ENDOCRINE SOCIETY
Hormone Science to Health

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Comments Submitted by the Endocrine Society
In Response to Chemicals – strategy for sustainability (toxic-free EU environment)
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The Endocrine Society appreciates the opportunity to comment on the Roadmap for the Chemicals Strategy for Sustainability. The Endocrine Society is the world's oldest, largest, and most active organization dedicated to research on hormones and the clinical treatment of patients with endocrine disease. Our global membership of over 18,000 includes expert researchers advancing our understanding of interference with hormonal systems by manufactured chemicals, called endocrine disrupting chemicals (EDCs).

In 2015 an expert group examined over 1500 studies and published the Endocrine Society's second scientific statement on EDCs. This comprehensive review concluded that EDCs are ubiquitous, and a robust convergence of scientific evidence from animal, human, mechanistic and epidemiological studies has established strong links between EDC exposure and health impacts such as obesity, diabetes, and hormone-sensitive cancers; as well as adverse impacts on neurodevelopment and neuroendocrine systems, reproductive health, and the thyroid gland. It is therefore essential that the Chemicals Strategy for Sustainability includes measures that will reduce EDC exposures and thereby improve public health.

To protect the health of EU citizens the Commission should propose ambitious legislative measures as soon as possible to address common sources of EDC exposures such as cosmetics and personal care products, household products, and food packaging. Proposals need to address existing regulatory gaps in EU chemicals legislation and encourage the rapid substitution of hazardous chemicals with demonstrably safer alternatives. The Chemicals Strategy should also reflect the need to evaluate groups of chemicals that have effects on the same biological pathways, assess cumulative exposures, and the presence of mixture effects from multiple exposures.

A forward-thinking strategy must incorporate the latest scientific knowledge on chemical interference with endocrine systems. Consistent with endocrine science, EDCs may display non-monotonic dose responses, have effects at extremely low levels, and one chemical may affect several endocrine pathways simultaneously. EDCs may also have transgenerational effects through epigenetic mechanisms. The Chemicals Strategy should therefore acknowledge the possibility that there is no safe threshold of exposure for EDCs. The Strategy should also reflect the need to comprehensively protect all populations, including individuals who may be uniquely susceptible to EDC exposures. This can include susceptibility due to genetic predisposition or unusual exposure

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patterns, as well as individuals whose hormonal systems are not yet fully developed (e.g., infants and adolescents) or are otherwise vulnerable (e.g., women who are or may become pregnant). In the context of the current pandemic, we note that EDCs can have effects on the immune system, and that many of the chronic diseases and endocrine cancers that are linked to EDC exposures are threatening comorbidities for COVID-19.

Finally, the Chemicals Strategy must recognize gaps in testing strategies and the need for an accelerated and more coherent identification process for EDCs. Current EU assessments often remain inconclusive, preventing protective measures to reduce exposures. The current battery of guideline tests are largely insufficient for identifying EDCs as they often fail to use the most sensitive endpoints. The EU should work with scientists, including endocrinologists, to identify more sensitive testing methods to detect endocrine disruption at environmentally-relevant dose ranges and incorporate these methods into testing strategies. New and alternative testing methodologies should be validated against these more sensitive methods before more widespread adoption.

In conclusion, biomonitoring studies increasingly reveal the body burden of harmful EDCs in EU citizens and the EU Chemicals Strategy must accelerate measures to reduce EDC exposures.