

Nanomedicine

Nanomedicine is the medical application of [nanotechnology](#).

Nanomedicine ranges from the medical applications of nanomaterials and biological devices, to nanoelectronic biosensors, and even possible future applications of molecular nanotechnology such as biological machines. Current problems for nanomedicine involve understanding the issues related to toxicity and environmental impact of nanoscale materials (materials whose structure is on the scale of nanometers, i.e. billionths of a meter).

Nanomedicine Journal

- 1: Shi S, Fu W, Lin S, Tian T, Li S, Shao X, Zhang Y, Zhang T, Tang Z, Zhou Y, Lin Y, Cai X. Targeted and effective glioblastoma therapy via aptamer-modified tetrahedral framework nucleic acid-paclitaxel Nanoconjugates that can pass the blood brain barrier. *Nanomedicine*. 2019 Jul 22;102061. doi: 10.1016/j.nano.2019.102061. [Epub ahead of print] PubMed PMID: 31344499.
- 2: Wadajkar AS, Dancy JG, Carney CP, Hampton BS, Ames HM, Winkles JA, Woodworth GF, Kim AJ. Leveraging Surface Plasmon Resonance to Dissect the Interfacial Properties of Nanoparticles: Implications for Tissue Binding and Tumor Penetration. *Nanomedicine*. 2019 Jun 6;20:102024. doi: 10.1016/j.nano.2019.102024. [Epub ahead of print] PubMed PMID: 31176045.
- 3: Wang B, Tang Y, Oh Y, Lamb NW, Xia S, Ding Z, Chen B, Suarez MJ, Meng T, Kulkarni V, Eberhart CG, Ensign LM, Stark WJ, Hanes J, Xu Q. Controlled release of dexamethasone sodium phosphate with biodegradable nanoparticles for preventing experimental corneal neovascularization. *Nanomedicine*. 2019 Apr;17:119-123. doi: 10.1016/j.nano.2019.01.001. Epub 2019 Jan 21. PubMed PMID: 30677499; PubMed Central PMCID: PMC6520116.
- 4: Hwang DW, Choi Y, Kim D, Park HY, Kim KW, Kim MY, Park CK, Lee DS. Graphene oxide-quenching-based fluorescence in situ hybridization (G-FISH) to detect RNA in tissue: Simple and fast tissue RNA diagnostics. *Nanomedicine*. 2019 Feb;16:162-172. doi: 10.1016/j.nano.2018.12.004. Epub 2018 Dec 27. PubMed PMID: 30594658.
- 5: Aly AE, Harmon B, Padegimas L, Sesenoglu-Laird O, Cooper MJ, Yurek DM, Waszczak BL. Intranasal delivery of hGDNF plasmid DNA nanoparticles results in long-term and widespread transfection of perivascular cells in rat brain. *Nanomedicine*. 2019 Feb;16:20-33. doi: 10.1016/j.nano.2018.11.006. Epub 2018 Nov 22. PubMed PMID: 30472323.
- 6: Coluccia D, Figueiredo CA, Wu MY, Riemenschneider AN, Diaz R, Luck A, Smith C, Das S, Ackerley C, O'Reilly M, Hynynen K, Rutka JT. Enhancing glioblastoma treatment using cisplatin-gold-nanoparticle conjugates and targeted delivery with magnetic resonance-guided focused ultrasound. *Nanomedicine*. 2018 Jun;14(4):1137-1148. doi: 10.1016/j.nano.2018.01.021. Epub 2018 Feb 20. PubMed PMID: 29471172.
- 7: Xue XY, Mao XG, Zhou Y, Chen Z, Hu Y, Hou Z, Li MK, Meng JR, Luo XX. Advances in the delivery of antisense oligonucleotides for combating bacterial infectious diseases. *Nanomedicine*. 2018 Apr;14(3):745-758. doi: 10.1016/j.nano.2017.12.026. Epub 2018 Jan 16. Review. PubMed PMID:

29341934.

- 8: Chen YW, Hsieh SC, Yang YC, Hsu SH, Kung ML, Lin PY, Hsieh HH, Lin CH, Tang CM, Hung HS. Functional engineered mesenchymal stem cells with fibronectin-gold composite coated catheters for vascular tissue regeneration. *Nanomedicine*. 2018 Apr;14(3):699-711. doi: 10.1016/j.nano.2017.12.023. Epub 2018 Jan 8. PubMed PMID: 29325741.
- 9: Li L, Luo C, Song Z, Reyes-Vargas E, Clayton F, Huang J, Jensen P, Chen X. Association of anti-HER2 antibody with graphene oxide for curative treatment of osteosarcoma. *Nanomedicine*. 2018 Feb;14(2):581-593. doi: 10.1016/j.nano.2017.11.001. Epub 2017 Nov 21. PubMed PMID: 29170110.
- 10: Wilson DR, Sen R, Sunshine JC, Pardoll DM, Green JJ, Kim YJ. Biodegradable STING agonist nanoparticles for enhanced cancer immunotherapy. *Nanomedicine*. 2018 Feb;14(2):237-246. doi: 10.1016/j.nano.2017.10.013. Epub 2017 Nov 7. PubMed PMID: 29127039; PubMed Central PMCID: PMC6035751.
- 11: Yurek D, Hasselrot U, Sesenoglu-Laird O, Padegimas L, Cooper M. Intracerebral injections of DNA nanoparticles encoding for a therapeutic gene provide partial neuroprotection in an animal model of neurodegeneration. *Nanomedicine*. 2017 Oct;13(7):2209-2217. doi: 10.1016/j.nano.2017.06.010. Epub 2017 Jun 27. PubMed PMID: 28666950.
- 12: Kievit FM, Wang K, Ozawa T, Tarudji AW, Silber JR, Holland EC, Ellenbogen RG, Zhang M. Nanoparticle-mediated knockdown of DNA repair sensitizes cells to radiotherapy and extends survival in a genetic mouse model of glioblastoma. *Nanomedicine*. 2017 Oct;13(7):2131-2139. doi: 10.1016/j.nano.2017.06.004. Epub 2017 Jun 11. PubMed PMID: 28614736; PubMed Central PMCID: PMC6002851.
- 13: Liu X, Gao X, Zheng S, Wang B, Li Y, Zhao C, Muftuoglu Y, Chen S, Li Y, Yao H, Sun H, Mao Q, You C, Guo G, Wei Y. Modified nanoparticle mediated IL-12 immunogene therapy for colon cancer. *Nanomedicine*. 2017 Aug;13(6):1993-2004. doi: 10.1016/j.nano.2017.04.006. Epub 2017 Apr 18. PubMed PMID: 28428054.
- 14: Caponnetto F, Manini I, Skrap M, Palmai-Pallag T, Di Loreto C, Beltrami AP, Cesselli D, Ferrari E. Size-dependent cellular uptake of exosomes. *Nanomedicine*. 2017 Apr;13(3):1011-1020. doi: 10.1016/j.nano.2016.12.009. Epub 2016 Dec 18. PubMed PMID: 27993726.
- 15: Ducray AD, Stojiljkovic A, Möller A, Stoffel MH, Widmer HR, Frenz M, Mevissen M. Uptake of silica nanoparticles in the brain and effects on neuronal differentiation using different in vitro models. *Nanomedicine*. 2017 Apr;13(3):1195-1204. doi: 10.1016/j.nano.2016.11.001. Epub 2016 Nov 19. PubMed PMID: 27871963.
- 16: Meir R, Betzer O, Motiei M, Kronfeld N, Brodie C, Popovtzer R. Design principles for noninvasive, longitudinal and quantitative cell tracking with nanoparticle-based CT imaging. *Nanomedicine*. 2017 Feb;13(2):421-429. doi: 10.1016/j.nano.2016.09.013. Epub 2016 Oct 6. PubMed PMID: 27720990.
- 17: Huang N, Cheng S, Zhang X, Tian Q, Pi J, Tang J, Huang Q, Wang F, Chen J, Xie Z, Xu Z, Chen W, Zheng H, Cheng Y. Efficacy of NGR peptide-modified PEGylated quantum dots for crossing the blood-brain barrier and targeted fluorescence imaging of glioma and tumor vasculature. *Nanomedicine*. 2017 Jan;13(1):83-93. doi: 10.1016/j.nano.2016.08.029. Epub 2016 Sep 25. PubMed PMID: 27682740.
- 18: Choe S, Bond CW, Harrington DA, Stupp SI, McVary KT, Podlasek CA. Peptide amphiphile nanofiber hydrogel delivery of sonic hedgehog protein to the cavernous nerve to promote regeneration and prevent erectile dysfunction. *Nanomedicine*. 2017 Jan;13(1):95-101. doi: 10.1016/j.nano.2016.08.032.

Epub 2016 Sep 6. PubMed PMID: 27609775; PubMed Central PMCID: PMC5333775.

19: Yang X, Tong J, Guo L, Qian Z, Chen Q, Qi R, Qiu Y. Bundling potent natural toxin cantharidin within platinum (IV) prodrugs for liposome drug delivery and effective malignant neuroblastoma treatment. *Nanomedicine*. 2017 Jan;13(1):287-296. doi: 10.1016/j.nano.2016.08.024. Epub 2016 Aug 31. PubMed PMID: 27591962.

20: Ewe A, Panchal O, Pinnapireddy SR, Bakowsky U, Przybylski S, Temme A, Aigner A. Liposome-polyethylenimine complexes (DPPC-PEI lipopolyplexes) for therapeutic siRNA delivery in vivo. *Nanomedicine*. 2017 Jan;13(1):209-218. doi: 10.1016/j.nano.2016.08.005. Epub 2016 Aug 20. PubMed PMID: 27553077.

21: Ding H, Gangalum PR, Galstyan A, Fox I, Patil R, Hubbard P, Murali R, Ljubimova JY, Holler E. HER2-positive breast cancer targeting and treatment by a peptide-conjugated mini nanodrug. *Nanomedicine*. 2017 Feb;13(2):631-639. doi: 10.1016/j.nano.2016.07.013. Epub 2016 Aug 9. PubMed PMID: 27520726; PubMed Central PMCID: PMC5812454.

22: Ofek P, Calderón M, Mehrabadi FS, Krivitsky A, Ferber S, Tiram G, Yerushalmi N, Kredo-Russo S, Grossman R, Ram Z, Haag R, Satchi-Fainaro R. Restoring the oncosuppressor activity of microRNA-34a in glioblastoma using a polyglycerol-based polyplex. *Nanomedicine*. 2016 Oct;12(7):2201-2214. doi: 10.1016/j.nano.2016.05.016. Epub 2016 Jun 1. PubMed PMID: 27262933; PubMed Central PMCID: PMC5364374.

23: McConnell HL, Schwartz DL, Richardson BE, Woltjer RL, Muldoon LL, Neuwelt EA. Ferumoxytol nanoparticle uptake in brain during acute neuroinflammation is cell-specific. *Nanomedicine*. 2016 Aug;12(6):1535-42. doi: 10.1016/j.nano.2016.03.009. Epub 2016 Apr 9. PubMed PMID: 27071335; PubMed Central PMCID: PMC4955720.

24: Han L, Cai Q, Tian D, Kong DK, Gou X, Chen Z, Strittmatter SM, Wang Z, Sheth KN, Zhou J. Targeted drug delivery to ischemic stroke via chlorotoxin-anchored, lexiscan-loaded nanoparticles. *Nanomedicine*. 2016 Oct;12(7):1833-1842. doi: 10.1016/j.nano.2016.03.005. Epub 2016 Mar 30. PubMed PMID: 27039220; PubMed Central PMCID: PMC5045320.

25: Shevtsov MA, Nikolaev BP, Ryzhov VA, Yakovleva LY, Dobrodumov AV, Marchenko YY, Margulis BA, Pitkin E, Mikhrina AL, Guzhova IV, Multhoff G. Detection of experimental myocardium infarction in rats by MRI using heat shock protein 70 conjugated superparamagnetic iron oxide nanoparticle. *Nanomedicine*. 2016 Apr;12(3):611-621. doi: 10.1016/j.nano.2015.10.017. Epub 2015 Dec 2. PubMed PMID: 26656626.

26: Seo HI, Cho AN, Jang J, Kim DW, Cho SW, Chung BG. Thermo-responsive polymeric nanoparticles for enhancing neuronal differentiation of human induced pluripotent stem cells. *Nanomedicine*. 2015 Oct;11(7):1861-9. doi: 10.1016/j.nano.2015.05.008. Epub 2015 Jun 17. PubMed PMID: 26093056.

27: Zhu W, Masood F, O'Brien J, Zhang LG. Highly aligned nanocomposite scaffolds by electrospinning and electrospraying for neural tissue regeneration. *Nanomedicine*. 2015 Apr;11(3):693-704. doi: 10.1016/j.nano.2014.12.001. Epub 2015 Jan 14. PubMed PMID: 25596341.

28: Xue XY, Mao XG, Li Z, Chen Z, Zhou Y, Hou Z, Li MK, Meng JR, Luo XX. A potent and selective antimicrobial poly(amidoamine) dendrimer conjugate with LED209 targeting QseC receptor to inhibit the virulence genes of gram negative bacteria. *Nanomedicine*. 2015 Feb;11(2):329-39. doi: 10.1016/j.nano.2014.09.016. Epub 2014 Nov 15. PubMed PMID: 25461286.

29: Diaz RJ, McVeigh PZ, O'Reilly MA, Burrell K, Bebenek M, Smith C, Etame AB, Zadeh G, Hynynen K,

Wilson BC, Rutka JT. Focused ultrasound delivery of Raman nanoparticles across the blood-brain barrier: potential for targeting experimental brain tumors. *Nanomedicine*. 2014 Jul;10(5):1075-87. doi: 10.1016/j.nano.2013.12.006. Epub 2013 Dec 27. PubMed PMID: 24374363; PubMed Central PMCID: PMC4074278.

30: Xi G, Robinson E, Mania-Farnell B, Vanin EF, Shim KW, Takao T, Allender EV, Mayanil CS, Soares MB, Ho D, Tomita T. Convection-enhanced delivery of nanodiamond drug delivery platforms for intracranial tumor treatment. *Nanomedicine*. 2014 Feb;10(2):381-91. doi: 10.1016/j.nano.2013.07.013. Epub 2013 Aug 3. PubMed PMID: 23916888.

31: Bernal GM, LaRiviere MJ, Mansour N, Pytel P, Cahill KE, Voce DJ, Kang S, Spretz R, Welp U, Noriega SE, Nunez L, Larsen GF, Weichselbaum RR, Yamini B. Convection-enhanced delivery and in vivo imaging of polymeric nanoparticles for the treatment of malignant glioma. *Nanomedicine*. 2014 Jan;10(1):149-57. doi: 10.1016/j.nano.2013.07.003. Epub 2013 Jul 24. PubMed PMID: 23891990; PubMed Central PMCID: PMC3871979.

32: Chen L, Zhang B, Toborek M. Autophagy is involved in nanoalumina-induced cerebrovascular toxicity. *Nanomedicine*. 2013 Feb;9(2):212-21. doi: 10.1016/j.nano.2012.05.017. Epub 2012 Jun 9. PubMed PMID: 22687898; PubMed Central PMCID: PMC3482418.

33: Etame AB, Diaz RJ, O'Reilly MA, Smith CA, Mainprize TG, Hynynen K, Rutka JT. Enhanced delivery of gold nanoparticles with therapeutic potential into the brain using MRI-guided focused ultrasound. *Nanomedicine*. 2012 Oct;8(7):1133-42. doi: 10.1016/j.nano.2012.02.003. Epub 2012 Feb 17. PubMed PMID: 22349099; PubMed Central PMCID: PMC4101537.

34: Alizadeh D, Zhang L, Hwang J, Schluep T, Badie B. Tumor-associated macrophages are predominant carriers of cyclodextrin-based nanoparticles into gliomas. *Nanomedicine*. 2010 Apr;6(2):382-90. doi: 10.1016/j.nano.2009.10.001. Epub 2009 Nov 5. PubMed PMID: 19836468; PubMed Central PMCID: PMC2866635.

From:
<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**



Permanent link:
<https://neurosurgerywiki.com/wiki/doku.php?id=nanomedicine>

Last update: **2024/06/07 03:00**