



## European efforts to make alternative methods available.

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<http://ecvam.jrc.it>



# ***ECVAM***

- **Animal welfare directive 1986 (86/609/EEC)**
- **Established 1991, 60 staff**
- **Reorganization responding to 7<sup>th</sup> amendment of the cosmetic directive and emerging REACH legislation**
- **Focus FP7 (2007-2013): more drug, vaccine, food**
- **ECVAM website and database**  
<http://ecvam.jrc.it>  
<http://ecvam-dbalm.jrc.it>

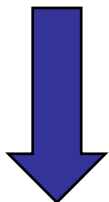
# ECVAM's Key Areas

- Systemic toxicity
  - Topical toxicity
  - Sensitisation
  - Carcinogenicity
  - Reproductive toxicity
  - Toxicokinetics
  - Ecotoxicology
  - Biologicals
  - Predictive toxicology
  - SIS database
  - Strategic developments
  - Biostatistics
  - CORRELATE
- Working groups composed of members of the ECVAM staff and external experts have been appointed for all the key areas
  - In-house expertise

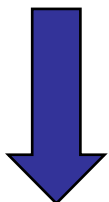
## The way to alternative methods



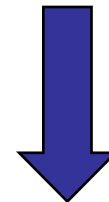
**DG RTD**



**DG JRC  
ECVAM**



**Policy-DGs  
ECB (DG JRC)**



***Collaboration with academia & industry:***

***research, in vivo data, reference  
chemicals and in-house methods***

# *Europe goes alternative*

**1<sup>st</sup> Conference, Brussels, 7<sup>th</sup> Nov 2005**

**2<sup>nd</sup> Conference, Brussels, 18<sup>th</sup> Dec 2006**

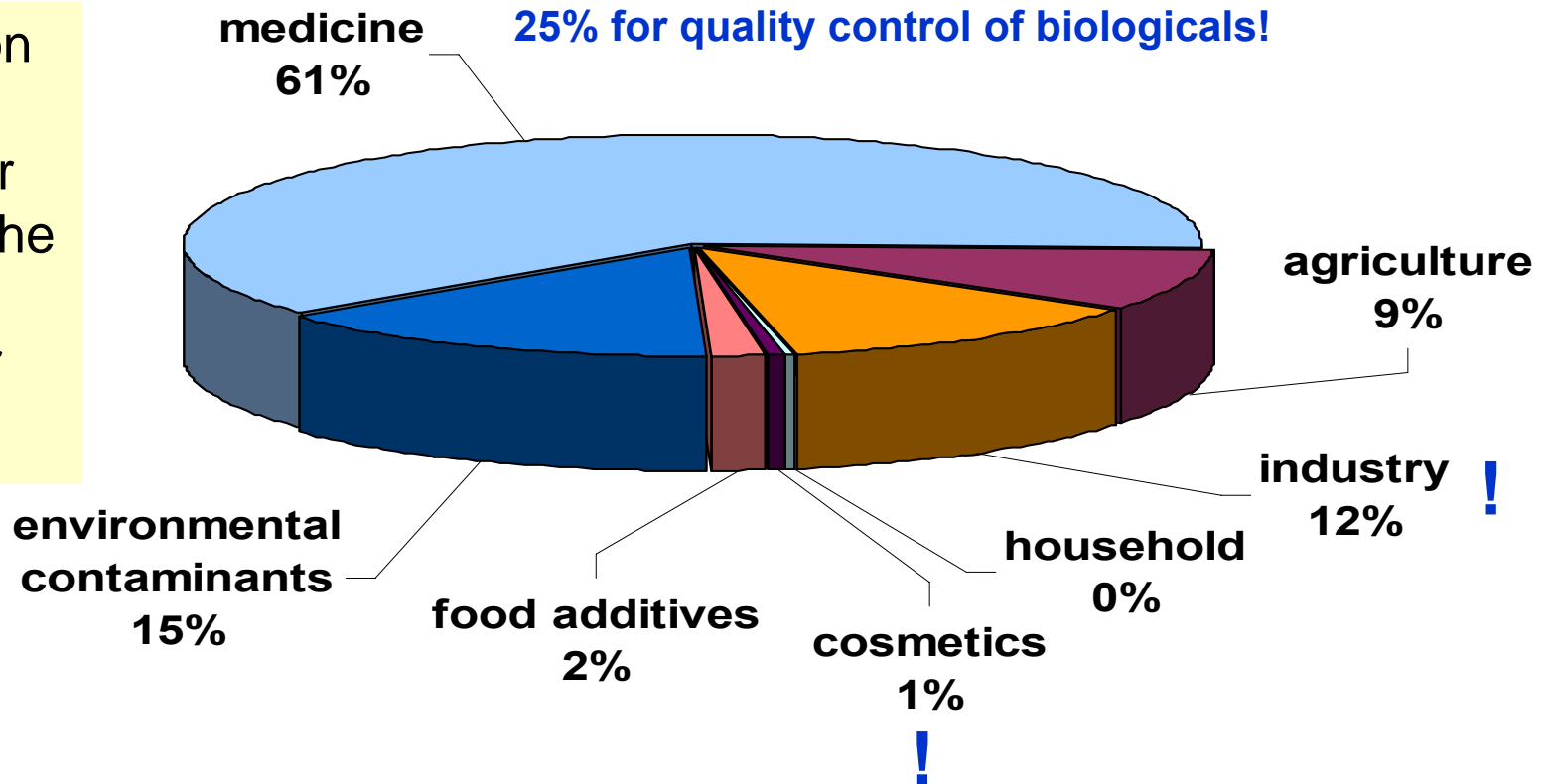
**3<sup>rd</sup> Conference, 5<sup>th</sup> Nov 2007**



- Hosted by Commissioners G. Verheugen (DG ENTR) and J. Potočnik (DG JRC / DG RTD)
- **European Partnership** (7 trade associations, 27+ companies)

## Animals used in Toxicological or other Safety Evaluations

10 million animals used per year in the 15 member states



3<sup>rd</sup> Commission Report on the Number of Animal Used in the EU

# *Cosmetics industry*



- **EU: 2.000 companies, 65 billion € turnover, (world > 230 billion \$)**
- **EU: 5.000 new products per year (world 22.000)**
- **EU: 5 billion units sold per year**
- **EU: 150.000 directly and 350.000 indirectly employed**
- **25% turnover with products released within last 6 months**

# *The 7<sup>th</sup> amendment of the Cosmetics Directive 2003*



- **Marketing ban on finished products tested if not using validated methods since 2003**
- **Phasing out ingredient testing with test and marketing bans in 2009 and 2013**
- **Critical need for alternatives**

# *A program to make alternative methods for chemical and cosmetic safety available*

- **17 research projects with >300 partner organisations**
- **COLIPA collaboration**
- **18 methods validated**



## *Validated 2007: Skin irritation*



- **Rabbit test for drugs, chemicals and cosmetics introduced 60 years ago**
- **Validation study 2003-2006 of three models with 9 labs (2 U.S.), 58 test chemicals**
- **Best model (Episkin), optimized in an EU project, represents a full replacement**

## *Validated 2007: Eye irritation*



- Retrospective evaluation with U.S. ICCVAM
- 4 tests analyzed, 2 qualify for the detection of severe eye irritants
- 8 other assays and the suitability for mild irritants currently under evaluation
- Intense collaboration with COLIPA
- **REACH 10.000 substances;** critical for cosmetics 2009



Source: ECEAE

Toxicological Endpoints	Status
Skin Corrosion	OECD accepted
Acute Phototoxicity	OECD accepted
Skin Absorption / Penetration	OECD accepted
Skin Irritation	Validated 2008
Genotoxicity	OECD accepted
Photogenotoxicity	Expected 2010
Acute toxicity	Expected 2010
Eye Irritation	Expected 2010

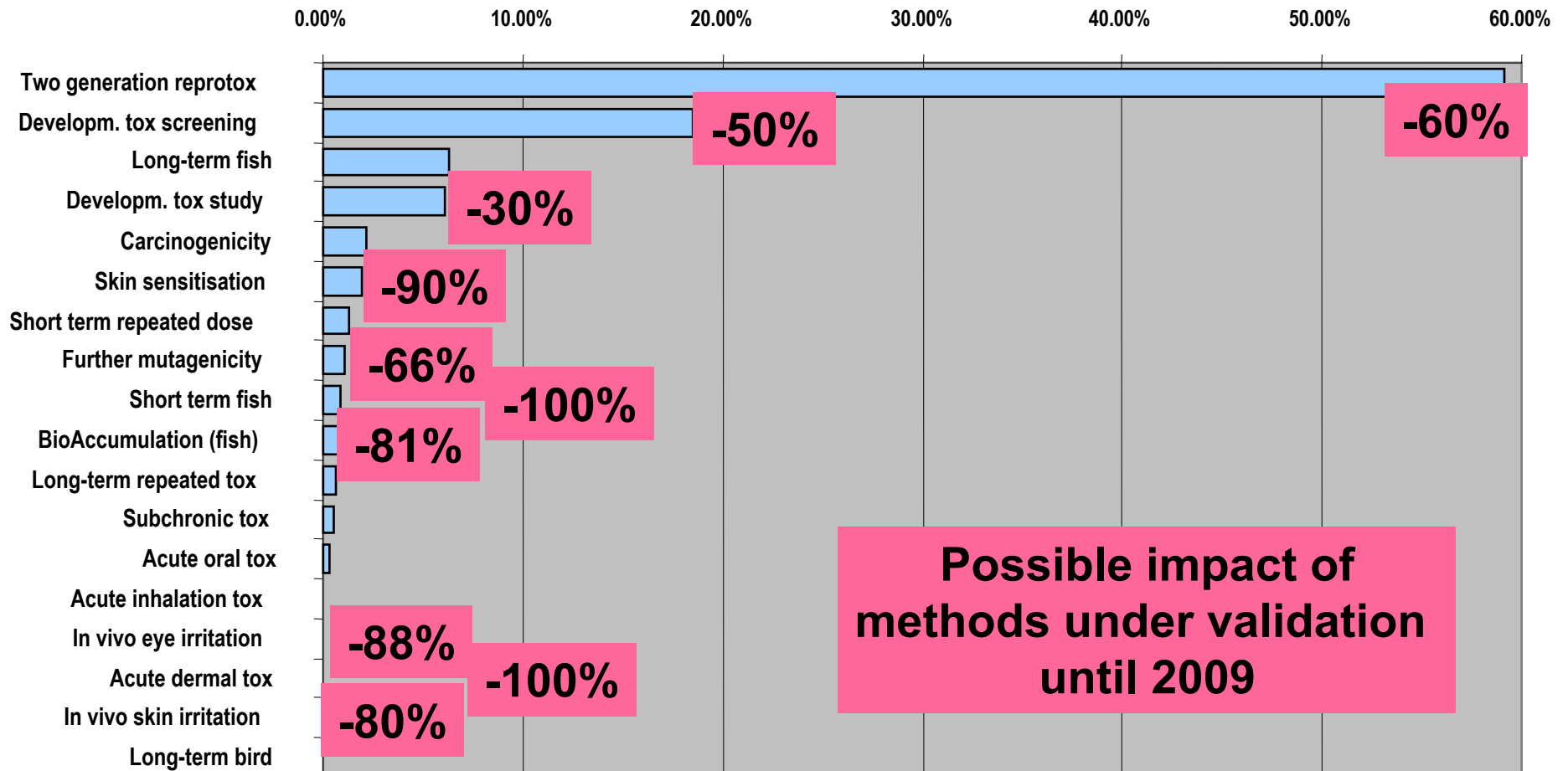
# *Chemical industry and REACH*



- **EU: 27.000 companies (96% SME), 590 billion € turnover = 33% of world market, 1,7 million employees**
- **86% of toxicological data on 'old' chemicals are lacking**
- **REACH will assess 30.000 chemicals marketed >1 ton/year**
- **Expected 180.000 preregistrations 2009, 70% of testing 2011-2017**
- **Alternatives increase test through-put and reduce costs and animals**

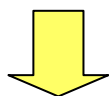
## *Estimated test animal need for the different endpoints*

**% of total test animals needed**



# Computational Toxicology

In silico methods

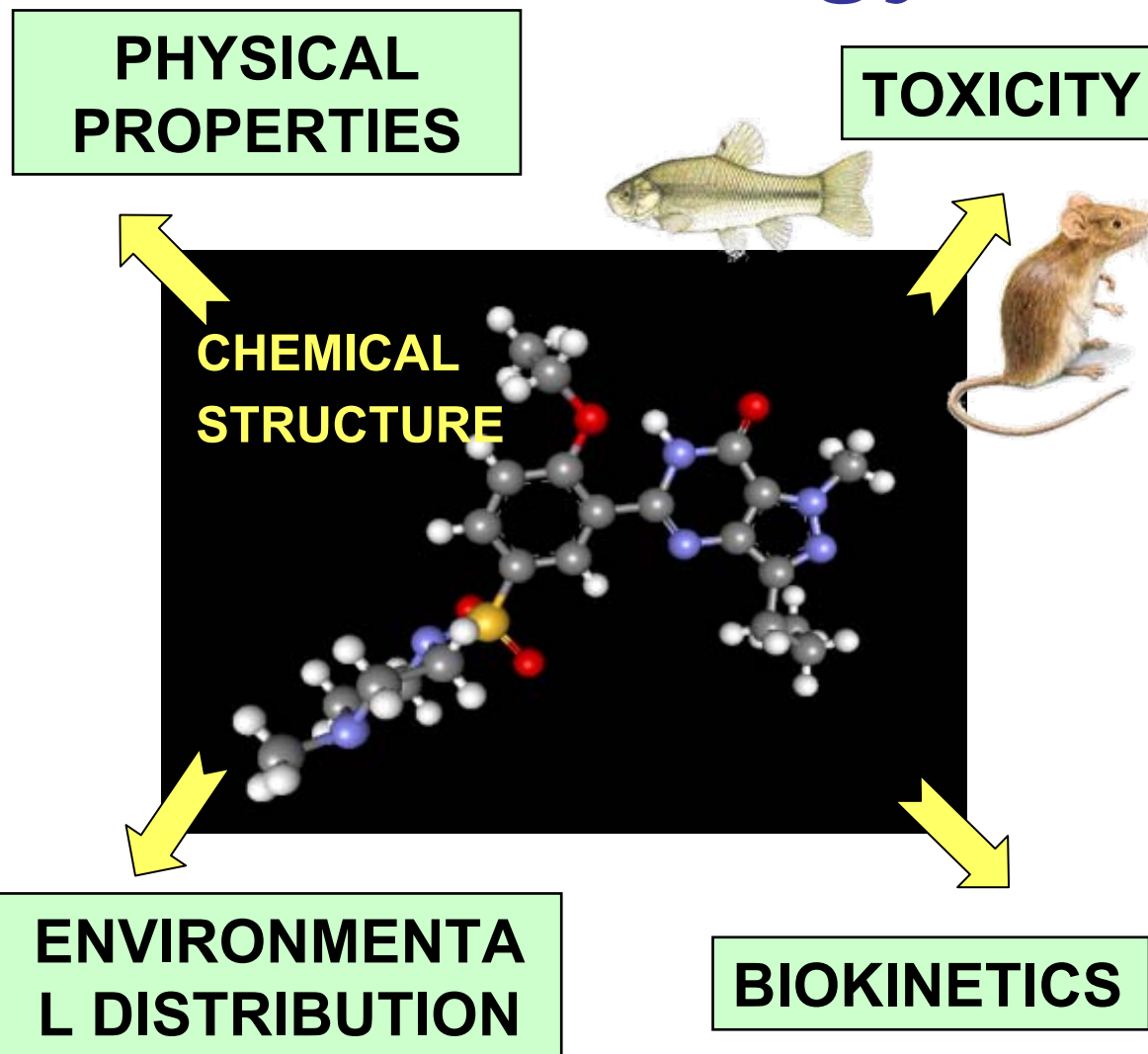


➤ **SARs: Structure-Activity Relationships**

**AND**

➤ **QSARs: Quantitative Structure Activity Relationships**

... are theoretical models that relate the structure of chemicals to their properties

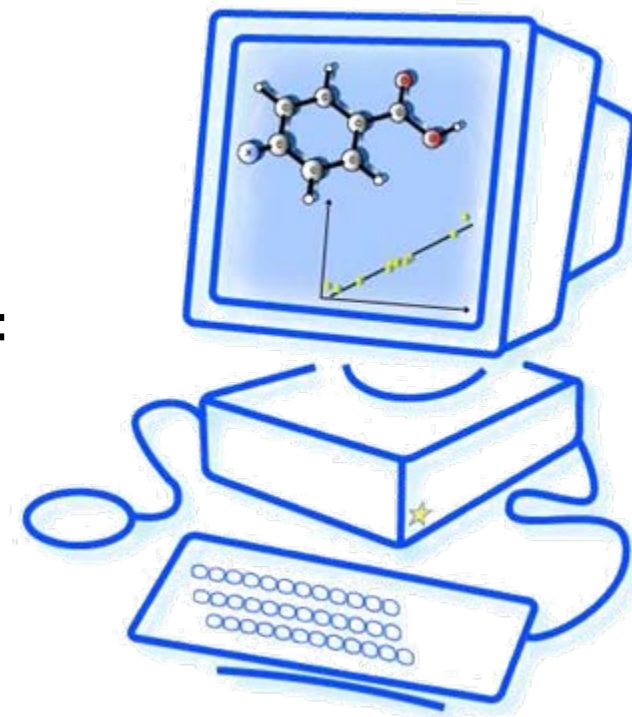


## *Computational Toxicology and Environmental Risk Modelling (European Chemicals Bureau)*

### **Promoting the availability for regulatory use of valid computer-based methods**

#### **ACTIVITIES:**

- **QSAR software tools for regulatory purposes (downloadable or accessible from the ECB website: <http://ecb.jrc.it/qsar/>).**
- **Case studies on QSAR validation and guidance document on QSAR validation.**
- **REACH guidance on grouping of chemicals and regulatory use of QSARs.**





- Current Activities & Prospects
- **Online availability since 29<sup>th</sup> October 2006**
- **Protocols for alternative methods (“cook book”)**
- **Continuously extended data collections for all toxicological areas**
- **Extension to computational toxicology**
- **ECVAM website: <http://ecvam.jrc.it>**  
**<http://ecvam-dbalm.jrc.it>**

## *The expansion of the 3R*

**3R** → EU → US → Japan → OECD → ICH → Korea, China, Brazil

Cosmetics



Chemicals



Vaccines



Pesticides



Drugs





Thank you!