

CURRICULUM VITAE 2019.10

Name: Hong Yeol Yoon
Status: Senior Research Scientist
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EDUCATION AND TRAINING

- Ph.D.** in School of Chemical Engineering, College of Engineering, **2015. 8**
Sungkyunkwan University, Korea
- Thesis Title : Hyaluronic Acid-Based Nanomedicines for Tumor Targeted Therapy
Advisor: Prof. Jae Hyung Park
- B.S.** in Department of Advanced Polymer and Fiber Materials, **2010. 2**
Kyung Hee University, Korea

PROFESSIONAL EXPERIENCE

- Senior research Scientist** **2018.08 - present**
Center for Theragnosis, Biomedical Research Institute, Korea Institute of Science and Technology (KIST), Korea
- Post-doctoral researcher** **2015 – 2018.07**
(Advisor: Dr. Ick Chan Kwon and Dr. Kwangmeyung Kim)
Center for Theragnosis, Biomedical Research Institute, Korea Institute of Science and Technology (KIST), Korea
- Research Project:
- Development of epigenetic molecular editing technique for cancer theragnosis
 - Development of multimodal imaging probe for *in vivo* imaging (Optical, MR, CT, Ultrasound)
 - Development of stem cell engineering technology: Labeling and trafficking using metabolic glycoengineering and click chemistry
- Research Trainee** **2010 - 2015**
(Advisor: Dr. Ick Chan Kwon and Dr. Kwangmeyung Kim)
Center for Theragnosis, Biomedical Research Institute, Korea Institute of Science and Technology (KIST), Korea.
- Research Project:
- Biocompatible polymer based drug delivery system for cancer treatment (polysaccharides based nanoparticles, polymeric micelles, drug-conjugates)
 - Molecular imaging (Optical, MR) using nano-bio materials

RESEARCH INTEREST

- Development of polymer based nanocarrier
- Nanomedicines for cancer immunotherapy
- Metabolic glycoengineering and bioorthogonal click chemistry based *in vivo* theranostic

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- applications (targeted imaging and therapy using nanocarriers)
 - Multimodal imaging using nano-bio materials

RESEARCH GRANT

- 2017.06 Presidential Post-doc. Fellowship (130 million KRW/year)

HONORS/AWARDS

- The 2017 Young Investigator's Award, The Korean Society of Molecular Imaging

PUBLICATIONS

Recent publications

1. Lim, S¹, Yoon, H. Y.¹, Jang, H. J., Song, S., Kim, W., Park, J., ... D.E. Kim* and K. Kim* (2019). Dual-Modal Imaging-Guided Precise Tracking of Bioorthogonally Labeled Mesenchymal Stem Cells in Mouse Brain Stroke. *ACS nano*.
 2. Kim, H., Kwak, G., Kim, K., Yoon, H. Y.^{*}, & Kwon, I. C^{*}. (2019). Theranostic designs of biomaterials for precision medicine in cancer therapy. *Biomaterials*. 213, 119207
 3. Yoon, H. Y.¹, Selvan, S. T.¹, Yang, Y., Kim, M. J., Yi, D. K., Kwon, I. C., & Kim, K. (2018). Engineering nanoparticle strategies for effective cancer immunotherapy. *Biomaterials*, 178, 597-607.
 4. Shim, M. K.¹, Yoon, H. Y.¹, Lee, S., Jo, M. K., Park, J., Kim, J. H., ... & Kim, K. (2017). Caspase-3/-7-Specific Metabolic Precursor for Bioorthogonal Tracking of Tumor Apoptosis. *Scientific Reports*, 7, 16635.
 5. Han, S. S.¹ Yoon, H. Y.¹ Yhee, J. Y., Cho, M. O., Shim, H. E., Jeong, J. E., ... & Huh, K. M. (2017). In situ cross-linkable hyaluronic acid hydrogels using copper free click chemistry for cartilage tissue engineering. *Polymer Chemistry*.
 6. Yoon, H. Y.¹, Koo, H.¹, Kim, K., & Kwon, I. C. (2017). Molecular imaging based on metabolic glycoengineering and bioorthogonal click chemistry. *Biomaterials*. 132, 28-36.
 7. Yoon, H. Y.¹, Shin, M. L.¹, Shim, M. K., Lee, S., Na, J. H., Koo, H., ... & Kwon, I. C. (2017). Artificial Chemical Reporter Targeting Strategy Using Bioorthogonal Click Reaction for Improving Active-Targeting Efficiency of Tumor. *Molecular Pharmaceutics*, 14(5), 1558-1570.
 8. Yoon, H. Y.¹ Jeon, S.¹, You, D. G., Park, J. H., Kwon, I. C., Koo, H., & Kim, K. (2016). Inorganic Nanoparticles for Image-Guided Therapy. *Bioconjugate chemistry*, 28(1), 124-134.
 9. M.K. Shim¹, H.Y. Yoon¹, J.H. Ryu, H. Koo, S. Lee, J.H. Park, J.H. Kim, S. Lee, M.G. Pomper, I.C. Kwon, Cathepsin B-Specific Metabolic Precursor for In Vivo Tumor-Specific Fluorescence Imaging, *Angewandte Chemie* 128(47) (2016) 14918-14923. (IF = 11.709)
 10. N.V. Rao¹, H.Y. Yoon¹, H.S. Han, H. Ko, S. Son, M. Lee, H. Lee, D.G. Jo, Y.M. Kang, J.H. Park, Recent developments in hyaluronic acid-based nanomedicine for targeted cancer treatment, *Expert opinion on drug delivery*, 13 (2016) 239-252. (IF=4.84)
 11. Y.H. Lee¹, H.Y. Yoon¹, J.M. Shin, G. Saravanakumar, K.H. Noh, K.H. Song, J.H. Jeon, D.W. Kim, K.M. Lee, K. Kim, I.C. Kwon, J.H. Park, T.W. Kim, A polymeric conjugate foreignizing tumor cells for targeted immunotherapy in vivo, *Journal of controlled release* : official journal of the Controlled Release Society, 199 (2015) 98-105. (IF=7.71)
 12. H.Y. Yoon¹, S. Son¹, S.J. Lee, D.G. You, J.Y. Yhee, J.H. Park, M. Swierczewska, S. Lee, I.C. Kwon, S.H. Kim, K. Kim, M.G. Pomper, Glycol chitosan nanoparticles as specialized cancer therapeutic vehicles: sequential delivery of doxorubicin and Bcl-2 siRNA, *Scientific reports*, 4 (2014) 6878. (IF=5.58)
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13. H.Y. Yoon¹, H. Koo¹, K.Y. Choi, I. Chan Kwon, K. Choi, J.H. Park, K. Kim, Photocrosslinked hyaluronic acid nanoparticles with improved stability for in vivo tumor-targeted drug delivery, **Biomaterials**, 34 (2013) 5273-5280. (IF=8.56)
 14. H.Y. Yoon¹, H.R. Kim¹, G. Saravanakumar, R. Heo, S.Y. Chae, W. Um, K. Kim, I.C. Kwon, J.Y. Lee, D.S. Lee, J.C. Park, J.H. Park, Bioreducible hyaluronic acid conjugates as siRNA carrier for tumor targeting, **Journal of controlled release** : official journal of the Controlled Release Society, 172 (2013) 653-661. (IF=7.71)
 15. H.Y. Yoon¹, G. Saravanakumar¹, R. Heo, S.H. Choi, I.C. Song, M.H. Han, K. Kim, J.H. Park, K. Choi, I.C. Kwon, K. Park, Hydrotropic magnetic micelles for combined magnetic resonance imaging and cancer therapy, **Journal of controlled release** : official journal of the Controlled Release Society, 160 (2012) 692-698. (IF=7.71)
 16. H.Y. Yoon¹, H. Koo¹, K.Y. Choi, S.J. Lee, K. Kim, I.C. Kwon, J.F. Leary, K. Park, S.H. Yuk, J.H. Park, K. Choi, Tumor-targeting hyaluronic acid nanoparticles for photodynamic imaging and therapy, **Biomaterials**, 33 (2012) 3980-3989. (IF=8.56)

Co-author papers

17. Shim, M. K., Park, J., Yoon, H. Y., Lee, S., Um, W., Kim, J. H., ... & Byun, Y. (2019). Carrier-free nanoparticles of cathepsin B-cleavable peptide-conjugated doxorubicin prodrug for cancer targeting therapy. **Journal of controlled release**, 294, 376-389.
 18. Um, W., Park, J., Ko, H., Lim, S., Yoon, H. Y., Shim, M. K., ... & Lim, D. K. (2019). Visible light-induced apoptosis activatable nanoparticles of photosensitizer-DEVD-anticancer drug conjugate for targeted cancer therapy. **Biomaterials**, 119494.
 19. Choi, Y., Lim, S., Yoon, H. Y., Kim, B. S., Kwon, I. C., & Kim, K. (2019). Tumor-targeting glycol chitosan nanocarriers: overcoming the challenges posed by chemotherapeutics. **Expert opinion on drug delivery**, 16(8), 835-846.
 20. Nam, H., Ku, S. H., Yoon, H. Y., Kim, K., Kwon, I. C., Kim, S. H., & Lee, J. B. (2019). Enhancing Systemic Delivery of Enzymatically Generated RNAi Nanocomplexes for Cancer Therapy. **Advanced Therapeutics**, 2(6), 1900014.
 21. Shim, M. K., Park, J., Yoon, H. Y., Lee, S., Um, W., Kim, J. H., ... & Byun, Y. (2019). Carrier-free nanoparticles of cathepsin B-cleavable peptide-conjugated doxorubicin prodrug for cancer targeting therapy. **Journal of Controlled Release**, 294, 376-389.
 22. Choi, D., Jeon, S., You, D. G., Um, W., Kim, J. Y., Yoon, H. Y., ... & Kim, K. (2018). Iodinated echogenic glycol chitosan nanoparticles for X-ray CT/US dual imaging of tumor. **Nanotheranostics**, 2(2), 117.
 23. Lee, B. R., Jo, E., Yoon, H. Y., Yoon, C. J., Lee, H. J., Kwon, K. C., ... & Lee, J. (2018). Nonimmunogenetic Viral Capsid Carrier with Cancer Targeting Activity. **Advanced Science**, 5(8), 1800494.
 24. Wang, S. Y., Kim, H., Kwak, G., Yoon, H. Y., Jo, S. D., Lee, J. E., ... & Kim, S. H. (2018). Development of Biocompatible HA Hydrogels Embedded with a New Synthetic Peptide Promoting Cellular Migration for Advanced Wound Care Management. **Advanced Science**, 5(11), 1800852.
 25. You, D. G., Yoon, H. Y., Jeon, S., Um, W., Son, S., Park, J. H., ... & Kim, K. (2017). Deep tissue penetration of nanoparticles using pulsed-high intensity focused ultrasound. **Nano convergence**, 4(1), 30.
 26. Lee, S., Han, H., Koo, H., Na, J. H., Yoon, H. Y., Lee, K. E., ... & Kim, K. (2017). Extracellular matrix remodeling in vivo for enhancing tumor-targeting efficiency of nanoparticle drug carriers using the pulsed high intensity focused ultrasound. **Journal of Controlled Release**.
 27. Yhee, J. Y., Jeon, S., Yoon, H. Y., Shim, M. K., Ko, H., Min, J., ... & Suh, M. (2017). Effects of tumor microenvironments on targeted delivery of glycol chitosan nanoparticles. **Journal of Controlled Release**.
 28. Lee, S., Jung, S., Koo, H., Na, J. H., Yoon, H. Y., Shim, M. K., ... & Kwon, I. C.
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- (2017). Nano-sized metabolic precursors for heterogeneous tumor-targeting strategy using bioorthogonal click chemistry in vivo. **Biomaterials**.
29. Kwon, S. P., Jeon, S., Lee, S. H., Yoon, H. Y., Ryu, J. H., Choi, D., ... & Kwon, I. C. (2017). Thrombin-activatable fluorescent peptide incorporated gold nanoparticles for dual optical/computed tomography thrombus imaging. **Biomaterials**.
30. Lee, S., Han, H., Koo, H., Na, J. H., Yoon, H. Y., Lee, K. E., ... & Kim, K. (2017). Extracellular matrix remodeling in vivo for enhancing tumor-targeting efficiency of nanoparticle drug carriers using the pulsed high intensity focused ultrasound. **Journal of Controlled Release**.
31. Lee, A., De Mei, C., Ferreira, M., Marotta, R., Yoon, H. Y., Kim, K., ... & Decuzzi, P. (2017). Dexamethasone-loaded polymeric nanoconstructs for monitoring and treating inflammatory bowel disease. **Theranostics**, 7(15), 3653.
32. Yhee, J. Y., Yoon, H. Y., Kim, H., Jeon, S., Hergert, P., Im, J., ... & Nho, R. S. (2017). The effects of collagen-rich extracellular matrix on the intracellular delivery of glycol chitosan nanoparticles in human lung fibroblasts. **International journal of nanomedicine**, 12, 6089.
33. Jung, B., Shim, M. K., Park, M. J., Jang, E. H., Yoon, H. Y., Kim, K., & Kim, J. H. (2017). Hydrophobically modified polysaccharide-based on polysialic acid nanoparticles as carriers for anticancer drugs. **International journal of pharmaceutics**, 520(1), 111-118.
34. Son, S., Kim, N., You, D. G., Yoon, H. Y., Yhee, J. Y., Kim, K., ... & Kim, S. H. (2017). Antitumor therapeutic application of self-assembled RNAi-AuNP nanoconstructs: Combination of VEGF-RNAi and photothermal ablation. **Theranostics**, 7(1), 9.
35. J.Y. Yhee, Y.J. Kim, J.H. Ryu, H.Y. Yoon, H. Chang, J.H. Park, H. Lee, H.S. Jang, U. Jeong, K. Kim, S.W. Kang, Cathepsin B Imaging to Predict Quality of Engineered Cartilage, **Macromolecular bioscience**, 15 (2015) 1224-1232. (IF=3.85)
36. S.J. Lee, S. Yook, J.Y. Yhee, H.Y. Yoon, M.G. Kim, S.H. Ku, S.H. Kim, J.H. Park, J.H. Jeong, I.C. Kwon, S. Lee, H. Lee, K. Kim, Co-delivery of VEGF and Bcl-2 dual-targeted siRNA polymer using a single nanoparticle for synergistic anti-cancer effects in vivo, **Journal of controlled release** : official journal of the Controlled Release Society, 220 (2015) 631-641. (IF=7.71)
37. G.Y. Lee, J.H. Kim, K.Y. Choi, H.Y. Yoon, K. Kim, I.C. Kwon, K. Choi, B.H. Lee, J.H. Park, I.S. Kim, Hyaluronic acid nanoparticles for active targeting atherosclerosis, **Biomaterials**, 53 (2015) 341-348. (IF=8.56)
38. R. Heo, H.Y. Yoon, H. Ko, J.M. Shin, J. Jeon, Y.S. Chae, Y.M. Kang, D. Kim, D.S. Lee, J.H. Park, Gold-installed biostable nanocomplexes for tumor-targeted siRNA delivery in vivo, **Chemical communications** (Cambridge, England), 51 (2015) 16656-16659. (IF=6.83)
39. S. Jeon, H. Ko, N. Vijayakameswara Rao, H.Y. Yoon, D.G. You, H.S. Han, W. Um, G. Saravanakumar, J.H. Park, A versatile gold cross-linked nanoparticle based on triblock copolymer as the carrier of doxorubicin, **RSC Advances**, 5 (2015) 70352-70360. (IF=3.84)
40. T. Thambi, V.G. Deepagan, H.Y. Yoon, H.S. Han, S.H. Kim, S. Son, D.G. Jo, C.H. Ahn, Y.D. Suh, K. Kim, I.C. Kwon, D.S. Lee, J.H. Park, Hypoxia-responsive polymeric nanoparticles for tumor-targeted drug delivery, **Biomaterials**, 35 (2014) 1735-1743. (IF=8.56)
41. J.H. Park, H.J. Cho, H.Y. Yoon, I.S. Yoon, S.H. Ko, J.S. Shim, J.H. Cho, J.H. Park, K. Kim, I.C. Kwon, D.D. Kim, Hyaluronic acid derivative-coated nanohybrid liposomes for cancer imaging and drug delivery, **Journal of controlled release** : official journal of the Controlled Release Society, 174 (2014) 98-108. (IF=7.71)
42. S.H. Kim, J.H. Kim, D.G. You, G. Saravanakumar, H.Y. Yoon, K.Y. Choi, T. Thambi, V.G. Deepagan, D.G. Jo, J.H. Park, Self-assembled dextran sulphate nanoparticles for
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- targeting rheumatoid arthritis, **Chemical communications** (Cambridge, England), 49 (2013) 10349-10351. (IF=6.83)
43. H.S. Min, S. Son, T.W. Lee, H. Koo, H.Y. Yoon, J.H. Na, Y. Choi, J.H. Park, J. Lee, M.H. Han, R.-W. Park, I.-S. Kim, S.Y. Jeong, K. Rhee, S.H. Kim, I.C. Kwon, K. Kim, Liver-Specific and Echogenic Hyaluronic Acid Nanoparticles Facilitating Liver Cancer Discrimination, **Advanced Functional Materials**, 23 (2013) 5518-5529. (IF=11.81)
44. H.S. Han, J. Lee, H.R. Kim, S.Y. Chae, M. Kim, G. Saravanakumar, H.Y. Yoon, D.G. You, H. Ko, K. Kim, I.C. Kwon, J.C. Park, J.H. Park, Robust PEGylated hyaluronic acid nanoparticles as the carrier of doxorubicin: mineralization and its effect on tumor targetability in vivo, **Journal of controlled release** : official journal of the Controlled Release Society, 168 (2013) 105-114. (IF=7.71)
45. D.-E. Lee, A.Y. Kim, H.Y. Yoon, K.Y. Choi, I.C. Kwon, S.Y. Jeong, J.H. Park, K. Kim, Amphiphilic hyaluronic acid-based nanoparticles for tumor-specific optical/MR dual imaging, **Journal of Materials Chemistry**, 22 (2012) 10444-10447. (IF=6.626)
46. M. Swierczewska, K.Y. Choi, E.L. Mertz, X. Huang, F. Zhang, L. Zhu, H.Y. Yoon, J.H. Park, A. Bhirde, S. Lee, X. Chen, A facie, one-step nanocarbon functionalization for biomedical applications, **Nano letters**, 12 (2012) 3613-3620. (IF=13.59)
47. K.Y. Choi, E.J. Jeon, H.Y. Yoon, B.S. Lee, J.H. Na, K.H. Min, S.Y. Kim, S.J. Myung, S. Lee, X. Chen, I.C. Kwon, K. Choi, S.Y. Jeong, K. Kim, J.H. Park, Theranostic nanoparticles based on PEGylated hyaluronic acid for the diagnosis, therapy and monitoring of colon cancer, **Biomaterials**, 33 (2012) 6186-6193. (IF=8.56)
48. H.J. Cho, I.S. Yoon, H.Y. Yoon, H. Koo, Y.J. Jin, S.H. Ko, J.S. Shim, K. Kim, I.C. Kwon, D.D. Kim, Polyethylene glycol-conjugated hyaluronic acid-ceramide self-assembled nanoparticles for targeted delivery of doxorubicin, **Biomaterials**, 33 (2012) 1190-1200. (IF=8.56)
49. H.J. Cho, H.Y. Yoon, H. Koo, S.H. Ko, J.S. Shim, J.H. Cho, J.H. Park, K. Kim, I.C. Kwon, D.D. Kim, Hyaluronic acid-ceramide-based optical/MR dual imaging nanoprobe for cancer diagnosis, **Journal of controlled release** : official journal of the Controlled Release Society, 162 (2012) 111-118. (IF=7.71)
50. T. Thambi, H.Y. Yoon, K. Kim, I.C. Kwon, C.K. Yoo, J.H. Park, Bioreducible block copolymers based on poly(ethylene glycol) and poly(gamma-benzyl L-glutamate) for intracellular delivery of camptothecin, **Bioconjugate chemistry**, 22 (2011) 1924-1931. (IF=4.51)
51. K.Y. Choi, H.Y. Yoon, J.H. Kim, S.M. Bae, R.W. Park, Y.M. Kang, I.S. Kim, I.C. Kwon, K. Choi, S.Y. Jeong, K. Kim, J.H. Park, Smart nanocarrier based on PEGylated hyaluronic acid for cancer therapy, **ACS nano**, 5 (2011) 8591-8599. (IF=12.88)
52. K.Y. Choi, K.H. Min, H.Y. Yoon, K. Kim, J.H. Park, I.C. Kwon, K. Choi, S.Y. Jeong, PEGylation of hyaluronic acid nanoparticles improves tumor targetability in vivo, **Biomaterials**, 32 (2011) 1880-1889. (IF=8.56)
53. H.J. Cho, H.Y. Yoon, H. Koo, S.H. Ko, J.S. Shim, J.H. Lee, K. Kim, I.C. Kwon, D.D. Kim, Self-assembled nanoparticles based on hyaluronic acid-ceramide (HA-CE) and Pluronic(R) for tumor-targeted delivery of docetaxel, **Biomaterials**, 32 (2011) 7181-7190. (IF=8.56)
54. G. Saravanakumar, K.Y. Choi, H.Y. Yoon, K. Kim, J.H. Park, I.C. Kwon, K. Park, Hydrotropic hyaluronic acid conjugates: Synthesis, characterization, and implications as a carrier of paclitaxel, **International journal of pharmaceutics**, 394 (2010) 154-161. (IF=3.65)
55. K.Y. Choi, H. Chung, K.H. Min, H.Y. Yoon, K. Kim, J.H. Park, I.C. Kwon, S.Y. Jeong, Self-assembled hyaluronic acid nanoparticles for active tumor targeting, **Biomaterials**, 31 (2010) 106-114. (IF=8.56)
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