DNA Damage Induced by Cell Phone RF Radiation

Schall, Benjamin (School: Saginaw Arts and Sciences Academy)

Cancer is the second leading cause of death in the United States and prevention by pinpointing and eliminating its causes is the most important part of combating any disease, even more than finding a cure. The identification and targeting of potential carcinogens is a vital component in fighting to reduce the impact of cancer, especially for those who cannot afford treatment. This study was performed to measure effects of base pair loss in DNA caused by LTE cell phone radiofrequency radiation. E. coli was grown in broth with one experimental group exposed to radiation from an LTE antenna and the control group having no exposure. After growth, bacterial cells were pelleted and lysed, then the surfactant was precipitated with the non-nucleotides using potassium acetate. The precipitate was pelleted and the supernatant used in gel electrophoresis with a 1% agarose gel containing ethidium bromide. The dyed DNA that resulted was viewed under UV light and the distance traveled by experimental and control DNA across the gel compared. A greater distance would indicate smaller DNA molecules, and thus base pair loss. While the average distance traveled was greater in the experimental group than in the control, there was no significant difference in the distance between the control and experimental groups, indicating that the radiation did not cause base pair loss.

Awards Won: