Therefore, one of the key processes to disable viruses is through the control of their surface structure, especially their binding sites, so they can no longer recognize the receptor site on the host cells. As many types of nanocoatings attack most effectively on the virus’s surface, they represent an excellent viable technology to destroy the viruses surface structure. Functionalized nanoparticles can affect the viruses due to chemical interactions between the molecules-functionalizers and molecules-receptors at the virus surface.

Nanoparticles that display anti-viral action include:

- Nanosilver (NanoAg).
- NanoGold (NanoAu).
- Nanoparticle titanium dioxide (Nano-TiO2).
- Nano Copper(II) chloride (NanoCuCl2).
- Nano Cerium Oxide (NanoCeO2).
- NanoSilica (Nano-SiO2).
- Graphene oxide.
- Nano Zinc Oxide (NanoZnO).
- Carbon nanotubes.
- Fullerenes.
- Chitosan nanoparticles.

![Figure 1. Schematic of anti-viral coating using nano-actives for inactivation of any adhered virus on the surfaces.](image)

Image credit: Nova Surface Care Centre.