UNIT ON FEED AND CONTAMINANTS

SCIENTIFIC PANEL ON CONTAMINANTS IN THE FOOD CHAIN

MINUTES OF THE 126th PLENARY MEETING

Audio-web conference, 14 October 2022

(Agreed on 26 October 2022)

Participants

- **Panel Members:**

  Margherita Bignami, Laurent Bodin, Kevin Chipman, Jesús Del Mazo, Bettina Grasl-Kraupp, Ron Hoogenboom, Jean-Charles Leblanc, Carlo Nebbia[1], Elsa Nielsen[2], Evangelia Ntzani, Annette Petersen[3], Salomon Sand[4], Dieter Schrenk, Tanja Schwerdtle.

- **Hearing Experts[5]:**

  Lars Barregård, Karin Broberg (for item 6.1)

- **European Commission and/or Member States representatives:**

  Ivana Poustkova, Eva Zuskova, Veerle Vanheusden, Frans Verstraete (European Commission, DG Health and Food Safety, Unit E2).

- **EFSA:**

  FEEDCO Unit:

  Maria Anastassiadou, Anna Christodoulidou, Mary Gilsenan, Luisa Ramos Bordajandi, Elena Rovesti, Katja Schirmer, Hans Steinkellner.

- **Observers:**

  Not applicable

- **Others:**

  Not applicable.

[1] Absent from 11.45 to 14.00 CET.
[2] Absent from 10.15 to 11.30 CET.
[3] Participated from 10.00 CET onwards.
[4] Participated until 17.30 CET.
[5] As defined in Article 17 of the Decision of the Executive Director concerning the selection of members of the Scientific Committee, the Scientific Panels, and the selection of external experts to assist EFSA with its scientific work: http://www.efsa.europa.eu/sites/default/files/corporate_publications/files/expertselection.pdf

1. Welcome and apologies for absence

The Chair welcomed the participants. Apologies were received from Christer Hogstrand, Christiane Vleminckx, Heather Wallace and Federico Cruciani (EFSA).

2. Adoption of agenda

The agenda was adopted without changes.

3. Declarations of Interest

In accordance with EFSA's Policy on Independence[6] and the Decision of the Executive Director on Competing Interest Management[7], EFSA screened the Annual Declarations of Interest filled out by the Panel members invited to the present meeting. No Conflicts of Interest related to the issues discussed in this meeting have been identified during the screening process, and no interests were declared orally by the members at the beginning of this meeting.

4. Agreement of the minutes of the 125th Plenary meeting held on 13-15 September 2022

The minutes of the 125th Plenary meeting held on 13-15 September 2022 were agreed by the CONTAM Panel on 29 September 2022[8].

5. Report on written procedures since the 125th Plenary meeting held on 13-15 September 2022

A written procedure was held for the possible endorsement for public consultation of the Draft Opinion 'Risk assessment of *N*-Nitrosamines in food' (EFSA-Q-2020-00665)[9]. The Opinion was endorsed for public consultation by unanimous vote on 29 September 2022. The subsequent public consultation at the EFSA website was launched on 12 October. Interested parties are invited to submit their comments by 22 November 2022 via the dedicated tool at the EFSA website [10].

6. Scientific outputs submitted for discussion and possible adoption

6.1. Update of the risk assessment of inorganic arsenic in food (EFSA-Q-2021-00250)[11]

The Chair of the WG on Arsenic in food presented for discussion and possible endorsement most of the sections on chronic effects of arsenic in humans. In addition, the WG Chair gave a presentation addressing several points for which the WG sought the input from the Panel. These were the default assumptions used to transfer concentrations in drinking water and food to chronic exposure levels, the use of adjusted odds ratios vs. crude incidence data for BMD derivation, the software used for BMD modelling and the appropriateness of certain epidemiological studies for the assessment. Furthermore, a

[6] http://www.efsa.europa.eu/sites/default/files/corporate_publications/files/policy_independence.pdf
[7] http://www.efsa.europa.eu/sites/default/files/corporate_publications/files/competing_interest_management_17.pdf
[8] https://www.efsa.europa.eu/en/events/125th-plenary-meeting-contam-panel-open-observers
[9] https://https://open.efsa.europa.eu/questions/EFSA-Q-2020-00665
[10] https://www.efsa.europa.eu/en/news/public-consultation-nitrosamines-food-draft-opinion-explained
[11] https://https://open.efsa.europa.eu/questions/EFSA-Q-2021-00250

comprehensive table comparing BMDs resulting from using odds ratios and crude incidences from human studies was presented and discussed. It was agreed that from the pool of critical studies only the most critical one(s) should be considered for the derivation of a Reference Point. The Panel discussed the individual sub-sections on observations in humans. These were all endorsed pending agreed re-arrangement of some text and some further clarifications.

6.2. Request for an assessment of information as regards the toxicity of deoxynivalenol for horses and poultry other than laying hens (EFSA-Q-2021-00712)[12]

The Chair of the WG on Mycotoxins in Feed introduced for discussion a presentation summarising the information as regards the toxicity of DON for horses and poultry other than laying hens, illustrating the most critical aspects encountered by the WG and the proposed approach. A discussion took place on various aspects of DON animal health adverse effects in particular on poultry. Various comments provided by the Panel will be taken into account by the WG to finalise the draft opinion.

6.3. Review study on immunomodulation and exposure to per- and polyfluoroalkyl substances

The CONTAM Panel discussed the review by Antoniou et al. (2022)[13] that concludes that the limitations of the current database on associations of human PFAS exposures and the results from experimental animals indicate that more evidence is required to select immunomodulation as a critical endpoint for human PFAS risk assessment.

The CONTAM Panel noted that Antoniou et al. (2022) provide a review of the available data on immunomodulation by PFASs in experimental animals and on epidemiological studies on the association of gestational or childhood exposure to PFASs and antibody levels for paediatric vaccines or the occurrence of child's infectious diseases. Most of these studies were included in the EFSA PFAS Opinion published in 2020[14], except some that were published after the 2020 EFSA Opinion. These new studies, e.g. Shih et al. (2021)[15], Timmermann et al. (2020)[16], Dalsager et al. (2021)[17] and Ait Bamai et al. (2020)[18], support the outcome of previous studies on vaccination response and some actually conclude on increased infection rates.

The uncertainty linked to the co-exposure to other contaminants, as well as the limited evidence of increased risk of infections were both discussed by the CONTAM Panel in its 2020 Opinion. In the critical study selected by the CONTAM Panel, Abraham et al. (2020),

[12] https://https://open.efsa.europa.eu/questions/EFSA-Q-2021-00712
[13] Antoniou E, Colnot T, Zeegers M and Dekant W, 2022. Immunomodulation and exposure to per- and polyfluoroalkyl substances: an overview of the current evidence from animal and human studies. Archives of Toxicology, 96, 2261-2285.
[14] https://www.efsa.europa.eu/en/efsajournal/pub/6223
[15] Shih YH, Blomberg AJ, Bind MA, Holm D, Nielsen F, Heilmann C, Weihe P and Grandjean P, 2021. Serum vaccine antibody concentrations in adults exposed to per- and polyfluoroalkyl substances: A birth cohort in the Faroe Islands. Journal of Immunotoxicology, 18, 85–92.
[16] Timmermann CAG, Jensen KJ, Nielsen F, Budtz-Jorgensen E, van der Klis F, Benn CS, Grandjean P and Fisker AB, 2020. Serum perfluoroalkyl substances, vaccine responses, and morbidity in a cohort of Guinea-Bissau children. Environmental Health Perspectives, 128, 87002.
[17] Dalsager L, Christensen N, Halekoh U, Timmermann CAG, Nielsen F, Kyhl HB, Husby S, Grandjean P, Jensen TK and Andersen HR, 2021. Exposure to perfluoroalkyl substances during fetal life and hospitalization for infectious disease in childhood: A study among 1,503 children from the Odense Child Cohort. Environment International, 149, 106395.
[18] Ait Bamai Y, Goudarzi H, Araki A, Okada E, Kashino I, Miyashita C and Kishi R, 2020. Effect of prenatal exposure to per- and polyfluoroalkyl substances on childhood allergies and common infectious diseases in children up to age 7 years: The Hokkaido study on environment and children's health. Environment International, 143, 105979.

several contaminants had been analysed and confounding was assessed by the authors. In the 2020 Opinion, the Panel discussed in length the role of PCBs in the Faroer study but agreed with the authors that PFASs seem more relevant. Antoniou et al. (2022) also conclude that a decrease in vaccination response by itself should not be considered as an adverse effect but should be supported by data showing an increased incidence of infections and disease. Regarding the evidence that the decreased vaccination response leads to an increased incidence of infections, the new studies cited by Antoniou et al. (2022) suggests that the evidence is increased. The authors conclude*: "Across the studies, there is mixed evidence on the association between PFAS exposure and incidences of infectious diseases*". There is also some evidence from animal studies that this is the case. In the 2020 Opinion, the Panel identified this uncertainty and concluded "*that the immune system is a prime target for PFASs*" but also decided not to apply an additional uncertainty factor in the derivation of the TWI, stating "*a decreased vaccination was considered a risk factor for disease rather than a* disease".

The animal studies discussed in the Antoniou et al. (2022) review were included and discussed by the Panel in the 2020 Opinion. There is the discussion on the study by Peden-Adams et al. (2008)[19] showing effects at lower serum levels than, e.g. the Dong et al. (2011)[20] study. The effective serum PFOS levels in Peden-Adams et al. (2008) are similar to those in the human studies and as such support them. The Panel found no arguments to regard this study as the outlier rather than the others. According to the authors, this study was performed according to standards in the US at that time. Pachkowski et al. (2019)[21] selected the Dong et al. (2009)[22] study, but merely since they used a longer exposure time, and no explicit argument was mentioned by the authors to discard the Peden-Adams et al. (2008) study. In addition, the CONTAM Panel obtained additional information about an independent replication of the study with very similar outcome (results included in the EFSA 2020 Opinion).

In conclusion, the CONTAM Panel confirmed that the approach in the 2020 PFAS Opinion is still valid and that the TWI of 4.4 ng/kg bw for the sum of four PFASs, should be retained.

In its 2020 Opinion the CONTAM Panel recommended that studies to characterise the mode of action of immunotoxicity of PFASs should be performed, and that more longitudinal epidemiological studies are needed on human endpoints, in particular prospective vaccination studies covering more varied types of vaccines, different populations, as well as more studies on other immune outcomes in humans, including risk of infections.

7. Any other business

The Panel Chair provided a brief feedback on the EFSA Thematic Workshop on Biomarkers of Effect held 22-23 September 2022, in which Member States and sister agencies participated to begin a scoping discussion on the vision and challenges in the field. The

[19] Peden-Adams MM, Keller JM, Eudaly JG, Berger J, Gilkeson GS and Keil DE, 2008. Suppression of humoralimmunity in mice following exposure to perfluorooctane sulfonate. Toxicological Sciences, 104, 144–154.
[20] Dong GH, Liu MM, Wang D, Zheng L, Liang ZF and Jin YH, 2011. Sub-chronic effect of perfluorooctanesulfonate(PFOS) on the balance of type 1 and type 2 cytokine in adult C57BL6 mice. Archives of Toxicology, 85, 1235–1244.
[21] Pachkowski B, Post GB and Stern AH, 2019. The derivation of a Reference Dose (RfD) for perfluorooctane sulfonate(PFOS) based on immune suppression. Environmental Research, 171, 452–469.
[22] Dong GH, Zhang YH, Zheng L, Liu W, Jin YH and He QC, 2009. Chronic effects of perfluorooctanesulfonateexposure on immunotoxicity in adult male C57BL/6 mice. Archives of Toxicology, 83, 805–815.

members requested more details on the next steps foreseen on the subject, that is of high relevance for the work of the Panel.

The members of the Panel agreed on an ad-hoc plenary meeting (on-line meeting) to be held in December 2022 (15 December AM and 16 December PM).

The need for a 1-day ad hoc plenary in February was identified. Availabilities of Panel members will be requested to fix this ad-hoc date as soon as possible.