

Viruses and Nanotechnology 9783540693796 Marianne Manchester, Nicole F. Steinmetz Springer Science & Business Media, 2008 2008 147 pages

Virus biotechnology and nanotechnology. Figure 1 (left): Transmission Electron Microscopy image of empty non-infectious Bovine papillomavirus virus-like particles produced at the James Hutton Institute using plant expression systems. Plant-based technologies for human and animal health. The use of plants as bioreactors for synthesising functional proteins which can be readily extracted to high purity opens up new opportunities for the production of pharmaceutical proteins. Plant viruses (which are nanoscale) are of great benefit to the nanomaterial synthesis process since they can be rendered safe and non-infectious, have surface exposed functional groups which can be exploited for the deposition of specific metals or minerals, and they can be mass produced. *Frontiers in Nanotechnology* is an interdisciplinary journal publishing high-impact research across nanoscience and nanotechnology, at the interface of chemistry, physics, materials science and engineering. This multidisciplinary Open Access journal is at the forefront of disseminating and communicating scientific knowledge and impactful discoveries to academia, industry and the public worldwide. *Scope & Mission.* *Frontiers in Nanotechnology* is an interdisciplinary journal publishing high-impact research across nanoscience and nanotechnology, at the interface of chemistry, physics, materials science and engineering. This multidisciplinary Open Nanotechnology is a collective term describing a broad range of relatively novel topics. Scale is the main unifying theme, with nanotechnology being concerned with matter on the nanometer scale. Virus particles are natural nanomaterials and have received particular attention as novel building blocks for materials design and fabrication. In this volume, leaders in the field of viral nanobiotechnology address the fundamental means for generating virus-based nanoparticles by performing chemistry on virion substrates, multilayered arrays and hybrid virus networks incorporating materials such as quantum dots and carbon nanotubes. *Book Title.* *Viruses and Nanotechnology.* Editors. Marianne Manchester. Nicole F. Steinmetz. *Series Title.* Nanotechnology can be broadly defined as design and application of several materials and devices where at least one dimension is less than 100 nanometres. In the medical field, the application of nanotechnology is known as nanomedicine, which includes the use of nanomaterials for diagnosis, treatment, control and prevention of diseases [31, 32]. Nano-based materials could help in: (i) enhanced the speed and sensitivity of virus detection; (ii) help in the development of more efficient and safer treatment and vaccines and (iii) improve the safety of healthcare workers through the development of nano-based Personal Protective equipment (PPE).