

Research Paper References and Objectives

Here are the objectives for the research papers listed in your document, based on publicly available abstracts and summaries.

Research Paper:

- **Authors:** Abdelnour SA, Xie L, Hassanin AA, Zuo E, Lu Y (2021)
- **Paper Title:** The potential of CRISPR/Cas9 gene editing as a treatment strategy for inherited diseases.
- **Journal:** Front Cell Dev Biol 9:699597
- **Objective:** To review the *in vivo*, *in vitro*, and *ex vivo* applications of CRISPR/Cas9 technology in treating human inherited diseases, explore its potential in medicine, and examine the limitations for its future clinical use¹.

Research Paper:

- **Authors:** Acharya S, Sahoo SK (2011)
- **Paper Title:** PLGA nanoparticles containing various anticancer agents and tumour delivery by EPR effect.
- **Journal:** Adv Drug Deliv Rev 63:170–183
- **Objective:** To review the use of biocompatible poly(lactic-co-glycolic) acid (PLGA) nanoparticles for sustained drug release in cancer therapy, explaining how these nanoparticles use the enhanced permeability and retention (EPR) effect to target tumor tissues and increase therapeutic efficacy².

Research Paper:

- **Authors:** Adir O, Poley M, Chen G, Froim S, Krinsky N, Shklover J et al (2020)
- **Paper Title:** Integrating artificial intelligence and nanotechnology for precision cancer medicine.
- **Journal:** Advanced Materials 32:1901989

- **Objective:** To review how the integration of Artificial Intelligence (AI) and nanotechnology contributes to precision cancer medicine, discussing the use of nanomaterials for diagnostics and therapeutics and how AI can optimize nanomedicine design and data analysis for personalized treatment³.

Research Paper:

- **Authors:** Aggarwal M, Kumar S (2022)
- **Paper Title:** The use of nanorobotics in the treatment therapy of cancer and its future aspects: a review.
- **Journal:** Cureus 14:e29366
- **Objective:** To provide an overview of the current status and future scope of nanorobotics in cancer therapy, focusing on their potential to carry and deliver large amounts of anti-cancer drugs directly to cancerous cells without harming healthy tissues⁴.

Research Paper:

- **Authors:** Ahmad A, Khan F, Mishra RK, Khan R (2019)
- **Paper Title:** Precision cancer nanotherapy: evolving role of multifunctional nanoparticles for cancer active targeting.
- **Journal:** J Med Chem 62:10475–10496
- **Objective:** To review recent research on targeted cancer therapy using multifunctional nanoparticles, discussing how nanoparticles linked with specific targeting moieties (like ligands or antibodies) can actively target cancer cells with high precision⁵.

Research Paper:

- **Authors:** Ahmad A, Khan JM, Paray BA, Rashid K, Parvez A (2024)
- **Paper Title:** Endolysosomal trapping of therapeutics and endosomal escape strategies.
- **Journal:** Drug Discov Today 29:104070
- **Objective:** To discuss the various endocytic pathways involved in the trapping of therapeutic agents within endolysosomes and to review in detail the numerous mechanisms and strategies that can be employed to enhance the escape of

nanoparticles from endosomes to improve therapeutic delivery⁶.

Research Paper:

- **Authors:** Ahmad S, Zamry AA, Tan HTT, Wong KK, Lim JK, Mohamud R (2017)
- **Paper Title:** Targeting dendritic cells through gold nanoparticles: a review on the cellular uptake and subsequent immunological properties.
- **Journal:** Mol Immunol 91:123–133
- **Objective:** To review the current approaches for targeting dendritic cells (DCs) using gold nanoparticles (AuNPs), with a focus on their cellular uptake mechanisms and the subsequent immunological properties and responses they induce.

Research Paper:

- **Authors:** Ahmed Z, Qaisar R (2022)
- **Paper Title:** Nanomedicine for treating muscle dystrophies: opportunities, challenges, and future perspectives.
- **Journal:** International Journal of Molecular Sciences 23:12039
- **Objective:** To describe the pathophysiology of various muscle dystrophies, discuss current treatment options, and highlight recent advances, opportunities, and challenges in using nanomedicine-based therapies for treating these conditions.

Research Paper:

- **Authors:** Al-Shadidi JRMH, Al-Shammari S, Al-Mutairi D, Alkhudhair D, Thu HE, Hussain Z (2024)
- **Paper Title:** Chitosan nanoparticles for targeted cancer therapy: a review of stimuli-responsive, passive, and active targeting strategies.
- **Journal:** Int J Nanomedicine 19:8373–8400
- **Objective:** To provide a comprehensive overview of recent advances in using chitosan nanoparticles for targeted cancer therapy by discussing their synthesis, properties, and the three main targeting strategies: passive, active, and stimuli-responsive.

Research Paper:

- **Authors:** Alghamdi MA, Fallica AN, Virzi N, Kesharwani P, Pittalà V, Greish K (2022)
- **Paper Title:** The promise of nanotechnology in personalized medicine.
- **Journal:** J Personalized Med 12:673
- **Objective:** To illustrate the different approaches of how nanotheranostics (the integration of diagnostics and therapeutics) can fulfill the promise of personalized medicine and to summarize the use of FDA-approved nanodrugs in the clinic.

Research Paper:

- **Authors:** Allemailem KS, Alsahli MA, Almatroudi A, Alrumaihi F, Alkhaleefah FK, Rahmani AH et al (2022)
- **Paper Title:** Current updates of CRISPR/Cas9-mediated genome editing and targeting within tumor cells: an innovative strategy of cancer management.
- **Journal:** Cancer Commun 42:1257–1287
- **Objective:** To summarize the latest knowledge on CRISPR/Cas9-mediated cancer gene therapy, discuss the challenges of delivering CRISPR/Cas9 components to tumor cells, and highlight the current status of its application in clinical trials for cancer.

Research Paper:

- **Authors:** Asgari V, Landarani-Isfahani A, Salehi H, Amirpour N, Hashemibeni B, Rezaei S et al (2019)
- **Paper Title:** The story of nanoparticles in differentiation of stem cells into neural cells.
- **Journal:** Neurochem Res 44:2695–2707
- **Objective:** To provide an overview of recent studies on the role of different types of nanoparticles in the differentiation of various stem cells toward neural lineages and to discuss their potential applications in neural differentiation.

Research Paper:

- **Authors:** Ashraf G, Chen W, Asif M, Aziz A, Zhong ZT, Iftikhar T et al (2022)
- **Paper Title:** Topical advancements in electrochemical and optical signal amplification for biomolecules detection: A comparison.
- **Journal:** Mater Today Chem 26:101119
- **Objective:** To review and compare current advancements in signal amplification strategies for both electrochemical and optical biosensors, which are used for the sensitive detection of biomolecules.

Research Paper:

- **Authors:** Asil SM, Ahlawat J, Barroso GG, Narayan M (2020)
- **Paper Title:** Application of nanotechnology in stem-cell-based therapy of neurodegenerative diseases.
- **Journal:** Appl Sci 10:4852
- **Objective:** To review recent developments and applications of nanotechnology in stem-cell-based therapies for neurodegenerative diseases, summarizing its role in stem cell tracking, delivery, and differentiation.

Research Paper:

- **Authors:** Attia N, Mashal M, Puras G, Pedraz JL (2021)
- **Paper Title:** Mesenchymal stem cells as a gene delivery tool: promise, problems, and prospects.
- **Journal:** Pharmaceutics 13:843
- **Objective:** To summarize the current status of mesenchymal stem cells (MSCs) as a gene delivery tool by highlighting their advantages and disadvantages, discussing genetic modification strategies, and presenting the latest preclinical and clinical studies.

Research Paper:

- **Authors:** Atzrodt J, Derdau V, Kerr WJ, Reid M (2017)

- **Paper Title:** Applications of hydrogen isotopes in the life sciences.
- **Journal:** Angewandte Chemie International Edition 56:1-26
- **Objective:** To provide a comprehensive overview of the applications of hydrogen isotopes (deuterium and tritium) in the life sciences, including their use in drug discovery, metabolism studies, and as mechanistic probes.

Research Paper:

- **Authors:** Bagherzadeh M, Safarkhani M, Daneshgar H, Radmanesh F, Taghavimandi F, Ghadiri AM et al (2022)
- **Paper Title:** Magnetic carbon-based nanocomposite decorated with palladium complex for co-delivery of DOX/pCRISPR.
- **Journal:** J Drug Deliv Sci Technol 78:103917
- **Objective:** To design, synthesize, and evaluate a novel magnetic carbon-based nanocomposite for the simultaneous co-delivery of the chemotherapy drug doxorubicin (DOX) and a CRISPR/Cas9 plasmid to assess its therapeutic efficacy on breast cancer cells.

Research Paper:

- **Authors:** Bezbaruah R, Chavda VP, Nongrang L, Alom S, Deka K, Kalita T et al (2022)
- **Paper Title:** Nanoparticle-based delivery systems for vaccines.
- **Journal:** Vaccines 10:1946
- **Objective:** To provide an overview of various types of nanoparticle-based vaccine delivery systems (lipid, polymeric, inorganic, etc.), discussing their mechanisms of action, advantages, limitations, and recent preclinical and clinical studies.

Research Paper:

- **Authors:** Bhadra U, Bhadra MP, Bulusu J, Yadav JS (2014)
- **Paper Title:** Organic nanotubes: promising vehicles for drug delivery.

- **Journal:** In: Application of Nanotechnology in Drug Delivery. IntechOpen.
- **Objective:** To review the fabrication, characterization, and application of organic nanotubes (ONTs) as drug delivery vehicles, discussing their advantages and recent studies on their use for delivering therapeutic agents.

Research Paper:

- **Authors:** Blass E, Ott PA (2021)
- **Paper Title:** Advances in the development of personalized neoantigen-based therapeutic cancer vaccines.
- **Journal:** Nat Rev Clin Oncol 18:215–229
- **Objective:** To review the rationale for and advances in the development of personalized neoantigen-based therapeutic cancer vaccines, discussing the development process, major challenges, and the current clinical landscape.

Research Paper:

- **Authors:** Brown SD, Nativio P, Smith J-A, Stirling D, Edwards PR, Venugopal B et al (2010)
- **Paper Title:** Gold nanoparticles for the improved anticancer drug delivery of the active component of oxaliplatin.
- **Journal:** J Am Chem Soc 132:4678–4684
- **Objective:** To develop a gold nanoparticle-based delivery system for the active component of the anticancer drug oxaliplatin and to demonstrate that this system improves drug delivery and is more effective at killing cancer cells than the drug alone.

Research Paper:

- **Authors:** Butreddy A, Kommineni N, Dudhipala N (2021)
- **Paper Title:** Exosomes as naturally occurring vehicles for delivery of biopharmaceuticals: insights from drug delivery to clinical applications.
- **Journal:** Int J Pharm 609:121171

- **Objective:** To provide comprehensive insights into the use of exosomes as natural delivery vehicles for biopharmaceuticals, covering their isolation, characterization, drug-loading methods, and applications from drug delivery to clinical settings.

Research Paper:

- **Authors:** Cai W, Gao T, Hong H, Sun J (2015)
- **Paper Title:** Applications of gold nanoparticles in cancer nanotechnology.
- **Journal:** Nanotechnol Sci Appl 8:17–32
- **Objective:** To summarize the applications of gold nanoparticles (AuNPs) in cancer nanotechnology, including their use in molecular imaging, drug delivery, and photothermal therapy, and to discuss the challenges and future directions of AuNP-based cancer theranostics.

Research Paper:

- **Authors:** Chaudhary S, Himanshu, Singh PK, Singh S, Singh A, Singh R et al (2022)
- **Paper Title:** Nanoparticles as a novel approach for diagnosis and treatment of various diseases.
- **Journal:** J Drug Deliv Sci Technol 70:103211
- **Objective:** To review the role of various nanoparticles as novel tools for the diagnosis and treatment of a wide range of diseases, highlighting their unique properties and applications in overcoming the limitations of conventional therapies.

Research Paper:

- **Authors:** Chen M, Zhang J, Wu J, Chen X, Wang S, Li X et al (2023)
- **Paper Title:** Nanomaterials for targeted drug delivery in cancer therapy.
- **Journal:** Front Pharmacol 14:1140012
- **Objective:** To summarize the latest advancements in nanomaterial-based systems for targeted drug delivery in cancer therapy, focusing on different targeting strategies (passive, active, and stimuli-responsive) and discussing the challenges and future

perspectives.

Research Paper:

- **Authors:** Chen X, Zhang X, Li Y, Li J, Wang Y, Li Y et al (2022)
- **Paper Title:** Recent advances in nanomedicine for targeted cancer therapy.
- **Journal:** J Nanobiotechnology 20:200
- **Objective:** To review recent progress in nanomedicine for targeted cancer therapy, focusing on the design of various nanocarriers and strategies to overcome biological barriers for enhanced drug accumulation at the tumor site and improved therapeutic outcomes.

Research Paper:

- **Authors:** Choi H, Lee J, Kim J, Kim S, Kim Y, Kim J et al (2021)
- **Paper Title:** Recent advances in nanoparticle-based drug delivery systems for cancer therapy.
- **Journal:** J Control Release 330:1–16
- **Objective:** Objective could not be definitively determined from available information, but based on the title, it is to review recent progress in the development of nanoparticle-based drug delivery systems specifically for cancer therapy, likely covering different materials and targeting strategies.

Research Paper:

- **Authors:** Choudhury A, Sahoo SK (2017)
- **Paper Title:** Nanoparticles in cancer therapy: a review.
- **Journal:** J Nanopart Res 19:1–16
- **Objective:** Objective could not be definitively determined from available information, but based on the title, the goal is to provide a broad review of the application of various types of nanoparticles in the field of cancer therapy.

Research Paper:

- **Authors:** Dai L, Wang Y, Li Y, Li J, Wang Y, Li Y et al (2022)
- **Paper Title:** Recent advances in nanomedicine for targeted cancer therapy.
- **Journal:** J Nanobiotechnology 20:200
- **Objective:** *This appears to be the same reference as Chen X, et al. (2022) above.* To review recent progress in nanomedicine for targeted cancer therapy, focusing on the design of various nanocarriers and strategies to overcome biological barriers for enhanced therapeutic outcomes.

Research Paper:

- **Authors:** Daraee H, Eatemadi A, Hanifehpour N, Zarghami N, Taghizadeh M, Gholizadeh H (2016)
- **Paper Title:** Nanoparticles in cancer therapy and diagnosis: a review.
- **Journal:** Artif Cells Nanomed Biotechnol 44:1–10
- **Objective:** To provide a comprehensive review of the applications of nanoparticles in both the diagnosis and therapy of cancer, discussing different types of nanoparticles and their roles as diagnostic agents and drug carriers.

Note: Several subsequent entries (Deng Z, Ding Y, Duan X, Fan Z, Feng S, etc.) in your original list reference the same paper: "Recent advances in nanomedicine for targeted cancer therapy. J Nanobiotechnology 20:200." The objective for all of them is the same as for Chen X, et al. (2022).

Research Paper:

- **Authors:** Ebrahimi S, Karimi M, Zare H, Ghasemi A, Bahadori M, Maibody SA et al (2020)
- **Paper Title:** Nanoparticles as a promising tool for targeted drug delivery in cancer therapy.
- **Journal:** J Drug Deliv Sci Technol 59:101901
- **Objective:** Objective could not be definitively determined from available information, but the title suggests the paper aims to review the promise and application of nanoparticles

as a tool for achieving targeted drug delivery in cancer treatment.

Research Paper:

- **Authors:** El-Sayed IH, Huang X, El-Sayed MA (2005)
- **Paper Title:** Surface plasmon resonance scattering and absorption of gold nanoparticles as a noninvasive, in situ, and real-time optical imaging probe.
- **Journal:** J Biomed Opt 10:014002
- **Objective:** To demonstrate the use of gold nanoparticles as a contrast agent for real-time optical imaging of cancer cells by utilizing their strong surface plasmon resonance scattering, and to show that they can be used for non-invasive in situ imaging.

Research Paper:

- **Authors:** Farokhzad OC, Langer R (2009)
- **Paper Title:** Impact of nanotechnology on drug delivery.
- **Journal:** ACS Nano 3:16-20
- **Objective:** To provide a perspective on the significant impact that nanotechnology has had on drug delivery, discussing how nanoparticles can solve problems associated with conventional therapies and highlighting the progress from conceptual work to clinical applications.

Research Paper:

- **Authors:** Gholizadeh H, Eatemadi A, Hanifehpour N, Zarghami N, Taghizadeh M, Daraee H (2016)
- **Paper Title:** Nanoparticles in cancer therapy and diagnosis: a review.
- **Journal:** Artif Cells Nanomed Biotechnol 44:1–10
- **Objective:** *This is the same reference as Daraee H, et al. (2016) above.* To provide a comprehensive review of the applications of nanoparticles in both the diagnosis and therapy of cancer.

Research Paper:

- **Authors:** Huang X, El-Sayed IH, Qian W, El-Sayed MA (2006)
- **Paper Title:** Gold nanoparticles: a new frontier in biomedical applications.
- **Journal:** Acc Chem Res 39:1061–1069
- **Objective:** Objective could not be definitively determined from available information, but the title suggests the paper reviews the emerging biomedical applications of gold nanoparticles, positioning them as a new frontier in the field.

Research Paper:

- **Authors:** Iqbal J, et al. (2022)
- **Paper Title:** Recent advances in nanomedicine for targeted cancer therapy.
- **Journal:** J Nanobiotechnology 20:200
- **Objective:** *This is another reference to the same paper as Chen X, et al. (2022).* To review recent progress in nanomedicine for targeted cancer therapy, focusing on the design of nanocarriers and strategies to overcome biological barriers.

1. <https://pubmed.ncbi.nlm.nih.gov/34977000/>
2. <https://pubmed.ncbi.nlm.nih.gov/20965219/>
3. <https://pmc.ncbi.nlm.nih.gov/articles/PMC7124889/>
4. <https://www.davidpublisher.com/Public/uploads/Contribute/5809894868e77.pdf>
5. <https://www.sci-hub.se/downloads/2019-07-25/95/10.1021@acs.jmedchem.9b00511.pdf>
6. <https://pubmed.ncbi.nlm.nih.gov/38942071/>
7. <https://ppl-ai-file-upload.s3.amazonaws.com/web/direct-files/attachments/73470759/0451e4b5-65f1-4c42-b3b4-a16ae82cc0ac/paste.txt>
8. <https://www.frontiersin.org/journals/cell-and-developmental-biology/articles/10.3389/fcell.2021.699597/full>
9. <https://pmc.ncbi.nlm.nih.gov/articles/PMC8715006/>
10. <https://www.sciencedirect.com/science/article/pii/S1773224724000066>
11. <https://journals.innovareacademics.in/index.php/ijpps/article/download/51048/30683>