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The contribution of microplastics to developing Alzheimer's disease

Environmental pollutants have become quite ubiquitous over the past two centuries and have infiltrated the globe, migrating from soil to groundwater and even in remote Arctic regions. Of those, plastics and in particular microplastics (< 5 mm, MPs) are among the most pervasive. MPs are either derived from breakdown of larger plastic materials that found their way into the air, water system, and food chain, or purposely produced for use in paints, detergents, plexiglass, personal products such as sunscreen and cosmetics, and fabrics such as nylon, and polyester. Despite MPs representing a new health concern for the human population, no study has been conducted to systematically address the effect that chronic MPs exposure might have on brain health and cognition and their contribution towards developing neurological disease. This research proposal aims to fill this gap by studying the possible interaction that chronic MPs exposure might have with genetic risks for developing Alzheimer's disease (AD), such as carrying mutated amyloid precursor protein (APP) and presenilin-1 (PS-1) genes. Completion of this research will greatly advance our knowledge on the risk that MPs present for human health and will open new research avenues possibly leading to regulations and interventions to minimize MPs risk.

Award: \$20,000