



Memorandum

Date: July 12, 2011

From: Agency for Toxic Substances and Disease Registry

Subject: Comments on EPA's Toxicological Review of benzo[a]pyrene

To: Environmental Protection Agency

We appreciate the opportunity to review EPA's Toxicological Review of benzo[a]pyrene. Our review of this document focused on Chapters 5 and 6 dealing with Dose Response Assessment and Major Conclusions in the characterization of hazard and dose response assessment, respectively.

Our reviewers did not find any conflict in the content of EPA's Toxicological Review with ATSDR's Toxicological Profile for Polycyclic Aromatic Hydrocarbons (PAHs). The principal studies in this document, Xu et al., (2010) and Archibong et al., (2002), used to derive the RfD and RfC were not part of ATSDR's toxicological profile.

General

Overall, the manuscript is excellent and represents well the current state of the science regarding BaP. The sections on metabolism and mechanism do a particularly excellent job of presenting the state of the science. Health guidance values presented in this document follow EPA guidelines for establishing RfDs and RfCs and are based upon the most appropriate studies available. We consider this document to be a significant contribution to the understanding of the toxicology of BaP.

Minor comments

p. 202, lines 16 and 17: The phrase "especially early in development" may be misleading. The thymus typically reaches its maximum size around the time of onset of puberty and then slowly decreases in size through the process of thymic involution.

p. 203, lines 27 and 28: The method of dosing/exposure in the MacKenzie and Angevine study is not mentioned. Our reviewers believe it was by gavage and

suggest including this in the final document.

p. 204, first 2 paragraphs on page: No mention is made of why the MacKenzie and Angevine (1981) Kristensen et al. (1995) studies were not suitable as critical studies. It is apparent in the discussion on p. 206 that the LOAELs in those studies were higher than $BMDL_{ISD}$, but it would be helpful to see this stated also on p. 204.

p. 205, line 5: Suggest replacing “where” with “when.”

p. 285 (in Reference section): Xu et al. (2010), the critical study for the RfD, is not listed as a reference.

p. 211, lines 3-13: It is not clear which effects (and percentages) are attributable to Archibone et al. (2008) and which were reported in Ramesh et al. (2008).

p. 211, line 17: Should the word “of” be inserted between “potentiation” and “electrophysiological?”