

Big Brain Talk References

MP = microplastics

1. **My previous work on plastic degrading bacteria and enzymes** - Ridley RS, Conrad RE, Lindner BG, Woo S, Konstantinidis KT. Potential routes of plastics biotransformation involving novel plastizymes revealed by global multi-omic analysis of plastic associated microbes. *Sci Rep*. 2024 Apr 16;14(1):8798. doi:[10.1038/s41598-024-59279-x](https://doi.org/10.1038/s41598-024-59279-x)
2. Acosta DJ, Alper HS. Advances in enzymatic and organismal technologies for the recycling and upcycling of petroleum-derived plastic waste. *Current Opinion in Biotechnology*. 2023 Dec;84:103021. doi:[10.1016/j.copbio.2023.103021](https://doi.org/10.1016/j.copbio.2023.103021)
3. **PET degrading enzyme in humans** - Huang X, Li Y, Shu Z, Huang L, Liu Q, Jiang G. High-Efficiency Degradation of PET Plastics by Glutathione S-Transferase under Mild Conditions. *Environ Sci Technol*. 2024 Jul 16;acs.est.4c02132. doi:[10.1021/acs.est.4c02132](https://doi.org/10.1021/acs.est.4c02132)
4. **Bacteria biofilms on plastics** - Kerfahi D, Harvey BP, Kim H, Yang Y, Adams JM, Hall-Spencer JM. Whole community and functional gene changes of biofilms on marine plastic debris in response to ocean acidification. *Microb Ecol*. 2023 May;85(4):1202–14. doi:[10.1007/s00248-022-01987-w](https://doi.org/10.1007/s00248-022-01987-w)
5. **Lots of info on human-microplastics interactions** Thompson RC, Courtene-Jones W, Boucher J, Pahl S, Raubenheimer K, Koelmans AA. Twenty years of microplastic pollution research—what have we learned? *Science*. 2024 Oct 25;386(6720):eadl2746. doi:[10.1126/science.adl2746](https://doi.org/10.1126/science.adl2746)
6. Kalra A, Dominoni D, Boonekamp J. The impact of microplastics on the mice gut microbiome: a meta-analysis. *Sci Rep*. 2026 Apr 22. doi:[10.1038/s41598-026-49190-y](https://doi.org/10.1038/s41598-026-49190-y)
7. **Mice study on autism spectrum disorder** - Zaheer J, Kim H, Ko IO, Jo EK, Choi EJ, Lee HJ, et al. Pre/post-natal exposure to microplastic as a potential risk factor for autism spectrum disorder. *Environment International*. 2022 Mar;161:107121. doi:[10.1016/j.envint.2022.107121](https://doi.org/10.1016/j.envint.2022.107121)
8. **Oxidative stress and neurotoxicity of MP in zebrafish** - Feng M, Luo J, Wan Y, Zhang J, Lu C, Wang M, et al. Polystyrene Nanoplastic Exposure Induces Developmental Toxicity by Activating the Oxidative Stress Response and Base Excision Repair Pathway in Zebrafish (*Danio rerio*). *ACS Omega*. 2022 Sep 13;7(36):32153–63. doi:[10.1021/acsomega.2c03378](https://doi.org/10.1021/acsomega.2c03378)
9. Qu J, Wu L, Mou L, Liu C. Polystyrene microplastics trigger testosterone decline via GPX1. *Science of The Total Environment*. 2024 Oct;947:174536. doi:[10.1016/j.scitotenv.2024.174536](https://doi.org/10.1016/j.scitotenv.2024.174536)
10. Wang Q, Chi F, Liu Y, Chang Q, Chen S, Kong P, et al. Polyethylene microplastic exposure adversely affects oocyte quality in human and mouse. *Environment International*. 2025 Jan;195:109236. doi:[10.1016/j.envint.2024.109236](https://doi.org/10.1016/j.envint.2024.109236)
11. **Plastic disease in birds** - Charlton-Howard HS, Bond AL, Rivers-Auty J, Lavers JL. ‘Plasticosis’: Characterising macro- and microplastic-associated fibrosis in seabird tissues. *Journal of Hazardous Materials*. 2023 May;450:131090. doi:[10.1016/j.jhazmat.2023.131090](https://doi.org/10.1016/j.jhazmat.2023.131090)
12. Ragusa A, Svelato A, Santacroce C, Catalano P, Notarstefano V, Carnevali O, et al. Plasticenta: First evidence of microplastics in human placenta. *Environment International*. 2021 Jan;146:106274. doi:[10.1016/j.envint.2020.106274](https://doi.org/10.1016/j.envint.2020.106274)
13. Bergmann M, Collard F, Fabres J, Gabrielsen GW, Provencher JF, Rochman CM, et al. Plastic pollution in the Arctic. *Nat Rev Earth Environ*. 2022 Apr 5;3(5):323–37. doi:[10.1038/s43017-022-00279-8](https://doi.org/10.1038/s43017-022-00279-8)

14. **Plastic degradation by enzymes in the deep ocean** - Acosta DJ, Barth DR, Bondy J, Appller KE, De Anda V, Ngo PHT, et al. Plastic degradation by enzymes from uncultured deep sea microorganisms. *The ISME Journal*. 2025 Jan 2;19(1):wraf068. doi:[10.1093/ismejo/wraf068](https://doi.org/10.1093/ismejo/wraf068)
15. Yamashita R, Hiki N, Kashiwada F, Takada H, Mizukawa K, Hardesty BD, et al. Plastic additives and legacy persistent organic pollutants in the preen gland oil of seabirds sampled across the globe. *EMCR*. 2021;1(0):97–112. doi:[10.5985/emcr.20210009](https://doi.org/10.5985/emcr.20210009)
16. **Microbiome shifts and oxidative stress by plastics** - Zhang X, Zhang XX, Ma L. New Horizons in Micro/Nanoplastic-Induced Oxidative Stress: Overlooked Free Radical Contributions and Microbial Metabolic Dysregulations in Anaerobic Digestion. *Environ Sci Technol*. 2024 Dec 3;58(48):21251–64. doi:[10.1021/acs.est.4c08865](https://doi.org/10.1021/acs.est.4c08865)
17. Mahmud F, Sarker DB, Jocelyn JA, Sang QXA. Molecular and Cellular Effects of Microplastics and Nanoplastics: Focus on Inflammation and Senescence. *Cells*. 2024 Oct 29;13(21):1788. doi:[10.3390/cells13211788](https://doi.org/10.3390/cells13211788)
18. **MP effects within cancer cells** - Brynzak-Schreiber E, Schögl E, Bapp C, Cseh K, Kopatz V, Jakupec MA, et al. Microplastics role in cell migration and distribution during cancer cell division. *Chemosphere*. 2024 Apr;353:141463. doi:[10.1016/j.chemosphere.2024.141463](https://doi.org/10.1016/j.chemosphere.2024.141463)
19. **MP observations across different soils** - Corradini F, Casado F, Leiva V, Huerta-Lwanga E, Geissen V. Microplastics occurrence and frequency in soils under different land uses on a regional scale. *Science of The Total Environment*. 2021 Jan;752:141917. doi:[10.1016/j.scitotenv.2020.141917](https://doi.org/10.1016/j.scitotenv.2020.141917)
20. **Mice study on microplastics in blood and crossing blood-brain barrier** - Huang H, Hou J, Li M, Wei F, Liao Y, Xi B. Microplastics in the bloodstream can induce cerebral thrombosis by causing cell obstruction and lead to neurobehavioral abnormalities. *Sci Adv*. 2025 Jan 24;11(4):eadr8243. doi:[10.1126/sciadv.adr8243](https://doi.org/10.1126/sciadv.adr8243)
21. **Accumulation of MP in fish** - Ghosh T. Microplastics bioaccumulation in fish: Its potential toxic effects on hematology, immune response, neurotoxicity, oxidative stress, growth, and reproductive dysfunction. *Toxicology Reports*. 2025 Jun;14:101854. doi:[10.1016/j.toxrep.2024.101854](https://doi.org/10.1016/j.toxrep.2024.101854)
22. **Study on MP in human brain connected to tumors - recent study that may contentious, very recent and previous issues with these types of studies** - Li R, Lin F, Zhao X, Wang J, Teng M, Li C, et al. Microplastics and nanoplastics in brain tumours and the healthy human brain. *Nat Health*. 2026 Apr 20. doi:[10.1038/s44360-026-00091-4](https://doi.org/10.1038/s44360-026-00091-4)
23. **Study on correlative effects of MP in cardiovascular events** - Marfella R, Prattichizzo F, Sardu C, Fulgenzi G, Graciotti L, Spadoni T, et al. Microplastics and Nanoplastics in Atheromas and Cardiovascular Events. *N Engl J Med*. 2024 Mar 7;390(10):900–10. doi:[10.1056/NEJMoA2309822](https://doi.org/10.1056/NEJMoA2309822)
24. **Study discussing degradation rates of plastics, gives some estimates** - Chamas A, Moon H, Zheng J, Qiu Y, Tabassum T, Jang JH, et al. Degradation Rates of Plastics in the Environment. *ACS Sustainable Chem Eng*. 2020 Mar 9;8(9):3494–511. doi:[10.1021/acssuschemeng.9b06635](https://doi.org/10.1021/acssuschemeng.9b06635)
25. **Study associating MP concentration in human brain to dementia - highly contended due to potentially not good controls/methods** - Nihart AJ, Garcia MA, El Hayek E, Liu R, Olewine M, Kingston JD, et al. Bioaccumulation of microplastics in decedent human brains. *Nat Med*. 2025 Apr;31(4):1114–9. doi:[10.1038/s41591-024-03453-1](https://doi.org/10.1038/s41591-024-03453-1)

26. **Review discussing MP association with pathogens** - Beans C. Are microplastics spreading infectious disease? Proc Natl Acad Sci USA. 2023 Aug;120(31):e2311253120. doi:[10.1073/pnas.2311253120](https://doi.org/10.1073/pnas.2311253120)
27. **Association between MP and Inflammatory Bowel Disease** - Yan Z, Liu Y, Zhang T, Zhang F, Ren H, Zhang Y. Analysis of Microplastics in Human Feces Reveals a Correlation between Fecal Microplastics and Inflammatory Bowel Disease Status. Environ Sci Technol. 2022 Jan 4;56(1):414–21. doi:[10.1021/acs.est.1c03924](https://doi.org/10.1021/acs.est.1c03924)