



**Title:** Cancer caused by UV radiation from nanoparticles in GM food?

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The causal link between GM foods and human health is proposed to be DNA damage by UV radiation produced in the gut from NPs in glyphosate residues. NPs stand for nanoparticles. But only DNA damage by UV radiation from the sun is known harmful by causing skin cancers. How do NPs in the gut shielded from the sun produce UV radiation? By classical physics, DNA damage is thought caused by chemical reaction upon contacting NPs. QM differs by NPs creating EM radiation. QM stands for quantum mechanics and EM for electromagnetic. Unlike classical physics, QM requires the atoms in NPs have vanishing heat capacity, and therefore NPs cannot conserve heat from the gut by increasing temperature. Hence, NPs conserve heat by emitting EM radiation. Vanishing heat capacity of the atom by QM is not new, but the consequence of the Planck law formulated over a century ago. For heat capacity to vanish, however, the NP must be placed under high EM confinement. But this is inherent with NPs having high surface-to-volume ratios requiring absorbed heat to be confined to their surfaces. Under EM confinement, QED conserves surface heat by creating EM waves standing between diametrically opposite NP surfaces. Simply stated: Absent heat capacity, QED conserves heat supplied to a NP of diameter  $d$  by creating EM radiation having half-wavelength  $\lambda / 2 = n d$ , where  $n$  is the NP refractive index, e.g., titanium dioxide NPs having diameter  $d = 50$  nm and  $n = 2.5$  emit UV-C radiation at about 254 nm, a lethal level for DNA damage that if not repaired by the immune system may cause cancer.

**Biography**

Thomas Prevenslik is a retired American living in Hong Kong and Berlin. Because classical physics does not work at the nanoscale, he developed the theory of QED radiation based on quantum mechanics. QED here is simple form of light-matter interaction advanced by Feynman and others. By QED theory, conservation of energy in nanoparticles cannot proceed by temperature changes as the heat capacity of the atom vanishes. Instead, QED produces UV radiation that damages DNA of nearby cells and if not repaired by the immune system may cause cancer. QED radiation is applicable to nanobiotechnology, and the instant topic of cancer from nanoparticles in GM foods.

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