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Associate Professor
College of Veterinary Medicine
Seoul National University
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DEGREES AND POSITIONS

Seoul National University, College of Veterinary Medicine — **2019.09-present**
Associate Professor

Pohang University of Science and Technology (POSTECH), Pohang, Korea — **2015.09-2019.08**
Associate Professor — **2011-2015**
Assistant Professor

Stanford University School of Medicine, Stanford, CA, USA — **2017 (Mar ~ Aug)**
Visiting Professor (Sabbatical)
Dr. Irving L. Weissman's laboratory, Stem Cell and Regenerative Medicine — **2008-2011**
Basic Life Science Research Associate
Postdoctoral Fellow — **2003-2008**
Dr. J. Martin Brown's laboratory, Department of Radiation Oncology

The University of Auckland, Faculty of Medicine and Health Sciences, Auckland, New Zealand — **2000-2003**
Ph.D. in Pathology
Dr. William R. Wilson's laboratory
- Thesis title: Investigation of an *aza*-chloromethylbenzindoline cobalt(III) complex as a hypoxia-activated prodrug for cancer therapy

The University of Auckland, Faculty of Medicine and Health Sciences, Auckland, New Zealand — **1998-2000**
M.Sc. in Pharmacology (Hons)
Dr. Mark J. McKeage's laboratory
- Thesis title: Effects of docetaxel in rats on oxaliplatin pharmacokinetics and neurotoxicity

The University of Auckland, Faculty of Science, Auckland, New Zealand — **1995-1998**
B.Sc.
Major: Chemistry and Pharmacology (double major)

AWARDS

- Young Investigator's Award, 15th International Congress of Radiation Research (ICRR), Kyoto, Japan **2015**
- Exceptional Abstract Award, 18th International Vascular Biology Meeting (IVBM), Kyoto, Japan **2014**
- Martin Brown Award (the best postdoctoral award in the Department of Radiation Oncology, Stanford University) **2010**
- American Brain Tumor Association Translational Research Grant Awardee (as principal investigator) **2008 - 2009**
- American Association for Cancer Research, Busch Scholar-In-Training Award, AACR Annual Meeting, San Diego, CA **2008**
- Young Investigator Award, the 13th international congress of radiation research, San Francisco, CA **2007**
- Young Investigator Award, the 10th international meeting of tumor microenvironment, Boston, MA **2006**
- Young Investigator Award, the 2nd international conference on vascular targeting, Miami, FL **2004**
- Lang Foundation Scholarship, Cancer Society, New Zealand **2001**
- Eli Lilly the best student presentation award, the New Zealand Society for Oncology Conference, Rotorua, New Zealand **2000**
- Duffus Lubecki Award, Faculty of Science, The University of Auckland, New Zealand **2000**

PUBLICATIONS

1. Kim YE, Gwak SH, Hong BJ, Oh JM, Choi HS, Kim MS, Oh D, Lartey FM, Rafat M, Schuler E, Kim HS, von Eyben R, Weissman IL, Koch CJ, Maxim PG, Loo BW Jr., Ahn GO. Effects of ultra-high dose rate FLASH irradiation on the tumor microenvironment in Lewis lung carcinoma: Role of myosin light chain. Int J Radiat Oncol Biol Phys **(2021)**, 109(5): 1440-1453

2. Lim HS, Lee Y, Heo J, Jeong H, Hong KT, Kwon DH, Shin MH, Oh M, Sable GA, **Ahn GO**, Lee JS, Song HK. Targeted degradation of transcription coactivator Src-1 through the N-degron pathway. Angew Chem Int Ed Engl *[Impact Factor 12.959]* **(2020)**, 59, 17548-17555 ***Co-corresponding authors***

3. Jeong H, Kim S, Hong BJ, Lee CJ, Kim YE, Bok S, , Oh JM, Gwak SH, Yoo MY, Lee MS, Chung SJ, Defrene J, Tessier P, Pelletier, M, Jeon H, Roh TY, Kim BJ, Kim KH, Ju JH, Kim S, Lee YJ, Kim DW, Kim IH, Kim HJ, Park JW, Lee YS, Lee JS, Cheon GJ, Weissman IL, Chung DH, Jeon YK*, **Ahn G.O.*** Tumor-associated macrophages enhance tumor hypoxia and aerobic glycolysis. ***Cancer Res*** *[Impact Factor 9.13]* **(2019)** *79*, 795-806. ***Co-corresponding authors***

- Introduced as 'Editor's choice' in Bioworld Jan 16th, 2019 'TAMs boost tumor hypoxia and aerobic glycolysis'

- Introduced in Radiation & Medicine Web magazine, February published by Korea Institute of Radiological and Medical Sciences (KIRAMS)

4. Jeong S., Jung Y., Bok S., Ryu Y.M., Lee S., Kim Y.E., Song J., Kim M., Kim S.Y.*, **Ahn G.O.***, Kim S*. Multiplexed in vivo imaging using size-controlled quantum dots in the second near-infrared window. ***Adv Healthcare Mater*** *[Impact Factor 5.76]* **(2018)** e1800695 ***Co-corresponding authors***

5. Sung W, Jeong Y, Kim H, Jeong H, Grassberger C, Jung S, **Ahn G.O.**, Kim IH, Shuemann J, Lee K, Ye SJ. Computational modeling and clonogenic assay for radioenhancement of gold nanoparticles using 3D live cell images. ***Radiat Res*** *[Impact Factor 2.530]* **(2018)** *190,* 558-564

6. Kim YE*, Lee MJ*, Gu H*, Kim J, Jeong S, Yeo S, Lee YJ, Im SH, Sung YC, Kim HJ, Weissman IL, **Ahn G.O**. HIF-1α activation in myeloid cells accelerates dextran sodium sulfate-induced colitis progression in mice. ***Dis Model Mech*** *[Impact Factor 4.398]* **(2018)** *11,* dmm033241 *Equal contributions. ***Corresponding author***

7. Oh JM*, Kim YE*, Hong BJ, Bok S, Jeon SU, Lee CJ, Park DO, Kim IH, Kim HJ, **Ahn G.O.** Effects of tumor microenvironmental factors on DNA methylation and radiation sensitivity in A549 human lung adenocarcinoma. ***J Radiat Prot Res*** (**2018**), *43,* 66-74 *Equal contributions ***Corresponding author***

8. Bok S., Kim Y.E., Woo Y., Kim S., Kang S.J., Lee Y., Park S.K., Weissman I.L., **Ahn G.O**. Hypoxia-inducible factor-1α regulates microglial functions affecting neuronal survival in the acute phase of ischemic stroke in mice. ***Oncotarget*** (**2017**), 8, 111508-111521 ***Corresponding author***

9. Beack S., Cho M., Kim Y.E., **Ahn G.O.**, Hahn S.K. Hyaluronate-peanut agglutinin conjugates for target-specific bioimaging of colon cancer. ***Bioconjug Chem*** *[Impact Factor 4.818]* (**2017**), 28, 1434-1442

10. Hong B.J., Kim J., Jeong H., Bok S., Kim Y.E., **Ahn G.O**. Tumor hypoxia and reoxygenation: the yin and yang for radiotherapy. ***Radiat Oncol J*** (**2016**) *34,* 239-249 ***Corresponding author***

11. Jeong H., Bok S., Hong B.J., Choi H.S., **Ahn G.O**. Radiation-induced immune responses: mechanisms and therapeutic perspectives. ***Blood Res*** (**2016**) *51,* 157-163 ***Corresponding author***

12. Lee H., Hong B.J., Lee J.H., Yeo S., Jung H.Y., Chung J., **Ahn G.O.***, Hahn S.K*. Hyaluronate-death receptor 5 antibody conjugates for targeted treatment of liver metastasis. ***Biomacromolecules*** *[impact factor 5.738]* **(2016)** *17,* 3085-3093 ***Co-corresponding author***

13. Wang T., Jang W.H., Lee S., Yoon C.J., Lee J.H., Kim B., Hwang S., Hong C.P., Yoon Y., Lee G., Le V.H., Bok S., **Ahn G.O.**, Lee J., Gho Y.S., Chung E., Kim S., Jang M.H., Kim M.J., So P.T., Kim K.H. Mofloxacin: clinically compatible contrast agent for multiphoton imaging. ***Sci Rep*** *[Impact Factor 4.122]* **(2016)** *10,* 27142

14. Kim K.S., Jeon S.U., Lee C.J., Kim Y.E., Bok S., Hong B.J., Park D.Y., **Ahn G.O.***, Kim H.J.*.

Radiation-induced esophagitis *in vivo* and *in vitro* reveals that epidermal growth factor is a potential candidate for therapeutic intervention strategy. ***Int J Radiat Oncol Biol Phys*** *[impact factor 5.554]* (**2016**) *95(3): 1032-1041.* ****Co-corresponding authors***

15. Song C., Hong B.J., Bok S., Lee C.J., Kim Y.E., Jeon S.R., Wu H.G., Lee Y.S., Cheon G.J., Paeng J.C., Carlson D.J., Kim H.J.*, **Ahn G.O.***. Real-time tumor oxygenation changes after sing high-dose radiation therapy in orthotopic and subcutaneous lung cancer in mice: clinical implication for stereotactic ablative radiation therapy schedule optimization. ***Int J Radiat Oncol Biol Phys*** *[impact factor 5.554]* (**2016**) *95(3): 1022-1031.* ****Co-corresponding authors***
    - Introduced as the 'Issue Highlight'

16. Bok S., Wang T., Lee C.J., Jeon S.U., Kim Y.E., Kim J., Hong B.J., Yoon C.J., Kim S., Lee S.H., Kim H.J., Kim I.H., Kim K.H., **Ahn G.O.*** *In vivo* imaging of activated microglia in a mouse model of focal cerebral ischemia by two-photon microscopy. ***Biomed Opt Express*** *[Impact factor 3.337]* **(2015)** *6,* 3303-3312. ****Corresponding author***

17. Kim B., Lee S.H., Yoon C.J., Gho Y.S., **Ahn G.O.**, Kim K.H. *In vivo* visualization of skin inflammation by optical coherence tomography and two-photon microscopy. ***Biomed Opt Express*** *[Impact factor 3.337]* **(2015)** *6,* 2512-2521

18. Park J., Lee J., Kwag J., Baek Y., Kim B., Yoon C.J., Bok S., Cho S.H., Kim K.H., **Ahn G.O.**, Kim S. Quantum dots in an amphiphilic polyethyleneimine derivative platform for cellular labeling, targeting, gene delivery, and ratiometric oxygen sensing. ***ACS Nano*** *[Impact factor 13.709]* **(2015)** *9,* 6511-6521

19. Keum DH., Jung HS., Wang T., Shim MH., Kim YE., **Ahn G.O**., Hhan S.K. Cancer detection: microneedle biosensor for real-time electrical detection of nitric oxide for *in situ* cancer diagnosis during endomicroscopy. ***Adv Healthc Mater*** *[Impact factor 5.76]* **(2015)** *4,* 1152

20. Song J, Im K., Hwang S., Hur J., Nam J., **Ahn G.O.**, Hwang S., Kim S., Park N. DNA hydrogel delivery vehicle for light-triggered and synergistic cancer therapy. ***Nanoscale*** *[Impact factor 7.233]* **(2015)** 7, 9433-9437

21. Filatenkov A., Baker J., Muller A.M., Kenkel, J., **Ahn G.O.**, Dutt S., Zhang N., Kohrt H., Jensen K., Dejbakhsh-Jones S., Shizuru JA., Negrin RN., Engleman EG., Strober S. Ablative tumor radiation can change the tumor immune cell microenvironment to induce durable complete remissions. ***Clin Cancer Res*** *[Impact factor 10.199]* **(2015)** *21,* 3727-3739

22. Keum DH., Jung HS., Wang T., Shim MH., Kim YE., **Ahn G.O**., Hhan S.K. Microneedle biosensor for real-time electrical detection of nitric oxide for *in situ* cancer diagnosis during endoscopy. ***Adv Healthc Mater*** *[Impact factor 5.76]* **(2015)** 4, 1153-1158

23. Song J., Hwang S., Im K., Hur J., Nam J., Hwang S., **Ahn G.O.**, Kim S., Park N. Light-responsible DNA hydrogel-gold nanoparticle assembly for synergistic cancer therapy. ***J Mater Chem B*** *[Impact factor 4.776]* **(2015)** 3, 1537-1543

24. Filatenkov A., Baker J., Muller A.M., **Ahn G.O.**, Kohrt H., Dutt S., Jensen K., Dejbakhsh-Jones S., Negrin R.S., Shizuru J.A., Engleman E.G., Strober S. Treatment of 4T1 metastatic breast cancer with

combined hypofractionated irradiation and autologous T-cell infusion. **(2014)** ***Radiat Res*** *[Impact Factor 2.530] 182*, 163-169

25. Lartey F.M.*, **Ahn G.O.***, Ali R., Rosenblum S., Miao Z., Arksey N., Shen B., Colomer M.V., Rafat M., Liu H., Alejande-Alcazar M., Chen J.W., Palmer T., Chin F.T., Guzman R., Loo B.W. Jr., Graves E. The relationship between serial [^{18}F]PBR06 PET imaging of microglial activation and motor function following stroke in mice. ***Co-first authors***, **(2014)**, ***Mol Imaging Biol*** *[Impact Factor 3.466] 16*, 821-829

26. Wang T., Li Q., Xiao P., Ahn J., Kim Y.E., Park Y., Kim M., Song M., Chung E., Chung W.K., **Ahn G.O.**, Kim S., Kim P., Myung S.J., Kim K.H. Gradient index lens based combined two-photon microscopy and optical coherence tomography. **(2014)** ***Opt Express*** *[Impact Factor 3.356], 22*, 12962-12970

27. **Ahn G.O.***, Seita J., Hong B.J., Kim Y.E., Bok S.Y., Lee C.J., Kim K.S., Leeper N.J., Kim H.J., Kim I.H., Weissman I.L., Brown J.M. Transcriptional activation of hypoxia-inducible factor-1 (HIF-1) in myeloid cells promotes angiogenesis through VEGF and S100A8. **(2014)** ***Proc Natl Acad Sci USA*** *[impact factor 9.809] 111*, 2698-2703 ***Corresponding author***
    - Cited 60 times as of April 2019

28. Lartey F.M., **Ahn G.O.**, Shen B., Cord K.-T., Smith T., Chua J.Y., Rosenblum S., Liu H., James M., Chernikova S., Lee S., Pisani L.J., Tirouvanziam R., Palmer T., Chin F.T., Graves E., Guzman R., Loo B.W. Jr. **(2014)** PET imaging of stroke-induced neuroinflammation in mice using ^{18}F-PBR06. ***Mol Imaging Biol*** *[Impact Factor 3.466] 16*, 109-117

29. Leeper N.J., Raiesdana A., Kojima Y., Kundu R.K., Cheng H., Maegdefessel L., Toh R., **Ahn G.O.**, Ali Z.A., Anderson D.R., Miller C.L., Roberts S.C., Spin J.M., de Almeida P.E., We J.C., Zu B., Cheng K., Quertermous M., Kundu S., Kortekaas K.E., Berzin E., Downing K.P., Dalman R.L., Tsao P.S., Schadt E.E., Owens G.K., Quertermous T. **(2013)** Loss of CDKN2B promotes p53-dependent smooth muscle cell apoptosis and aneurysm formation. ***Arterioscler Thromb Vasc Biol*** *[Impact Factor 6.607] 33*, e1-e10

30. **Ahn G.O.**, Tseng D. Liao C.H., Dorie M.J., Czechowicz A., and Brown J.M. (**2010**) Inhibition of Mac-1 (CD11b/CD18) enhances tumor response to radiation by reducing myeloid cell recruitment. ***Proc Natl Acad Sci USA*** *[impact factor 9.809] 107*, 8363-8368
    - Highlighted in: Qualls J.E. and Murray P.J. (2010) A double agent in cancer: Stopping macrophages wounds tumors. Nat. Med. *16*, 863-864
    - Cited 248 times as of April 2019

31. Milbank J., Stevenson R., Ware D., Chang J., Tercel M., **Ahn G.O.**, Wilson W.R., Denny W.A. **(2009)** Synthesis and evaluation of stable bidentate metal complexes of 1-(chloromethyl)-5-hydroxy-3-(5,6,7-trimethoxyindol-2-ylcarbonyl)-2,3-dihydro-1H-pyrrolo[3,2-f]quinoline (seco-6-azaCBI-TMI) as hypoxia selective cytotoxins. ***J Med Chem*** *[Impact Factor 6.259] 52*, 6822-6834

32. **Ahn G.O.**, and Brown J.M. **(2009)** Influence of bone marrow-derived hematopoietic cells on the tumor response to radiotherapy: Experimental models and clinical perspectives. ***Cell Cycle*** *[Impact Factor*

3.952] 8, 970-976

33. **Ahn G.O.**, and Brown J.M. **(2009)** Role of endothelial progenitor cells and other bone marrow-derived cells in the development of the tumor vasculature. ***Angiogenesis*** *12*, 159-164

34. **Ahn G.O.**, and Brown J.M. **(2008)** Matrix metalloproteinase-9 is required for tumor vasculogenesis but not angiogenesis: Role of bone marrow-derived myelomonocytic cells. ***Cancer Cell*** (*Impact factor 26.925*) *13*, 193-205
    - Previewed in: Seandel, M., Butler, J., Lyden, D., and Rafii, S. (2008) A catalytic role for proangiogenic marrow-derived cells in tumor neovascularization. Cancer Cell *13*, 181-183
    - Featured article in: Vascular Biology Publications Alert by North American Vascular Biology Organization, United States
    - Highlighted in Faculty of 1000 (http://f1000.com/prime/1104480)
    - Cited 390 times as of April 2019

35. Liu S.C., **Ahn G.O.**, Kioi M., Dorie M.J., Patterson A.V., Brown J.M. **(2008)** Optimized Clostridia-directed enzyme prodrug therapy improves the antitumor activity of the novel DNA-cross-linking agent PR-104. ***Cancer Res*** *[Impact Factor 9.130] 68*, 7995-8003

36. **Ahn G.O.**, and Brown J.M. **(2007)** Targeting tumors with hypoxia-activated cytotoxins. ***Front Biosci*** *[Impact Factor 2.349] 12*, 3483-3501

37. **Ahn G.O.**, Botting K.J., Patterson A.V., Ware D.C., Tercel M., and Wilson W.R. **(2006)** Radiolytic and cellular reduction of a novel hypoxia-activated cobalt(III) prodrug of a chloromethylbenzindoline DNA minor groove alkylator. ***Biochem Pharmacol*** *[Impact Factor 5.009] 71*, 1683-1694

38. **Ahn G.O.**, Ware D.C., Denny W.A., and Wilson W.R. **(2004)** Optimization of the auxiliary ligand shell of cobalt(III)(8-hydroxyquinoline) complexes as model hypoxia-selective radiation-activated prodrugs. ***Radiat Res*** *[Impact Factor 2.530] 162*, 315-325

MEMBERSHIPS AND SERVICES

- Member, Korean Society for Radiation Oncology (KOSRO)
- Board member, Korean Radiation Life Science Society (2018~현 국제협력위원 및 이사)
- Board member, Korean Cancer Association (2016~현 이사, 2021 총무위원, 2021 국제협력위원)
- Board member, Korean Society for Molecular and Cellular Biology (2017~ 2019 국제협력운영위원)
- Member, Korean Society for Biochemistry and Molecular Biology
- Member, Korean Society for Vascular Biology (2016 국제 협력위원, 2017 학술위원, 2020 홍보위원장, 2020 IVBM 홍보위원, 2020 학술위원, 2020~ 현 홍보위원장)
- Member, Korean Association for Laboratory Animal Science (2020~ 현 학술위원)
- Board member, Korean Association of Immunologists (2021~현 기획위원)

- Active Member, American Association for Cancer Research (AACR)
- International Member, American Society for Therapeutic Radiation Oncology (ASTRO)
- Member, Radiation Research Society

COMMITTEE SERVICES

- College of Veterinary Medicine, SNU, Research Committee (2020~2021)
- POSTECH Animal Ethics Committee – Chair (2016 ~ 2019)
- POSTECH Department of Life Sciences/IBB Graduate School Committee (2015 ~ 2019)
- POSTECH Department of Life Sciences Public Relations Committee – Member (2015 ~ 2017)
- POSTECH Department of Life Sciences Equipment Committee – Member (2015 ~ 2017)
- POSTECH Department of Life Sciences Undergraduate School Committee (2014 ~ 2015)

JOURNAL EDITOR/REVIEWER DUTY

- *Editor:*
  - Associated Editor, Radiation Research (Dec 2014~ present)
  - Editorial Board, Cancer Research and Treatment (Jul 2015 ~ present)
  - External reviewer for Korean Radiation Life Science Society Web Magazine

- *Reviewer:*
  - International Journal of Radiation Oncology, Biology, and Physics
  - Radiation Research
  - PlosOne
  - Journal of Vascular Research
  - Cancer Research and Treatment (30 articles reviewed)
  - Radiation Oncology Journal