ENDOCRINE SOCIETY
Hormone Science to Health

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1650 Pennsylvania Avenue
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Dear Dr. Nelson

The Endocrine Society appreciates the opportunity to provide comments on a strategic plan for Federal coordination of PFAS research and development. Founded in 1916, the Endocrine Society is the world's oldest, largest, and most active organization of scientists and healthcare professionals dedicated to research on hormones and the clinical treatment of patients with endocrine diseases. Our membership includes 18,000 clinicians and scientists from over 120 countries, including many researchers engaged in the study of the adverse effects of per- and polyfluoroalkyl substances (PFAS) on endocrine systems. While we appreciate that the Office of Science and Technology Policy (OSTP) is interested in research gaps and opportunities, we note there already is ample evidence of harm to a variety of endocrine organs and systems due to PFAS exposure. We therefore encourage OSTP to focus research and development priorities towards knowledge gaps and solutions that will reduce further harm to individuals and communities. Below we identify several pressing challenges that should be addressed by the plan and propose solutions that would help overcome these issues.

Volume and Diversity of PFAS In Use: An overarching challenge in addressing PFAS is that this is an extensive group comprising at least 9,000 compounds with detailed information on only a few chemicals. Considering this, it is unrealistic to expect that we can ever achieve comprehensive toxicity data on all members of this growing class of chemicals. While we certainly know enough about certain PFAS to act now, we believe OSTP should work with academic researchers and across federal agencies to develop a common definition of PFAS with the goal of enabling researchers and regulatory agencies to assess and restrict these chemicals as a class. PFAS classes should be determined based not just on exposure data and chemicals that are co-located or utilized together, but also on other parameters such as structure and activity. Known hazards in well-studied compounds should be assumed for similar structures that have little or no data available until the data gaps are filled and in the public domain. These classes should be defined and acted upon with urgency, given current known and presumed levels of contamination.

Widespread PFAS Contamination: Removal of PFAS from the environment is an urgent goal that will require research on effective strategies that communities can deploy to minimize their exposure. We stress that the goal of removal should be destruction of PFAS, and not simply

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displacing contamination to another site. In addition to environmental remediation, interventions to reduce an individual's PFAS body burden are urgently needed given updated clinical guidance on PFAS screening and health monitoring[1]. Research to advance the destruction of PFAS should be applied for the purpose of removing existing PFAS from the environment, not as a justification to continue use and production of this hazardous group of chemicals. Therefore, research and development should focus on removing existing PFAS to reduce current human and ecological exposures.

At least 97% of Americans have detectable levels of PFAS in their blood, and individuals with any level of exposure but in particular disproportionately impacted populations such as fluorochemical workers, want to reduce their personal PFAS levels and they may use blood levels as an indicator of exposure. However, because PFAS may reside in other tissues, blood levels may give an incomplete picture of total body burden; the risk-benefit of interventions like phlebotomy that may reduce PFAS concentrations in blood require urgent further investigation. We recommend that research dedicated to understanding how best to achieve reduction of PFAS in human blood and tissue be conducted, and messaging on this issue be communicated to medical providers to enable them to effectively help their patients lower their body burdens through safe and tested approaches.

Lack of Analytical Standards for Newer or Replacement PFAS: Our members note that the lack of analytical standards for many PFAS is a challenge both for research and public health. Biomonitoring and epidemiological studies lack the necessary analytical standards to capture data on the level of many PFAS in the environment and in human bodies. Agencies should seek to help communities better understand the outcomes of PFAS exposure so that they can make better informed healthcare decisions; however, this will require standards and research-based educational resources for patients and providers. We strongly recommend that analytical standards be produced as a required part of any development strategies for replacement products.

Unregulated Discharges and Complex Mixture Effects: A history of unregulated use and discharge of PFAS into the environment has created an immense variety of exposure scenarios, including in medical devices and other commonly used consumer products, that complicate epidemiological studies. Additionally, mixture effects further render a chemical-by-chemical approach to PFAS assessment and remediation ineffective. Research resources should be dedicated to understanding common PFAS mixtures in concentrations and proportions relevant to consumer and environmental exposures. OSTP should work with agencies to ensure that there is no longer any unregulated discharge for PFAS or replacement chemicals. Furthermore, understanding mixture composition and impacts is impossible when compounds utilized by companies are frequently replaced with new unknown chemicals. Research lead by the Federal government could

[1] https://www.epa.gov/sdwa/drinking-water-health-advisories-pfoa-and-pfos

require and access confidential information on chemicals utilized in different sectors to conduct an impact analysis on predicted health and cleanup costs to society, to help identify compounds that are truly essential.

Unclear Definition of Essential Uses: We are concerned that OSTP implies that infrastructure or other uses of PFAS are essential or require chemical alternatives to PFAS. OSTP should prioritize the development of nonchemical and safe and sustainable by design approaches to replacements for current uses of PFAS. In parallel to this research objective, OSTP should establish definitions for essential uses that apply across agencies, taking into account the health effects and consequent economic damages suffered by society due to exposure including health costs as well as cleanup costs that are borne in large part by utility rate payers. Research programs should also seek to understand and develop mitigation strategies for communities that may be disproportionately impacted through 'essential use' exposures.

In conclusion, we strongly urge OSTP to develop a strategic plan with the necessary goal of reducing exposures such that human and ecological impact is minimized. We acknowledge that minimizing impacts of these chemicals, where there may be no safe level of exposure, may require aggressive action by multiple federal agencies. However, such actions may be necessary in the short- and long-term to protect human and environmental health. The strategic plan should encourage agencies to adopt policies that place prevention and remediation costs on polluters themselves, for example by requiring that companies develop analytical standards for replacement chemicals and requiring that companies develop effective remediation approaches for prior releases into the environment. Thank you for considering the Endocrine Society's comments; we welcome the opportunity to meet with your office to discuss these and other science and technology priorities. If you would like to meet with expert members of the Society, please reach out to Joe Laakso, PhD, Director of Science Policy at jlaakso@endocrine.org

Sincerely,

Ursula Kaiser

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President
Endocrine Society