Mutagenicity of Bisbenzimidazole Derivatives

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The mutagenicities of 2,2'-(di-3-hydroxyphenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, 2,2'-(di-4-hydroxyphenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, 2,2'-(di-3-methoxyphenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, 2,2'-bis-(4-nitrophenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, 2,2'-bis-(3-nitrophenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, 2,2'-bis-(4-methylphenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, 2,2'-(di-4-methoxyphenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole, and 2,2'-bis-(3-methylphenyl)-1*H*,1*H*'-[5,5']-bisbenzimidazole were studied *in vitro* using two strains of *Salmonella typhimurium* with frameshift mutation (TA98) and base-pair substitution mutation (TA100) as the plate incorporation assay in the absence of metabolic activation. These compounds are currently used to treat cancer. 4-Nitrophenyl and 3-nitrophenyl compounds were found to be mutagenic on both strains of *Salmonella*. A clear mutagenic response was seen in nitro-bound derivatives. The mutagenic response in *Salmonella* test strains (TA98, TA100) and structures of molecules suggest that nitro-bound molecules could be mutagenic.

Key words: Mutagenicity, *Salmonella*, Bisbenzimidazoles