A Toxic Mixture?

Industry bias found in EFSA working group on risk assessment for toxic chemicals.

Abstract:

EFSA is about to publish an own-initiative opinion on a concept called "Threshold for Toxicological Concern" (TTC). This concept has been heavily promoted by industry, notably the International Life Sciences Institute (ILSI), a food and biotech lobby group. NGOs including Pesticide Action Network (PAN) Europe are worried about the impacts of EFSA endorsing this concept, because it would allow for misleading 'safe levels of exposure' for many chemicals which have not been fully tested for toxicity. It now appears that numerous experts on EFSA's TTC working group have conflicts of interest with the same industry pushing for the TTC approach.

Introduction

The European Food Safety Agency (EFSA) is expected to publish the final version of an own-initiative opinion on a concept called "Threshold for Toxicological Concern" (TTC) in February 2012. TTC is a tool developed and promoted by the industry lobby group, ILSI (International Life Sciences Institute)[1],[2] ,[3] over the last 15 years to assess whether chemicals are of toxicological concern or not. EFSA has set up a special working group to work on this issue. A first draft report by EFSA was very positive towards the TTC approach. This once more begs the questions: are the EFSA working group members behind this opinion independent and unbiased?

PAN Europe has analysed whether EFSA has ensured that the people who were responsible for developing and promoting TTC are prevented by EFSA from being a member of the EFSA TTC working group. We also examined whether members of the working group had any ties with industry and in particular with the industry lobby group ILSI. Given EFSA's previous cosy relationship with ILSI[4] , there was some reason for concern.

1. R. KROES, C. GALLI, I. MUNRO, B. SCHILTER, L.-A. TRAN, R. WALKER and G. WURTZEN, Threshold of Toxicological Concern for Chemical Substances Present in the Diet: A Practical Tool for Assessing the Need for Toxicity Testing, Food and Chemical Toxicology 38 (2000) 255±312
2. R. Kroes, A.G. Renwick, M. Cheeseman, J. Kleiner, I. Mangelsdorf, A. Piersma, B. Schilter, J. Schlatter, F. van Schothorst, J.G. Vos, G Wurtzen, Structure-based thresholds of toxicological concern (TTC): guidance for application to substances present at low levels in the diet, Food and Chemical Toxicology 42 (2004) 65–83
3. I.C. Munro, A.G. Renwick, B. Danielewska-Nikiel, The Threshold of Toxicological Concern (TTC) in risk assessment, Toxicology Letters 180 (2008) 151–156
4. http://www.pan-europe.info/Resources/Reports/Eu_pesticidefoodsafety.pdf

What is TTC and what does it do for industry?

Industry promotes TTC as a fixed threshold "below which there would be no appreciable risk to human health", even when no toxicological data are available for a particular chemical[5]. The concept proposes that "a low level of exposure with a negligible risk can be identified for many chemicals, including those of unknown toxicity, based on knowledge of their chemical structures." ILSI has a special "TTC Task Force" in place.

TTC-supporters claim that for the majority of chemicals, every adult can safely consume 90 micrograms of it during his or her entire life. Below this level, the TTC approach would allow for the bypassing of safety testing for these chemicals altogether, creating massive cost reductions for companies. Industry also argues that TTC would lead to less animal testing and therefore improved animal welfare – a convenient argument, perhaps, but probably not industry's main concern.

NGOs including PAN Europe argue that TTC is the wrong approach for a number of reasons[6].

Firstly, the TTC-level is based on old industry-sponsored studies of questionable reliability, and many of the studies were 'non-retrievable' so cannot be evaluated by others.

Secondly, the TTC is set in a completely arbitrary way involving statistical juggling. This has led to a threshold that would conveniently remove the need for testing for most toxic chemicals. The high "safe" threshold level produced in this way can be easily challenged by independent studies in scientific journals which show data are available at a 10, 100, 1000 and up to 7500 lower level than TTC.

Thirdly, the approach is not science-based because there is no good evidence for safe thresholds and also because the daily reality of exposure to a range of chemicals is not taken into account.

In short, TTC is clearly aimed at facilitating market access for a wide range of chemicals. TTC puts human health at risk and especially ignores effects on the vulnerable like unborn children and infants, which need to be protected most according to EU regulations[7].

TTC also violates existing European policy by ignoring the non-threshold policy for genotoxic chemicals (assuming a threshold while official EU policy decided not to use thresholds), by not-protecting vulnerable groups like foetuses and infants, by not taking into account the cocktail effect of combined chemicals and not taking into account independent literature. New scientific insights are disregarded as well, for instance the accumulated scientific evidence on low-dose effects and special windows of vulnerability[8].

5. http://toxsci.oxfordjournals.org/content/86/2/226.abstract
6. http://www.pan-europe.info/News/PR/110830.html
7. For instance Regulation 1107/2009 on pesticides.
8. John Peterson Myers, R. Thomas Zoeller, and Frederick S. vom Saal, A Clash of Old and New Scientific Concepts in Toxicity, with Important Implications for Public Health, Env. Health Perspect. volume 117 | number 11 | November 2009

The EFSA-ILSI connection

ILSI is a Washington DC-based body with offices throughout the world including Brussels. It is funded by its member corporations from the food, chemical and biotech corporations including MacDonald's, Coca-Cola, Monsanto and Unilever[9]. ILSI's mission is to 'build science into regulations' by bringing scientists from academia, government and industry together in what ILSI regards 'neutral fora'[10].

But behind this façade hides an industry lobby group. ILSI's main goal has proven to be redesigning risk assessment standards and procedures for food and chemicals to make them more industry-friendly. As NGO Testbiotech has reported, ILSI itself has boasted that its taskforce on GMOs had a significant impact on the EFSA guidelines for the risk assessment of genetically engineered plants, resulting in a less rigorous assessment[11].

ILSI itself however explicitly denies being a lobby group. But even EFSA has acknowledged that involvement with ILSI can lead to conflicts of interest. When Management Board Chair Diana Bánáti stepped down from her role as a director at ILSI in 2010, the Management Board commented that she had "resigned from positions which may create a potential conflict of interests with EFSA activities."[12] Nevertheless, in both the current EFSA Panels on GMOs and food additives for example, at least six members have had close collaborations with ILSI.[13]

In the late 1990s and early 2000s, ILSI worked with the tobacco industry to lobby the World Health Organisation (WHO) to limit tobacco control. In 2006, the UN agency banned ILSI from taking part in WHO activities related to setting standards for food and water, because of its track record of putting the interests of its corporate members ahead of science and health concerns.[14] In 2007, ILSI was accused of having "demonstrably compromised the quality of the US Environmental Protection Agency's scientific inquiry".[15]

9. http://www.ilsi.org/Europe/Pages/currentmembers.aspx
10. ILSI presentation at ESFA independence workshop, October 2011
11. http://www.testbiotech.de/sites/default/files/EFSA_Playing_Field_of_ILSI.pdf, page 7
12. EFSA Management Board Statement, 21 October 2010, http://www.efsa.europa.eu/en/press/news/corporate101021.htm
13. See CEO reports: http://www.corporateeurope.org/sites/default/files/publications/EFSA_ANS_panel.pdf, http://www.corporateeurope.org/sites/default/files/publications/EFSA_ANS_bis_repetita.pdf and http://www.corporateeurope.org/sites/default/files/publications/Amflora_COI_report_2011.pdf
14. "WHO to Rely Less on U.S. Research", Associated Press, 27 January 2006. http://www.trwnews.net/Documents/News/2006/ap012706.htm
15. Testimony of Jennifer Sass, Ph.D., senior scientist, Natural Resources Defense Council, before the U.S House Of Representatives Committee on Science and Technology, 14 March 2007. http://democrats.science.house.gov/Media/File/Commdocs/hearings/2007/energy/14mar/sass_testimony.pdf

EFSA's interest in TTC

So why did the EFSA take such an active interest in TTC that it decided to develop its own opinion about it? Creating this opinion means EFSA gets a strong position on TTC and it will not be easy for others like EU Commission to challenge EFSA on TTC because it is seen as the food scientific institute. EFSA claims to be interested in new pragmatic risk assessment approaches, and is also interested from an animal welfare point of view (EFSA draft opinion on TTC, August 2011). In fact EFSA has stated that it has already started to use TTC as a "pragmatic, science-based approach" for food flavouring substances. EFSA then wanted to identify where TTC can be used additionally. For this reason, in 2008 EFSA decided to start developing an opinion on TTC on its own initiative – rather than in response to a request from the Commission which is normally the case.

EFSA and the WHO (World Health Organisation) had already organised a conference "with support of ILSI Europe" on risk assessment of substances that are both genotoxic and carcinogenic in 2005, where TTC was discussed as one of four approaches.[16]

In August 2011, EFSA published a draft Scientific Opinion on Exploring options for providing preliminary advice about possible human health risks based on the concept of Threshold of Toxicological Concern (TTC). It was authored by EFSA's Scientific Committee, with strong input from EFSA's Working Group on TTC. This draft opinion was largely positive and recommended the use of TTC for pesticide metabolites (substances that pesticides are transformed into after application, that are therefore different from

16. EFSA meeting summary report, November 2005 http://intranet.cnrcop.es/extranet/Base%20de%20datos%20documental%20de%20Vigilancia/EFSA%20Summary%20Report.pdf

the original pesticide). The acceptance of TTC would solve a big problem for the pesticide industry, as these metabolites would not have to be risk tested and assessed provided the exposure level was assumed to be below this arbitrary threshold. This is a good start for industry, and no doubt it will keep on pushing to extend TTC to all chemicals including those covered by REACH, the EU's chemical legislation.

In their report, the Scientific Committee "thanks the members of the Working Group on Threshold of Toxicological Concern for the preparatory work for this scientific opinion".

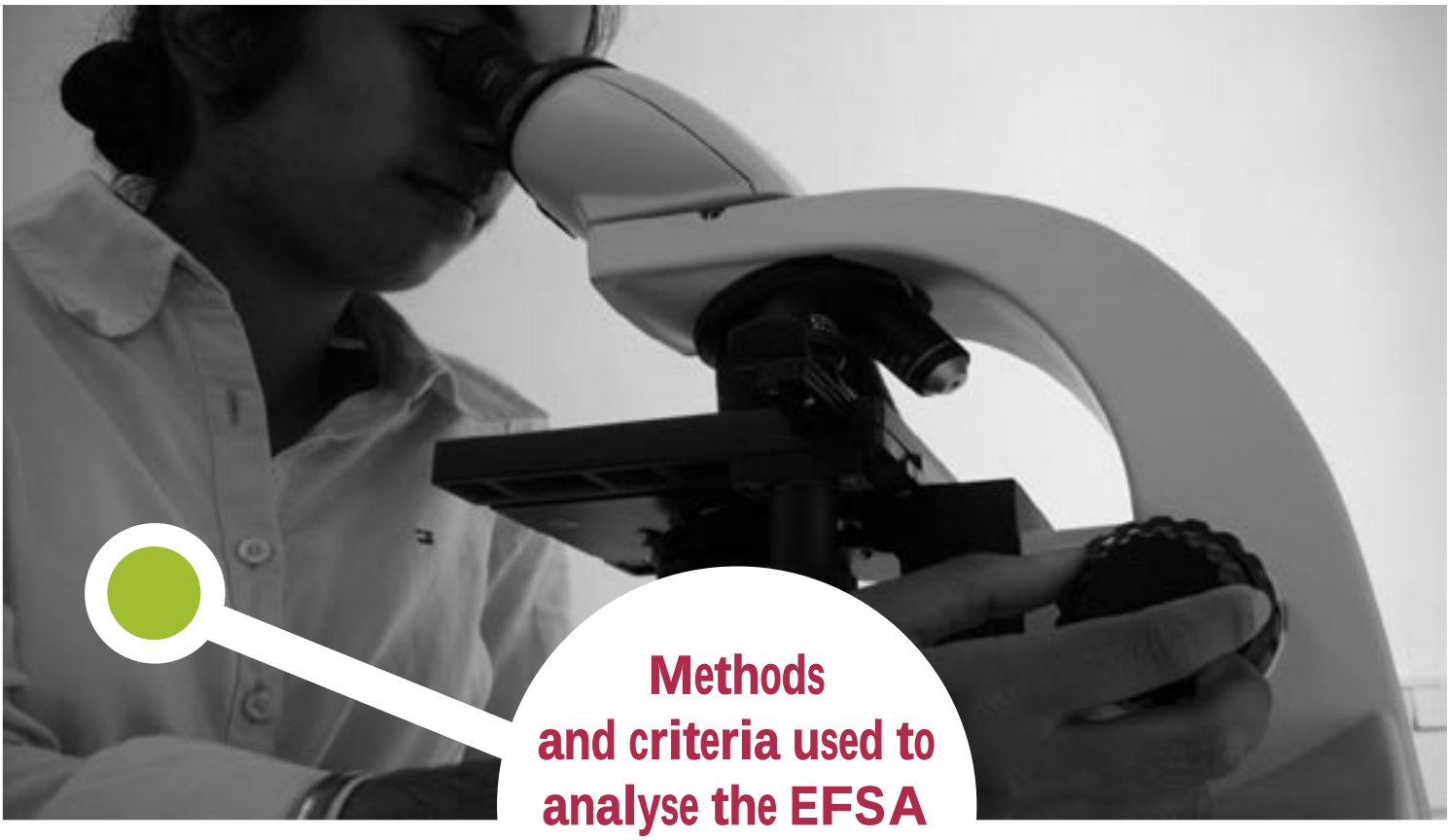
These members were

Susan Barlow, consultant, UK,
Alan Boobis, professor, UK,
James Bridges, retired professor, UK,
Astrid Bulder, civil servant, NL,
Corrado Galli (member until February 2011) professor, Italy,
Ursula Gundert-Remy retired professor, Germany,
John Christian Larsen, civil servant, Denmark,
Jean-Claude Lhuguenot, retired professor, France,
David Lovell, PhD, UK,
Alberto Mantovani, professor, Italy,
Aldert Piersma, civil servant and professor, NL,
Josef Schlatter, civil servant Switzerland,
Andrew Worth, civil servant European Research Center and,
Giovanni Zapponi (member until 16 May 2011),
and EFSA staff members Daniela Maurici, David Carlander and Hans Steinkellner.

Four of the working group members also on the Scientific Committee (Susan Barlow, John-Christian Larsen, David Lovell and Josef Schlatter).

The EFSA TTC working group reportedly organised 17 meetings since 2008 with each meeting resulting in an advanced draft report on TTC[17]. This strongly suggests that the EFSA TTC working group had a leading role on this issue, and the Scientific Committee played a more formal role. This is why the analysis of conflicts of interest in this report is focused on the members of this working group (which as stated below, partially overlaps with the Scientific Committee membership).

17. EFSA letter to PAN Europe in answer to access-to-documents request, 7 December 2011



Methods and criteria used to analyse the EFSA TTC Working Group members

PAN Europe analysed literature in scientific journals by searching PubMed and ScienceDirect, using the names of working group members and TTC as search terms. We looked at articles proposing TTC or promoting TTC and checked which authors and co-authors were involved. We also looked at the publications of each member in the last 5 years, excluding non-original studies to find out if they were an actively publishing scientist and aware of recent insights in science. We also looked at the declarations of interest (DoI) on the EFSA website and looked at links to industry. Finally we searched online for ILSI-activities and for evidence of people from the TTC-working group having links to industry.

We measured the potential bias on several grounds:

* The level of bias towards TTC: did the person in question develop or promote TTC in the past?
* The level of industry-ties: had the person in question formal links to or contracts with ILSI and/or other companies?
* The level of industry-mindedness: did the person in question attend (regularly) ILSI-meetings on TTC and similar (this information is only used as confirmatory information).

An additional criterion indicates whether a person is an actively publishing scientist because it is very important that panel members understand recent insights in science and are part of academic discussions:

* The level of scientific activity: is the person in question actively publishing experimental work.

The criterion used here is whether a person has showed to have published at least 2 original articles (no comments, no opinions, no reviews, no statistical re-examination, etc., only experimental studies) per year in the last 5 years.

Result of the analysis: Strong industry bias of TTC working group

The table below presents a summary of the findings, comparing each working group member[18] to the criteria listed above. A full analysis for each person is found in the Annex.

TTC-member	Formal ILSI connection	Connection to ILSI in publications	Contract with companies	Connection companies in publications	Actively publishing scientist or not?	Developing and promoting TTC
BARLOW	YES	YES	YES	YES	NO	YES
BOOBIS	YES	YES	YES	YES	NO	YES
GALLI	YES	YES	YES	YES	YES	YES
BULDER	NO	NO	NO	NO	NO	NO
GUNDERT REMY	YES	NO	NO	YES	NO (PENSION)	YES
BRIDGES	YES	YES	NO	YES	NO (PENSION)	YES
LARSEN	YES	YES	NO	NO	NO	YES
LHUGEHOT	NO	YES	YES	YES	NO (PENSION)	YES
LOVELL	NO	NO	YES	YES	NO	YES
MANTOVANI	NO	NO	NO	NO	YES	NO
PIERSMA	YES	YES	NO	YES	YES	YES
SCHLATTER	YES	YES	YES	YES	NO	YES
ZAPPONI	?	NO	?	NO	NO	NO

The outcome of our analysis presents a shocking picture of industry-bias:

- **8 out of 13 (62%) members have formal relations with industry lobby group ILSI**
- **10 out of 13 (77%) of the EFSA TTC-working group members have developed and/or promoted TTC in the past**
- **6 out of 13 (46%) have contracts with industry**
- **10 out of 13 (77%) published articles jointly with industry/ ILSI representatives (often in industry-sponsored journals with Boobis/Larsen as editor)**
- **10 out of 13 (77%) are not actively publishing scientists**

18. Not including the three EFSA staff members since these have a more supporting role

Most notably:

***Susan Barlow** has been involved in TTC since she was hired by ILSI in 2005 (while at the same time being on an EFSA panel) and involved in the joint ILSI/EFSA colloquium on genotoxic chemicals. Barlow is linked to at least five strong advocates of TTC in EFSA who are connected to ILSI and to at least three other EFSA panel members with ILSI-connections.*

***Alan Boobis** was chair of the ILSI board of trustees and a fierce defender of industry's agenda in his work, including on TTC. A Science Direct search on his publications reads like a list of ILSI-opinions and ILSI meeting reports. It gives the impression that Boobis is a ghost writer for ILSI. At the same time Boobis was active in EFSA for years and allowed to defend the same industry agenda there. He has connections to at least five other EFSA panel members who also promoted TTC and have ILSI connections.*

***Corrado Galli** was involved in TTC and ILSI from the beginning and co-authored ILSI papers on TTC (2x Kroes). He makes no secret of his preference: "the establishment of a more widely accepted TTC would benefit consumers, industry and regulators". Galli, just like Barlow and Boobis, has many links to food and cosmetics companies. He was removed from EFSA recently for not disclosing industry contacts[19].*

The EFSA working group on TTC is heavily biased towards the use of TTC. Ten out of 13 members of this working group have been developing or promoting this controversial concept in the past, so a positive 'scientific opinion' is to be expected. This EFSA working group can therefore not be seen as credible to give scientific advice about the value of TTC as a concept.

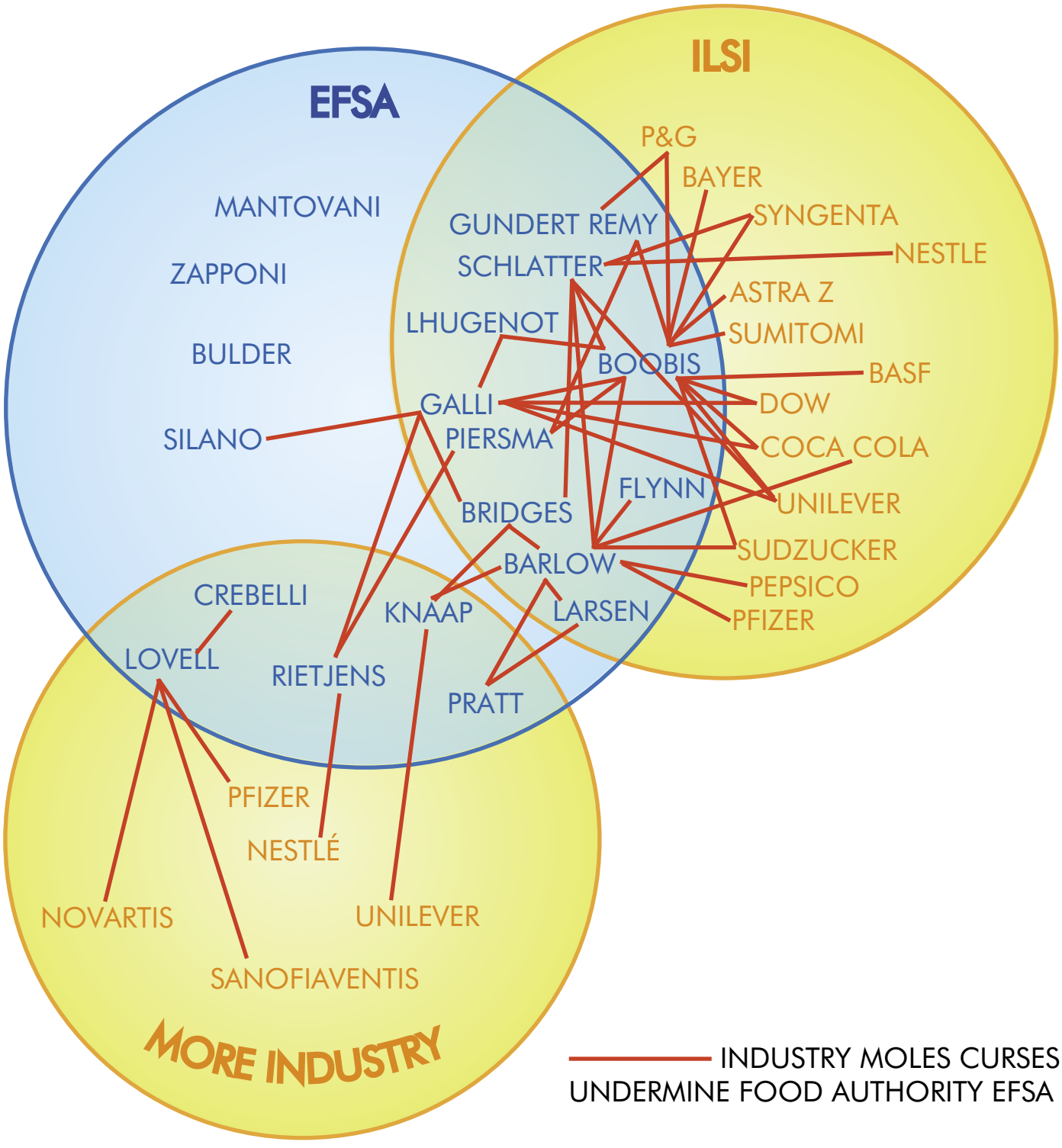
For EFSA to allow this kind of ILSI-infiltration is completely unacceptable given their self-described core value of independance. Barlow even worked for ILSI, while Boobis was Chair of the Board of Trustees of ILSI for a long time. Galli, Gundert-Remy, Larsen, Bridges and Piersma had or have a formal connection to ILSI. Others like Lhugenot have ILSI connection through publications, while half of the people work or worked for industry and an overwhelming majority published articles together with companies.

Additionally, in total 10 out of 13 working group members have not regularly published scientific work recently. Mantovani seems to be the only independent scientist in the panel.

19. http://www.efsa.europa.eu/en/events/event/scaf110209-m.pdf

Two of the working group members are EFSA staff members (Carlander and Maurici) and are or were themselves members of the ILSI Task Force on TTC. Feigenbaum, an EFSA staff member, has published a favourable opinions on TTC with advice from two other EFSA TTC working group members (Barlow, Lhugenot) and another EFSA panel members with ILSI-ties (Crebelli).

EFSA – in short – has failed yet again to establish a working group consisting of independent experts that could provide an unbiased view on TTC. In addition, EFSA has failed to keep a distance from industry by organising joint meetings with industry lobby group ILSI and allowing staff to participate in ILSI taskforces and to publish favourable articles on TTC. This brings the credibility of EFSA acting as an independent scientific food agency down to zero.



INDUSTRY MOLES CURSES UNDERMINE FOOD AUTHORITY EFSA

Recommendations

Based on this analysis, and the strong concerns regarding the use of the TTC approach, PAN Europe believe that:

- EFSA should immediately put an end to the TTC working group as the outcome is likely to be heavily biased. EFSA should explain to the public how dedicating its scarce resources to work on TTC benefits society and the environment at large. If an EU institution decides to ask EFSA for an opinion on TTC, a working group should be established whose members are free from conflicts of interests with companies or with previous projects on TTC.
- EFSA should remove all people from their panels and working groups who have ties with industry lobby group ILSI and make sure no-one with links to this group and similar industry lobby groups like ECETOC or SETAC are involved in EFSA's work.
- EFSA should not engage with industry lobby groups in joint meetings (such as the meeting on genotoxicity in 2006, on mixtures of pesticides in 2007 or on TTC in 2011). A meeting should be convened only with independent scientists. In cases where stakeholders are invited to observe, industry presence should only be allowed if it is balanced with other stakeholders.
- EFSA should take an active approach in involving independent scientists who are actively publishing articles in their panels and Scientific Committee to make sure the opinions are based on the latest scientific insights, and try to protect EU citizens according the best available science. The renewal of membership of 8 EFSA Panels and the Scientific Committee in spring next year will be closely scrutinised in this respect.

Annex: Analysis of EFSA TTC Working Group members

1. Susan M. Barlow

1. Name member working group	Susan M. Barlow (Wg. chair). Independent consultant in toxicology, Brighton, UK.
2. Scientific work (original articles in last 5 year)	No experimental work, except one toxicity experiment co-authored with Dow [20].
3. Publications on TTC	Several meeting reports, "reviews" and other opinions generally in industry-captured journals, since 1999 [21], almost all her work is linked to industry lobby club ILSI, [22], [23], [24] and she published with other company representatives (Coca Cola, Sudzucker). All her articles promote TTC. She also wrote a 2005-ILSI promotion report. Advised EFSA staff members (Feigenbaum et al.) on writing an article promoting TTC [25]
4. Connections in publications	J. Schlatter, J.W.Bridges, J.C.Larsen, A.Boobis, C.Galli, all member of EFSA TTC wg. & Ada Knaap, Iona Pratt and Albert Flynn (ILSI BoD) of the EFSA SC. And L.Edler of the EFSA CONTAM panel.
5. Other publications	About 20, no other primary scientific work; rather all commentaries & qualitative reviews, all of which promote the easing of chemical RA. One on another industry lobby topic [26], denying a relation between endocrine disruption and cancer, on casting doubt on animal studies [27], an ILSI project with Roche, Unilever and Red Bull, and on risk characterisation [28]
6. Conflict of interest acc. to DoI	# Member of Task Force on use of mammalian toxicology studies in safety assessment of GM foods (ILSI), up from 2008 # ILSI/CEFIC workshop 2011, chair on behalf of EFSA # Rapporteur at ILSI-workshop on Margin of Exposure approach for genotoxic carcinogens, 2008/2009. # (**not mentioning** her TTC-work for ILSI [29]), saying *"TTC, a general threshold.....below which exposure did not raise safety concerns for human"*
7. Most likely source of income	Industry consultancy (ILSI, Pfizer, PepsiCo, Tesco).

20. Carney EW, Billington R, Barlow SM. Developmental toxicity evaluation of triclopyr butoxyethyl ester and triclopyr triethylamine salt in the CD rat. Reprod Toxicol. 2007 Feb;23(2):165-74
21. Report of a workshop held on 5–6 October 1999 in Paris,France Organised by the ILSI Europe Threshold of Toxicological Concern Task Force, S.M. Barlow,G. Kozianowski, G. Wurtzen, J. Schlatter, Threshold of toxicological concern for chemical substances present in the diet, Food and Chemical Toxicology 39 (2001) 893–905.
22. S. Barlow , A.G. Renwick, J. Kleiner, J.W. Bridges, L. Busk, E. Dybing, L. Edler, G. Eisenbrand, J. Fink-Gremmels, A. Knaap, R. Kroes, D. Liem, D.J.G. Mu¨ller, S. Page, V. Rolland J. Schlatter, A. Tritscher, W. Tueting, G. Wurtzen, Risk assessment of substances that are both genotoxic and carcinogenic Report of an International Conference organized by EFSA and WHO with support of ILSI Europe, Food and Chemical Toxicology 44 (2006) 1636–1650
23. Iona Pratt, Susan Barlow, Juliane Kleiner, John Christian Larsen, The influence of thresholds on the risk assessment of carcinogens in food, Mutation Research 678 (2009) 113–117.
24. Susan Barlow, Josef Schlatter, Risk assessment of carcinogens in food, Toxicology and Applied Pharmacology 243 (2010) 180–190
25. Roberta Pinalli, Cristina Croera, Anne Theobald, and Alexandre Feigenbaum, Threshold of toxicological concern approach for the risk assessment of substances used for the manufacture of plastic food contact materials, Trends in Food Science & Technology xx (2011) 1e12.
26. Susan M Barlow, PhD, Agricultural chemicals and endocrine-mediated chronic toxicity or Carcinogenicity, Scand J Work Environ Health 2005;31 suppl 1:141–145
27. S.M Barlow, J.B Greig, J.W Bridges, A Carere, A.J.M Carpy, C.L Galli, J Kleiner, I Knudsen, H.B.W.M Koëter, L.S Levy, C Madsen, S Mayer, J.-F Narbonne, F Pfannkuch, M.G Prodanchuk, M.R Smith, P Steinberg, Hazard identification by methods of animal-based toxicology, Food and Chemical Toxicology, Volume 40, Issues 2-3, February-March 2002, Pages 145-91
28. A.G. Renwick, S.M. Barlow, I. Hertz-Picciotto, A.R. Boobis, E. Dybing, L. Edler, G. Eisenbrand, J.B. Greig, J. Kleiner, J. Lambe, D.J.G. Mu¨ller, M.R. Smith, A. Tritscher, S. Tuijtelaars, P.A. van den Brandt, R. Walker, R. Kroes, Risk characterisation of chemicals in food and diet, Food and Chemical Toxicology 41 (2003) 1211–1271
29. http://www.ilsi.org/europe/Pages/ViewItemDetails.aspx?PID=119&ListName=Publications

2. Alan Boobis

1. Name member working group	Alan Raymond Boobis (Prof.) Imperial College London.
2. Scientific work (original articles in last 5 year)	Very little, 3 as co-author on analytical studies, and one on mixtures of endocrines.
3. Publications on TTC	Several, generally in industry-captured journals,[30],[31],[32],[33],[34],[35],[36] promoting TTC and in collaboration with industry lobby club ILSI and companies like Coca Cola, Unilever and Dow Chemicals and even EFSA staff D.Carlander (who just moved to nanotech-industry).
4. Connections in publications	Prof. Galli (member wg. TTC) and Prof. Moretto (University of Milan), both removed from EFSA panels because of hidden industry connections. Also to Gundert-Remy, Barlow, Lhugenot and Schlatter, all member TTC wg. Editor industry-captured journal Food and Chemical Toxicology.
5. Other publications	Long list of opinions, 'reviews' and other secondary literature generally being an expression of industry agenda like MoE[37](with BASF, Syngenta, Astra Zeneca), thresholds, human relevance, (absence of) synergy[38] (with Dow, Bayer, Exxon, Procter & Gamble), cumulative RA[39], biomarkers[40], MoA/use of statistical methods[41], [42], in vitro tests[43] with Unilever and Sudzucker. In some articles[44] he explicitly declares he has no financial conflicts, even though these commentaries are sponsored by ILSI corporations.
6. Conflict of interest acc. to DoI	# Chair of Board of trustees of industry lobby group ILSI since 2001! # Worked for ILSI, even on TTC but only in 'for biocides' # Worked for Astra Zenica, Sumitomi, Procter & Gamble, GlaxoSmithKline, and others
7. Most likely source of income	Industry consultant. Most probably ghostwriter of ILSI.

30. Sander Koster, Alan R. Boobis, Richard Cubberley, Heli M. Hollnagel, Elke Richling, Tanja Wildemann, Gunna Würtzen, Corrado L. Galli, Application of the TTC concept to unknown substances found in analysis of Foods, Food and Chemical Toxicology 49 (2011) 1643–1660
31. A. Boobis, Exploration of the use of the threshold of toxicological concern and consideration of synergy for combined exposures (SY28-4), Abstracts / Toxicology Letters 196S (2010) S1–S36
32. Boobis, Exploration of the use of the threshold of toxicological concern and consideration of synergy for combined exposures (SY28-4), Toxicology Letters, Volume 196, Supplement, 17 July 2010, Page S35.
33. A. Boobis, Exploration of the use of the threshold of toxicological concern and consideration of synergy for combined exposures (SY28-4), Toxicology Letters, Volume 196, Supplement, 17 July 2010, Page S35.
34. A.G Renwick, S.M Barlow, I Hertz-Picciotto, A.R Boobis, E Dybing, L Edler, G Eisenbrand, J.B Greig, J Kleiner, J Lambe, D.J.G Müller, M.R Smith, A Tritscher, S Tuijtelaars, P.A.van den Brandt, R Walker, R Kroes, Risk characterisation of chemicals in food and diet, Food and Chemical Toxicology, Volume 41, Issue 9, September 2003, Pages 1211-1271
35. Alan Boobis, ILSI Health and Environmental Sciences Institute (HESI), Risk Assessment Methodology Technical Committee, Mixtures Project, Washington, DC HESI Risk Assessment Methodology Mixtures Project, Critical analysis of literature on low dose synergy for use of TTC in screening chemical mixtures for risk assessment, Toxicology Letters, Volume 189, Supplement, 13 September 2009, Page S51,.
36. S. Koster, A. Boobis, D. Carlander, R. Cubberley, H. Hollnagel, E. Richling, G. Würtzen, C.L. Galli, The application of the TTC concept to unknown substances found in the analysis of foods, Toxicology Letters, Volume 205, Supplement, 28 August 2011, Page S28
37. Neil Carmichael, Melanie Bausen, Alan R. Boobis, Samuel M. Cohen, Michelle Embry, Claudia Fruijtier-Pölloth, Helmut Greim, Richard Lewis, M.E. (Bette) Meek, Howard Mellor, Carolyn Vickers, and John Doe, Using mode of action information to improve regulatory decision-making: An ECETOC/ILSI RF/HESI workshop overview, Critical Reviews in Toxicology, 2011; 41(3): 175–186
38. Alan Boobis Robert Budinsky, Shanna Collie, Kevin Crofton, Michelle Embry, Susan Felter, Richard Hertzberg, David Kopp, Gary Mihlan, Moiz Mumtaz, Paul Price, Keith Solomon, Linda Teuschler, Raymond Yang, and Rosemary Zaleski, Critical analysis of literature on low-dose synergy for use in screening chemical mixtures for risk assessment, Critical Reviews in Toxicology, 2011, 1–14,
39. Alan R. Boobis, Bernadette C. Ossendorp, Ursula Banasiak, Paul Y. Hamey, Istvan Sebestyen, Angelo Moretto, Cumulative risk assessment of pesticide residues in food, Toxicology Letters 180 (2008) 137–150
40. Ursula Gundert-Remy, Svein G. Dahl, Alan Boobis, Pierre Kremers, Annette Kopp-Schneider, Axel Oberemm, Andrew Renwick, Olavi Pelkonen, Molecular approaches to the identification of biomarkers of exposure and effect—report of an expert meeting organized by COST Action B15, Toxicology Letters 156 (2005) 227–240
41. A.G. Renwick, S.M. Barlow, I. Hertz-Picciotto, A.R. Boobis, E. Dybing, L. Edler, G. Eisenbrand, J.B. Greig, J. Kleiner, J. Lambe, D.J.G. Muller, M.R. Smith, A. Tritscher, S. Tuijtelaars, P.A. van den Brandt, R. Walker, R. Kroes, Risk characterisation of chemicals in food and diet, Food and Chemical Toxicology 41 (2003) 1211–1271
42. The ILSI meeting reported in previous footnote gathered alreasy many of the present members of EFSApanels, Schlatter, Pratt, Larsen, Knaap, Galli, Bridges, Boobis, Barlow
43. G. Eisenbrand, B. Pool-Zobel, V. Baker, M. Balls, B.J. Blaauboer, A. Boobis, A. Carere, S. Kevekordes, J.-C. Lhuguenot, R. Pieters, J. Kleiner, Methods of in vitro toxicology, Food and Chemical Toxicology 40 (2002) 193–236
44. Boobis AR, Daston GP, Preston RJ, Olin SS. Crit Rev Food Sci Nutr. 2009 Sep;49(8):690-707. Application of key events analysis to chemical carcinogens and noncarcinogens.

3. Corrado Galli

1. Name member working group	Prof. Corrado Ludovico Galli University Milan, Italy
2. Scientific work (original articles in last 5 year)	Around 15
3. Publications on TTC	Yes, in[45], as part of the original Kroes-proposal[46] in 2000 with ILSI, in Nestle and Coca-Cola, in a further Kroes-article[47] for the cosmetics industry, and even proposed extension of TTC in food[48] with Unilever, Coca-Cola and Dow. Galli: *"The establishment of a more widely accepted TTC would benefit consumers, industry and regulators".*
4. Connections in publications	Boobis, Lhugenot in TTC wg. and Rietjens, Silano, both member SC.
5. Other publications	Circa 150, some are on industry-preferred RA methods as MoE (Margin of exposure)[49]
6. Conflict of interest acc. to DoI	# chair of the ILSI TTC project which aims to develop an approach to exclude the cohort of concern substances, which is a complementary exercise to the much broader approach of the EFSA WG on TTC where I am a member. # ILSI: Guidance Document Policy (consultancy) # COLIPA (cosmetics industry) WG on TTC
7. Most likely source of income	University plus industry consultancy

45. Corrado L. Galli, History and basic principles of TTC, Toxicology, Volume 240, Issue 3, 6 November 2007, Page 130.
46. R. KROES, C. GALLI, I. MUNRO, B. SCHILTER, L.-A. TRAN, R. WALKER and G. WUÈ RTZEN, Threshold of Toxicological Concern for Chemical Substances Present in the Diet: A Practical Tool for Assessing the Need for Toxicity Testing, Food and Chemical Toxicology 38 (2000) 255±312
47. R. Kroes, A.G. Renwick, V. Feron, C.L. Galli, M. Gibney, H. Greim, R.H. Guy, J.C. Lhuguenot, J.J.M. van de Sandt, Application of the threshold of toxicological concern (TTC) to the safety evaluation of cosmetic ingredients, Food and Chemical Toxicology 45 (2007) 2533–2562
48. Sander Koster, Alan R. Boobis, Richard Cubberley, Heli M. Hollnagel, Elke Richling, Tanja Wildemann, Gunna Würtzen, Corrado L. Galli, Application of the TTC concept to unknown substances found in analysis of Foods, Food and Chemical Toxicology 49 (2011) 1643–1660
49. Ivonne M.C.M. Rietjens, Wout Slob, Corrado Galli, Vittorio Silano, Risk assessment of botanicals and botanical preparations intended for use in food and food supplements: Emerging issues, Toxicology Letters 180 (2008) 131–136

4. Astrid Bulder

1. Name member working group	Astrid Bulder MSc. RIVM, NL institute for health and environment.
2. Scientific work (original articles in last 5 year)	One--an evaluation of efficacy of nutrition labels on reducing intake of unhealthy salt, fats & sugars by children [50]
3. Publications on TTC	No
4. Connections in publications	No
5. Other publications	Only three other, all for Dutch govt: Qualitative reviews of nano materials and of endocrine compounds in water, and co-author in an experiment of the potency of dioxin in flounder fish (finding little risk).
6. Conflict of interest acc. to DoI	Joint FAO/WHO Expert Committee on Food Additives: Temporary Adviser on food contaminants and residues of veterinary drugs. Discussion on decision tree approach including TTC.
7. Most likely source of income	Government NL.

50. Temme EH, van der Voet H, Roodenburg AJ, Bulder A, van Donkersgoed G, van Klaveren J. Impact of foods with health logo on saturated fat, sodium and sugar intake of young Dutch adults. Public Health Nutr. 2011;14(4):635-44.

5. Ursula Gundert Remy

1. Name member working group	Prof. Ursula Gundert-Remy, retired since 2008 from Institute for Clinical Pharmacology and Toxicology, Charité-Universitätsmedizin Berlin
2. Scientific work (original articles in last 5 year)	8
3. Publications on TTC	Stating MoE and TTC are promising approaches to get rid of the zero tolerance in food and feed[51], in cosmetics[52] with P&G, Nestle and Unilever, and promoting TTC[53], [54]Gundert-Remy: *"Our findings confirm that the use of the TTC values as proposed by Munro et al. (1996) and modified by Kroes et al. (2000, 2004, 2007) and Kroes and Kozianowski (2002) is a safe approach".*
4. Connections in publications	Boobis, Piersma
5. Other publications	Over 150, most with Germany's very pro-industry federal risk assessment institute (BfR) and hardliners as Mrs. Ernst-Hirsch and Mrs. Heinrich-Hirsch. From a career in drug pharmacokinetics. 10 years ago she suddenly began publishing on kinetics/dynamics of toxic chemicals, likely due to already being an advisor to government; also began publishing on risk assessment issues, often related to her career in the metabolism of molecules, but several not, especially on QSAR. Regarding the controversy on Bisphenol A she passionately chooses side with industry claiming no adverse effects.
6. Conflict of interest acc. to DoI	# TTC workshop, 8-10 June 2011: Participation on behalf of EFSA. Participated as chair of the BOG 1 or 2 # **not reported in DoI**: ILSI advisor 2005-2010[55]
7. Most likely source of income	Pension

51. Thomas Heberer, Monika Lahrssen-Wiederholt, Helmut Schafft, Klaus Abraham, Hildegard Pzyrembel, Klaus Juergen Henning , Marianna Schauzu, Juliane Braeunig, Mario Goetz, Lars Niemann, Ursula Gundert-Remy, Andreas Luch, Bernd Appel, Ursula Banasiak, Gaby Fleur B¨ol, Alfonso Lampen, Reiner Wittkowski, Andreas Hensel, Zero tolerances in food and animal feed–Are there any scientific alternatives? A European point of view on an international controversy, Toxicology Letters 175 (2007) 118–135

52. Sarah Adler • David Basketter • Stuart Creton • Olavi Pelkonen • Jan van Benthem • Vale´rie Zuang • Klaus Ejner Andersen • Alexandre Angers-Loustau • Aynur Aptula • Anna Bal-Price • Emilio Benfenati • Ulrike Bernauer • Jos Bessems • Frederic Y. Bois • Alan Boobis • Esther Brandon • Susanne Bremer • Thomas Broschard • Silvia Casati • Sandra Coecke • Raffaella Corvi • Mark Cronin • George Daston • Wolfgang Dekant • Susan Felter • Elise Grignard • Ursula Gundert-Remy • Tuula Heinonen • Ian Kimber • Jos Kleinjans • Hannu Komulainen • Reinhard Kreiling • Joachim Kreysa • Sofia Batista Leite • George Loizou • Gavin Maxwell • Paolo Mazzatorta • Sharon Munn • Stefan Pfuhler • Pascal Phrakonkham • Aldert Piersma • Albrecht Poth • Pilar Prieto • Guillermo Repetto • Vera Rogiers • Greet Schoeters • Michael Schwarz • Rositsa Serafimova • Hanna Ta¨hti • Emanuela Testai • Joost van Delft • Henk van Loveren • Mathieu Vinken • Andrew Worth • Jose´-Manuel Zaldivar, Alternative (non-animal) methods for cosmetics testing: current status and future prospects—2010, Arch Toxicol (2011) 85:367–485.

53. Ulrike Bernauer, Gerhard Heinemeyer, Barbara Heinrich-Hirsch, Beate Ulbrich, Ursula Gundert-Remy, Exposure-triggered reproductive toxicity testing under the REACH legislation: A proposal to define significant/relevant exposure, Toxicology Letters 176 (2008) 68–76

54. H. Kalkhof , M. Herzler, R. Stahlmann, U. Gundert-Remy, Threshold of toxicological concern values for non-genotoxic effects in industrial chemicals: re-evaluation of the Cramer classification, Arch Toxicol, July 2011

55. http://www.corporateeurope.org/publications/eu-food-additive-experts-fail-declare-links-food-industry

6. James Bridges

1. Name member working group	Prof. James Wilfred Bridges, retired since 2003 from University of Surrey.
2. Scientific work (original articles in last 5 year)	No One of his last publications before retirement was co-authored with the UK Pharmaceutical industry[56]
3. Publications on TTC	Report on meeting on TTC in 2005, organised by EFSA in cooperation with ILSI[57]
4. Connections in publications	Barlow, Knaap, Schlatter, Galli, ILSI and food companies
5. Other publications	Starting with analytical fluorescence biochemistry in the 1960's, his publication rate peaked in the late 1970's as he moved into the metabolism of toxic chemicals. From late 1980's he published little (15 years before retiring!), but these were all outright toxicity experiments, or on methodologies of risk assessment. He has not published in the last five years. On casting doubt on animal testing[58], a major industry lobby topic.
6. Conflict of interest acc. to DoI	ILSI Board Member, 2001-2006.
7. Most likely source of income	Pension.

56. Wood SA, Long JM, Simmonds RJ, Bridges JW, Stevenson D. Optimisation of the enantiomeric separation of 12 2-aminotetralin analogues using Chiral AGP high-performance liquid chromatography by simultaneous factorial design. J Pharm Biomed Anal. 1997 Oct;16(2):231-7

57. S. Barlow , A.G. Renwick, J. Kleiner, J.W. Bridges, L. Busk, E. Dybing, L. Edler, G. Eisenbrand, J. Fink-Gremmels, A. Knaap, R. Kroes, D. Liem, D.J.G. Mu¨ller, S. Page, V. Rolland J. Schlatter, A. Tritscher, W. Tueting, G. Wurtzen, Risk assessment of substances that are both genotoxic and carcinogenic Report of an International Conference organized by EFSA and WHO with support of ILSI Europe, Food and Chemical Toxicology 44 (2006) 1636–1650

58. S.M Barlow, J.B Greig, J.W Bridges, A Carere, A.J.M Carpy, C.L Galli, J Kleiner, I Knudsen, H.B.W.M Koëter, L.S Levy, C Madsen, S Mayer, J.-F Narbonne, F Pfannkuch, M.G Prodanchuk, M.R Smith, P Steinberg, Hazard identification by methods of animal-based toxicology, Food and Chemical Toxicology, Volume 40, Issues 2-3, February-March 2002, Pages 145-91.

7. John Christian Larsen

1. Name member working group	John Christian Larsen, National Food institute (Denmark)
2. Scientific work (original articles in last 5 year)	No.
3. Publications on TTC	Three[59, 60, 61] promoting TTC Larsen: *"However, regulatory acceptance of thresholds for genotoxic carcinogens will be slow"*.
4. Connections in publications	ILSI, Barlow, Pratt Ass. Editor Food and Chemical Toxicology (connection Boobis)
5. Other publications	Author in 50+ papers, all relate to his job titles, i.e. toxic chemicals in food and methods of assessing those risks. Several opinions on risk assessment of various food substances.
6. Conflict of interest acc. to DoI	# ILSI: Scientific Advisory Committee Advises on ILSI Europe's Scientific Working Programme. # ILSI: Participation to a workshop in February 2009 on the toxicity of 'fatty acid' esters found in foods and overall rapporteur of the corresponding report. # ILSI: Chairing of a workshop on the margin of exposure in October 2008 and acting as scientific reviewer of the corresponding report, # Many years functioning in EFSA panels
7. Most likely source of income	Civil servant/Consultant

59. Iona Pratt, Susan Barlow, Juliane Kleiner, John Christian Larsen, The influence of thresholds on the risk assessment of carcinogens in food, Mutation Research 678 (2009) 113–117.
60. John Chr. Larsen, Risk assessment of chemicals in European traditional foods, Trends in Food Science & Technology, Volume 17, Issue 9, September 2006, Pages 471-481.
61. Pelle Thonning Olesen, John Christian Larsen, Anette Schnipper, Risk assessment of malachite green and leucomalechite green found in farmed fish, Toxicology Letters, Volume 172, Suppl, 7 Oct 2007, Ppg S198-S199.

8. Jean Claude Lhugenot

1. Name member working group	Prof. JC Lhugenot, retired since 2005 from Ecole Nationale de Biologie Appliquée á la Nutrition et á l'Alimentation (ENSBANA), Université de Bourgogne
2. Scientific work (original articles in last 5 year)	Five, on toxicity of chemicals in food contact materials.
3. Publications on TTC	Yes, on TTC for cosmetics[62], result of expert group organised by Colipa, cosmetics industry. And a paper he co-authors says the TTC fits in with in vitro risk assessment.
4. Connections in publications	Yes, Kroes, Renwick, Galli
5. Other publications	Mainly opinions on food contact materials & related to EFSA, and studies on endocrines (<2004). Papers starting with analytical chemistry only, moving in to toxiciology and its metabolic aspects; including several on a favourite subject of the chemicals industry: peroxisome proliferation by toxic chemicals, one co-authored with Big Pharma.[63] Proponent of in vitro risk assessment instead of in vivo tests. His final publication, on above subject was 2010.
6. Conflict of interest acc. to DoI	# European paper and board industry paid part of his work
7. Most likely source of income	Pension

62. R. Kroes, A.G. Renwick, V. Feron, C.L. Galli, M. Gibney, H. Greim, R.H. Guy, J.C. Lhuguenot, J.J.M. van de Sandt, Application of the threshold of toxicological concern (TTC) to the safety evaluation of cosmetic ingredients, Food and Chemical Toxicology 45 (2007) 2533–2562
63. Bieri F, (Pharma Information, Basel, Switzerland) Lhuguenot JC Biochimie. 1993;75(3-4):263-8. Toxicity of peroxisome proliferators.

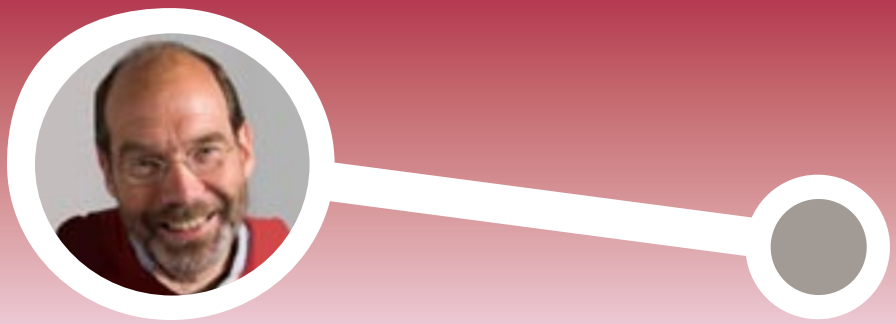
9. David Lovell

1. Name member working group	Dr. David P Lovell, Reader in biostatistics, Dpt of Biostatistics, Postgraduate Medical School, University of Surrey.
2. Scientific work (original articles in last 5 year)	Five
3. Publications on TTC	One, promoting TTC for use in case of positive genotoxic substances[64] with Riccardo Crebelli (EFSA panel), Hoffman-LaRoche and Sanofi-Aventis.
4. Connections in publications	Worked for and with industry (on non-TTC issues, see other publications).
5. Other publications	About 50 papers, contributes statistics in both diverse fields both epidemiology and experiments, (e.g. mutagenicity assays) With Sanofi-Aventis and Novartis on use of historical control data in genetic toxicity testing[65]; part of "panel" organised by Monsanto to discredit the work of Prof Seralini, representing "Postgraduate Medical School of Surray".[66]
6. Conflict of interest acc. to DoI	# Associate Director, Pfizer, 1999-2003 # option stocks of Pfizer # worked for consultancy BIBRA with clients like Danone and Nestle, 1984-1998 # consultancy different companies, among which CanTox HIS, Canada (Munro) # spouse holds shares of Astra Zeneca
7. Most likely source of income	University + Industry consultant

10. Alberto Mantovani

1. Name member working group	Alberto Mantovani. Dir. of Toxicology, Dept. of Food Safety & Veterinary Public Health, Istituto Superiore di Sanità (del Servizio Sanitario Nazionale), Roma. Scientific Director of Istituto Clinico Humanitas, Milan, Italy / President & founder of Fondazione Humanitas per la Ricerca, the research arm of a hospital.
2. Scientific work (original articles in last 5 year)	Publishes > 30 articles per year! Mainly in immunology, only a minority of his 1.000+ papers are on the toxicity of agents.
3. Publications on TTC	No
4. Connections in publications	No
5. Other publications	Part of many national and EU funded projects on BPA, endocrines, pesticides, nano, etc. testing procedures. Long-standing member of EFSA's FEEDAP Panel on Additives and Products or Substances used in Animal Feed.
6. Conflict of interest acc. to DoI	No
7. Most likely source of income	Government/research funds.

64. Véronique Thybaud, James T. MacGregor, Lutz Müller, Riccardo Crebelli, Kerry Dearfield, George Douglas, Peter B. Farmer , Elmar Gocke , Makoto Hayashi, David P. Loveli , Werner K. Lutz, Daniel Marzin, Martha Moore, Takehiko Nohmi, David H. Phillips, Jan Van Benthem, Strategies in case of positive in vivo results in genotoxicity testing, Mutation Research 723 (2011) 121– 128
65. Makoto Hayashi, Kerry Dearfield, Peter Kasper, David Lovell, Hans-Joerg Martus, Veronique Thybaud, Compilation and use of genetic toxicity historical control data, Mutation Research 723 (2011) 87– 90
66. http://cat.inist.fr/?aModele=afficheN&cpsidt=19163388



11. Aldert Piersma

1. Name member working group	Aldert Piersma. (prof) National Institute of Public Health and the Environment (RIVM), Netherlands, (head of Reproductive Toxicology).
2. Scientific work (original articles in last 5 year)	>30 in the last 5 years, many on embryonic stem cell research. Promotes himself as specialist on interpretation of guideline-based reproductive toxicity tests submitted by industry.
3. Publications on TTC	Yes, in Kroes, 2004[67], in cosmetics[68] And with Procter & Gamble[69]
4. Connections in publications	Rietjens, Kroes, Renwick, Schlatter, Gundert-Remy, Boobis
5. Other publications	100 -- first decade no toxicity, only immunology experiments. Co-authors are predominately govt. colleagues (a few from Germany) and some academic researchers. Promoting thresholds for genotoxics[70](ILSI topic), promoter of abandoning multi generation testing for chemicals[71](industry lobby topic)
6. Conflict of interest acc. to DoI	# ILSI TTC working group, 2003-2004
7. Most likely source of income	Civil servant

67. R Kroes, A.G Renwick, M Cheeseman, J Kleiner, I Mangelsdorf, A Piersma, B Schilter, J Schlatter, F van Schothorst, J.G Vos, G Würtzen, Structure-based thresholds of toxicological concern (TTC): guidance for application to substances present at low levels in the diet, Food & Chemical Toxicology, Vol 42, Issue 1, Jan 2004, Pages 65-83

68. Sarah Adler • David Basketter • Stuart Creton • Olavi Pelkonen • Jan van Benthem • Vale´rie Zuang • Klaus Ejner Andersen • Alexandre Angers-Loustau • Aynur Aptula • Anna Bal-Price • Emilio Benfenati • Ulrike Bernauer • Jos Bessems • Frederic Y. Bois • Alan Boobis • Esther Brandon • Susanne Bremer • Thomas Broschard • Silvia Casati • Sandra Coecke • Raffaella Corvi • Mark Cronin • George Daston • Wolfgang Dekant • Susan Felter • Elise Grignard • Ursula Gundert-Remy • Tuula Heinonen • Ian Kimber • Jos Kleinjans • Hannu Komulainen • Reinhard Kreiling • Joachim Kreysa • Sofia Batista Leite • George Loizou • Gavin Maxwell • Paolo Mazzatorta • Sharon Munn • Stefan Pfuhler • Pascal Phrakonkham • Aldert Piersma • Albrecht Poth • Pilar Prieto • Guillermo Repetto • Vera Rogiers • Greet Schoeters • Michael Schwarz • Rositsa Serafimova • Hanna Ta¨hti • Emanuela Testai • Joost van Delft • Henk van Loveren • Mathieu Vinken • Andrew Worth • Jose´-Manuel Zaldivar, Alternative (non-animal) methods for cosmetics testing: current status and future prospects—2010, Arch Toxicol (2011) 85:367–485.

69. Daston GP, Chapin RE, Scialli AR, Piersma AH, Carney EW, Rogers JM, Friedman JM. A different approach to validating screening assays for developmental toxicity. BirthDefectsResB-DevReprodToxicol. 2010 Dec;89(6):526-30.

70. Aldert H. Piersma, Lya G. Hernandez, Jan van Benthem, J. J. Andre Muller, F.X. Rolaf van Leeuwen, Theo G. Vermeire, and Marcel T. M. van Raaij, Reproductive toxicants have a threshold of adversity, Critical Reviews in Toxicology, 2011; 41(6): 545–554

71. Emiel Rorije, André Muller, Manon E.W. Beekhuijzen, Ulla Hass, Barbara Heinrich-Hirsch, Martin Paparella, Erna Schenk, Beate Ulbrich, Betty C. Hakkert, Aldert H. Piersma, On the impact of second generation mating and offspring in multi-generation reproductive toxicity studies on classification and labelling of substances in Europe, Regulatory Toxicology and Pharmacology 61 (2011) 251–260.

13. Josef Rudolf Schlatter

1. Name member working group	Dr. Josef Rudolf Schlatter, Swiss Federal Office of Public Health
2. Scientific work (original articles in last 5 year)	3.
3. Publications on TTC	Kroes 2004, ILSI 1999, ILSI 2002[72] with Syngenta and Nestle, saying: *"The concept is widely accepted by toxicologists"*, in total 6 publications promoting TTC.
4. Connections in publications	Kroes, Renwick, ILSI, Barlow, Boobis, Bridges, Knaap[73], Piersma
5. Other publications	About 40 – on food chemical toxicities until c. 2000, when he began publishing mostly on ways to deconstruct RA--various "safe dose" assumption methods, e.g. MoE, use of acute tox to avoid chronic toxicity tests, etc. Sceptic that toxic chemicals cause much cancer.[74] On MoE[75] with Nestle, Unilever, ILSI, again MoE[76] with Barlow, on "human relevance"(putting animal testing relevance for humans in doubt) with Boobis and industry lobby club ECETOC[77]
6. Conflict of interest acc. to DoI	# ILSI: Member of Board of Trustees (non-remunerated) 2008 on. # ILSI: Member of the program strategy and stewardship committee. # ILSI: Scientific research on a range of public health and environmental issues, for the most part on generic issues # ILSI: ILSI Europe Scientific Advisory Committee, Nutrition, food safety, natural toxins in food. # EUFIC (Food & Drink Industry): Scientific Advisory Board # FEMA (flavouring): consultancy
7. Most likely source of income	Civil servant/industry consultant

72. E. Dybing, J. Doe, J. Groten, J. Kleiner, J. O'Brien, A.G. Renwick, J. Schlatter, P. Steinberg, A. Tritscher, R. Walker, M. Younes, Hazard characterisation of chemicals in food and diet: dose response, mechanisms and extrapolation issues, Food and Chemical Toxicology 40 (2002) 237–282

73. S. Barlow , A.G. Renwick, J. Kleiner, J.W. Bridges, L. Busk, E. Dybing, L. Edler, G. Eisenbrand, J. Fink-Gremmels, A. Knaap, R. Kroes, D. Liem, D.J.G. Müller, S. Page, V. Rolland J. Schlatter, A. Tritscher, W. Tueting, G. Wurtzen, Risk assessment of substances that are both genotoxic and carcinogenic Report of an International Conference organized by EFSA and WHO with support of ILSI Europe, Food and Chemical Toxicology 44 (2006) 1636–1650

74. Lutz WK, Poetzsch J, Schlatter J, Schlatter C The real role of risk assessment in cancer risk management.. Trends Pharmacol Sci. 1991 Jun;12(6):214-7.

75. Diane Benford, P. Michael Bolger, Philip Carthew, Myriam Coulet, Michael DiNovi, Jean-Charles Leblanc, Andrew G. Renwick, Woodrow Setzer, Josef Schlatter, Benjamin Smith, Wout Slob, Gary Williams, Tanja Wildemann, Application of the Margin of Exposure (MOE) approach to substances in food that are genotoxic and carcinogenic, Food and Chemical Toxicology 48 (2010) S2–S24

76. Susan Barlow, Josef Schlatter, Risk assessment of carcinogens in food, Toxicology and Applied Pharmacology 243 (2010) 180–190

77. Alan R. Boobis, John E. Doe, Barbara Heinrich-Hirsch, M. E. (Bette) Meek, Sharon Munn, Mathuros Ruchirawat, Josef Schlatter, Carolyn Vickers, IPCS Framework for Analyzing the Relevance of a Noncancer Mode of Action for Humans, Critical Reviews in Toxicology, 38:87–96, 2008.

14. Giovanni Zapponi

1. Name member working group	Giovanni Zapponi From Dipartimento Tecnologie e Salute, Istituto Superiore di Sanità, Rome
2. Scientific work (original articles in last 5 year)	One [78] Has argued against assuming low dose chemical exposures are beneficial (hormesis)[79] ; and published a tribute [80] to Lorenzo Tomatis, the pioneering public health researcher on env'l carcinogens
3. Publications on TTC	No, but already present in ILSI-workshop on TTC in 1999.
4. Connections in publications	Many articles with Silano (on TCDD)
5. Other publications	Almost 40, appears to have specialized in deep statistical analysis of existing toxicity data sets, especially on cancer potency, but in his early career published analytical chemistry and one or two toxicity experiments. Work <2005 on TCDD/Seveso, analytical chemistry
6. Conflict of interest acc. to DoI	Not available
7. Most likely source of income	Unsure. Retired?

Andrew Worth (JRC) is also member of the TTC working group and is not evaluated here though there is a strange connection with JRC, EFSA and Nestle on QSAR and TTC[81]. Worth is also part of an ILSI working group as observer.

78. Zapponi GA, Marcello I.Some non neoplastic effects of ELF magnetic fields in experimental animals. Ann Ist Super Sanita. 2006;42(2):178-88.
79. Zapponi GA, Marcello I. Low-dose risk, hormesis, analogical and logical thinking. Ann N Y Acad Sci. 2006 Sep;1076:839-57.
80. Zapponi GA, Marcello I, Carere A. Prevention, ethics and science: lessons from Lorenzo Tomatis. Ann Ist Super Sanita. 2008;44(1):8-12.
81. Elena Lo Piparo, Andrew Worth, Mary Manibusan, Chihae Yang, Benoît Schilter, Paolo Mazzatorta, Miriam N. Jacobs, Hans Steinkellner, Luc Mohimont, Use of computational tools in the field of food safety, Regulatory Toxicology and Pharmacology 60 (2011) 354–362

EFSA staff publishing on TTC

EFSA Head of Unit Feigenbaum and EFSA colleagues published a favourable opinion on TTC[82]. They were 'advised' by Panel members Barlow, Lhugenot and Crebelli (links to ILSI on packaging[83] and ILSI genotox testing working group[84]).

EFSA staff member Carlander also played a role by publishing a favourable article on TTC with ILSI and industry people[85] and by also being part of the ILSI taskforce on TTC[86] with Dow, Procter & Gamble, DSM, L'Oreal, Unilever, Nestle, Danone, Givaudan and Coca Cola. While at EFSA, Carlander worked on guidance on the use of nanotechnology in food but has recently taken up an industry lobbying job with the Nanotechnology Industries Association as director of advocacy. EFSA imposed some restrictions on this move regarding contacts with EFSA staff.

Daniela Maurici is also on ILSI's TTC Task Force[87], while at the same time being part of the EFSA TTC working group.

In the list below Carlander had not not yet been replaced by Maurici.

ILSI Europe: Threshold of Toxicological Concern (TTC) Task Force

Dr. G. Würtzen – Chair · Coca-Cola Europe DK
Dr. D. Carlander* · EFSA IT
Mr. J. Edwards · DSM Nutritional Products CH
Dr. S. Felter · Procter & Gamble US
Dr. H. Hollnagel · Dow Europe CH
Dr. G. Ouedraogo-Arras · L'Oreal FR
Prof. em. A. Renwick · University of Southampton UK
Mr. R. Safford · Unilever UK
Dr. B. Schilter · Nestlé CH
Dr. J. Schnabel · Givaudan CH
Dr. T. Stroheker · Danone FR
Dr. A. Tritscher · WHO CH
Ms. T. Wildemann · ILSI Europe BE

82. Roberta Pinalli, Cristina Croera, Anne Theobald, and Alexandre Feigenbaum, Threshold of toxicological concern approach for the risk assessment of substances used for the manufacture of plastic food contact materials, Trends in Food Science & Technology xx (2011) 1e12.
83. http://www.corporateeurope.org/publications/eu-food-additive-experts-fail-declare-links-food-industry
84. http://www.hesiglobal.org/files/public/2010%20Annual%20Meeting/Presentations/IVGT_Sessioin/4_V_Thybaud_2010_SOT_presentation_04mar2010.pdf
85. S. Koster, A. Boobis, D. Carlander, R. Cubberley, H. Hollnagel, E. Richling, G. Würtzen, C.L. Galli, The application of the TTC concept to unknown substances found in the analysis of foods, Toxicology Letters, Volume 205, Supplement, 28 August 2011, Page S28
86. http://www.ilsijapan.org/ILSIJapan/LEC/TTC/Dr.Felter.pdf
87. http://www.ilsi.org/Europe/Pages/TF_ThresholdToxicological.aspx

Participants ILSI meetings.

ILSI 1999 workshop on TTC, Paris	ILSI 2002, workshop risk characterisation, Lisbon	ILSI/EFSA workshop on TTC, June 2011
BARLOW	BARLOW	BARLOW (CHAIR)
BRIDGES	BRIDGES	BRIDGES (CO-CHAIR)
KLEINER	KLEINER	undisclosed
KNAAP	KNAAP	....??.
KROES	KROES	.....??.
MUNRO	MUNRO	
RENWICK	RENWICK	RENWICK
SCHLATTER	SCHLATTER	
ZAPPONI	BOOBIS	
	GALLI	
	LARSEN	
	PRATT	
		PIERSMA
		GUNDERT-REMY

In RED members of the EFSA panels on TTC.

We feel it is quite remarkable that EFSA organises joint (closed) meetings with industry lobby club ILSI, excluding other stakeholders. They did this in 2006 on thresholds for genotoxic chemicals, in 2007 on mixtures, and in 2011 again on TTC.

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