

## Papers Identified with Nanotechnology Focus

### 1. Nanoarchitected structure and surface biofunctionality of mesoporous silica Nanoparticles

Authors: Kankala RK, Han YH, Na J, Lee CH, Sun Z, Wang S Bin et al (2020)

Publication: Adv Mater 32:1907035

URL: <https://onlinelibrary.wiley.com/doi/full/10.1002/adma.201907035>

Objectives:

- To develop nanoarchitected mesoporous silica nanoparticles with enhanced surface biofunctionality
- To create versatile platforms for biomedical applications
- To improve drug loading capacity and controlled release mechanisms
- To enhance biocompatibility and targeting efficiency

### 2. Biomolecule-functionalized carbon nanotubes: applications in nanobioelectronics

Authors: Katz E, Willner I (2004)

Publication: ChemPhysChem 5:1084-1104

URL: <https://onlinelibrary.wiley.com/doi/full/10.1002/cphc.200400193>

Objectives:

- To explore the functionalization of carbon nanotubes with biomolecules
- To develop nanobioelectronic devices with enhanced performance
- To create biosensors with improved sensitivity and selectivity
- To establish new paradigms in molecular electronics

### 3. Graphene-gold nanoparticles hybrid-synthesis, functionalization, and application in electrochemical and surface-enhanced raman scattering biosensor

Authors: Khalil I, Julkapli NM, Yehye WA, Basirun WJ, Bhargava SK (2016)

Publication: Materials 9:406

URL: <https://www.mdpi.com/1996-1944/9/6/406/htm>

Objectives:

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- To synthesize graphene-gold nanoparticle hybrid materials
- To develop advanced biosensing platforms
- To enhance electrochemical detection capabilities
- To improve surface-enhanced Raman scattering (SERS) performance

### **4. Nanocarriers for cancer-targeted drug delivery**

Authors: Kumari P, Ghosh B, Biswas S (2016)

Publication: J Drug Target 24:179-191

URL: <https://www.tandfonline.com/doi/abs/10.3109/1061186X.2015.1051049>

Objectives:

- To develop targeted nanocarriers for cancer therapy
- To improve drug bioavailability and reduce systemic toxicity
- To enhance therapeutic efficacy through precise targeting
- To overcome biological barriers in cancer treatment

### **5. Suspension arrays based on nanoparticle-encoded microspheres for high-throughput multiplexed detection**

Authors: Leng Y, Sun K, Chen X, Li W (2015)

Publication: Chem Soc Rev 44:5552-5595

URL: <https://pubs.rsc.org/en/content/articlehtml/2015/cs/c4cs00382a>

Objectives:

- To develop nanoparticle-encoded microsphere arrays
- To enable high-throughput multiplexed detection systems
- To improve diagnostic accuracy and efficiency
- To create versatile platforms for various analytical applications

### **6. Gold nanoparticles for photoacoustic imaging**

## **Papers Identified with Nanotechnology Focus**

Authors: Li W, Chen X (2015)

Publication: Nanomedicine 10:299-320

URL: <https://www.tandfonline.com/doi/abs/10.2217/nnm.14.169>

Objectives:

- To utilize gold nanoparticles as contrast agents for photoacoustic imaging
- To enhance imaging resolution and depth penetration
- To develop non-invasive diagnostic techniques
- To improve early detection of diseases

### **7. Application of iron oxide nanoparticles in glioma imaging and therapy: from bench to bedside**

Authors: Liu H, Zhang J, Chen X, Du XS, Zhang JL, Liu G et al (2016)

Publication: Nanoscale 8:7808-7826

URL: <https://pubs.rsc.org/en/content/articlehtml/2016/nr/c6nr00147e>

Objectives:

- To develop iron oxide nanoparticles for glioma treatment
- To create theranostic platforms combining imaging and therapy
- To improve blood-brain barrier penetration
- To enhance targeted delivery to brain tumors

### **8. Nanoparticle formulated vaccines: opportunities and challenges**

Authors: Lung P, Yang J, Li Q (2020)

Publication: Nanoscale 12:5746-63

URL: <https://pubs.rsc.org/en/content/articlehtml/2020/nr/c9nr08958f>

Objectives:

- To develop nanoparticle-based vaccine delivery systems
- To enhance immune response and vaccine efficacy
- To improve vaccine stability and storage

## **Papers Identified with Nanotechnology Focus**

- To create next-generation immunization strategies

### **9. Emerging applications of fluorescent nanocrystals quantum dots for micrometastases detection**

Authors: Mahmoud W, Sukhanova A, Oleinikov V, Rakovich YP, Donegan JF, Pluot M et al (2010)

Publication: Proteomics 10:700-716

URL: <https://onlinelibrary.wiley.com/doi/full/10.1002/pmic.200900540>

Objectives:

- To utilize quantum dots for early cancer detection
- To improve sensitivity in micrometastases identification
- To develop advanced fluorescent imaging techniques
- To enhance diagnostic capabilities in oncology

### **10. Dendrimers: a new race of pharmaceutical nanocarriers**

Authors: Mittal P, Saharan A, Verma R, Altalbawy FMA, Alfaidi MA, Batiha GES et al (2021)

Publication: Biomed Res Int 2021:8844030

URL: <https://onlinelibrary.wiley.com/doi/full/10.1155/2021/8844030>

Objectives:

- To explore dendrimer-based drug delivery systems
- To improve drug solubility and bioavailability
- To achieve controlled and targeted drug release
- To develop multifunctional pharmaceutical nanocarriers