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Re: Nomination of Meat-Related Exposures to the National Toxicology Program for the Report on Carcinogens

Dear Dr. Lunn

On October 7, 2016 The Beef Checkoff provided comment (reference number 13333) to the Office of the Report on Carcinogens (RoC) comparing the available evidence associating red meat consumption with cancer risk to NTP's criteria to qualify a substance as "reasonably anticipated to be a human carcinogen". In October of this year, the World Cancer Research Fund (WCRF), in partnership with the American Institute for Cancer Research (AICR), issued a report entitled, "Continuous Update Project Report: Diet, Nutrition, Physical Activity and Colorectal Cancer, 2017" (available at: <http://www.wcrf.org/int/research-we-fund/continuous-update-project-findings-reports/colorectal-bowel-cancer>). This report (WCRF CUP 2017) serves as an update to the 2011 Continuous Update Project (CUP) Colorectal Cancer Report (WCRF/AICR, 2011) and is based on the findings of the CUP Colorectal Cancer Systematic Literature Review (SLR) 2016 (Norat et al., 2016; available at: [www.wcrf.org/sites/default/files/CUP\\_colorectal\\_cancer\\_SLR\\_2016lo.pdf](http://www.wcrf.org/sites/default/files/CUP_colorectal_cancer_SLR_2016lo.pdf)). As outlined below, the evidence presented in the WCRF CUP 2017 report challenges the assumption that consumption of red meat is "reasonably anticipated to be a human carcinogen".

The report identified 13 studies through April 2015 on colorectal cancer incidence (CRC) that compared high versus low intakes of red meat. None of the 13 studies reported statistically significant associations between red meat intake and CRC risk, resulting in a non-statistically significant 12% increased risk of CRC per 100 grams of red meat (RR 1.12 (95% CI 1.00-1.25). The authors concluded, "The 2016 CUP findings are less strong than those from the 2010 SLR, which showed a 17 per cent increased risk per 100 grams of red meat per day (RR 1.17 (95% CI 1.05-1.31)). The CUP meta-analysis included the same number of studies as the 2010 SLR but over 2,000 more cases of colorectal cancer." Consequently, the report downgrades the strength of evidence on red meat from 'convincing' in their 2011 CUP report to 'probable' in their 2017 CUP report.

In addition to finding a weaker direct relationship between red meat and CRC risk, relationships between several components of red meat (and meat in general) and CRC were also found to be weak or diminished. For example, evidence regarding the association between foods containing animal fats and CRC risk was found to be less consistent in the 2010 SLR (Norat et al., 2010) compared to the 2016 SLR (Norat et al., 2016) resulting in a downgrading of the strength of

evidence from “limited-suggestive increases risk” in the 2011 report, to “limited-no conclusion” in the 2017 report. Dietary cholesterol, found only in animal products, was reviewed for the first time in the 2017 report, and found also to have limited evidence resulting in a “limited-no conclusion” decision. Observations such as these add further credibility to the WCRF’s decision to downgrade the association between red meat and CRC risk as it is well documented that the nutritional quality of red meat in the United States is continuously improving. Similarly, through the combination of changes in beef breeding and management and availability of near zero external fat through trimming, over 60% of U.S. fresh whole muscle beef cuts, including 75% of the most popular cuts sold at retail, meet Food and Drug Administration (FDA) guidelines for lean (McNeill et al., 2012; FDA, 2008).

In conclusion, this report adds to the growing body of evidence that the association between red meat and colorectal cancer risk is weak and diminishing over time and thus is inconsistent with NTP’s criteria for establishing a credible causal relationship between red meat consumption and cancer risk. The downgrading of the evidence relating red meat to colorectal cancer risk in the 2017 WCRF CUP report reinforces the role of beef in a healthful diet.

### **References:**

- Food and Drug Administration (2008). Guidance for industry: A food labeling guide. Appendix B: additional requirements for nutrient content claims Available at: <https://www.fda.gov/downloads/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/UCM265446.pdf> Accessed November 15, 2017.
- McNeill SH, Harris KB, Field TG, Van Elswyk, ME. 2012. The evolution of lean beef: identifying lean beef in today’s U.S. marketplace. *Meat Sci* 90:1-8.
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