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Peer Review Meeting of the Draft NTP Technical Reports on the Toxicology and Carcinogenesis Studies of 2-Hydroxy-4-methoxybenzophenone and Perfluorooctanoic Acid

Webcast
December 12, 2019

The National Toxicology Program (NTP) convened the NTP Technical Reports Peer Review Panel via webcast on December 12, 2019, to peer review the *Draft NTP Technical Report on the Toxicology and Carcinogenesis Studies of 2-Hydroxy-4-methoxybenzophenone* and the *Draft NTP Technical Report on the Toxicology and Carcinogenesis Studies of Perfluorooctanoic Acid*. Meeting information, including the draft reports, is currently archived under NTP's "[Past Events](#)."¹ A meeting report will be prepared and posted to the NTP website when completed.

The [panel](#)² peer reviewed the draft reports and provided its opinion on NTP's preliminary conclusions regarding the level of evidence of carcinogenic activity of 2-hydroxy-4-methoxybenzophenone and perfluorooctanoic acid. The panel's recommendations do not necessarily represent the opinion of NTP. NTP will consider the peer-review comments in finalizing the reports. When complete, the reports will be published on the [NTP website](#).³

Technical Report 597: Draft NTP Technical Report on the Toxicology and Carcinogenesis Studies of 2-Hydroxy-4-methoxybenzophenone (CAS No. 131-57-7) Administered in Feed to Sprague Dawley (Hsd:Sprague Dawley® SD®) Rats and B6C3F1/N Mice

Male Hsd:Sprague Dawley® SD® Rats

The panel voted to accept unanimously (5 yes, 0 no, 0 abstentions) the conclusion with the following marked change.

- *Equivocal evidence of carcinogenic activity*
 - Occurrence of brain ~~and spinal cord~~ malignant meningiomas
- Exposure to 2-hydroxy-4-methoxybenzophenone resulted in increased incidences of nonneoplastic lesions of the testis and pancreas in male rats.

Female Hsd:Sprague Dawley® SD® Rats

The panel voted to accept unanimously (5 yes, 0 no, 0 abstentions) the conclusion as written.

- *Equivocal evidence of carcinogenic activity*
 - Increased incidence of thyroid C-cell adenomas
 - Increased incidence of uterine stromal polyps
- Exposure to 2-hydroxy-4-methoxybenzophenone resulted in increased incidences of nonneoplastic lesions of the uterus and adrenal cortex in female rats.

¹ <https://ntp.niehs.nih.gov/go/meeting>

² https://ntp.niehs.nih.gov/ntp/about_ntp/trpanel/2019/december/rostertrprp20191212_508.pdf

³ <https://ntp.niehs.nih.gov/go/750897>



Male B6C3F1/N Mice

The panel voted to accept unanimously (5 yes, 0 no, 0 abstentions) the conclusion as written.

- *No evidence of carcinogenic activity at 1,000, 3,000, and 10,000 ppm*
- Exposure to 2-hydroxy-4-methoxybenzophenone resulted in increased incidences of nonneoplastic lesions of the bone marrow, spleen, kidney, and liver in male mice.

Female B6C3F1/N Mice

The panel voted to accept unanimously (5 yes, 0 no, 0 abstentions) the conclusion as written.

- *No evidence of carcinogenic activity at 1,000, 3,000, and 10,000 ppm*
- Exposure to 2-hydroxy-4-methoxybenzophenone resulted in increased incidences of nonneoplastic lesions of the bone marrow, spleen, and kidney in female mice.

Technical Report 598: Draft NTP Technical Report on the Toxicology and Carcinogenesis Studies of Perfluorooctanoic Acid (CAS No. 335-67-1) Administered in Feed to Sprague Dawley (Hsd:Sprague Dawley® SD®) Rats

Male Hsd:Sprague Dawley® SD® Rats

The panel voted to accept unanimously (4 yes, 0 no, 0 abstentions) the conclusion as written.

- *Clear evidence of carcinogenic activity*
 - Increased incidences of hepatocellular neoplasms (predominantly hepatocellular adenomas)
 - Increased incidences of acinar cell neoplasms (predominantly acinar cell adenomas) of the pancreas
- Exposure to perfluorooctanoic acid resulted in increased incidences of nonneoplastic lesions in the liver and pancreas.

The panel voted unanimously (4 yes, 0 no, 0 abstentions) to recommend the following revised conclusion as replacement.

- The additional effect of perinatal exposure in combination with postnatal exposure was uncertain and limited to the observation of hepatocellular carcinomas.
- ~~The additional effect of combined perinatal and postnatal exposure was limited to a higher incidence of hepatocellular carcinomas compared to postweaning exposure alone.~~

Female Hsd:Sprague Dawley® SD® Rats

The panel voted to accept unanimously (4 yes, 0 no, 0 abstentions) the conclusion as written.

- *Some evidence of carcinogenic activity*
 - Increased incidences of pancreatic acinar cell adenoma or adenocarcinoma (combined) neoplasms
- May have been related to perfluorooctanoic acid exposure (*equivocal evidence*)
 - Higher incidence of hepatocellular carcinomas
 - Higher incidence of adenocarcinomas of the uterus
- Exposure to perfluorooctanoic acid resulted in increased incidences of nonneoplastic lesions in the liver, kidney, forestomach, and thyroid gland.
- The combined perinatal and postweaning exposure was not observed to change the neoplastic or nonneoplastic response compared to postweaning exposure alone.