Shifting the Regulatory Paradigm for ensuring the Safety of Chemicals

- enabling the use of modern animal-free safety science
- upholding the requirement for 'animal testing as a last resort'

Dr Julia H Fentem FBTS

R&D VP – Head of Safety & Environmental Assurance Centre

Unilever

Royal Society of Biology
Animal Science Meeting

2nd December 2021

UK Parliament

Committees

MPs to debate petition relating to animal testing

14 October 2021

Ban Animal Testing - Fund, accept & promote alternatives to animal testing

We would like the Government to ban all animal testing UK, including for the development of cosmetics, household products and medicines. Alternatives need to be actively funded. Many products that are tested on animals end up not being suitable for humans. Animal testing is outmoded and should end.

More details

This petition is closed
All petitions run for 6 months

235,897 signatures

On Monday 25 October, MPs will debate a petition relating to animal testing. This debate had to be rescheduled from 18 October, following the tragic death of Sir David Amess MP.

- Watch the debate (from 6pm, Monday 25 September)
- Read the debate transcript (available shortly after the conclusion of the debate)
- Follow the Committee on Twitter and join the discussion using #AnimalTestingDebate

The debate will be opened by Martyn Day MP, a member of the Petitions Committee, and MPs from all parties can take part. George Freeman MP, Minister for Science, Research and Innovation will respond on behalf of the Government.

RSPCA calls for clear Government commitment to phasing out animal experiments amid fears over new regulatory approach

15.07.21

As Home Office figures on lab animal use, published today, reveal a decrease in overall animal numbers due to lockdown restrictions, the RSPCA calls on the Government to commit to a clear strategy for phasing out the use of animals in research and testing in the UK.

A **new RSPCA report**, released today, makes a number of key recommendations to drive forward the reduction, replacement and eventual end of the use of animals in experimentation, including:

- An explicit statement, and commitment, from Government to phase out animal use in research
- More funding to develop, validate and implement Non-Animal Technologies
- Learning from phase-out initiatives in other countries, like the Netherlands and US
- A challenging milestone to end testing chemicals on animals for regulatory purposes by 2025

Petition

Plan to phase out animal experiments

The Government must recognise the urgent need to use animal-free science and publish a clear and ambitious action plan with timetables and milestones to drive the phase-out of animal experiments. As well as preventing animal suffering, this will benefit public health and business.

More details

Sign this petition

85,559 signatures

Where the UK once led, it is now following the EU …

Brexit is an opportunity to demonstrate UK Science & Animal Welfare Leadership

UK could allow animal tests for cosmetic ingredients for first time since 1998

Exclusive: campaigners say aligning with EU ruling on chemical testing will 'blow a hole' in UK leadership on cruelty-free cosmetics

COSMETICS BUSINESS

Home Ingredients Packaging Regulatory Marketing Retail Even

Body Care Colour Cosmetics Fragrance Hair Care Skin Care Male

85% of Brits against the reintroduction of animal testing

By Megan Fahy 9-Nov-2021

REGULATORY

We join with united cosmetics industry to demand UK upholds its cosmetics animal testing ban

Letter to Home Secretary urges a rethink

Cruelty Free INTERNATIONAL

Prince Charles opens AstraZeneca jab heroes' £1billion centre to help end animal testing

Prince Charles officially opened AstraZeneca's new hub in Cambridge – which will pioneer ways of growing working human organ tissues – and said its research will save "untold millions of people"

By Martin Bagot, Health and Science editor

20:49, 23 Nov 2021 | UPDATED 15:38, 24 Nov 2021

3 COMMENTS

EPA and Unilever Announce Major Research Collaboration to Advance Non-animal Approaches for Chemical Risk Assessment

August 19, 2021

Contact Information

EPA Press Office (press@epa.gov)

WASHINGTON – Today, the U.S. Environmental Protection Agency (EPA) and Unilever announced a collaborative agreement to explore better ways to assess chemical risks associated with consumer products. This agreement builds on prior cooperation between EPA and Unilever regarding New Approach Methods (NAMs), which are a promising alternative to conventional toxicity testing that are intended to reduce reliance on the use of animals.

EPA and Unilever have been jointly evaluating and using NAMs since 2015. This collaboration is helping EPA implement its New Approach Methods Work Plan and is the foundation for new efforts to demonstrate that these novel approaches can help decision makers better protect consumers, workers and the environment.

Unilever

Safety Scientists Speaking Up for Regulatory Change …

Time for a Paradigm Shift to Close the Gap: Advanced Safety Science *v* Regulations

Upholding the EU's Commitment to 'Animal Testing as a Last Resort' Under REACH Requires a Paradigm Shift in How We Assess Chemical Safety to Close the Gap Between Regulatory Testing and Modern Safety Science

Julia Fentem, Ian Malcomber, Gavin Maxwell, Carl Westmoreland

Show less

First Published August 30, 2021 | Research Article | Find in PubMed | Check for updates
https://doi.org/10.1177/02611929211040824

Article information

Article Information

Article first published online: August 30, 2021

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However, as we better understand the mechanisms behind chemical–biological interactions, and improve modelling of both external and internal exposure, so too we increase our capacity to exploit new approach methodologies (NAMs) to provide the missing data. New ways to combine the information provided by these methods and greater recognition of their potential will drive science towards the complete replacement of animal testing in chemical safety assessment, at the same time ensuring adequate protection.

resort'. Fentem et al. present compelling recommendations to close the "regulatory testing – modern safety science gap". They put forward the case for fully embracing modern and innovative, non-animal approaches to safety assessment and expediting the transition to safety assessment processes that do not rely on data derived from new animal studies. The authors suggest that the EU could lead this paradigm shift by empowering companies to more readily integrate data from diverse sources into an effective, science-driven assessment, contributing to the implementation of the European Green Deal and the new Chemicals Strategy for Sustainability. Undoubtedly, their proposals will stimulate much debate in Europe and beyond.


Cosmetics
design-europe.com

Unilever: EU needs 'paradigm shift' in chemical safety assessment methods

By Kacey Culliney
23-Sep-2021 - Last updated on 23-Sep-2021 at 14:59 GMT

RELATED TAGS: Animal testing, Animal testing alternatives, non-animal testing methods, REACH, Chemicals, Regulation, next-generation safety assessments, Unilever, safety assessment


Cosmetics
design-europe.com

THE LONG READ: IN CONVERSATION WITH UNILEVER SAFETY & ENVIRONMENTAL ASSURANCE CENTRE (SEAC) EXECUTIVES

The future of animal-free chemical testing? There's a 'big frustration' in the scientific community, say Unilever execs

By Kacey Culliney
20-Oct-2021 - Last updated on 20-Oct-2021 at 09:54 GMT

RELATED TAGS: Animal testing, Animal testing alternatives, cruelty-free, In vivo, Regulation, ECHA, REACH, Animal testing ban, Chemicals

Editorial

Judith C. Madden

First Published November 11, 2021 | Editorial | Check for updates
https://doi.org/10.1177/02611929211057964

Article information

Article Information

Article first published online: November 11, 2021

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Unilever

Shifting the Regulatory Paradigm for Chemical Safety - Overview

- **Background**
  - safety & environmental science, assessing safety without animal testing
  - Unilever's approach – partnering on science-based advocacy for change

- **Next Generation Risk Assessment: transforming ingredient / product safety**
  - harnessing new scientific knowledge, models & tools – "NAMs"*
  - building confidence via case studies

- **Re-thinking our approach: from standard tests → best data for safety decision**
  - using advanced science to assess chemical (ingredient) safety
  - modernising regulatory frameworks & shaping phase-out roadmaps

* New Approach Methodologies

Unilever

Unilever – Safety & Environmental Assurance Centre (SEAC)

Safety and Environmental Science

We want consumers to be confident that our products are safe for them and their families, and better for the environment. The scientists at Unilever's Safety and Environmental Assurance Centre (SEAC) play a key role in ensuring that our products are safe and environmentally sustainable.

Leading safety and environmental sustainability sciences

The scientists behind our safe and sustainable products

Safe and sustainable by design

How we build safety and sustainability into every product innovation.

Keeping people and the environment safe

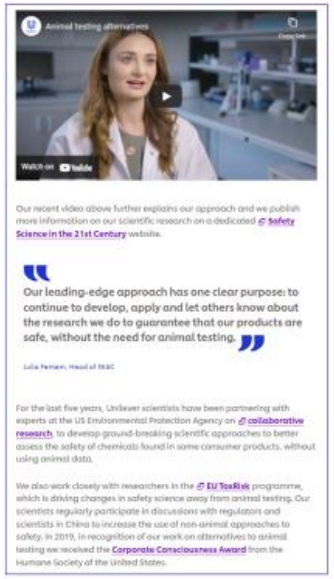
The science-based approaches we use to keep our consumers, workers and the environment safe.

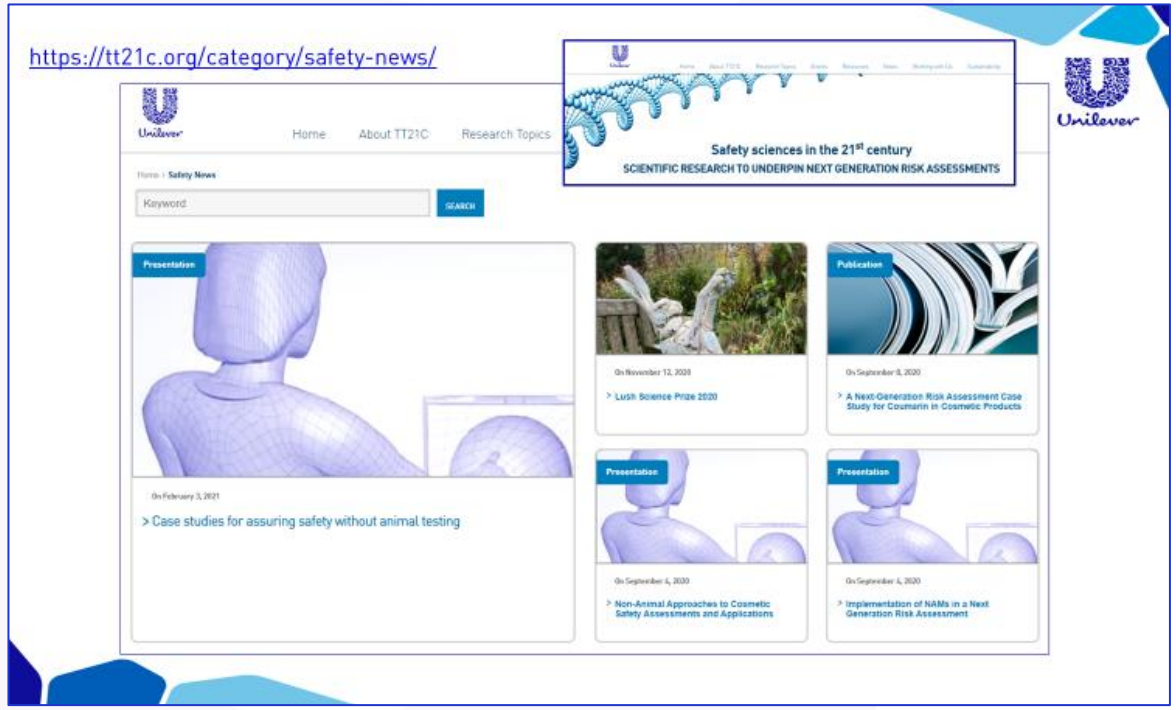
Reducing our environmental impact

How we harness the latest science to minimise our environmental footprint.

Unilever

Societal expectations drive transformational change in our approach





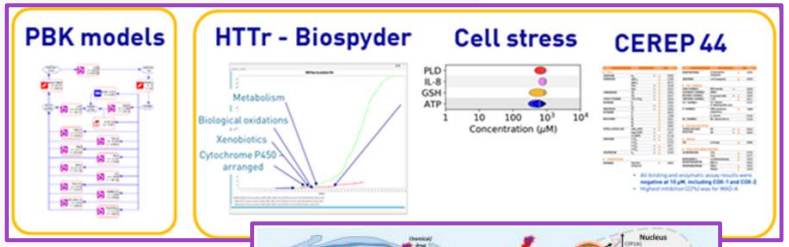
Alternatives to animal testing

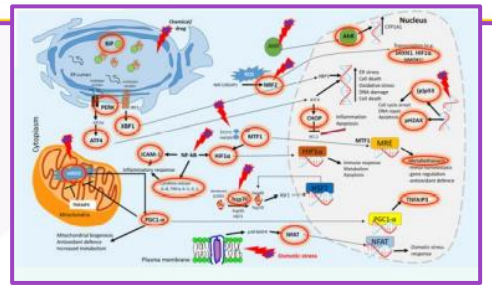
Average read time: **4 minutes**

Every product Unilever makes must be safe for people to use and safe for our planet. We believe that animal experiments should not be used to make sure that our products are safe.

CONSUMER TRUST

- Human-relevant approaches – designed to assess the safety of ingredients
- Exposure measurements and modelling
- Computational modelling replicating human biology and chemical interactions
- Cell culture methods, using tissue grown in labs, and chemical and biological analytical techniques





Applying new scientific human-relevant models & tools

Fentem, Chamberlain, Sangster. 2004. *ATLA*. 32. 617-623

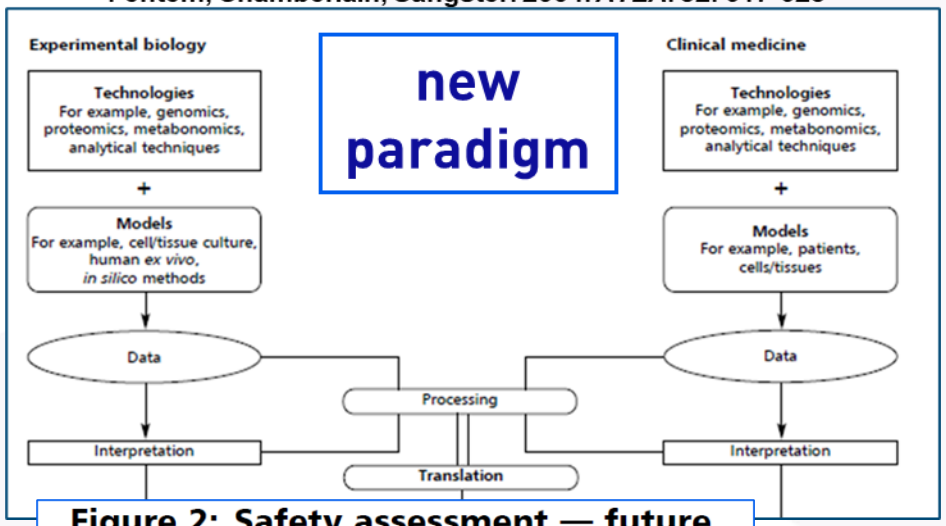


Figure 2: Safety assessment — future needs

exposure-based

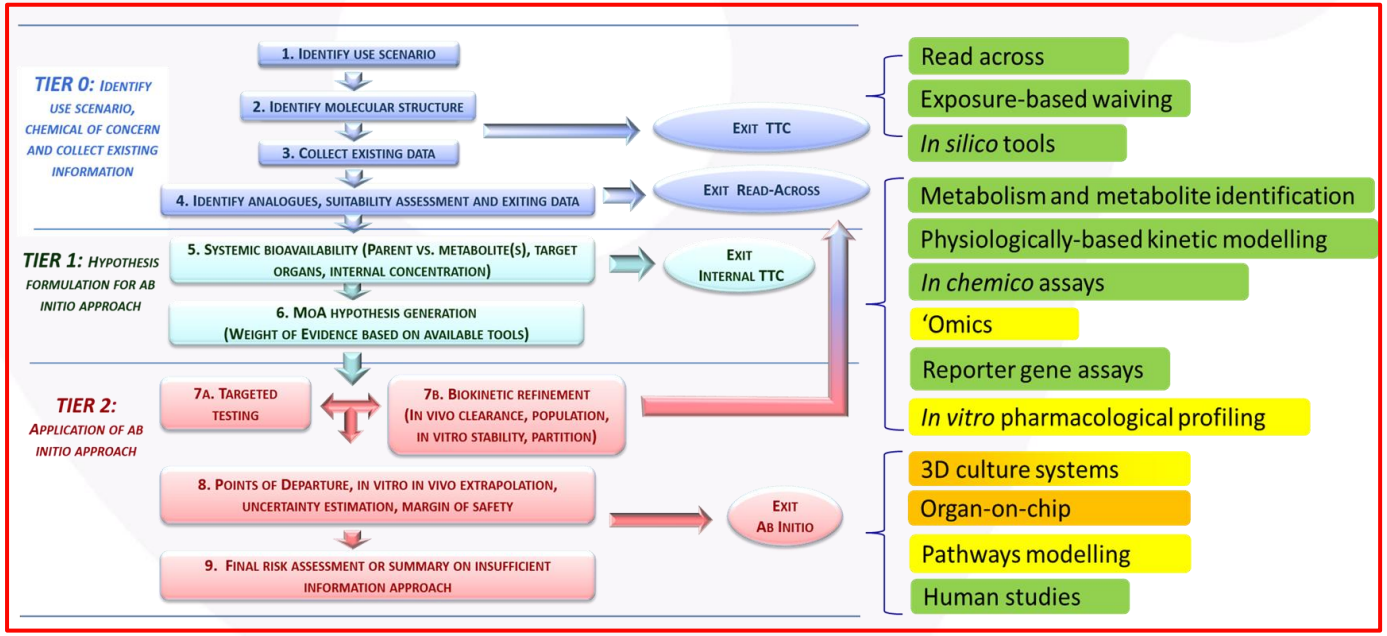
Safety assessment — future needs

- consumer safety decisions without animal testing
  - based on scientific risk assessment
  - improve relevant fundamental biological understanding
  - bring experimental biology/toxicology and clinical medicine closer together (in context of human health risk assessment)
  - improve *in vitro* models (tissue engineering)
  - apply omics/other new technologies as appropriate
  - develop *in silico* modelling tools
  - move to a computational "systems biology" approach

Fentem 2006 *ATLA* 34, 11-18

Unilever Toolbox

Tier 1	Tier 2	Tier 3
IN SILICO-FIRST **EXAMPLES:** MIE *in silico* Atlas & QSARs Skin haptenation modelling *In silico* receptor screening	PATHWAY IDENTIFICATION (TARGETS AND OFF-TARGETS) **EXAMPLES:** HT-Transcriptomics *In vitro* screening panels High content imaging SPME free concentration	PATHWAY CHARACTERISATION (TARGETS) **EXAMPLES:** 3D and organotypic cell models Molecular dynamic simulations Integrated *in vitro* systems
In silico-first approaches for identifying pathways of concern, building weight of evidence and formulating hypotheses for testing	Identifying/characterising lead MIEs and pathways through experimental data generation, informatics data mining and computational modelling	Characterisation of response in biologically relevant *in vitro* systems or complex computational models for decision making



Comput Toxicol. 2017 Nov;4:31-44. doi: 10.1016/j.comtox.2017.10.001.

Ab initio chemical safety assessment: A workflow based on exposure considerations and non-animal methods.

Berggren E[1], White A[2], Ouedraogo G[3], Paini A[1], Richarz AN[1], Bois FY[4], Exner T[5], Leite S[6], Grunsven LAV[6], Worth A[1], Mahony C[7].

EUTOXRISK

Unilever's approach: science-based safety, claims & advocacy - working with others to end animal testing of consumer products

1 Use Science, Not Animals

We use science, not animals – our industry leading capability in animal-free safety science means we do not need to use animal testing to ensure safety.

2 Independent Brand Certification

Building consumer confidence through NGO accreditation and consumer-facing no animal testing claims.
Starting with Dove in 2018, we have 30 NGO-certified cruelty free brands.

3 Partnerships

Our partnerships – with global animal protection NGOs, leading research teams, other companies and government scientists – support wider acceptance and use of alternatives to animal testing.

4 Advocate for Regulatory Change

We work to end the animal testing of consumer products worldwide.

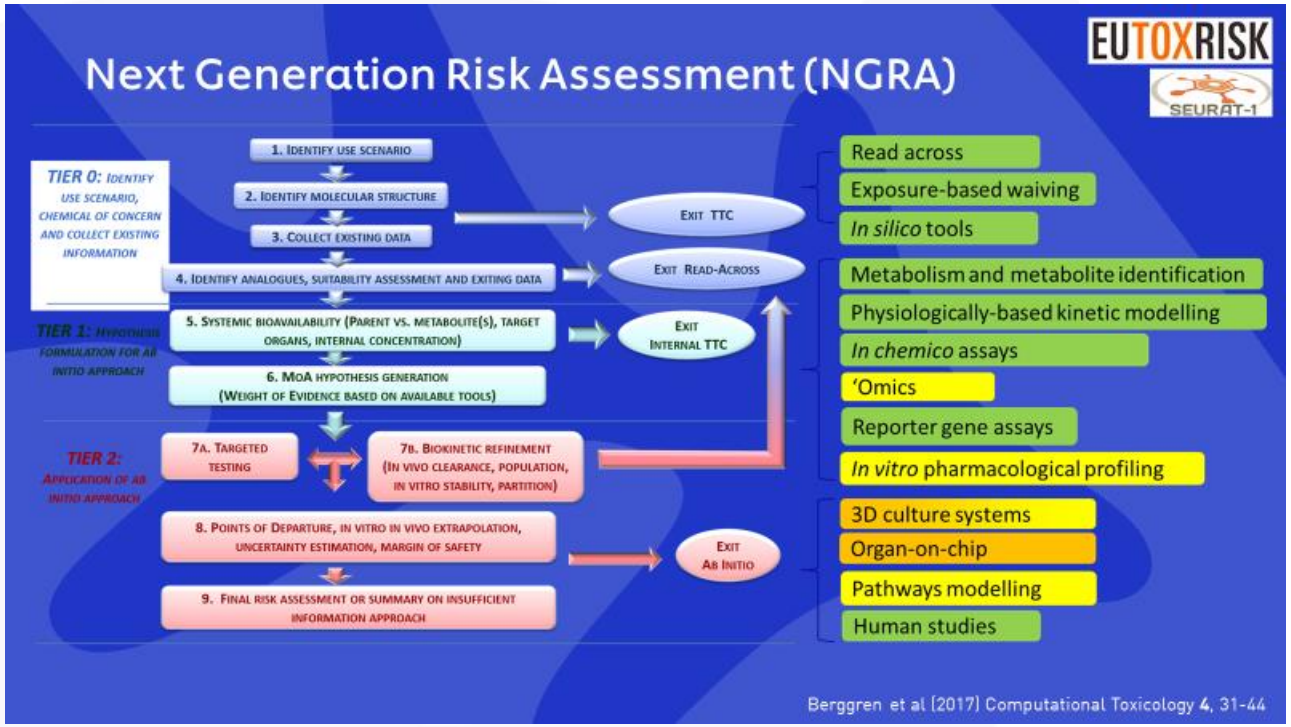
We are recognised by PETA as a company working for regulatory change.

Unilever

Non-animal Safety Science → Next Generation Risk Assessment

"Today's memo directs the agency to aggressively reduce animal testing, including reducing mammal study requests and funding 30% by 2025 and completely eliminating them by 2035"

EPA Administrator, 2019



OXFORD SOT Society of Toxicology academic.oup.com/toxsci ToxSpotlight article
TOXICOLOGICAL SCIENCES, 173(1), 2020, 202–225
doi: 10.1093/toxsci/kfz201
Advance Access Publication Date: September 18, 2019
Research Article

Utility of *In Vitro* Bioactivity as a Lower Bound Estimate of *In Vivo* Adverse Effect Levels and in Risk-Based Prioritization

Katie Paul Friedman,*,[1] Matthew Gagne,[†] Lit-Hsin Loo,[‡] Panagiotis Karamertzanis,[§] Tatiana Netzeva,[§] Tomasz Sobanski,[§] Jill A. Franzosa,[¶] Ann M. Richard,* Ryan R. Lougee,*,[||] Andrea Gissi,[§] Jia-Ying Joey Lee,[‡] Michelle Angrish,[|||] Jean Lou Dorne,[||||] Stiven Foster,[#] Kathleen Raffaele,[#] Tina Bahadori,[||] Maureen R. Gwinn,* Jason Lambert,* Maurice Whelan,** Mike Rasenberg,[§] Tara Barton-Maclaren,[†] and Russell S. Thomas*

OXFORD SOT Society of Toxicology academic.oup.com/toxsci
TOXICOLOGICAL SCIENCES, 2020, 1–17
doi: 10.1093/toxsci/kfaa048
Advance Access Publication Date: April 10, 2020
Research article

A Next-Generation Risk Assessment Case Study for Coumarin in Cosmetic Products

Maria T. Baltazar,[1] Sophie Cable, Paul L. Carmichael, Richard Cubberley, Tom Cull, Mona Delagrange, Matthew P. Dent, Sarah Hatherell, Jade Houghton, Predrag Kukic, Hequn Li, Mi-Young Lee, Sophie Malcomber, Alistair M. Middleton, Thomas E. Moxon, Alexis V. Nathanail, Beate Nicol, Ruth Pendlington, Georgia Reynolds, Joe Reynolds, Andrew White, and Carl Westmoreland

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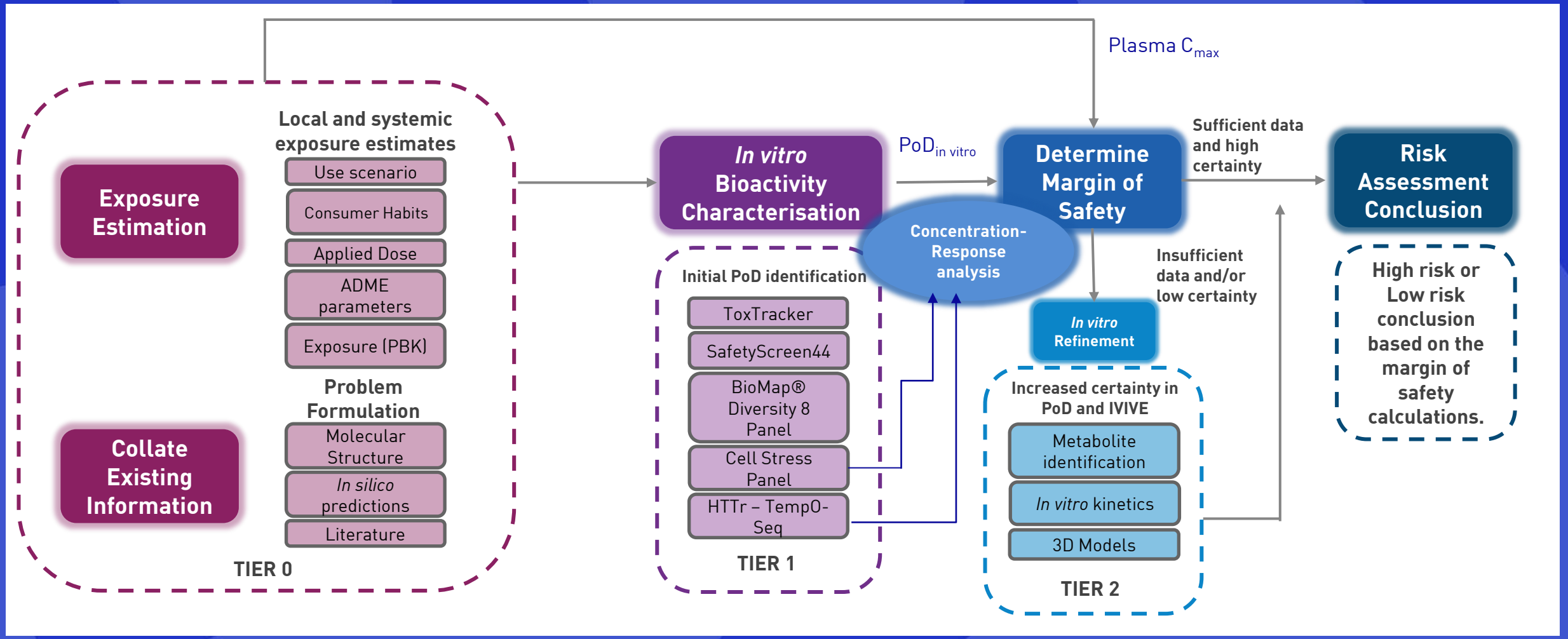
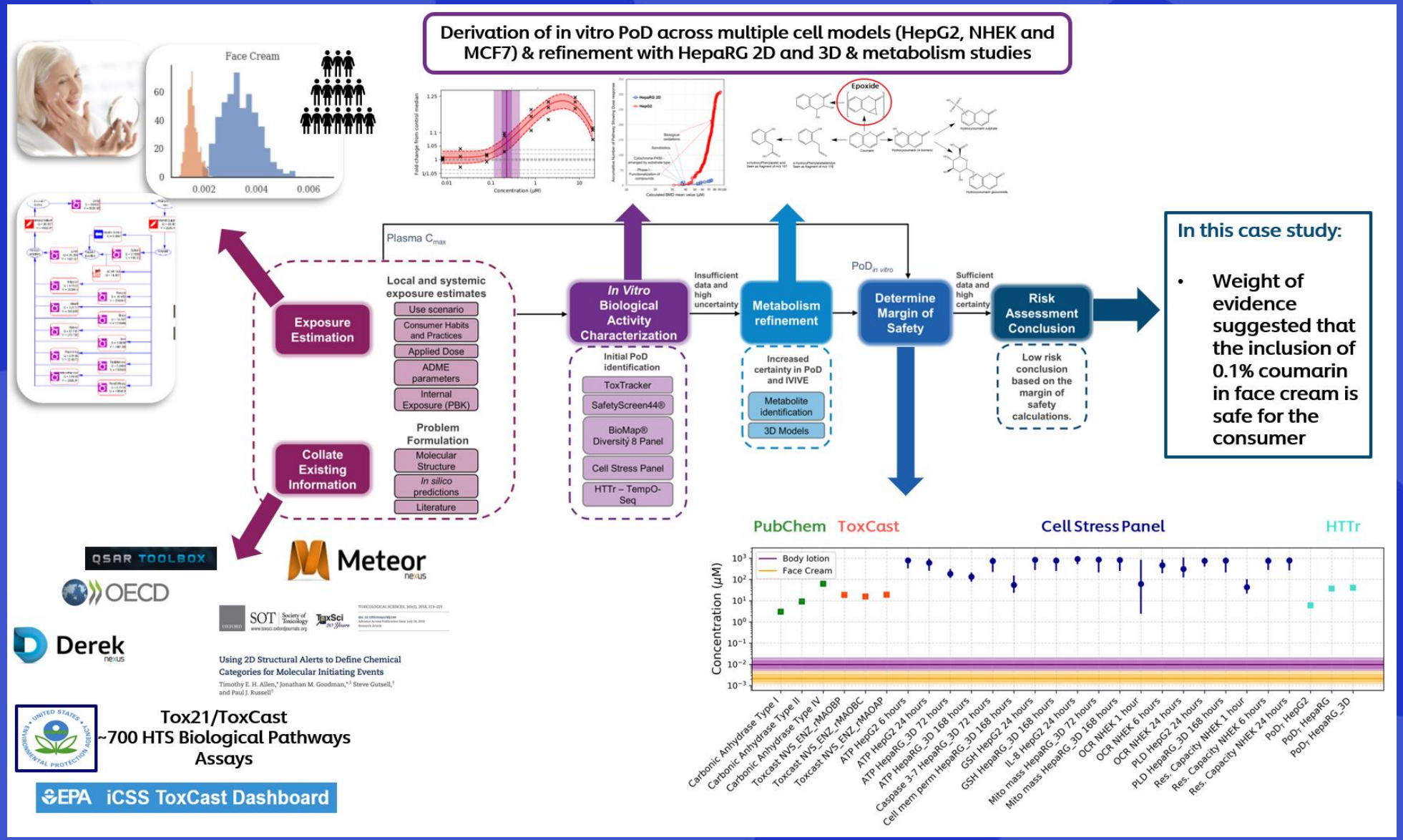
Unilever

NGRA Framework: decision-making on consumer safety
Case study: coumarin



Baltazar *et al* (2020) Toxicological Sciences, 236-252

A large Toolbox of modern scientific methods is used



Exposure tools to inform level of systemic exposure

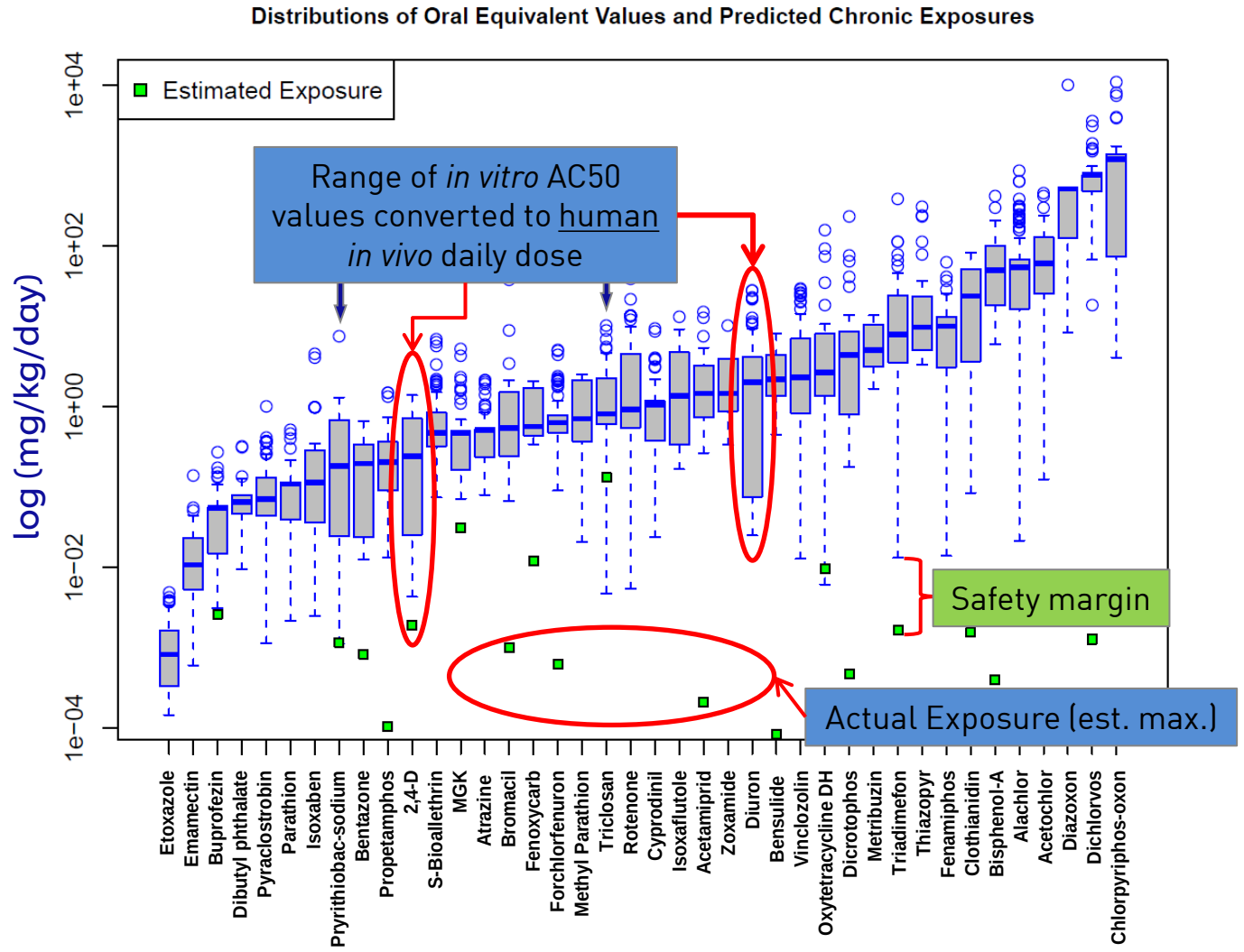
Bioactivity tools to provide Points of Departure

Not a prescriptive set of tools, but **driven by the safety assessment**

Hatherell *et al* (2020) Toxicological Sciences, **176,** 11-33

Moxon *et al* (2020) Toxicology in Vitro, **63** 104746

A fundamental principle of NGRA: 'Protection not prediction'



The hypothesis underpinning this type of NGRA is that if there is no bioactivity observed at consumer-relevant concentrations, there can be no adverse health effects.

At no point does NGRA attempt to predict the results of high dose toxicology studies in animals

NGRA uses new exposure science and understanding of human biology

Graph from Rusty Thomas EPA, with thanks. Rotroff *et al* (2010) Toxicological Sciences , **117**, 348-358

Application of NGRA Framework for Skin Allergy – different toolbox
Case study: coumarin

Regulatory Toxicology and Pharmacology 127 (2021) 105075

Contents lists available at ScienceDirect

Regulatory Toxicology and Pharmacology

journal homepage: www.elsevier.com/locate/yrtph

A hypothetical skin sensitisation next generation risk assessment for coumarin in cosmetic products

G. Reynolds *, J. Reynolds, N. Gilmour, R. Cubberley, S. Spriggs, A. Aptula, K. Przybylak, S. Windebank, G. Maxwell, M.T. Baltazar **

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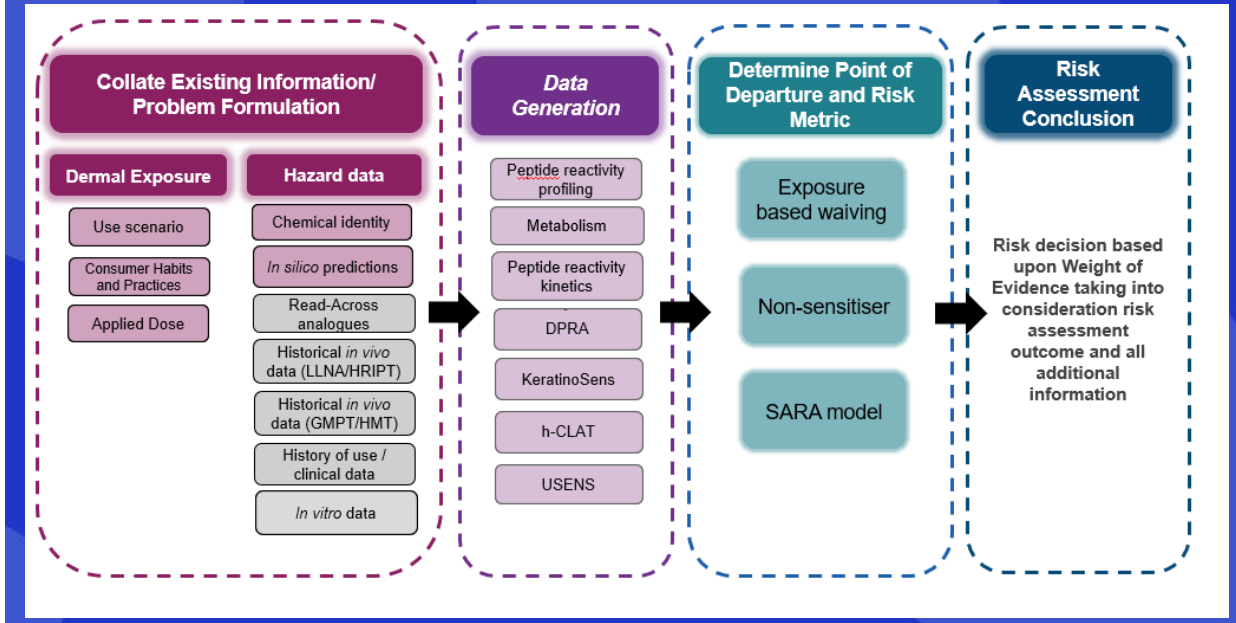
ARTICLE INFO

Handling Editor: Dr. Lesa Aylward

Keywords and highlights:
Skin sensitisation
Allergic contact dermatitis
Next generation risk assessment
Non-animal alternatives
New approach methodologies
Consumer exposure
Uncertainty analysis
Decision making
Metabolism

ABSTRACT

Next generation Risk Assessment (NGRA) is an exposure-led, hypothesis-driven approach which integrates new approach methodologies (NAMs) to assure safety without generating animal data. This hypothetical skin allergy risk assessment of two consumer products – face cream containing 0.1% coumarin and deodorant containing 1% coumarin – demonstrates the application of our skin allergy NGRA framework which incorporates our Skin Allergy Risk Assessment (SARA) Model. SARA uses Bayesian statistics to provide a human relevant point of departure and risk metric for a given chemical exposure based upon input data that can include both NAMs and historical *in vivo* studies. Regardless of whether NAM or *in vivo* inputs were used, the model predicted that the face cream and deodorant exposures were low and high risk respectively. Using only NAM data resulted in a minor underestimation of risk relative to *in vivo*. Coumarin is a predicted pro-hapten and consequently, when applying this mechanistic understanding to the selection of NAMs the discordance in relative risk could be minimized. This case study demonstrates how integrating a computational model and generating bespoke NAM data in a weight of evidence framework can build confidence in safety decision making.



Applying NGRA in cosmetic ingredient safety assessment

Computational Toxicology 7 (2018) 20–26

Contents lists available at ScienceDirect

Computational Toxicology

journal homepage: www.elsevier.com/locate/comtox

Principles underpinning the use of new methodologies in the risk assessment of cosmetic ingredients

Matthew Dent[a,*], Renata Teixeira Amaral[b], Pedro Amores Da Silva[b], Jay Ansell[c], Fanny Boisleve[d], Masato Hatao[e], Akihiko Hirose[f], Yutaka Kasai[g], Petra Kern[h], Reinhard Kreiling[i], Stanley Milstein[j], Beta Montemayor[k], Julcemara Oliveira[l], Andrea Richarz[m], Rob Taalman[n], Eric Vaillancourt[o], Rajeshwar Verma[j], Nashira Vieira O'Reilly Cabral Posada[l], Craig Weiss[p], Hajime Kojima[f]

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[b] ABIHPEC – Association of the Cosmetic, Toiletry and Fragrance Industry (ABIHPEC), Av. Paulista, 1313 Cerqueira César, São Paulo, SP 01311-000, Brazil
[c] US Personal Care Products Council (PCPC), 1620 I St. NW, Suite 1200, Washington, D.C. 20036, USA
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[j] US Food and Drug Administration (US FDA), Office of Cosmetics and Colors (OCAC), Center for Food Safety and Applied Nutrition (CFSAN), 5001 Campus Drive, College Park, MD 20740, USA
[k] Cosmetics Alliance Canada, 420 Britannia Road East Suite 102, Mississauga, ON L4Z 3L5, Canada
[l] Brazilian Health Regulatory Agency (ANVISA), Gerência de Produtos de Higiene, Perfumes, Cosméticos e Saneantes, SIA Trecho 5, lote 200, Area Especial 57 – CEP 71205-050, Brazil
[m] European Commission, Joint Research Centre (JRC), Directorate for Health, Consumers and Reference Materials, Chemical Safety and Alternative Methods Unit, Via E. Fermi 2749, 21027 Ispra, VA, Italy
[n] Cosmetics Europe, Avenue Herrmann-Debroux 40, 1160 Auderghem, Belgium
[o] Health Canada (HC), Consumer Product Safety Directorate, Healthy Environments and Consumer Safety Branch, 269 Laurier Ave. W., Ottawa, ON K1A 0K9, Canada
[p] Independent Cosmetic Manufacturing and Distributors (ICMAD), 21925 Field Parkway, Suite 2015, Deer Park, IL 60010, USA

ARTICLE INFO

Keywords:
Next Generation Risk Assessment
New approach methodologies
Cosmetics risk assessment

ABSTRACT

Consumer safety is a prerequisite for any cosmetic product. Worldwide, there is an ever-increasing desire to bring safe products to market without animal testing, which requires a new approach to consumer safety. 'Next Generation Risk Assessment' (NGRA), defined as an exposure-led, hypothesis driven risk assessment approach that integrates *in silico*, *in chemico* and *in vitro* approaches, provides such an opportunity. The customized nature of each NGRA means that the development of a prescriptive list of tests to assure safety is not possible, or appropriate. The International Cooperation on Cosmetics Regulation (ICCR) therefore tasked a group of scientists from regulatory authorities and the Cosmetic industry to agree on and outline the principles for incorporating these new approaches into risk assessments for cosmetic ingredients. This ICCR group determined the overall goals of NGRA (to be human-relevant, exposure-led, hypothesis-driven and designed to prevent harm); how an NGRA should be conducted (using a tiered and iterative approach, following an appropriate literature search and evaluation of the available data, and using robust and relevant methods and strategies); and how the assessment should be documented (transparent and explicit about the logic of the approach and sources of uncertainty). Those working on the risk assessment of cosmetics have a unique opportunity to lead progress in the application of novel approaches, and cosmetic risk assessors are encouraged to consider these key principles

SCCS/1628/21

Scientific Committee on Consumer Safety

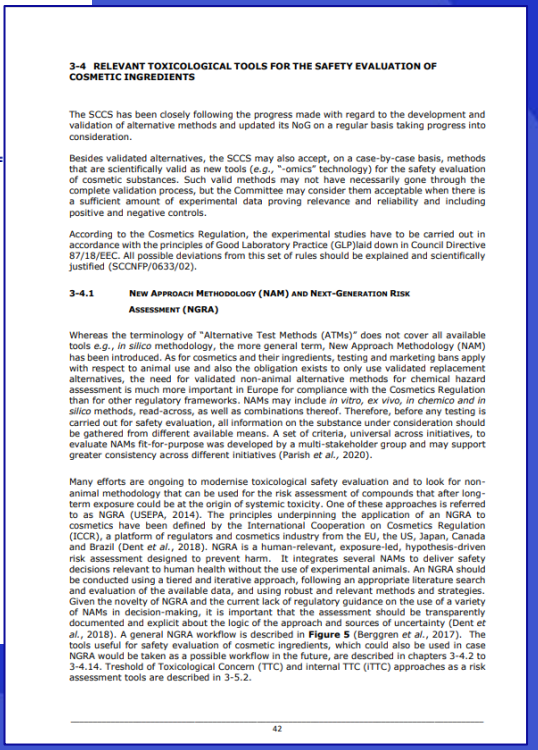
SCCS

THE SCCS NOTES OF GUIDANCE FOR THE TESTING OF COSMETIC INGREDIENTS AND THEIR SAFETY EVALUATION

11TH REVISION

Scientific Committees on Consumer Safety on Health, Environmental and Emerging Risks

The SCCS adopted this guidance document at its plenary meeting on 30-31 March 2021



3-4 RELEVANT TOXICOLOGICAL TOOLS FOR THE SAFETY EVALUATION OF COSMETIC INGREDIENTS

The SCCS has been closely following the progress made with regard to the development and validation of alternative methods and updated its NoG on a regular basis taking progress into consideration.

Besides validated alternatives, the SCCS may also accept, on a case-by-case basis, methods that are scientifically valid as new tools (*e.g.*, "-omics" technology) for the safety evaluation of cosmetic substances. Such valid methods may not have necessarily gone through the complete validation process, but the Committee may consider them acceptable when there is a sufficient amount of experimental data proving relevance and reliability and including positive and negative controls.

According to the Cosmetics Regulation, the experimental studies have to be carried out in accordance with the principles of Good Laboratory Practice (GLP)laid down in Council Directive 87/18/EEC. All possible deviations from this set of rules should be explained and scientifically justified (SCCNFP/0633/02).

3-4.1 NEW APPROACH METHODOLOGY (NAM) AND NEXT-GENERATION RISK ASSESSMENT (NGRA)

Whereas the terminology of "Alternative Test Methods (ATMs)" does not cover all available tools *e.g.*, *in silico* methodology, the more general term, New Approach Methodology (NAM) has been introduced. As for cosmetics and their ingredients, testing and marketing bans apply with respect to animal use and also the obligation exists to only use validated replacement alternatives, the need for validated non-animal alternative methods for chemical hazard assessment is much more important in Europe for compliance with the Cosmetics Regulation than for other regulatory frameworks. NAMs may include *in vitro*, *ex vivo*, *in chemico and in silico* methods, read-across, as well as combinations thereof. Therefore, before any testing is carried out for safety evaluation, all information on the substance under consideration should be gathered from different available means. A set of criteria, universal across initiatives, to evaluate NAMs fit-for-purpose was developed by a multi-stakeholder group and may support greater consistency across different initiatives (Parish *et al.*, 2020).

Many efforts are ongoing to modernise toxicological safety evaluation and to look for non-animal methodology that can be used for the risk assessment of compounds that after long-term exposure could be at the origin of systemic toxicity. One of these approaches is referred to as NGRA (USEPA, 2014). The principles underpinning the application of an NGRA to cosmetics have been defined by the International Cooperation on Cosmetics Regulation (ICCR), a platform of regulators and cosmetics industry from the EU, the US, Japan, Canada and Brazil (Dent *et al.*, 2018). NGRA is a human-relevant, exposure-led, hypothesis-driven risk assessment designed to prevent harm. It integrates several NAMs to deliver safety decisions relevant to human health without the use of experimental animals. An NGRA should be conducted using a tiered and iterative approach, following an appropriate literature search and evaluation of the available data, and using robust and relevant methods and strategies. Given the novelty of NGRA and the current lack of regulatory guidance on the use of a variety of NAMs in decision-making, it is important that the assessment should be transparently documented and explicit about the logic of the approach and sources of uncertainty (Dent *et al.*, 2018). A general NGRA workflow is described in **Figure 5** (Berggren *et al.*, 2017). The tools useful for safety evaluation of cosmetic ingredients, which could also be used in case NGRA would be taken as a possible workflow in the future, are described in chapters 3-4.2 to 3-4.14. Treshold of Toxicological Concern (TTC) and internal TTC (iTTC) approaches as a risk assessment tools are described in 3-5.2.

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ICCR International Cooperation on Cosmetics Regulation

International Cooperation on Cosmetics Regulation (2018)

European Commission

European Commission: Scientific Committee on Consumer Safety (2021)

Re-thinking our approach to assessing chemical (ingredient) safety:

best human-relevant data for safety decision *v* standard (animal) tests

Investigative / Mechanistic Science ⟺ **Regulatory Chemicals Testing**

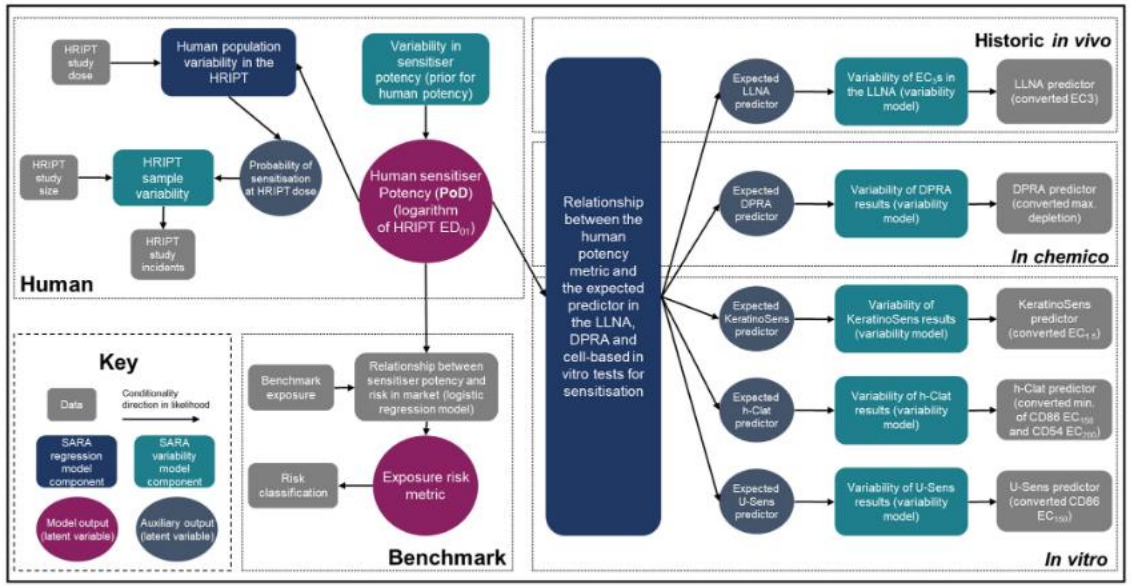


Fig. 2. SARA Model schematic representing the relationships between SARA components, variables, and data types. Model outputs (PoD and exposure risk metric) are shown in purple. Technical details for the SARA Model can be found in the supplementary material of (Reynolds et al., 2021 submitted, this issue). For the coumarin *ab initio* case risk assessment conclusion, only the following data were used in the model: DPRA, KeratinoSens™, h-CLAT, U-SENS™ (i.e., Unilever NAM data). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

STATUTORY INSTRUMENTS

2021 No. 904

CONSUMER PROTECTION

ENVIRONMENTAL PROTECTION

HEALTH AND SAFETY

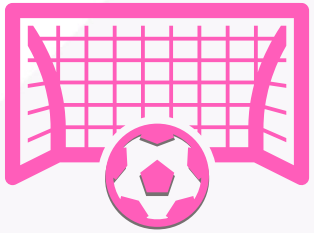
The REACH etc. (Amendment) Regulations 2021

Sift requirements satisfied	*20th July 2021*
Made	*26th July 2021*
Laid before Parliament	*27th July 2021*
Coming into force	*30th September 2021*

OECD Guidelines for the Testing of Chemicals

Unilever

Using advanced science to assess chemical (ingredient) safety
- action needed to modernise UK chemicals regulatory frameworks



Scientifically justify 'animal testing as a last resort'
+
Paradigm shift in how we assess ingredient safety

Regulatory compliance
=
Best science to protect people & our environment

- [x] get creative using relevant NAMs* / scientific data
- [ ] modernise Legal & Regulatory requirements
- [ ] develop NAM-based regulatory frameworks

*NAM = New Approach Methodology

Comment

Upholding the EU's Commitment to 'Animal Testing as a Last Resort' Under REACH Requires a Paradigm Shift in How We Assess Chemical Safety to Close the Gap Between Regulatory Testing and Modern Safety Science

Julia Fentem, Ian Malcomber, Gavin Maxwell and Carl Westmoreland

Law–Not Science–Impedes Shift to Non-Animal Safety Testing

June 18, 2021, 9:01 AM

Listen

Testing products on animals is slowly ending, but there are still some obstacles to completely ending the practice, explains Gary E. Marchant, a professor at the Sandra Day O'Connor College of Law at Arizona State University. He discusses three impediments, including legal barriers from federal regulatory agencies.

Gary Marchant
Sandra Day O'Connor College of Law

Cosmetics design-europe.com

THE LONG READ: IN CONVERSATION WITH UNILEVER SAFETY & ENVIRONMENTAL ASSURANCE CENTRE (SEAC) EXECUTIVES

The future of animal-free chemical testing? There's a 'big frustration' in the scientific community, say Unilever execs

By Kacey Culliney
20-Oct-2021 - Last updated on 20-Oct-2021 at 09:54 GMT

Could we achieve a phase-out of animal experiments in the UK?

These actions were identified in the discussion as **important aspects that should be included** in a phase-out strategy:

- **More funding to develop and validate NATs.** There are some replacement (or 3Rs)-specific funding bodies such as the NC3Rs, AFRUK and FRAME[1], but other funders should also prioritise the development and validation of NATs. For example, UK Research and Innovation (UKRI, an organisation which includes all the major UK funding bodies) could build the development of NATs into its funding strategy, potentially through further support for the NC3Rs.
- **A phase-in of NATs to match the phase-out of animal use.** There should be a focus on most 'urgently needed' areas for replacement, with greatest likelihood of success.
- **Government follow up to the Innovate UK NAT Roadmap.** The Government agency Innovate UK published a Non-Animal Technologies Roadmap for the UK in 2015, but the Government did not go on to provide adequate leadership or support for the Roadmap. It should be revisited, updated (ideally led by the NC3Rs) and used to focus a refreshed strategic plan.
- **Learning from initiatives in other countries**, such as the Netherlands Transition Programme for animal-free innovation and the US Environmental Protection Agency (EPA) ambition to eliminate its requests for, and funding of, tests using mammals by 2035.
- **Immediately enforcing a legal principle that animal testing is a last resort for chemicals regulatory testing.** The UK could set a challenging milestone to end testing chemicals on animals for regulatory purposes by 2025.
- **An immediate end to the use of animal testing for consumer products** (such as cosmetics, toiletries and novel foods). Using animals for testing ingredients used in consumer products is neither scientifically necessary, nor ethically justified.
- **Mentoring for the regulatory community** by early career scientists, to achieve radical change by encouraging creative use of available NATs. This would be combined with challenging regulatory requirements for those animal tests that are outdated, and where it is not clear how they protect human health or the environment.
- **Better training for life scientists** in searching for NATs and using new techniques. For those working in regulatory toxicology, training and encouragement to challenging regulatory requirements for data from animal tests.

A serious UK vision and strategy to phase out animal use, incorporating all of the above elements and more, would require political will and commitment from Government departments, industry, academia, research funders and individual scientists, as well as adequate funding and resources.

In the interests of animal welfare, better science, economics, and addressing legitimate public concerns about animal use, the RSPCA believes that it is time to create that vision.

"The RSPCA is right to lead the charge for the Government, leading funders and investors in the UK to speed up the move to the use of Non-Animal Technologies in science. Make it a priority and it can happen, but it needs bold and ambitious leadership which this government could deliver."

Professor Sir Chris Evans

UK animal protection organisations, safety scientists & companies aligned on need to lead for change & fully use the advanced scientific tools we now have

Unilever

Time to re-think & modernise our approach …

Conducting an animal test because it's a (perceived) regulatory requirement isn't adequate <u>scientific</u> justification with the current Science v Regulation gap

1. Current laws and regulations, not science, are holding us back and impeding the paradigm shift to using modern non-animal safety science in place of animal testing.

2. We should take the opportunity of the UK implementing its own chemicals regulations ("UK REACH") to re-think how we best ensure chemical safety to strengthen the protection of people (workers & consumers) and our environment, without that being anchored in predicting the apical toxicity effects seen in high-dose animal studies.

3. Doing so will enable us all to be open and transparent in how we are upholding the UK government's commitment, and our legal requirement for, 'animal testing as a last resort'.

Royal Society of Biology

Animal Science Meeting 2021
2-3 December 2021
Online

Facilitated discussions

A series of parallel workshops facilitated by members of the Animal Science Group and experts from the sector. Attendees will be sent preparatory material (e.g. readings and prompt questions) to review ahead of time and responses will be reviewed and discussed during these sessions.

- Reproducibility – research design in animal behaviour studies
- The current state of in-vivo education and future directions
- Culture of care – the role of AWERBs and staff training through storytelling
- Regulatory science and safety testing for chemicals – new approach methodologies and barriers to the 3Rs
- Animal research and societal views – foresight and horizon scanning

Regulatory science and safety testing for chemicals – new approach methodologies (NAMs) and barriers to the 3Rs (a focus on the UK)

- How can we increase confidence in the use of NAMs within a regulatory context?
- What are the challenges/barriers to use (and acceptance of) NAMs within a regulatory context in the UK?
- What policy/legislative changes are required in the UK?

Background reading (optional)

1. Upholding the EU's Commitment to 'Animal Testing as a Last Resort' Under REACH Requires a Paradigm Shift in How We Assess Chemical Safety to Close the Gap Between Regulatory Testing and Modern Safety Science (sagepub.com)
2. The US EPA's New Approach Methods workplan issued last year epa_nam_work_plan.pdf
3. Publication from APCRA (a global, multi-regulatory agency group looking at the topic of NAMs for chemical safety – Accelerating the Pace of Chemical Risk Assessment) Utility of In Vitro Bioactivity as a Lower Bound Estimate of In Vivo Adverse Effect Levels and in Risk-Based Prioritization | Toxicological Sciences | Oxford Academic (oup.com)
4. RE: A call for action on the development and implementation of new methodologies for safety assessment of chemical-based products in the EU – A short communication - ScienceDirect
5. The "EU chemicals strategy for sustainability" questions regulatory toxicology as we know it: is it all rooted in sound scientific evidence? (nih.gov)