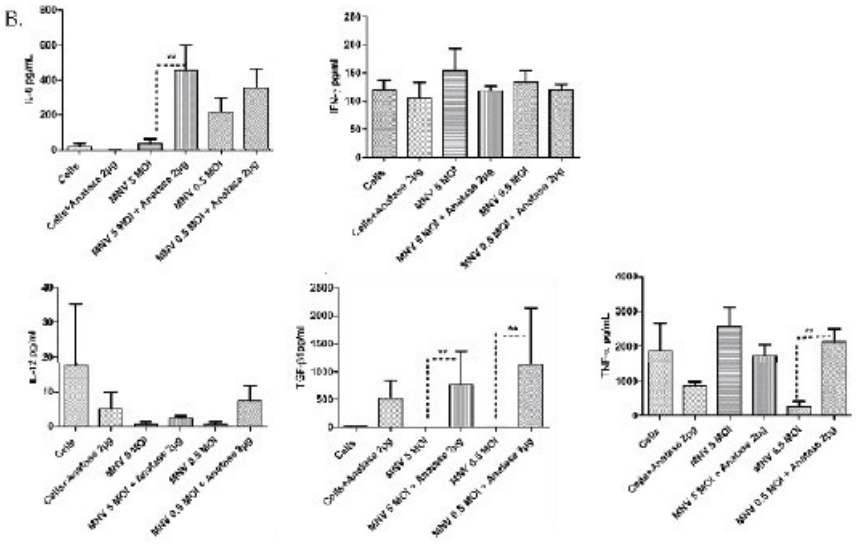
B.



1.3.5 Assessment of DNA Damage

Literature studies have shown that NPs, including silica NPs, are capable of inducing single cell DNA damage consistent with genotoxicity that can be deciphered via the alkaline Comet assay (38). While viabilities ranged among cell sample preparations, there was a general reduction in viability as a result of either MNV-1 infection or NP exposure, consistent with known cytotoxic effects of these treatments. In contrast to cells exposed to Methyl Methane Sulfonate MMS (positive control), no statistically significant differences in DNA damage were observed for anatase TiO2 NP in the presence or absence of virus infection, when compared to the responses in the vehicle control group (Fig. 5). The RAW macrophages were susceptible to single cell DNA damage, consistent with genotoxicity, after exposure to MMS, a known genotoxicant.

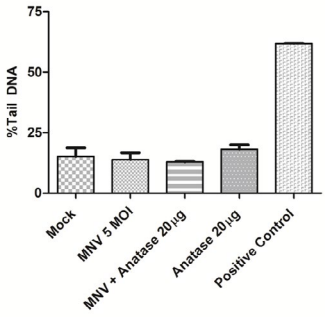


Fig. 5. Effect of TiO2 NPs on genotoxic insults to cells. Genotoxic insult, shown as % tail DNA under indicated experimental conditions, as measured by the Comet assay. Note that the positive control (MMS) showed a significant increase in genotoxic insult, while no significant differences were observed in other conditions tested.

A.

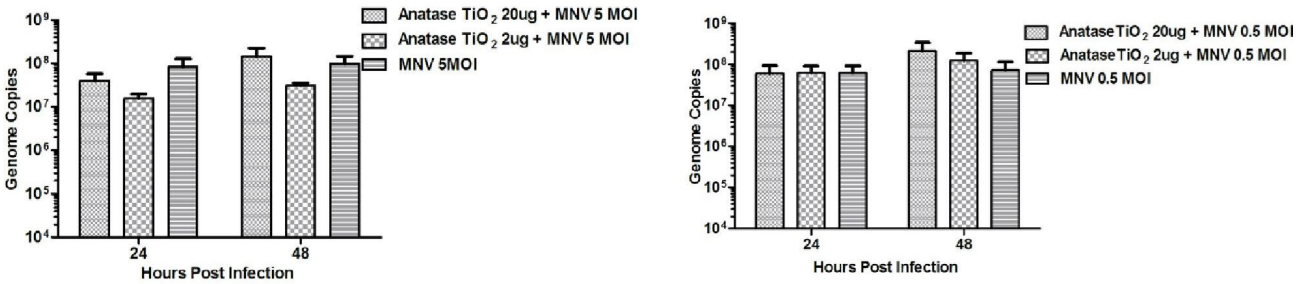


Fig. S1. Effect of TiO2 particles on Genome Copy Numbers Pre-incubation with TiO2 nanoparticles alters production of viral genome copies in the supernatant. Viral genome copies determined by a real time PCR assay from cell culture supernatants harvested at 24 h and 48 h post infection, from cells incubated with 20 µg/mL and 2 µg/mL anatase (indicated as 20 µg and 2 µg in the figure) for 3 h, and infected with 5 MOI (left panel) and 0.5 MOI (right panel).

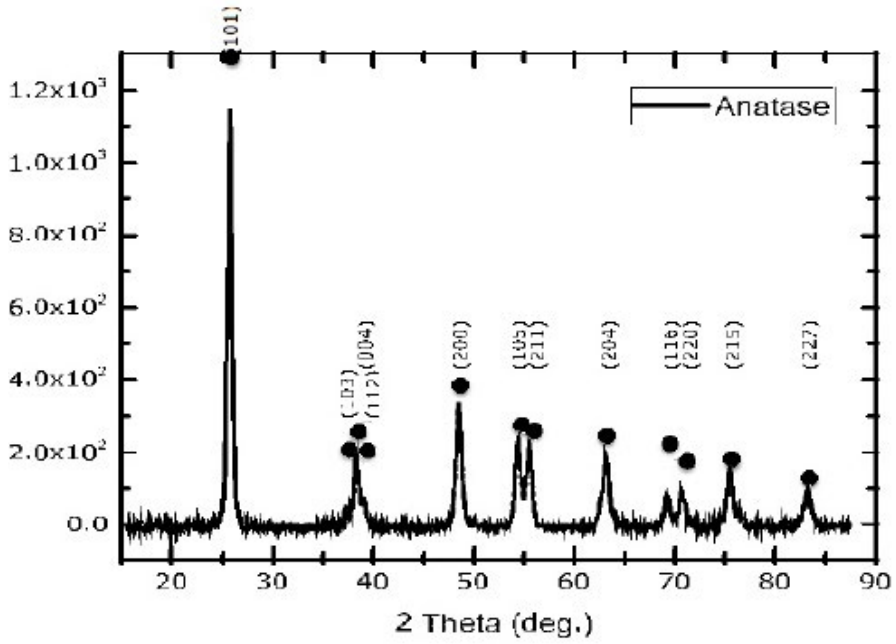


Fig S2. Characterization of Nanoparticles

Fig. S2. Characterization of Nanoparticles Caption: X-ray diffraction (XRD) spectra of anatase (black line). The Bragg diffraction angles are marked with black dots for anatase. Corresponding Miller Indices (hkl) are also given in black (anatase).

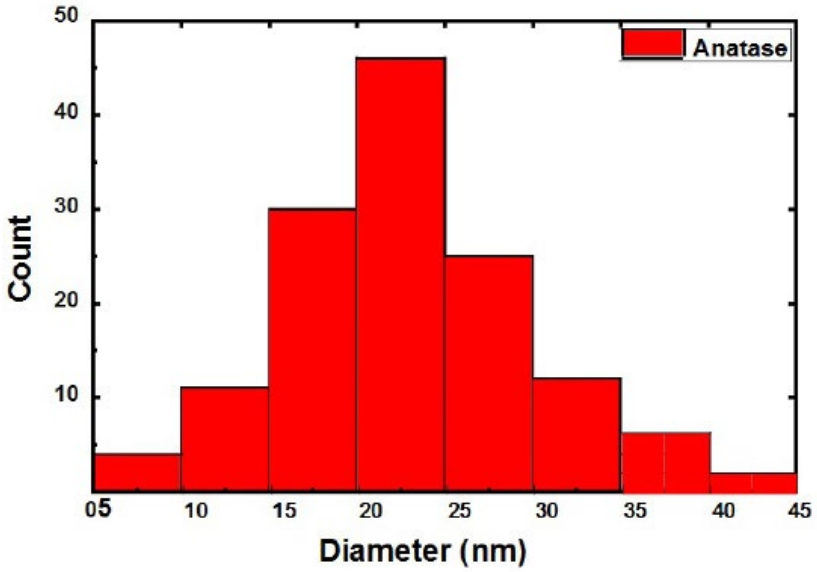


Fig S3. Size Distribution of Nanoparticles

Fig. S3. Size distribution of Nano particles. The size distribution of Anatase nanoparticles as shown with the diameter on the X axis and the number of nanoparticles counted on the Y axis.