PhIP exposure produces neurotoxicity of potential relevance to Alzheimer’s disease

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Research:

The role of diet in Alzheimer’s disease (AD) has received recent attention, with several studies suggesting that high levels of meat consumption may influence AD risk. Here, we investigated whether exposure to 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP), a compound formed during high temperature meat cooking may produce AD-relevant neurotoxicity. Male C57BL/6 mice, SH-SY5Y cells, and primary cortical neurons treated with PhIP showed evidence of oxidative stress, amyloid aggregation, and other hallmarks of AD. Our study demonstrates the possible mechanism by which PhIP promotes amyloid beta aggregation and suggests a link between high temperature meat cooking and AD. Our data also suggest potential overlap between Parkinson’s disease and AD mechanisms.