

Actions on the Draft NTP Monograph Peer Reviewed on July 19, 2016

The NTP convened a Peer Review Panel (“the Panel”) on July 19, 2016, to peer review the draft NTP Monograph on Immunotoxicity Associated with Exposure to Perfluorooctanoic Acid (PFOA) or Perfluorooctane Sulfonate (PFOS). Information for the meeting, including the draft monograph, are available at the NTP website (<http://ntp.niehs.nih.gov/go/37090>). A peer review report will be prepared and posted to the NTP website when completed. The Panel peer reviewed the draft monograph and provided its opinion on the draft NTP conclusions regarding immunotoxicity associated with exposure to PFOA or PFOS. The Panel’s recommendations do not necessarily represent the opinion of NTP. NTP will consider the input from the Panel in finalizing the monograph. When completed, the monograph will be published on the NTP website (<http://ntp.niehs.nih.gov/go/749926>).

PFOA

1. Antibody response: animal studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of animal studies as written:

The scientific evidence for suppression of the antibody response from experimental animal studies of PFOA exposure supports a **high level of evidence**.

2. Antibody response: human studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of human studies as written:

The scientific evidence for suppression of the antibody response from human studies of PFOA exposure supports a **moderate level of evidence**.

3. Antibody response: mechanistic studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of mechanistic studies as written:

No change in conclusions after considering mechanistic data.

4. Hypersensitivity-related outcomes: animal studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of animal studies with the following marked changes:

The scientific evidence for hypersensitivity-related outcomes from experimental animal studies of PFOA exposure supports a ~~moderate~~**high** level of evidence.

5. Hypersensitivity-related outcomes: human studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of human studies as written:

The scientific evidence for hypersensitivity-related outcomes from human studies of PFOA exposure supports a **low level of evidence**.

6. Hypersensitivity-related outcomes: mechanistic studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of mechanistic studies as written:

No change in conclusions after considering mechanistic data.

7. Overall conclusions

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the overall conclusions with the following marked changes:

PFOA is ***presumed to be an immune hazard to humans*** based on the following:

A. Suppressed antibody response

1. Animal studies: High level of evidence
2. Human studies: Moderate level of evidence
3. No change in conclusions after considering mechanistic data

~~B. Increased hypersensitivity-related outcomes~~

- ~~1. Animal studies: High level of evidence~~
- ~~2. Human studies: Low level of evidence~~
- ~~3. No change in conclusions after considering mechanistic data~~

PFOS

1. Antibody response: animal studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of animal studies as written:

The scientific evidence for suppression of the antibody response from experimental animal studies of PFOS exposure supports a ***high level of evidence***.

2. Antibody response: human studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of human studies as written:

The scientific evidence for suppression of the antibody response from human studies of PFOS exposure supports a ***moderate level of evidence***.

3. Antibody response: mechanistic studies

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the assessment of mechanistic studies as written:

No change in conclusions after considering mechanistic data.

4. Overall conclusions

The Panel unanimously (5 yes, 0 no, 0 abstentions) accepted the overall conclusions as written.

PFOS is ***presumed to be an immune hazard to humans*** based on the following:

- A. Suppressed antibody response
 - 1. Animal studies: High level of evidence
 - 2. Human studies: Moderate level of evidence
 - 3. No change in conclusions after considering mechanistic data
- B. Other supporting evidence: Suppressed disease resistance and suppressed NK cell activity