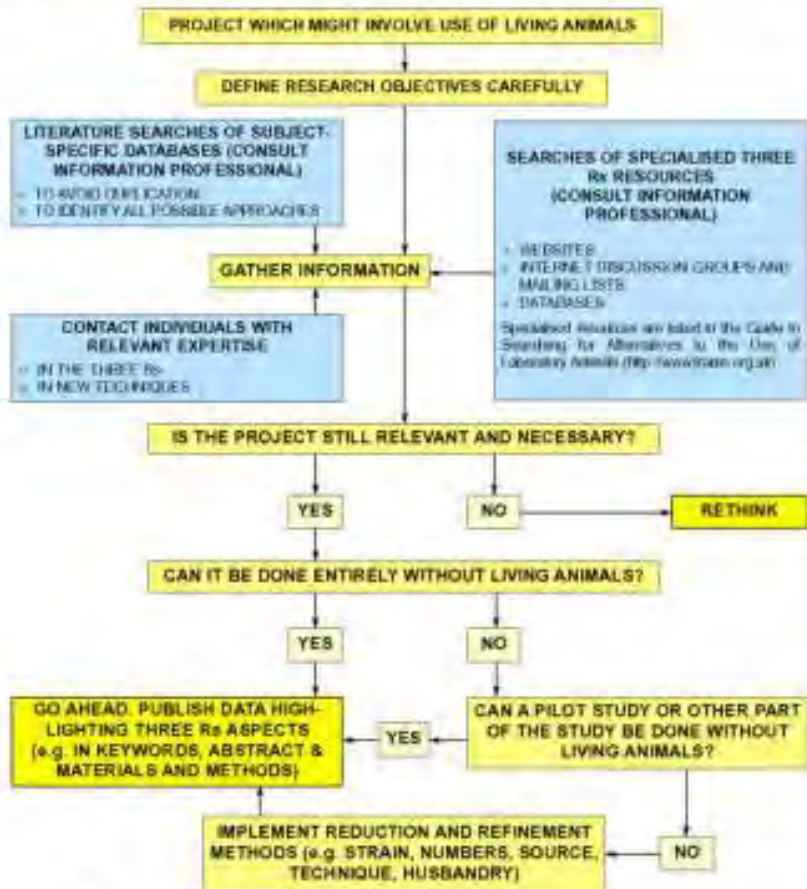
<http://search.norecopa.no/?q=mouse%20bleeding>

Archive key documents you retrieve, e.g. in Mendeley



EARLY PLANNING FOR A PROJECT WHICH MIGHT INVOLVE THE USE OF ANIMALS

Scientists using animals in scientific procedures have an ethical and legal obligation to ensure that the Three Rs, namely **Reduction, Refinement and Replacement**, are implemented wherever possible. This strategy was designed by the 'Focus on Alternatives' group to help scientists meet this obligation. The strategy should be applied at the beginning of a project, and at regular intervals throughout. Advice should be sought from the Ethical Review Process and Home Office Inspectorate.



*Membership of the Focus on Alternatives committee includes the Dr Helen Best, FRAME, The Humane Research Trust, The Lord Durning Fund, RSPCA, St Andrew Animal Fund and UFAW. Copies of the poster are obtainable from FRAME, 36-38 North Street, Nottingham, NG1 4LL. Tel: 0115 956 4340. Fax: 0115 956 3570. E-mail: frame@frame.org.uk

Focus on Alternatives (FoA)

A consortium of UK animal welfare organisations

<http://oslovet.norecopa.no/EarlyPlanningPoster.pdf>

and

<http://oslovet.norecopa.no/InvestigationPoster.pdf>

Search strategies in a nutshell



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- Define the search as well as possible
- Identify synonyms and 3R terms
- Remember the differences between British & American English
- Use several databases (little overlapping)
- Learn the differences between the search engines (read the instructions!)
- Get used to using Boolean logic and check which terms are supported by the search engine
- Learn how to expand/narrow your search
- Look for core articles and key authors
- Use the possibilities on the Internet to get in touch with the best research labs

Some references for search guides:

The EURL ECVAM search guide (2013):

<http://bookshop.europa.eu/en/the-eurl-ecvam-search-guide-pbLBN124391>

CCAC Three Rs Search Guide:

<http://3rs.ccac.ca/en/searches-and-animal-index/guide>

AltWeb: A step-by-step approach to an alternatives search:

<http://altweb.jhsph.edu/resources/searchalt/index.html>

UC Davis guide to bibliographic databases for alternatives searching:

<http://lib.ucdavis.edu/dept/animalalternatives/databaseapproach.php>

IMPI I3R working party report on Searching for 3Rs Information – Published Literature Sources (2002):

http://www.impi.org.uk/i3r_v2_jul2002.pdf

Guidelines for systematic reviews:

<http://3rs.ccac.ca/en/research/systematic-reviews.html>

A step-by-step guide to systematically identify all relevant animal studies:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3265183>

Thanks to our sponsors:

- Research Council of Norway
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- Laboratory Animals Ltd.
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- Scottish Accreditation Board

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