

BCLAS

Literature searches

Sandrina Vandenput – Liège University
21 May 2019
BCLAS Symposium 2019

PREPARE (*Planning Research and Experimental Procedures on Animals: Recommendations for Excellence*)



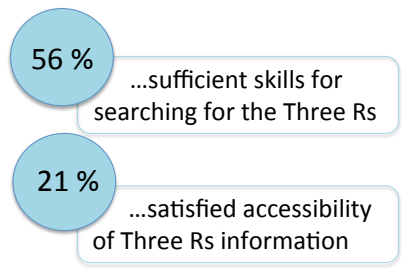
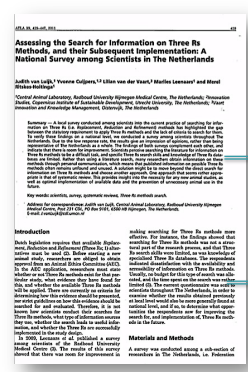
PREPARE: guidelines for planning animal research and testing

Smith *et al.*, 2018

Table 1. The PREPARE guidelines short checklist.

Topic	Recommendation
(A) Formulation of the study 1. Literature searches	<input type="checkbox"/> Form a clear hypothesis, with primary and secondary outcomes. <input type="checkbox"/> Consider the use of systematic reviews. <input type="checkbox"/> Decide upon databases and information specialists to be consulted, and construct search terms. <input type="checkbox"/> Assess the relevance of the species to be used, its biology and suitability to answer the experimental questions with the least suffering, and its welfare needs. <input type="checkbox"/> Assess the reproducibility and translatability of the project.

Recherche de méthodes alternatives : un défi ?



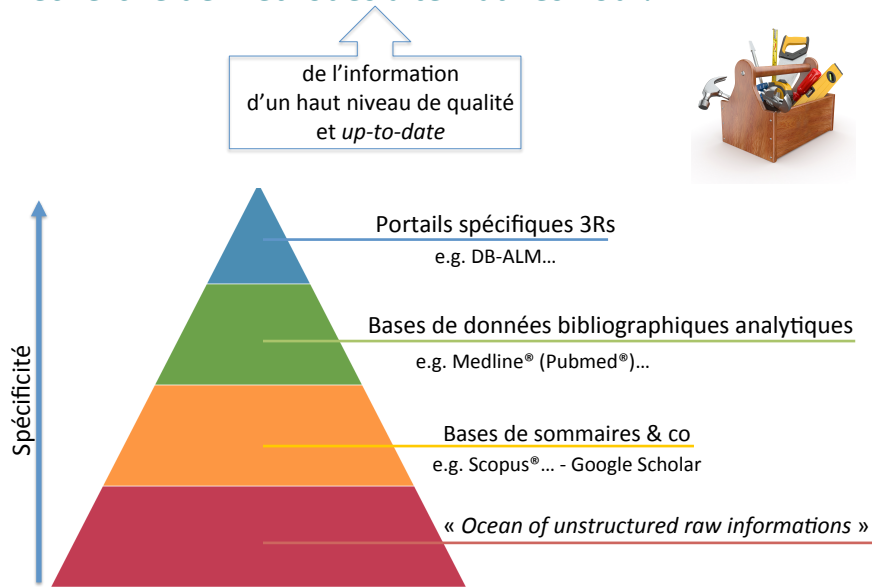
Van Luijk *et al.*, 2011

Recherche de méthodes alternatives : un défi ?

- ▶ Trois difficultés
 - Quantité d'informations +++
 - Qualité variable de l'information disponible
 - Beaucoup d'outils à interroger pour tendre à l'exhaustivité

Recherche de méthodes alternatives : où ?

5



adapté de EURL ECVAM search guide (Roi et Grune, 2013)

Recherche de méthodes alternatives : où ?

6



Avant de parler des outils :

1^{re} étape indispensable

Recherche d'information(s) : 1^{re} étape

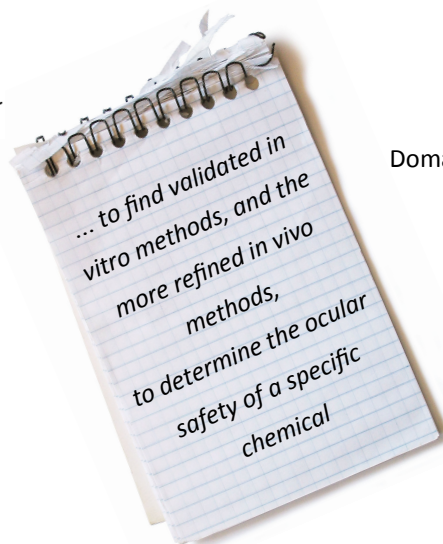
Déterminer son besoin-> définir la question de recherche

↑
correspondant à l'hypothèse

-> élaborer sa stratégie de recherche

La stratégie de recherche s'adaptera selon l'outil de recherche utilisé

Exemple adapté de *EURL ECVAM search guide* (Roi et Grune, 2013)



Domaine d'investigation : tests de toxicité



déterminer l'irritabilité oculaire potentielle d'une substance

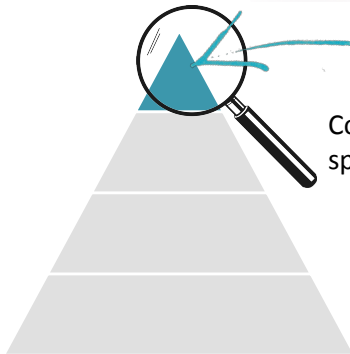
envisager toutes alternatives !



Concept 1
irritabilité
oculaire

Concept 2
méthodes
alternatives

Recherche de méthodes alternatives : outils



Commencer par consulter les outils les plus spécifiques : portails 3Rs

Accès à une information « critiquée »

Portails spécifiques 3Rs

Portails spécifiques au domaine 3Rs



- ECVAM (European Commission's science and knowledge service)

-> *alternatives to animal testing and safety assessment of chemicals*

à partir de la page <https://ec.europa.eu/jrc/en/research-topic/alternatives-animal-testing-and-safety-assessment-chemicals>

- DB-ALM : repository for alternative methods to animal experimentation both in research and for regulatory purposes

<https://ecvam-dbalm.jrc.ec.europa.eu/>

- TSAR : information on alternative methods submitted for validation

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

THE EURL ECVAM SEARCH GUIDE

TABLE OF ORGANISATIONS CATEGORISED by their Features for the 3Rs and their Type

Organisation	Features for the 3Rs						Type				
	Research Funding	Research & Validation	Education	Documentation & Information	Newsletter	Communication	Academia	Governmental Organisation	Industry	Joint Organisation	Non-Governmental Organisation
3R Research Foundation Switzerland	*					*					*
Akademie für Tierschutz		*		*							*
AltTox.org				*		*				*	
Altweb				*	*		*				
AWIC			*	*	*			*			
CAAT	*		*	*	*		*				
CARDAM		*	*	*							*
Dr Hadwen Trust	*			*	*						*
ECEAE				*	*						*
ecopa				*	*					*	
EPAA	*			*	*					*	
ESTIV				*	*	*					*
EURL ECVAM		*		*	*			*			

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THE EURL ECVAM SEARCH GUIDE

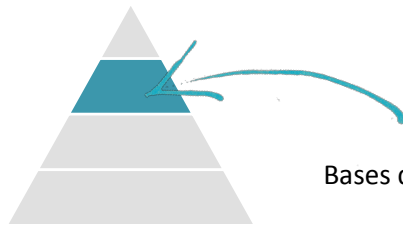
TABLE OF ORGANISATIONS CATEGORISED by their Features for the 3Rs and their Type

Organisation	Features for the 3Rs						Type				
	Research Funding	Research & Validation	Education	Documentation & Information	Newsletter	Communication	Academia	Governmental Organisation	Industry	Joint Organisation	Non-Governmental Organisation
FRAME		*		*	*						*
HSUS				*							*
ICCVAM		*		*				*			
IIVS		*	*	*	*						*
InterNICHE			*	*							*
IVTIP				*				*			
JSAAE		*		*			*				
NC3Rs	*			*	*			*			
NKCA				*	*		*				
UCCAA				*			*				
UFAW			*	*							*
ZEBET	*	*		*				*			
zet		*		*							*

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Recherche d'articles

Bases de données bibliographiques



Bases de données bibliographiques
analytiques



articles scientifiques

Pour avoir des informations sur toutes les bases de données potentiellement d'intérêt :
<https://www.library.ucdavis.edu/guide/alternatives/#select-bibliographic-databases-1>

THE EURL ECVAM SEARCH GUIDE

TABLE OF DATABASE FEATURES

Database	Subject Coverage					Type		Access
	Agriculture	Biomedicine	Education	Pharmacology & Toxicology	Veterinary medicine	Bibliographic database	Added-value database	Free-of charge database
AGRICOLA	•	•			•	•		•
AGRIS	•	•			•	•		•
ALTBIB		•		•		•		•
AnimAlt-ZEBET		•		•	•		•	•
BIOSIS Previews	•	•		•	•	•		•
CAB Abstracts	•	•			•	•		•
EURL ECVAM DB-ALM				•			•	•
EMBASE		•		•		•		•
HSVM's alternatives in Education Database			•				•	•
LAD		•			•	•		•
MEDLINE		•		•		•		•
NORINA			•				•	•
PED		•			•	•		•
ScienceDirect	•	•		•		•		•
SciSearch	•	•		•		•		•

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Bases de données bibliographiques

Bases de données bibliographiques

ce qu'il faut savoir :

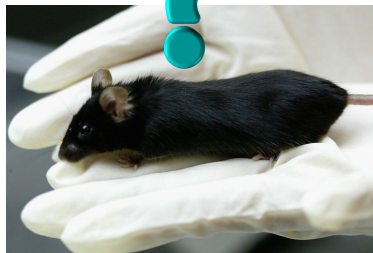
Bases de sommaires	Bases analytiques
• Scopus®	• Agricola®
• Web of Science®	• CAB Abstracts®
...	• Embase®
	• Medline® (PubMed®)
	...

Mode de recherche :
langage naturel

Mode de recherche :
langage contrôlé

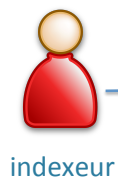
Interrogation des bases de données bibliographiques :
difficulté

Concept
souris



-> ambiguïté du langage

Bases de données analytiques -> langage contrôlé



Mission 1 :
identifier les
concepts qui vont
caractériser le
contenu du
document
primaire (article)

Mission 2 :
attribuer pour
chacun de ces
concepts un
descripteur, issu
d'une liste
contrôlée
(thésaurus)

THE EURL ECVAM SEARCH GUIDE

TABLE OF JOURNALS relevant to the 3Rs indexed by Databases and Meta-Databases

Journal	Databases							Meta-Databases		
	AGRICOLA	BIOSIS Previews	CAB Abstracts	EMBASE	MEDLINE	ScienceDirect	SciSearch	PubMed	Scopus	Web of Science
Alternative Approaches to Animal Testing, AATEX										
Alternativen zu Tierexperimenten, ALTEX				•	•		•	•	•	•
Alternatives to Laboratory Animals, ATLA				•	•		•	•	•	
Animal Technology and Welfare ATW										
Animal Welfare Journal			•	•			•	•	•	
Institute of Laboratory Animal Resources, ILAR	•			•	•			•	•	•
Journal of Animal Science, JAS	•	•	•		•			•		•
Journal of Applied Animal Welfare Science, JAAWS	•	•	•	•	•		•	•	•	•
Lab Animal	•				•			•	•	•
Laboratory Animals			•	•	•			•	•	•
Toxicology in vitro		•		•	•	•	•	•	•	•

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PubMed® = interface gratuite de Medline®

Base de données bibliographiques Medline® (interface PubMed®)

- accès gratuit : www.pubmed.gov
- + de 29 millions de notices bibliographiques
- dont des notices en cours d'indexation -> pas encore de descripteurs attribués pour qualifier le contenu de l'article. Ces notices sont signalées par : [PubMed - *in process*] - [PubMed - *as supplied by publisher*]
- avec des liens vers le texte intégral de l'article (lien de l'éditeur), lorsque celui-ci est disponible

Intérêt du langage contrôlé : exemple MeSH

=
thésaurus de Medline®

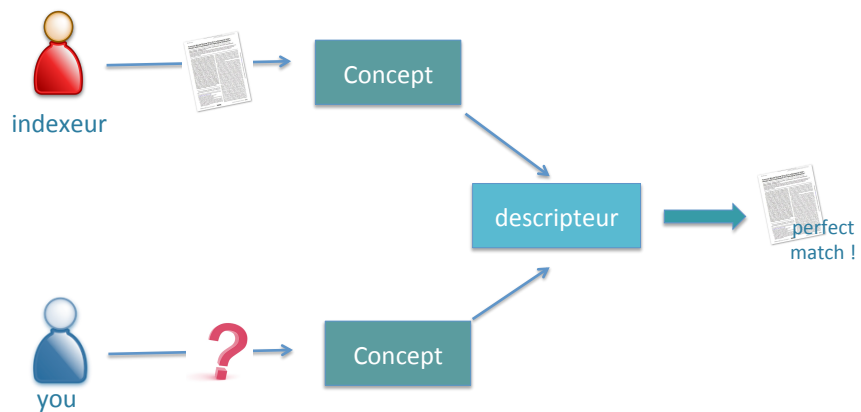
Concept
souris



descripteur
Mice[MeSH]

définition : *The common name for the genus Mus.*

Intérêt du langage contrôlé



Medline® (interface PubMed®) : en pratique

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www.pubmed.gov

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed

Advanced

Search

Help

PubMed

PubMed comprises more than 29 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

Using PubMed	PubMed Tools	More Resources
PubMed Quick Start Guide	PubMed Mobile	MeSH Database
Full Text Articles	Single Citation Matcher	Journals in NCBI Databases
PubMed FAQs	Batch Citation Matcher	Clinical Trials
PubMed Tutorials	Clinical Queries	E-Utilities (API)
New and Noteworthy		LinkOut

Interroger le thésaurus (MeSH)

26

MeSH

MeSH

Limits Advanced

Search

Help

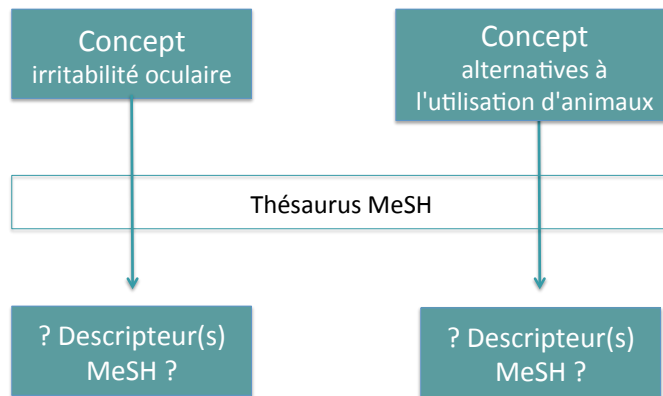
MeSH

MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus used for indexing articles for PubMed.

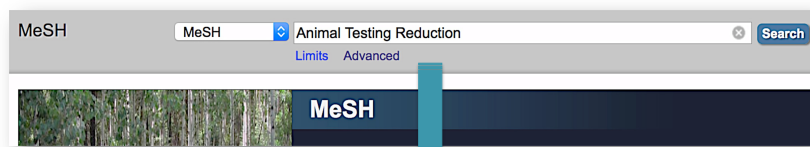
en anglais :
le terme
correspondant
au concept
recherché

EXAMPLE

To find validated in vitro methods, and the more refined in vivo methods, to determine the ocular safety of a specific chemical



Concept
alternatives à
l'utilisation d'animaux



Full ▾ Send to: ▾ PubMed Search Builder

Animal Use Alternatives
 Alternatives to the use of animals in research, testing, and education. The alternatives may include reduction in the number of animals used, replacement of animals with a non-animal model or with animals of a species lower phylogenetically, or refinement of methods to minimize pain and distress of animals used.
 Year introduced: 2001
 PubMed search builder options
 Subheadings:

Add to search builder
 AND
 Search PubMed

Animal Use Alternatives
 Alternatives to the use of animals in research, testing, and education. The alternatives may include reduction in the number of animals used, replacement of animals with a non-animal model or with animals of a species lower phylogenetically, or refinement of methods to minimize pain and distress of animals used.
 Year introduced: 2001

PubMed search builder options
 Subheadings:

<input type="checkbox"/> classification	<input type="checkbox"/> history	<input type="checkbox"/> organization and administration
<input type="checkbox"/> economics	<input type="checkbox"/> instrumentation	<input type="checkbox"/> standards
<input type="checkbox"/> education	<input type="checkbox"/> legislation and jurisprudence	<input type="checkbox"/> statistics and numerical data
<input type="checkbox"/> ethics	<input type="checkbox"/> methods	<input type="checkbox"/> trends

Restrict to MeSH Major Topic.
 Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): E05.017.080
 MeSH Unique ID: D023401

Entry Terms:

- Alternative, Animal Use
- Alternatives, Animal Use
- Animal Use Alternative
- Use Alternative, Animal
- Use Alternatives, Animal
- Animal Testing Reduction, Refinement and Replacement

Previous Indexing:

- [Animal Testing Alternatives \(1985-2000\)](#)

See Also:

- [Animal Welfare](#)
- [Animal Experimentation](#)

All MeSH Categories

- [Analytical, Diagnostic and Therapeutic Techniques and Equipment Category](#)
- [Investigative Techniques](#)
- [Animal Experimentation](#)
- [Animal Use Alternatives](#)
- [Animal Testing Alternatives](#)

Possibilité d'y associer un sous-descripteur (subheadings)

Entry terms = synonymes

Place du descripteur dans la hiérarchie du thésaurus

Concept

alternatives à l'utilisation d'animaux

Un autre descripteur potentiel

Models, Biological

Theoretical representations that simulate the behavior or activity of biological processes or diseases. For disease models in living animals, DISEASE MODELS, ANIMAL is available. Biological models include the use of mathematical equations, computers, and other electronic equipment.
 Year introduced: 1973

[Toxicol In Vitro](#), 2018 Jun;49:90-98. doi: 10.1016/j.tiv.2017.09.004. Epub 2017 Sep 21.

CON4EI: Evaluation of QSAR models for hazard identification and labelling of eye irritating chemicals.

Geerts L¹, Adriaens E², Alépée N³, Guest R⁴, Willoughby JA Sr⁵, Kandarova H⁶, Drzewiecka A⁷, Fochtman P⁷, Verstraelen S⁸, Van Rompay AR⁸.

Author information

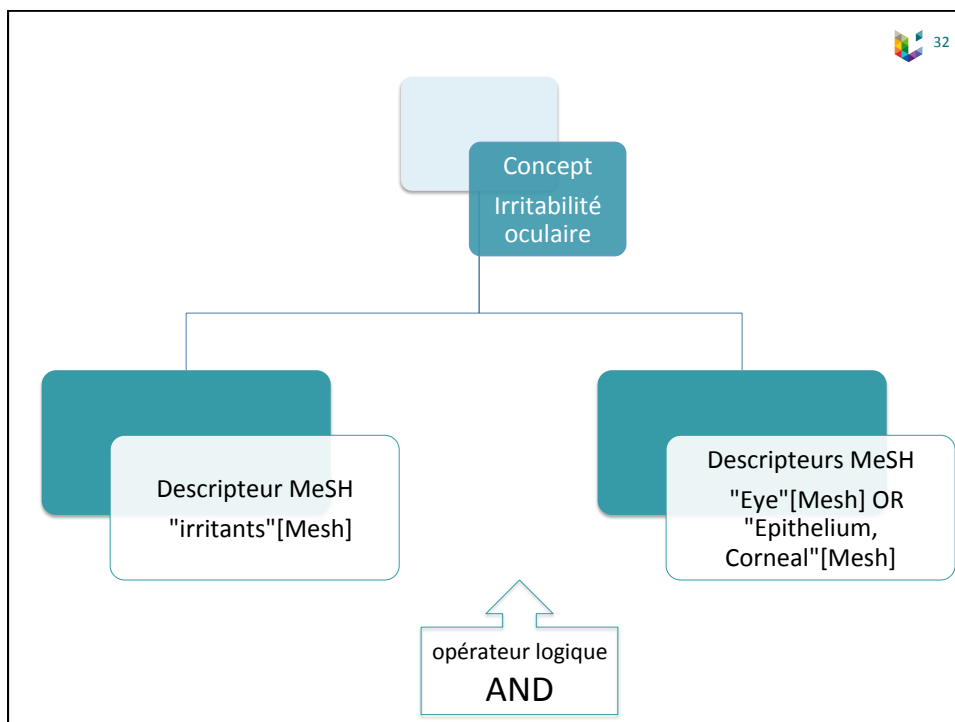
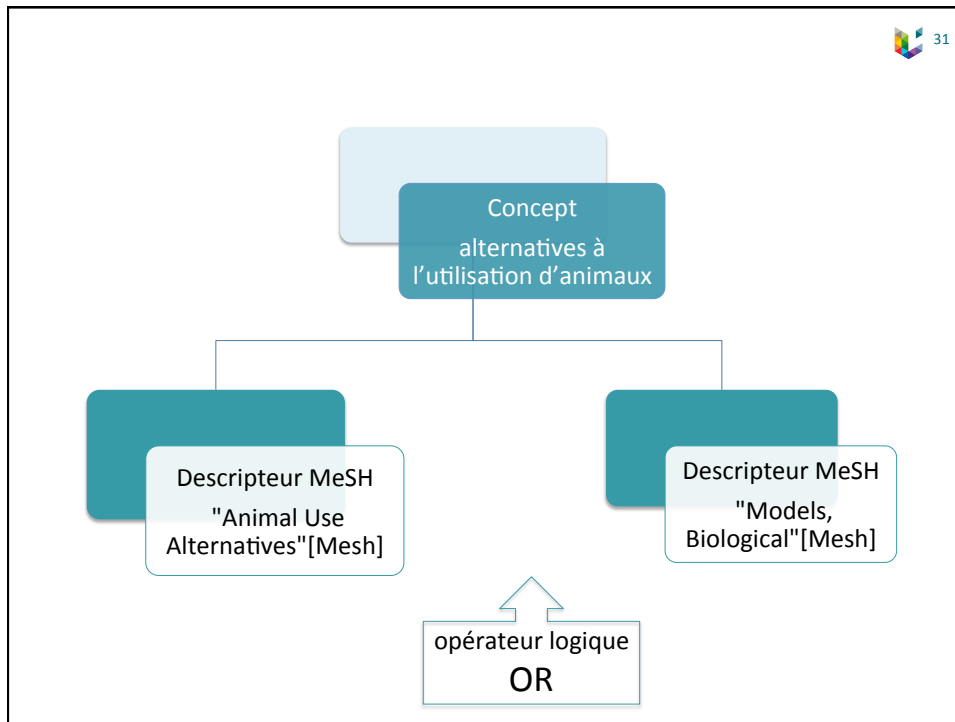
Abstract

Assessment of ocular irritation is a regulatory requirement in sa products. Although a number of in vitro ocular irritation assays i chemicals as stand-alone assays. Therefore, the CEFIC-LRI-AI Irritation testing strategy) project was developed to assess the i computational models as well as establishing an optimal tiered- (Toxtree, and Case Ultra EYE_DRAIZE and EYE_IRR) perform ranged from 15 to 58%. Coverage was 2 to 3.4 times higher for positives (5%) was reached with EYE_IRR; this model however (46%). The lowest number of false negatives (25%) was seen v lowest number of false negatives (11%), for solids EYE_DRAIZ sets should be enlarged with high quality data. The tested mod evaluations, but that they can surely become of value in an inte assessment.

Descripteurs associés au contenu de cet article

MeSH terms

- [Animals](#)
- [Computer Simulation](#)
- [Eye/drug effects*](#)
- [Irritants/classification*](#)
- [Irritants/toxicity*](#)
- [Models, Biological*](#)
- [Quantitative Structure-Activity Relationship](#)
- [Rabbits](#)
- [Toxicity Tests](#)



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MeSH

MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus used for indexing articles for PubMed.

PubMed

US National Library of Medicine
National Institutes of Health

Advanced

accès à l'historique de recherche :
lien *advanced*

History

Search	Add to builder	Query	Items found
#30	Add	Search ("Irritants"[Mesh]) AND ("Animal Use Alternatives"[Mesh]) OR "Models, Biological"[Mesh]) AND ("Eye"[Mesh]) OR "Epithelium, Corneal"[Mesh]	174
#29	Add	Search ("Eye"[Mesh]) OR "Epithelium, Corneal"[Mesh]	336791
#28	Add	Search ("Animal Use Alternatives"[Mesh]) OR "Models, Biological"[Mesh]	782749
#27	Add	Search "Irritants"[Mesh]	5183
#25	Add	Search "Epithelium, Corneal"[Mesh]	5444
#23	Add	Search "Eye"[Mesh]	336791
#21	Add	Search "Models, Biological"[Mesh]	779498
#19	Add	Search "Animal Use Alternatives"[Mesh]	3659

34

PubMed

US National Library of Medicine
National Institutes of Health

Search

Format: Summary - Sort by: Most Recent - Per page: 20 -

Send to - Filters: Manage Filters

Search results

Items: 1 to 20 of 164

Me-too validation study for in vitro eye irritation test with 3D-reconstructed human cornea epithelium, MCTT HCE™.

1. Lim SE, Ha SJ, Jang WH, Jung KM, Jung MS, Yeo KW, Kim JS, Jeong TC, Kang MJ, Kim SY, Lee SH, Ko KY, Kim TS, Park KS, Bae S, Lim KM. *Toxicol In Vitro*. 2019 Mar;55:173-184. doi: 10.1016/j.tiv.2018.12.003. Epub 2018 Dec 17. PMID: 30572010

Similar articles

Format: Abstract -

Send to -

Toxicol In Vitro. 2019 Mar;55:173-184. doi: 10.1016/j.tiv.2018.12.003. Epub 2018 Dec 17.

Me-too validation study for in vitro eye irritation test with 3D-reconstructed human cornea epithelium, MCTT HCE™.

Lim SE¹, Ha SJ¹, Jang WH², Jung KM², Jung MS³, Yeo KW⁴, Kim JS⁵, Jeong TC⁶, Kang MJ⁶, Kim SY⁷, Lee SH⁷, Ko KY⁸, Kim TS⁸, Park KS⁹, Bae S⁹, Lim KM¹⁰.

Author information

Abstract

The need for in vitro eye irritation test replacing in vivo is steadily increasing. The MCTT HCE™ eye irritation test (EIT) using 3D reconstructed human cornea-like epithelium, was developed to identify ocular irritants from non-irritants those that are not requiring classification and labelling for eye irritation. Here, we report the results of me-too validation study, which was conducted to evaluate the reliability and relevance of the MCTT HCE™ EIT, according to performance standards (PS) of OECD TG 492. The optimal cutoff to determine irritation in the prediction model was preliminarily established at 45% with the receiver operation

Full text links

ELSEVIER

FULL-TEXT ARTICLE

Save items

Add to Favorites

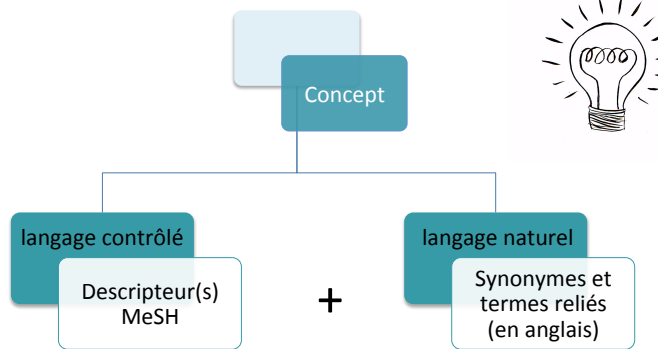
Similar articles

Prevalidation trial of eye irritation test (CON4E): SkinEthi Epithelium Eye (A new 3D reconstructed corneal epitheli...



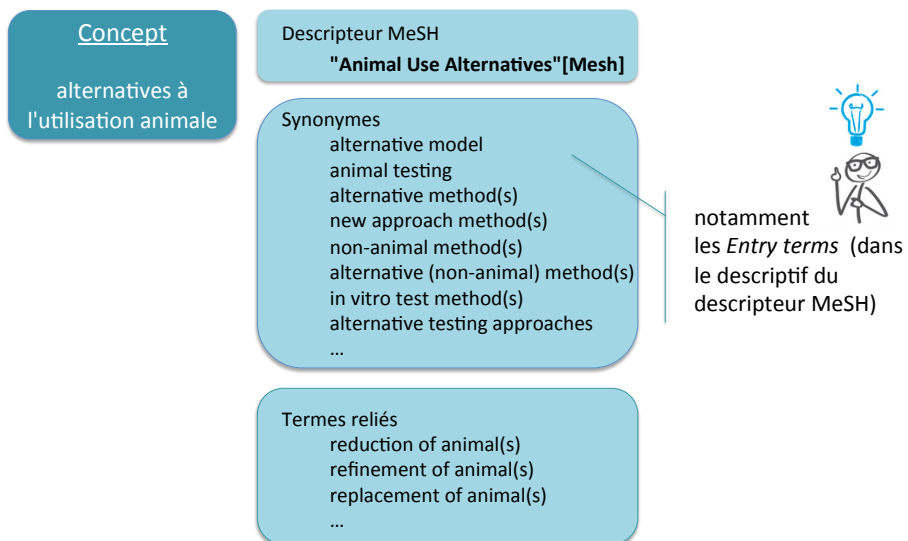
Langage contrôlé -> repérer les notices d'articles qui ont déjà été indexés

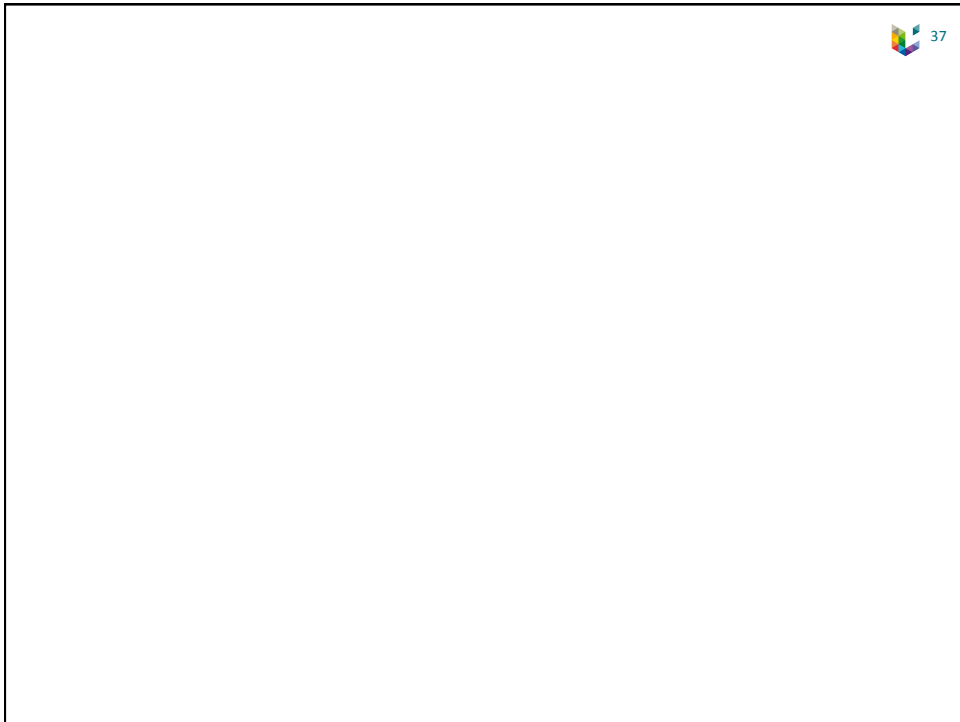
Pour repérer les notices d'articles non encore indexés (sans MeSH terms) -> associer une recherche en langage naturel



Langage naturel

-> tous les synonymes et termes reliés représentant le concept





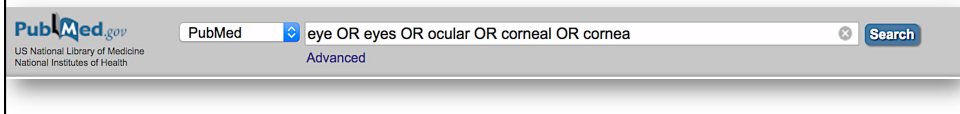
Concept
oeil

Descripteur MeSH
"Eye"[Mesh]

Synonymes et termes reliés
ocular

cornea
corneal
...

En pratique : associer les différents termes dans la barre de recherche de la page d'accueil



History [Download history](#) [Clear](#)

Search	Add to builder	Query	Items found
#48	Add	Search ("Eye"[Mesh]) OR (eye OR eyes OR ocular OR cornea OR corneal)	724529
#46	Add	Search "Eye"[Mesh]	336791

✓ perte de précision -> bruit

Adv Healthc Mater. 2018 Oct;7(19):e1800488. doi: 10.1002/adhm.201800488. Epub 2018 Aug 8.

Human Corneal Tissue Model for Nociceptive Assessments.

Siran W¹, Ghezzi CE¹, Cairns DM¹, Pollard RE¹, Chen Y¹, Gomes R^{1,2}, McKay TB¹, Pouli D¹, Jamali A³, Georgakoudi I¹, Funderburgh JL⁴, Kenyon K³, Hamrah P³, Kaplan DL¹.

⊕ Author information

Abstract

New in vitro tissue models to mimic in vivo conditions are needed to provide insight into mechanisms involved in peripheral pain responses, potential therapeutic strategies to address these responses, and to replace animal models for such indications. For example, the rabbit cornea Draize test has become the standard method used for decades to screen ophthalmic drug and consumer product toxicity. In vitro tissue models with functional innervation have the potential to replace in vivo animal testing and provide sophisticated bench tools to study ocular nociception and its amelioration. Herein, full thickness, innervated, 3D human corneal tissues are grown under physiologically relevant culture conditions to study nociceptive-related responses, by mimicking ocular environmental cues, including intraocular pressure (IOP) and tear flow (TF). Capsaicin, a chili pepper-derived irritant known to cause a burning sensation in mammalian tissues is utilized as a nociceptive stimulant to induce pain, while subsequent serum treatment is used to mimic healing. Pain mediators released upon capsaicin stimulation and cell regrowth after serum treatment are characterized to assess ocular responses in this new, innervated, human corneal tissue system for comparison of outcomes to established animal and related responses.

Notice qui n'a pas encore indexée (descripteurs MeSH non encore attribués)

Aucune stratégie de recherche n'est parfaite

– du moins en première intention –

➔ Indispensable de 'critiquer' sa recherche

- ① pertinence des notices proposées ?
- ② présence, dans les résultats, des articles que vous connaissez déjà et qui répondent à votre requête ?

ajuster la requête

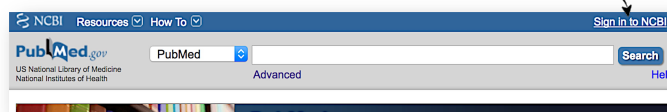


Important :

- sauvegarder la recherche (*save in My NCBI*)
-> corrections possibles
- créer une alerte -> *email up date*

Search	Add to builder	Query	Items found
#62	AND in builder OR in builder NOT in builder Delete from history Show search results Show search details	[mesh]) OR (eye OR eyes OR ocular OR cornea OR corneal))) AND alternatives"[Mesh]) OR ("Animal Use Alternatives" OR (alternative models OR method OR methods)) OR "animal testing" OR "non- R "in vitro test method" OR (reduction OR refinement OR D ("Models, Biological"[Mesh]) OR ("biological model" OR "OR cell OR cells))) AND (("Irritants"[Mesh]) OR (Irritant OR ing chemicals" OR "irritation test" OR "irritation tests"))	188
#61	Save in My NCBI	irritants OR "irritating chemicals" OR	25304
#60	Add	Search ("Models, Biological [mesh] OR "biological model" OR "biological models"	7036892

-> nécessite la création d'un compte (*sign in to NCBI*)



Dernière chose pour la recherche dans PubMed®



Pour pallier la difficulté de constituer une requête (langage naturel), des filtres ont été créés par des spécialistes

1. Filtre pour le concept « toxicology »

https://www.nlm.nih.gov/bsd/pubmed_subsets/tox_strategy.html

2. Filtre pour le concept « animal experimentation »

(Hooijmans *et al.*, 2010)

<https://www.radboudumc.nl/getmedia/2c58b60d-e449-4be1-8b90-460b90815e27/animal-search-filter-pubmed-1-page-for-website.aspx>



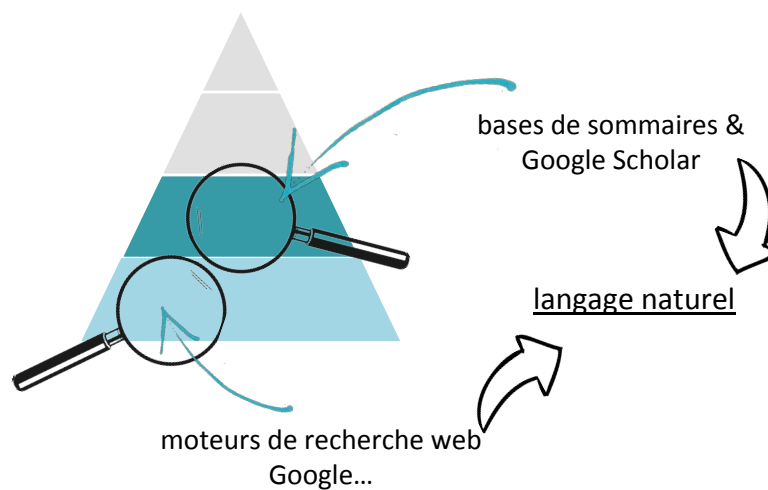
-> interroger plusieurs bases de données bibliographiques

Embase®

Cela nécessite de maîtriser les caractéristiques d'interrogation de chacune de celles que vous pourrez interroger

Il existe de semblables filtres pour la base analytique EMBASE®

de Vries RB, Hooijmans CR, Tillema A, Leenaars M, Ritskes-Hoitinga M.
Updated version of the embase search filter for animal studies. Lab Anim
2014;48(1):88. (Open Access)

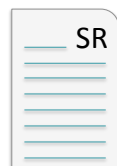


En conclusion

Recherche d'information qui soit

- exhaustive
- pertinente
- résultats de qualité

idéalement



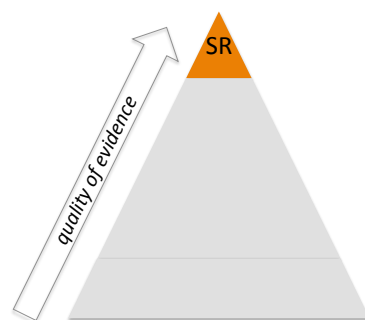
systematic review

Consider the use of systematic reviews.
: PREPARE guidelines

Fruit d'une démarche scientifique rigoureuse

- recherche de littérature systématique
- évaluation de la qualité de chaque étude
- synthèse, quantifiée ou non, des résultats obtenus

Et pourquoi pas ?



evidence-based medicine

Être acteur

- CAMARADES : Collaborative Approach to Meta Analysis and Review of Animal Data from Experimental Studies (www.camarades.info)
- SYRCLE : Systematic Review Centre for Laboratory Animal Experimentation (www.SYRCLE.nl)

(de vries *et al.*, 2014)

Merci de votre attention

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Pour en savoir plus

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