

3Ranker

Wynand Alkema

Information overload or filter failure



How can we identify literature and scientific articles that describe methods for
Replacement, Refinement and Reduction?

Search for dermatitis

dermatitis

All results Reduction In vitro endpoints Animal Replacement Non-animal Refinement Validated test method Human Toxicology

About 6,310,000 results (0.49 seconds)

Inhalation exposure to fragrance allergens Are consumers at risk for ...
www.rivm.nl › bibliotheek › rapporten
File Format: PDF/Adobe Acrobat
Twenty-six such fragrances are known potential causes of allergic contact dermatitis. An inventory of products by the RIVM has shown that the majority of these
Labeled Refinement

In Vitro Testing & Other Services | AltTox.org
AltTox.org › Resource Center
28 Jun 2018 ... In vitro testing and other laboratory services that support the development, use, and/or validation of non-animal test methods.
Labeled Refinement

TSAR Home | EURL ECVAM
tsar.jrc.ec.europa.eu
TRACKING SYSTEM FOR ALTERNATIVE METHODS TOWARDS REGULATORY ACCEPTANCE. TSAR tracks the progress of alternative, non-animal methods, for testing chemicals or
Labeled Refinement

Facts About Product Testing on Animals | PETA
PETA's ... Animals Used for Experimentation Factsheets
It is now evident that tests on animals often do not predict outcomes in humans, and many non-animal test methods are available and continue to be developed
Labeled Refinement

ESTIV board 2020-2024 | European Society of Toxicology in Vitro
European Society of Toxicology in Vitro › e-stiv-board
Communication Team: Ivona Wilk-Zasada, Sofia Balista-Leite, Marketa Duzikova, Helena Kandazova ASCCT-ESTIV Webinars Teams Anne-Marie

SAGE journals Search Browse Resources Access Options:

Search Results

Results: 1 – 20 of 112 for All dermatitis within Alternatives To Laboratory Animals x

Articles(112)

Download selected citations Refine Search Sort: Relevance

Select all

The Overt and Hidden Use of Animal-Derived Products in Alternative Methods for Skin Sensitisation: A Systematic Review

Bianca Marigliani, Felipe Perraro Sehn, Josemar Vinicius Maiworm Abreu Silva, Luciene Bottentuit López Balottin, Elisabeth de Fatima Pires Augusto, Anna Maria Buehler

Alternatives to Laboratory Animals, vol. 47, 5-6, pp. 174-195, First Published January 4, 2020.

Abstract
> Preview

Hallmarks of Atopic Skin Mimicked In Vitro by Means of a Skin Disease Model Based on FLG Knock-down

Sarah Küchler, Dominika Henkes, Katja-Martina Eckl, Katharina Ackermann, Johanna Plendl, Hans-Christian Korting, Hans-Christian Hennies, Monika Schäfer-Korting

Alternatives to Laboratory Animals, vol. 39, 5, pp. 471-480, First Published October 1, 2011.

Abstract
> Preview

AltTox.org
Alternative Methods for Toxicity Testing

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Not so happy with results? Search for a new keyword

PAST MEETINGS & EVENTS - 2017

APRIL 28 ACI WEBINAR: THE SCIENCE ON CHEMICAL INDUCED ASTHMA

TOXICITY TESTING OVERVIEW

RE-Place
ALTERNATIEVE METHODEN VOOR DIERPROEVEN

DATABANK OVER INFO NEWS & EVENTS CONTACT SUBMIT METHOD

ARDF Annual Open Grant Program

Search methods

dermatitis

Type of method Area Organisation

3D in vitro model for atopic dermatitis

Recent advances in the development of human-based in vitro models offer new tools for drug screening and mechanistic investigations of new therapeutic agents. However, there is a lack of evidence that disease models respond favourably to potential drug candidates. Atopic dermatitis (AD) is a very

Contact: Christel Boudry
Organisation: straticell
Status: Internally validated, Published in peer reviewed journal
Download PDF

Last updated on: 22-04-2022 - 09:17

NC 3Rs
National Centre for the Replacement, Refinement & Reduction of Animals in Research

Search our resource library

dermatitis

Audience Resource type Resource topic Model

1 results

joint-research-centre.ec.europa.eu/scientific-tool/database-alternative-methods-animal-experimentation_en

EU Science Hub

Page not found

Something went wrong

The page you requested could not be found. This might have happened because

Return to the homepage

https://www.effectopedia.org

Je verbinding is niet privé

Cybercriminelen proberen mogelijk je gegevens van www.effectopedia.org te stelen (bijvoorbeeld wachtwoorden, berichten of creditcardgegevens). Meer informatie

Zet de geoptimaliseerde beveiliging aan om het hoogste beveiligingsniveau van Chrome te gebruiken

Geavanceerd

Terug naar veilige website

A lot of information

File	Home	Insert	Page Layout	Formulas	Data	Review	View	Help	Tell me what you want to do
Paste	Cut	Copy	Format Painter	Arial	10	B	I	U	Font
Clipboard	Font	Alignment	Number	General	Conditional Formatting	Format as Table	Normal	Bad	Good
							Calculation	Check Cell	Explanatory ...
H662									
A	B	C	D	E	F	G	H	I	J
Knowledge source name	Abbreviated name	Owner/Developer	Abbreviated owner	Country	Languages	URL	Contact	Contact email	Description
1R Institute of Promotion and 1R Institute	1R Institute	1R Institute of Prom	1R Institute	Brazil	English, Portuguese	http://www.instituto1r.org/contato			1R Institute working as an
3D Biomatrix	3D Biomatrix	3D Biomatrix		United St	English	https://3dbiomatrix.com/contact	support@3dbiomatrix.com		3D Biomatrix's products ma
3D Biomatrix 3D Cell Culture Webinar Series	3D Biomatrix	3D Biomatrix		United St	English	https://3dbiomatrix.com/webinars	support@3dbiomatrix.com		3D Biomatrix is happy to an
3D Bioprinting & 3D MedTech Printing Forum					English	https://www.linkedin.com/groups/4820877/profile			This forum covers topics from
3D bioprinting of tissues and organs		Nature Biotechnology		United Ki	English	http://www.nature.com/nbt/journal/v32/n8/full/nbt.2958.html			Additive manufacturing, other
3D Cell Culture Methods and Protocols		Springer International Publishing		United States of Ameri		http://www.springer.com/us/book/9781607619833			Developed for a range of tissues where the Publication
3D Cellular Models: Revitalizing Phenotypic Screening		Cambridge Healthtech Institute		United St	English	http://www.worldpreclinicalcongress.com/3D-Cellular-Models/			Inadequate representation of the human ti Event
3D MedNet		Future Science Group		United Ki	English	https://www.3dmednet.com/			3D MedNet is a network that unites all me Experts
3D Printing For Medicine		3D MedNet			English	https://www.linkedin.com/groups/8523493/profile			3D Printing For Medicine / 3D MedNet is a Experts
3D-printing human skin: The end of animal testing?		The Christian Science Monitor		United St	English	http://www.csmonitor.com/Technology/2015/0519/3D-printing-human-skin-T			The era of animal testing may be coming ' Publication
3D printing of PLGA scaffolds for tissue engineering		Biomedical Materials Research		United St	English	http://onlinelibrary.wiley.com/doi/10.1002/jbm.a.35871/full			We proposed a novel method of generatio Publication
3R Guide		Norecopa and Animal Welfare Information		Norway	English, Norwegian	https://norecopa.no/3r-guide	post@norecopa.no		Norecopa, in collaboration with the Anima Information System
3R Research Foundation		Swiss Consensus Platform for 3R Alternati		Switzerland	English, French	http://www.forschung3r.ch/			The aim of the 3R Foundation is to promo Organization
3Rs Animal Ethics Award		University of Western Australia		Australia	English	http://www.research.uwa.edu.au/staff/vetservices@uwa.edu.au			Award to recognize individual or group whi Research Program/Project/Grant
3Rs-Centre Utrecht Life Scie	3Rs-Centre ULS	Utrecht Life Science	ULS	Netherlar	Dutch, English	http://http://www.uu.nl/en/organisatio	3RsCentreULS@uu.nl		The mission statement of the 3Rs-Centre Organization
3Rs Webinar Series New Jersey Association for B	New Jersey Associa	NJABR		United St	English	http://njabr.com/3rs-spring-webinar-archive/			With the growing emphasis on alternative Education/Training
£4m dedicated to advancing the development and		National Centre for t	NC3Rs	United Ki	English	https://www.nc3rs.org.uk/news/%C2%A34m-dedicated-advancing-developm			Fifteen business collaborations, carrying c Publication
AALAS Learning Library	ALL	American Associati	AALAS	United St	English	http://www.aalaslearninglibrary.org/P	info@aalas.org		The AALAS Learning Library, or ALL, org Education/Training
ABICH S.r.l.		Biological and Chem	Abich S.r.l.	Italy	English, Italian	http://www.abich.it/en/contact-us.aspx	info@abich.it		Abich is a Contract Research Organizati Organization
Accelera S.r.l.		Accelera S.r.l.		Italy	English	http://www.accelera.org/contact-us/s	info@accelera.org		Accelera is the non-clinical Contract Res Organization
ACROSS BARRIERS GmbH		ACROSS BARRIERS GmbH		Germany	English, German	http://www.acrossbarriers.de/	sales@acrossbarriers.de		Across Barriers GmbH was set up with th Organization
ACuteTox - An In-Vitro Test 'ACuteTox		European Commissi	EC	Sweden	English	http://www.acutetox.eu/	info@acutetox.eu		The AcuteTox project is now finished. The Research Program/Project/Grant
Acute Toxicity Testing Without Animals		European Coalition t	ECEAE	United Ki	English	http://www.eceae.org/_lib/userfiles/fil	info@eceae.org		Since the early days of the REACH propo Publication
ADME					English	https://www.linkedin.com/messaging/compose?connid=12892329&gr			This group welcomes all Scientist, Post-d Experts
ADME-Tox in drug discovery: integration of experin		Drug Discovery Today		Netherlar	English	http://www.sciencedirect.com/science/article/pii/S1359644603028289			Over the past ten years, in vitro experime Publication
Advanced Pharmaceutical Si	APSciences	Advanced Pharmace	APSciences	United St	English	http://www.apsciences.com/co	info@apsciences.com		APSciences, Inc. offers products, which e Organization
Advances in Tissue Engineering, Volume 1: Angio	Mary Ann Liebert, Inc. publishers			United St	English	http://www.liebertpub.com/overview/advances-in-tissue-engineering-volume-1			Angiogenic control has proven to be one c Publication
Advances in Tissue Engineering, Volume 2: Stem	Mary Ann Liebert, Inc. publishers			United St	English	http://www.liebertpub.com/overview/advances-in-tissue-engineering-volume-2			All of the tissues in our bodies derive from Publication
Adverse Outcome Pathway f	AO-PKB	The Organisation for OECD, EC, US EPA,		France	English	http://aopkb.org/			To enable the scientific community, in on Information System
Adverse Outcome Pathway f	AO-PKB Wiki	The Organisation for OECD, EC, US EPA,		France	English	https://aopwiki.org/wiki/index.php/Main_Page			This wiki represents a joint effort between Information System
AFABILITY		AFABILITY		United Ki	English	http://www.afability.com/	service@afability.com		AFABILITY is a non-commercial scientific Organization
Aggregated Computational T	ACToR	US Environmental P	US EPA	United St	English	https://actor.epa.gov/actor/home.xhtml	CSSDashboards@epa.gov		EPA's Aggregated Computational Toxicolo Information System
Alcyomics		Alcyomics Ltd		United Ki	English	http://www.alcyomics.com/index.html			Alcyomics offers human in vitro (lab-based) Organization

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DATASET

Inventory of the 3Rs knowledge sources

Collection:

[EURL-ECVAM : European Union Reference Laboratory for Alternatives to Animal Testing](#)

The problem

- How can we identify articles that describe methods for Replacement, Refinement and Reduction?
 - Often not explicitly described as such.
 - Hard to define the correct search terms.
- As a consequence the search is
 - Elaborate
 - Time consuming
 - **Biased**
 - Incomplete
 - **Not updated**

THE NEXT STEPS TOWARDS RESPONSIBLE ANIMAL-BASED RESEARCH

EVALUATION OF STRATEGIES TO IMPROVE SCIENTIFIC QUALITY AND RESPONSIBLE ANIMAL USE IN RESEARCH

Main findings from a survey:

No budget/time for specific 3R search

Existing relevant 3R information not found / not used

Solution: Mine the bibliome



Mining the bibliome: searching for a needle in a haystack?

New computing tools are needed to effectively scan the growing amount of scientific literature for useful information • by Les Grivell



The image shows a screenshot of a Sage Journals article page. At the top, there's a search bar and navigation links. The article title is "The 3Ranker: An AI-based Algorithm for Finding Non-animal Alternative Methods". Below the title, it lists authors: Niels van Beuningen, Sinne Alkema, Nils Hijlkema, Brun Ulfhake, Rafael Frias, Merel Ritskes-Hoitinga, and Wynand Alkema. The article is from Volume 51, Issue 6. The abstract is visible, starting with "The search for existing non-animal alternative methods for use in experiments is currently challenging because of the lack of both comprehensive structured databases and balanced keyword-based search strategies to mine unstructured textual databases. In this paper we describe 3Ranker, which is a fast, keyword-independent algorithm for finding non-animal alternative methods for use in biomedical research. The 3Ranker algorithm was created by using a machine learning approach, consisting of a Random Forest model built on a dataset of 35 million abstracts..."

> [Altern Lab Anim.](#) 2021 Jul;49(4):133-136. doi: 10.1177/02611929211048447. Epub 2021 Sep 28.

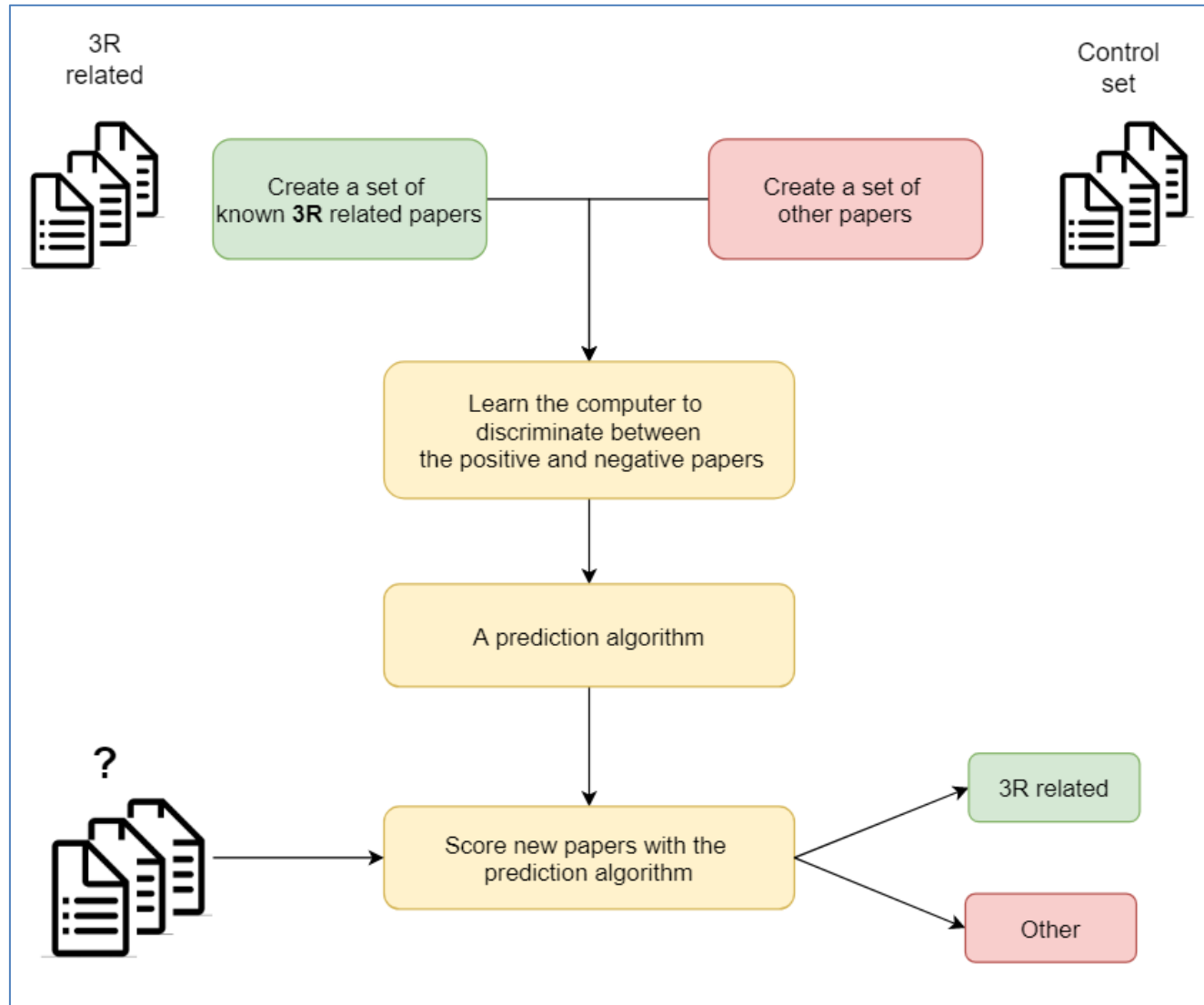
The Use of Artificial Intelligence for the Fast and Effective Identification of Three Rs-based Literature

Merel Ritskes-Hoitinga ^{1 2}, Wynand Alkema ^{3 4}

Affiliations + expand

PMID: 34581190 DOI: [10.1177/02611929211048447](https://doi.org/10.1177/02611929211048447)

Machine Learning Approach



Based on a set of known **positive** and **negative** papers, a computer model is trained that can predict whether a paper is about a **3R** subject.

3865 papers describing
Alternative Animal Tests (Mesh
term)

A random abstract set

Currently available

- 40 million PubMed abstracts with a 3R score for **skin** or **central nervous system** ranging from 0 to 1.
- An **Applied Programming Interface** is available for plugging in into your own workflow.
- **Searchable web interface** with 500.000 predefined keywords (**genes, pathways, diseases, drugs, products**).

The screenshot displays the 3Ranker web interface. The top navigation bar includes links for Home, Search, Curated Abstracts, Reference Scoring, and Login. The main content area is divided into two primary sections: 'Find concept' and 'Search results'.

Find concept: A search bar contains the text 'dermatitis'. Below it, the 'Search results' section shows a table of concepts. The table has columns for Concept ID, Concept name, Number of abstracts, and Synonyms. The first three results are highlighted in blue.

Concept ID	Concept name	Number of abstracts	Synonyms
TW0IS_00307	dermatitis	91586	eczema; inflammatory skin disease; skin inflammation
TW0IS_00091	atopic dermatitis	44164	allergic dermatitis; atopic eczema; atopic neurodermatitis; besnier's prurigo; dermatitis; atopic; eczema
TW0IS_01003	contact dermatitis	15606	contact eczema; dermatitis venenata

Below the table are 'Previous' and 'Next' navigation buttons.

Abstracts: The right-hand section displays a list of abstracts. It includes a search bar, a 'Show' dropdown set to 10 entries, and a table with columns for Citation, Score, and Year. The table lists several abstracts related to skin sensitization and testing methods.

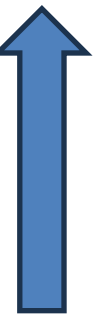
Citation	Score	Year
Intralaboratory validation of four in vitro assays for the prediction of the skin sensitizing potential of chemicals. Caroline Bauch et al., Toxicol In Vitro. 2011. 21669280	0.908	2011
In vitro detection of contact allergens: development of an optimized protocol using human peripheral blood monocyte-derived dendritic cells. Hendrik Reuter et al., Toxicol In Vitro. 2010. 20932890	0.89	2010
An in vitro method for detecting chemical sensitization using human reconstructed skin models and its applicability to cosmetic, pharmaceutical, and medical device safety testing. James M McKim et al., Cutan Ocul Toxicol. 2012. 22494060	0.89	2012
Putting the parts together: combining in vitro methods to test for skin sensitizing potentials. Caroline Bauch et al., Regul Toxicol Pharmacol. 2012. 22659254	0.84	2012
A comparative study of leukaemia inhibitory factor and interleukin-1alpha intracellular content in a human keratinocyte cell line after exposure to cosmetic fragrances and sodium dodecyl sulphate. Alessandra Parodi et al., Toxicol Lett. 2009. 19878710	0.828	2009
Performance of the N/TERT epidermal model for skin sensitizer identification via Nr2-Keap1-ARE pathway activation. Mariam Alloul-Ramdhani et al., Toxicol In Vitro. 2014. 24794257	0.826	2014
Assuring consumer safety without animal testing: a feasibility case study for skin sensitisation. Gavin Maxwell et al., Altern Lab Anim. 2008. 19025323	0.824	2008
In vitro methods for hazard assessment of industrial chemicals - opportunities and challenges. Chin Lin Wong et al., Front Pharmacol. 2015. 25999858 PDF	0.818	2015
An approach for development of alternative test methods based on mechanisms of skin irritation. R Osborne et al., Food Chem Toxicol. 1994. 8132172	0.774	1994
Evaluation of an optimized protocol using human peripheral blood monocyte derived dendritic cells for the in vitro detection of sensitizers: Results of a ring study in five laboratories. Hendrik Reuter et al., Toxicol In Vitro. 2015. 25868915	0.77	2015

At the bottom of the interface, there are logos for Karolinska Institutet, SYRCLE, TENWISE (Making sense of data), and FORSKA UTAN DJURFÖRSÖK.

Access with an API

```
1 import requests
2 import sys
3
4 ### Setting up the connection to the api ###
5 # The valid APIKEY is read as the first argument from the command line
6 session = requests.Session()
7 base_url = 'https://apimlqv2.tenwiseservice.nl/api/mlquery/'
8 session.headers['referer'] = 'https://apimlqv2.tenwiseservice.nl/'
9 session.get(base_url + "start/")
10 payload = {'apikey': sys.argv[1],
11           'csrfmiddlewaretoken': session.cookies.get_dict()['csrftoken']}
12
13 ### Get some PMIDs
14 payload['pmids'] = '33919317, 30671696, 21669280'
15 results = session.post(base_url + "refset/class_scores/",
16                       payload)
17 json_response = results.json()
18
19 ### Print out scores
20 for item in json_response['result']['class_scores']:
21     print("\t".join(str(x) for x in [item['pmid'],
22                                     item['classifier'],
23                                     item['classifier_score']])
24         )
25
26
```

	A	B	C
1	PMID	Model	Score
2	21669280	3r_skin	0.908
3	30671696	3r_cns	0.562
4	30671696	3r_skin	0.506
5	33919317	3r_cns	0.772



	A	B	C
1	PMID	Model	Score
2	21669280	3r_skin	0.908
3	30671696	3r_cns	0.562
4	30671696	3r_skin	0.506
5	33919317	3r_cns	0.772

×

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Sort by:

Best match

Display options

MY CUSTOM FILTERS

3 results

«

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Page

1

 of 1

>

»

RESULTS BY YEAR

PUBLICATION DATE

☐ 1 year
 ☐ 5 years
 ☐ 10 years
 ☐ Custom Range

TEXT AVAILABILITY

☐

☐ 1

Cite

Share

Intralaboratory validation of four in vitro assays for the prediction of the skin sensitizing potential of chemicals.

Bauch C, Kolle SN, Fabian E, Pachel C, Ramirez T, Wiench B, Wruck CJ, van Ravenzwaay B, Landsiedel R. *Toxicol In Vitro*. 2011 Sep;25(6):1162-8. doi: 10.1016/j.tiv.2011.05.030. Epub 2011 Jun 7. PMID: 21669280

☐ 2

Cite

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Recent Expansions on Cellular Models to Uncover the Scientific Barriers Towards Drug Development for Alzheimer's Disease.

Dubey SK, Ram MS, Krishna KV, Saha RN, Singhvi G, Agrawal M, Ajazuddin, Saraf S, Saraf S, Alexander A. *Cell Mol Neurobiol*. 2019 Mar;39(2):181-209. doi: 10.1007/s10571-019-00653-z. Epub 2019 Jan 23. PMID: 30671696 [Free PMC article](#). [Review](#).

☐ 3

Cite

Share

Utilising Induced Pluripotent Stem Cells in Neurodegenerative Disease Research: Focus on Glia.

Albert K, Niskanen J, Kälvälä S, Lehtonen Š. *Int J Mol Sci*. 2021 Apr 21;22(9):4334. doi: 10.3390/ijms22094334. PMID: 33919317 [Free PMC article](#). [Review](#).

DEMO

CNS: Parkinson's

Display only 3R papers that deal with induced Pluripotent Stem Cells (iPSC):

Abstracts

Search:

Score Year

Show 10 entries

Citation

Utilising Induced Pluripotent Stem Cells in Neurodegenerative Disease Research: Focus on Glia. Katrina Albert et al.. Int J Mol Sci. 2021. [33919317 PDF](#)

Modeling Parkinson's Disease and Atypical Parkinsonian Syndromes Using Induced Pluripotent Stem Cells. Takayasu Mishima et al.. Int J Mol Sci. 2018. [30518093 PDF](#)

Modeling Human Neurological and Neurodegenerative Diseases: From Induced Pluripotent Stem Cells to Neuronal Differentiation and Its Applications in Neurotrauma. Hisham Bahmad et al.. Front Mol Neurosci. 2020. [28293168 PDF](#)

Human induced pluripotent stem cells and neurodegenerative disease: prospects for novel therapies. Wook Jung et al.. Curr Opin Neurol. 2012. [22357218 PDF](#)

Using induced pluripotent stem cell neuronal models to study neurodegenerative diseases. Xinwen Zhang et al.. Biochim Biophys Acta Mol Basis Dis. 2019. [30898538 PDF](#)

Application of human induced pluripotent stem cells for modeling and treating neurodegenerative diseases. Natalie L Payne et al.. N Biotechnol. 2014. [24815224](#)

NIH National Library of Medicine National Center for Biotechnology Information

PubMed

Search

Advanced Create alert Create RSS User Guide

Found 1 result for 33919317

Review > Int J Mol Sci. 2021 Apr 21;22(9):4334. doi: 10.3390/ijms22094334.

Utilising Induced Pluripotent Stem Cells in Neurodegenerative Disease Research: Focus on Glia

Katrina Albert ¹, Jonna Niskanen ², Sara Kälviälä ², Sárka Lehtonen ^{2,3}

Affiliations + expand

PMID: 33919317 PMCID: PMC8122303 DOI: 10.3390/ijms22094334

Abstract

Induced pluripotent stem cells (iPSCs) are a self-renewable pool of cells derived from an organism's somatic cells. These can then be programmed to other cell types, including neurons. Use of iPSCs in

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FULL TEXT OPERATIONS

ACTIONS

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Showing 1 to 10 of 12 entries (filtered from 31 total entries)

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ENWISE
making sense of data

Links to PDFs

Show entries

Search:

Citation

- **Utilising Induced Pluripotent Stem Cells in Neurodegenerative Disease Research: Focus on Glia.** *Katrina Albert et al.*. Int J Mol Sci. 2021. [33919317 PDF](#)
- **Modeling Parkinson's Disease and Atypical Parkinsonian Syndromes Using Induced Pluripotent Stem Cells.** *Takayasu Mishima et al.*. Int J Mol Sci. 2018. [30518093 PDF](#)
- **Modeling Human Neurological and Neurodegenerative Diseases: From Induced Pluripotent Stem Cells to Neuronal Differentiation and Its Applications in Neurotrauma.** *Hisham Bahmad et al.*. Front Mol Neurosci. 2017. [28293168 PDF](#)
- **Human induced pluripotent stem cells and neurodegenerative disease: prospects for novel therapies.** *Yong Wook Jung et al.*. Curr Opin Neurol. 2012. [22357218 PDF](#)
- **Using induced pluripotent stem cell neuronal models to study neurodegenerative diseases.** *Xinwen Zhang et al.*. Biochim Biophys Acta Mol Basis Dis. 2019. [30898538 PDF](#)
- **Application of human induced pluripotent stem cells for modeling and treating neurodegenerative**



International Journal of
Molecular Sciences



Review

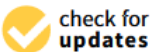
Modeling Parkinson's Disease and Atypical Parkinsonian Syndromes Using Induced Pluripotent Stem Cells

Takayasu Mishima, Shinsuke Fujioka, Jiro Fukae, Junichi Yuasa-Kawada and Yoshio Tsuboi *

Department of Neurology, Fukuoka University, Fukuoka 814-0180, Japan; mishima1006@fukuoka-u.ac.jp (T.M.); shinsuke@cis.fukuoka-u.ac.jp (S.F.); j-fukae@juntendo.ac.jp (J.F.); junkichi@marine.email.ne.jp (J.Y.-K.)

* Correspondence: tsuboi@cis.fukuoka-u.ac.jp; Tel.: +81-92-801-1011 (ext. 3520)

Received: 3 September 2018; Accepted: 28 November 2018; Published: 4 December 2018



Abstract: Parkinson's disease (PD) and atypical parkinsonian syndromes are age-dependent multifactorial neurodegenerative diseases, which are clinically characterized by bradykinesia, tremor, muscle rigidity and postural instability. Although these diseases share several common clinical phenotypes, their pathophysiological aspects vary among the disease categories. Extensive animal-based approaches, as well as postmortem studies, have provided important insights into the disease mechanisms and potential therapeutic targets. However, the exact pathological mechanisms triggering such diseases still remain elusive. Furthermore, the effects of drugs observed in animal models are not always reproduced in human clinical trials. By using induced pluripotent stem cell (iPSC) technology, it has become possible to establish patient-specific iPSCs from their somatic cells and to effectively differentiate these iPSCs into different types of neurons, reproducing

Making sense of data

Dermatitis

3Ranker

Home

Search

Curated Abstracts

Reference Scoring

Login

Find concept

Enter a the first letters of a concept name

derm

Classifier

☐ 3R skin

☒ 3R CNS

Search results

Show 25 entries

Concept ID	Concept name	Number of abstracts	Synonyms
TWDIS_00307	dermatitis	91586	eczema; inflammatory skin disease; skin inflammation
TWDIS_00091	atopic	44164	allergic dermatitis; atopic eczema; atopic neurodermatitis; besnier's

Abstracts

No abstracts with a valid score, try a different classifier.

Available classifiers with hits:

- 3R skin

Dermatitis

Find concept

Enter a the first letters of a concept name

dermatiti

Search results

Show 25 entries

Concept ID	Concept name	Number of abstracts	Synonyms
TWDIS_00307	dermatitis	91586	eczema; inflammatory skin disease; skin inflammation
TWDIS_00091	atopic dermatitis	44164	allergic dermatitis; atopic eczema; atopic neurodermatitis; besnier's prurigo; dermatitis, atopic; eczema
TWDIS_01003	contact dermatitis	15606	contact eczema; dermatitis venenata

Previous 1 Next

Classifier

- ☒ 3R skin
☐ 3R CNS

Abstracts

Show 10 entries

Search:

Citation

Score Year

- **Intralaboratory validation of four in vitro assays for the prediction of the skin sensitizing potential of chemicals.** *Caroline Bauch et al.. Toxicol In Vitro. 2011. 21669280* 0.908 2011
- **In vitro detection of contact allergens: development of an optimized protocol using human peripheral blood monocyte-derived dendritic cells.** *Hendrik Reuter et al.. Toxicol In Vitro. 2010. 20932890* 0.89 2010
- **An in vitro method for detecting chemical sensitization using human reconstructed skin models and its applicability to cosmetic, pharmaceutical, and medical device safety testing.** *James M McKim et al.. Cutan Ocul Toxicol. 2012. 22494060* 0.89 2012
- **Putting the parts together: combining in vitro methods to test for skin sensitizing potentials.** *Caroline Bauch et al.. Regul Toxicol Pharmacol. 2012. 22659254* 0.84 2012
- **A comparative study of leukaemia inhibitory factor and interleukin-1alpha intracellular content in a human keratinocyte cell line after exposure to cosmetic fragrances and sodium dodecyl sulphate.** *Alessandro Parodi et al.. Toxicol Lett. 2009. 19878710* 0.828 2009

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- **The red wine polyphenol resveratrol shows promising potential for the treatment of nucleus pulposus-mediated pain in vitro and in vivo.** *Karin Wuertz et al.. Spine (Phila Pa 1976). 2011. 21587103* 0.508 2011
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▼ Antioxidant Properties of Postbiotics: An Overview on the Analysis and Evaluation Methods. Negin

Hosseinzadeh et al.. Probiotics Antimicrob Proteins. 2024. 39395091

Antioxidants found naturally in foods have a significant effect on preventing several human diseases. However, the use of synthetic antioxidants in studies has raised concerns about their potential link to liver disease and cancer. The findings show that postbiotics have the potential to act as a suitable alternative to chemical antioxidants in the food and pharmaceutical sectors. Postbiotics are bioactive compounds generated by probiotic bacteria as they ferment prebiotic fibers in the gut. These compounds can also be produced from a variety of substrates, including non-prebiotic carbohydrates such as starches and sugars, as well as proteins and organic acids, all of which probiotics utilize during the fermentation process. These are known for their antioxidant, antibacterial, anti-inflammatory, and anti-cancer properties that help improve human health. Various methodologies have been suggested to assess the antioxidant characteristics of postbiotics. While there are several techniques to evaluate the antioxidant properties of foods and their bioactive compounds, the absence of a convenient and uncomplicated method is remarkable. However, cell-based assays have become increasingly important as an intermediate method that bridges the gap between chemical experiments and in vivo research due to the limitations of in vitro and in vivo assays. This review highlights the necessity of transitioning towards more biologically relevant cell-based assays to effectively evaluate the antioxidant activity of postbiotics. These experiments are crucial for assessing the biological efficacy of dietary antioxidants. This review focuses on the latest applications of the Caco-2 cell line in the assessment of cellular antioxidant activity (CAA) and bioavailability. Understanding the impact of processing processes on the biological properties of postbiotic antioxidants can facilitate the development of new food and pharmaceutical products.

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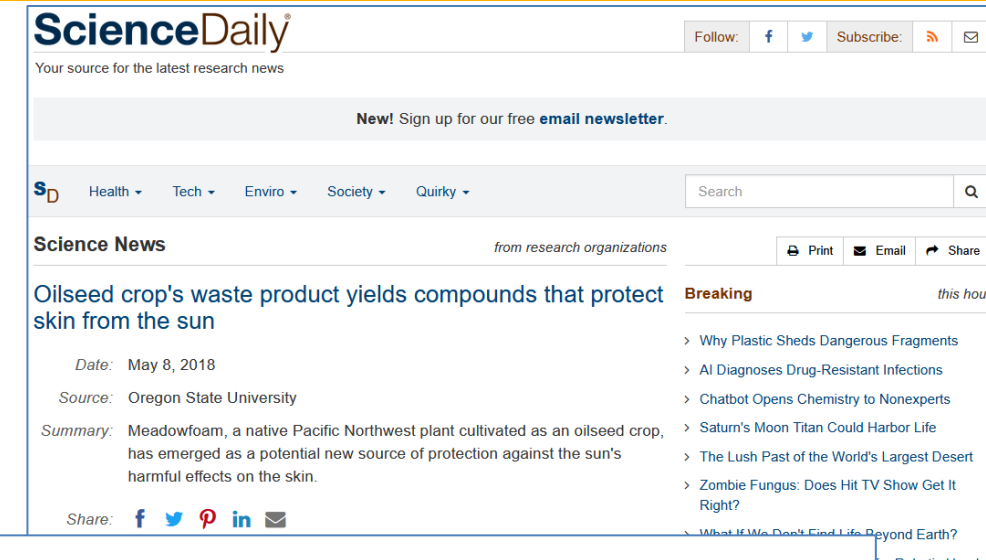
Frequency and characteristic features of REM sleep without atonia.

OBJECTIVES: Isolated REM sleep without atonia (iRSWA) is regarded as prodromal phase of REM sleep behavior disorder (RBD) and synucleinopathies. Other factors, however, have also been described to cause RSWA, including sleep apnea, antidepressants use and narcolepsy. We investigated the frequency of RSWA and its different etiologies. METHODS: We investigated RSWA in patients that underwent a clinical video polysomnography. In iRSWA subjects, we examined polysomnography indication and two markers of prodromal Parkinson's disease: excessive daytime sleepiness and depressive symptoms, with a case-control design. RESULTS: Of the 864 included polysomnographies, 188 were positive for RSWA (21.8%), 17 for RBD (2.0%) and 48 for iRSWA (5.6%). Mean Epworth Sleepiness Scale scores were 9.8 ± 4.8 (iRSWA subjects) and 7.5 ± 4.9 (controls), $p = 0.014$. Mean Beck Depression Inventory-II scores were 11.3 ± 7.9 (iRSWA subjects) and 9.5 ± 8.4 (controls), $p = 0.229$. Excessive daytime sleepiness was more often the polysomnography indication in the iRSWA group ($p = 0.006$). CONCLUSIONS: RSWA is a frequent finding in the context of antidepressant use or synucleinopathies. iRSWA subjects reported increased excessive daytime sleepiness and more often had excessive daytime sleepiness as polysomnography indication. SIGNIFICANCE: Our study provides evidence for high frequency of RSWA, underscoring the need for longitudinal studies in iRSWA patients, with interest for conversion to synucleinopathies.

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The 3D skin reconstructions used in the study represent an important research tool, added Gitali Indra.

"It's very important to not use animal models in the testing of cosmetics and skin care products," she said. "People don't like to see animal testing data, especially in Europe, where they'll put a picture of a bunny rabbit on a product so people know animals weren't used in the testing. This is a very good model that we can use to test many kinds of drugs by using different assays."

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AI for detection of Human Biomedical Models



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🔍 We've arrived to Ispra, and everything is going pl



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Our team, together with the [European Commission's #JointResearchCentre](#) and the BimmoH project partners, is having a highly productive time, presenting the latest developments of our AI-based solution aimed at enhancing the search for human biology methods and research.

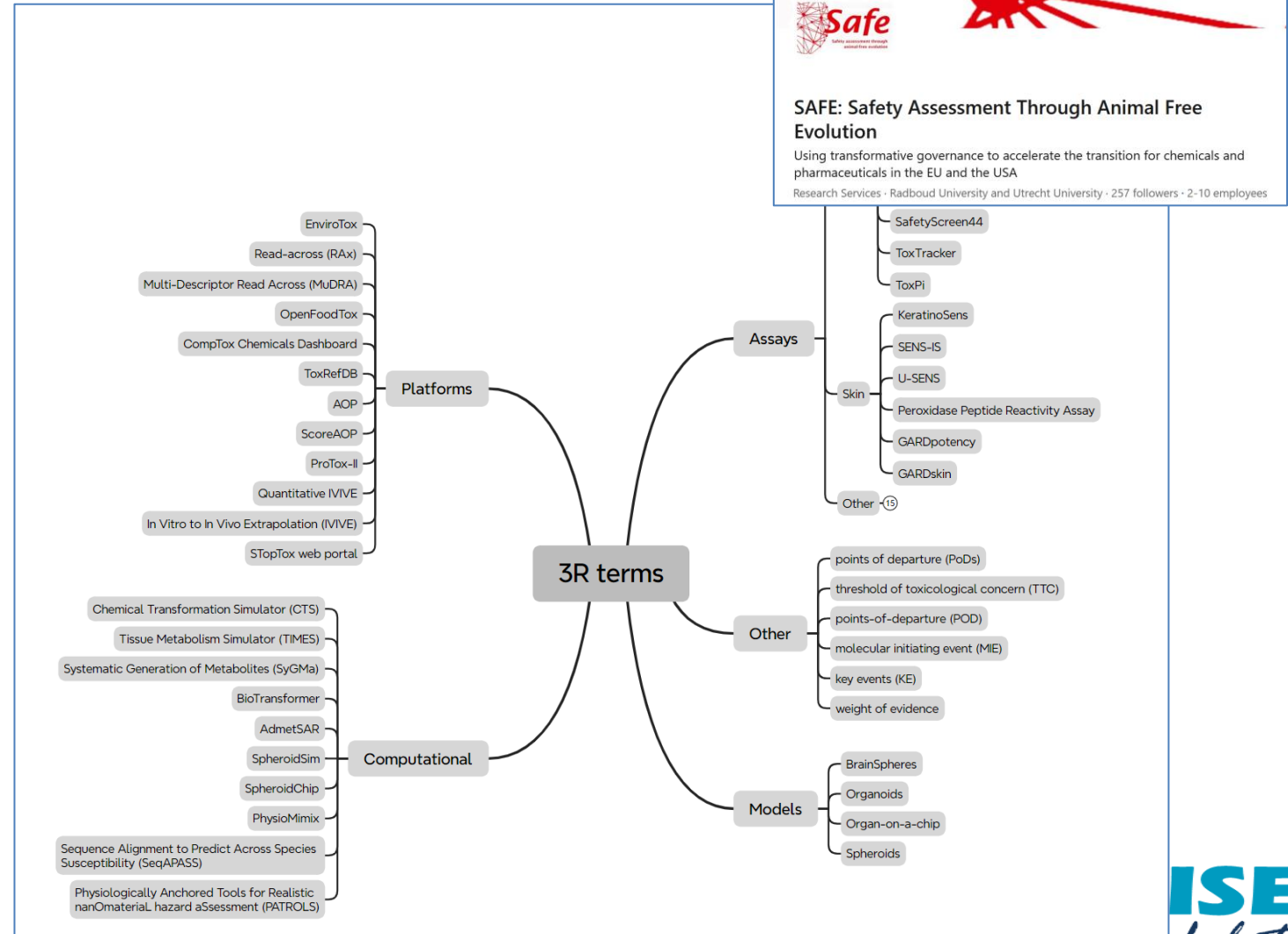
The reception has been fantastic, and we've already had the chance to connect with other professionals in the field, showcasing the potential of our prototype.

Here's a snapshot to share a bit of our experience. 📸

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