

Craig S. Schneider, MD, PhD

Employment/Post-Graduate Training

2019 - present	Resident Physician , Department of Radiation Oncology, University of Alabama at Birmingham (UAB), Birmingham, AL
2018 – 2019	Resident Physician Internship , Brookwood Baptist Health Transitional Year Program, Birmingham, AL
2013 – 2014	Post-doctoral Fellow , University of Maryland School of Medicine (UMSOM), Department of Neurosurgery, Baltimore, MD,

Education

2014 - 2018	Doctor of Medicine (MD) , University of Maryland School of Medicine (UMSOM); Baltimore, MD
2007 - 2013	Doctor of Philosophy (PhD) , Johns Hopkins University (JHU), Department of Chemical and Biomolecular Engineering, Baltimore, MD
2003 - 2007	Bachelor of Science in Chemical Engineering , University of Delaware (UDel), Newark, DE

Honors and Awards

2021	UAB Radiation Oncology Clinical In-service Exam Award (99 th percentile on clinical portion of ABR in-service exam)
2021	UAB Radiation Oncology Blackburn Physics Award (100 th percentile on physics portion of ABR in-service exam)
2021	UAB Radiation Oncology Resident Research Award
2020	UAB Radiation Oncology Blackburn Physics Award (100 th percentile on physics portion of ABR in-service exam)
2018	UMSOM Balder Scholarship Award for Academic Achievement (Valedictorian of UMSOM Class of 2018)
2017	Inducted into Alpha Omega Alpha Honor Medical Society at UMSOM
2015	AAPS Innovation in Biotechnology Award, from the American Association of Pharmaceutical Sciences for paper “Minimizing the Non-specific Binding of Nanoparticles to the Brain Enables Active Targeting of Fn14-positive Glioblastoma Cells” (see in publications below)
2012	JHU Wilmer Research Grant Award
2007-2013	Howard Hughes Medical Institute Fellow at JHU

2007-2013	Schwartz Fellow at JHU
2007	UDel Degree with Distinction, Thesis entitled, "The Effect of Urea on Surfactant Properties and the Relevance to Urea-Induced Protein-Detergent Complex Unfolding"
2007	UDel General Honors Award
2007	UDel Scholar Award
2007	UDel Chemical Engineering Industrial Sponsors Undergraduate Research Award
2006	Robert L. Pigford Award at UDel
2006	UDel Chemical Engineering Class of 1950 Scholarship
2006	Amerada Hess Corporation Award at UDel
2005	Mr. and Mrs. James F. Kearns Scholarship in Engineering Award at UDel
2005	Induction into Tau Beta Pi Engineering Honor Society at UDel

Research

Publications

1. **Schneider CS**, Shen S, Fiveash JB, Jacob R. A Practical Method to Prolong Expiratory Breath Holds and Reduce Treatment Time for Abdominal Stereotactic Body Radiotherapy. Submitted, Practical Radiation Oncology. 2022.
2. **Schneider CS**, Hatic H, Das D, Cardan RA, Stahl JM, Bonner JA, Kole AJ. Patterns of Failure and Optimal Treatment Paradigm for Large, Inoperable, Node-Negative Non-Small Cell Lung Cancer. Under review, Clinical Lung Cancer. 2022.
3. **Schneider C**, Willey, CD. Patience is a virtue. Accepted as part of "The Gray Zone" series in the International Journal of Radiation Oncology, Biology, and Physics. 2022.
4. Moradi LA, **Schneider CS**, Deshane AS, Popple RA, Kim RY, Marcrom SR. Hypofractionated radiation leads to more rapid bleeding cessation in women with vaginal bleeding secondary to gynecologic malignancy. Radiat Oncol. 2022;17(1):34. Epub 20220214. doi: 10.1186/s13014-022-01995-7. PubMed PMID: 35164826; PMCID: PMC8842901.
5. McDonald A, **Schneider C**, Stahl J, Oster R, Popple R, Mayo C. Statistical Approaches for Relating Dose-Volume Histograms with Patient Outcomes: A Systematic Analysis of Published Studies and Updated Recommendations for Reporting Under review. 2022.
6. **Schneider CS**, Oster RA, Hegde A, Dobelbower MC, Stahl JM, Kole AJ. Nonoperative Treatment of Large (5-7 cm), Node-Negative Non-Small Cell Lung Cancer Commonly Deviates From NCCN Guidelines. J Natl Compr Canc Netw. 2021. Epub 2021/08/13. doi: 10.6004/jnccn.2021.7043. PubMed PMID: 34384045.
7. Moradi LA, Clark CA, **Schneider CS**, Deshane AS, Dobelbower MC. Durable Metastatic Melanoma Remission Following Pembrolizumab and Radiotherapy: A Case Report of Prophylactic Immunosuppression in a Patient with Myasthenia Gravis and Immune-Mediated Colitis. Front Immunol. 2021;12:788499. Epub 20211208. doi: 10.3389/fimmu.2021.788499. PubMed PMID: 34956219; PMCID: PMC8692289.
8. **Schneider CS**, Woodworth GF, Vujaskovic Z, Mishra MV. Radiosensitization of high-grade gliomas through induced hyperthermia: Review of clinical experience and the potential role of MR-guided focused ultrasound. Radiother Oncol. 2019. doi: 10.1016/j.radonc.2019.07.017. PubMed PMID: 31431370.

9. Chhabra A, **Schneider C**, Chowdhary M, Diwanji TP, Mohindra P, Mishra MV. How Histopathologic Tumor Extent and Patterns of Recurrence Data Inform the Development of Radiation Therapy Treatment Volumes in Solid Malignancies. *Semin Radiat Oncol*. 2018;28(3):218-37. doi: 10.1016/j.semradonc.2018.02.007. PubMed PMID: 29933882.
10. **Schneider CS**, Xu Q, Boylan NJ, Chisholm J, Tang BC, Schuster BS, Henning A, Ensign LM, Lee E, Adstamongkonkul P, Simons BW, Wang SS, Gong X, Yu T, Boyle MP, Suk JS, Hanes J. Nanoparticles that do not adhere to mucus provide uniform and long-lasting drug delivery to airways following inhalation. *Sci Adv*. 2017;3(4):e1601556. doi: 10.1126/sciadv.1601556. PubMed PMID: 28435870; PMCID: PMC5381952.
11. **Schneider C**, Vyfhuis M, Morse E, Diwanji T, Snider JW, Mossahebi S, Steacy K, Malyapa R. Dramatic Response of a Large Sacral Chordoma to Intensity Modulated Proton Beam Therapy. *Cureus*. 2017;9(9):e1670. doi: 10.7759/cureus.1670. PubMed PMID: 29152427; PMCID: PMC5679766.
12. Connolly NP, Stokum JA, **Schneider CS**, Ozawa T, Xu S, Galisteo R, Castellani RJ, Kim AJ, Simard JM, Winkles JA, Holland EC, Woodworth GF. Genetically engineered rat gliomas: PDGF-driven tumor initiation and progression in tv-a transgenic rats recreate key features of human brain cancer. *PLoS One*. 2017;12(3):e0174557. doi: 10.1371/journal.pone.0174557. PubMed PMID: 28358926.
13. Dancy JG, Wadajkar AS, **Schneider CS**, Mauban JR, Goloubeva OG, Woodworth GF, Winkles JA, Kim AJ. Non-specific binding and steric hindrance thresholds for penetration of particulate drug carriers within tumor tissue. *J Control Release*. 2016;238:139-48. doi: 10.1016/j.jconrel.2016.07.034. PubMed PMID: 27460683.
14. Perez JG, Tran NL, Rosenblum MG, **Schneider CS**, Connolly NP, Kim AJ, Woodworth GF, Winkles JA. The TWEAK receptor Fn14 is a potential cell surface portal for targeted delivery of glioblastoma therapeutics. *Oncogene*. 2016;35(17):2145-55. doi: 10.1038/onc.2015.310. PubMed PMID: 26300004; PMCID: PMC4850525.
15. **Schneider CS**, Perez JG, Cheng E, Zhang C, Mastorakos P, Hanes J, Winkles JA, Woodworth GF, Kim AJ. Minimizing the non-specific binding of nanoparticles to the brain enables active targeting of Fn14-positive glioblastoma cells. *Biomaterials*. 2015;42:42-51. doi: 10.1016/j.biomaterials.2014.11.054. PubMed PMID: 25542792; PMCID: PMC4279109.
16. **Schneider CS**, Bhargav AG, Perez JG, Wadajkar AS, Winkles JA, Woodworth GF, Kim AJ. Surface plasmon resonance as a high throughput method to evaluate specific and non-specific binding of nanotherapeutics. *J Control Release*. 2015;219:331-44. doi: 10.1016/j.jconrel.2015.09.048. PubMed PMID: 26415854; PMCID: PMC4656072.
17. Suk JS, Kim AJ, Trehan K, **Schneider CS**, Cebotaru L, Woodward OM, Boylan NJ, Boyle MP, Lai SK, Guggino WB, Hanes J. Lung gene therapy with highly compacted DNA nanoparticles that overcome the mucus barrier. *J Control Release*. 2014;178:8-17. doi: 10.1016/j.jconrel.2014.01.007. PubMed PMID: 24440664; PMCID: PMC3951606.
18. Ensign LM, Henning A, **Schneider CS**, Maisel K, Wang YY, Porosoff MD, Cone R, Hanes J. Ex vivo characterization of particle transport in mucus secretions coating freshly excised mucosal tissues. *Mol Pharm*. 2013;10(6):2176-82. doi: 10.1021/mp400087y. PubMed PMID: 23617606; PMCID: PMC3711090.
19. Yu T, Wang YY, Yang M, **Schneider C**, Zhong W, Pulicare S, Choi WJ, Mert O, Fu J, Lai SK, Hanes J. Biodegradable mucus-penetrating nanoparticles composed of diblock copolymers of polyethylene glycol and poly(lactic-co-glycolic acid). *Drug Deliv Transl Res*. 2012;2(2). doi: 10.1007/s13346-011-0048-9. PubMed PMID: 24205449; PMCID: PMC3818113.

20. Kirch J, Ruge CA, **Schneider C**, Hanes J, Lehr* C-M. Chapter 5.1 Nanostructures for Overcoming the Pulmonary Barriers: Physiological Considerations and Mechanistic Issues. Nanostructured Biomaterials for Overcoming Biological Barriers: The Royal Society of Chemistry; 2012. p. 239-72.
21. Ensign LM, **Schneider C**, Suk JS, Cone R, Hanes J. Mucus penetrating nanoparticles: biophysical tool and method of drug and gene delivery. *Adv Mater.* 2012;24(28):3887-94. PubMed PMID: 22988559; PMCID: PMC3710133.
22. Wang YY, Lai SK, So C, **Schneider C**, Cone R, Hanes J. Mucoadhesive nanoparticles may disrupt the protective human mucus barrier by altering its microstructure. *PLoS One.* 2011;6(6):e21547. doi: 10.1371/journal.pone.0021547. PubMed PMID: 21738703; PMCID: PMC3126822.
23. Suk JS, Boylan NJ, Trehan K, Tang BC, **Schneider CS**, Lin JM, Boyle MP, Zeitlin PL, Lai SK, Cooper MJ, Hanes J. N-acetylcysteine enhances cystic fibrosis sputum penetration and airway gene transfer by highly compacted DNA nanoparticles. *Mol Ther.* 2011;19(11):1981-9. doi: 10.1038/mt.2011.160. PubMed PMID: 21829177; PMCID: PMC3222526.
24. Bianco CL, **Schneider CS**, Santonicola M, Lenhoff AM, Kaler EW. Effects of urea on the microstructure and phase behavior of aqueous solutions of polyoxyethylene surfactants. *Ind Eng Chem Res.* 2010;50(1):85-96. doi: 10.1021/ie101011v. PubMed PMID: 21359094; PMCID: PMC3045059.

Radiation Oncology Meeting Abstracts

1. **Schneider, CS**, Hatic, H, Das, D, Cardan, RA, Stahl, JM, Bonner, JA and Kole, AJ (2022). Patterns of failure for patients with large, node-negative non-small cell lung cancer treated with definitive radiation reveals high rates of regional and distant failure. ACRO Annual Meeting 2022.
2. **Schneider, CS**, Shen S, Fiveash, J, and Jacob, R (2021). A practical method to prolong expiratory breath holds for abdominal stereotactic body radiotherapy. ASTRO Annual Meeting 2021.
3. **Schneider, CS**, Stahl, JM, Dobelbower, MC, and Kole, AJ. (2020). Patterns of Care for Non-Operative Patients with Large (5-7 cm), Node-Negative NSCLC Reveals Significant Deviation from NCCN Guidelines. ASTRO Annual Meeting 2020. Held online due to COVID-19 pandemic.

Patents

1. Woodworth GF, Hanes J, Winkles JA, Kim AJ, Schneider CS. "Targeted Structure-Specific Particulate Delivery Systems" (Patent Pending; PCT/US2015/061853. WO 2016-081835, Filed: June 2016).

Teaching and Mentoring

2021-present	Research mentor to medical student Ashlynn Clark
2020-present	Research mentor to medical students Luke Moradi and Alok Deshane
2020	UAB Learning Communities, House Staff Mentor to MS1-MS4 medical students

2015 Postdoctoral research mentor to undergraduate student Adip Bhargav at UMSOM
2014 Postdoctoral research mentor to PhD candidate Jimena Perez at UMSOM
2010 Teaching Assistant, Chemical Engineering Senior Lab at JHU
2009-2012 Graduate student research mentor to undergraduate students Jane Chisholm,
Arvind Ravichandran and Wui Yarn (Daphne) Chan at JHU

Software

Aria/Eclipse Electron Medical Record/Radiation Treatment Planning
EPIC Electronic Medical Record
Cerner/Impact Electronic Medical Record

Skills

External Beam Radiation Therapy (EBRT)
Intensity Modulated Radiation Treatment (IMRT)
Image-Guided Radiation Treatment (IGRT)
Volumetric Arc Therapy (VMAT)
Stereotactic Radiosurgery (SRS) – Brain, Skull Base
Stereotactic Body Radiation Treatment (SBRT) – Spine, Lung, Liver, Prostate, Pancreas, Bone
Accelerated partial breast irradiation (APBI)
High Dose Rate (HDR) Brachytherapy – Interstitial and Intracavitary
Intensity Modulated Proton Beam Therapy (IMPT)
Therapeutic Unsealed Radioactive Sources