

## CURRICULUM VITAE

### PERSONAL INFORMATION

**Shawn David Hingtgen, Ph.D.**

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### EDUCATION

<b>The University of Iowa</b> , Iowa City, IA. Dept. of Anatomy and Cell Biology	Doctor of Philosophy (Ph.D.)	1998-2004
<b>The University of Iowa</b> , Iowa City, IA. Bachelor of Science	Biology	1994-1998

### PROFESSIONAL EXPERIENCE

04/2023-Present	<b>Professor</b> , Division of Molecular Pharmaceutics, UNC Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC
04/2018-Present	<b>Associate Professor</b> , Division of Molecular Pharmaceutics, UNC Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC
04/2012-03/2018	<b>Assistant Professor</b> , Division of Molecular Pharmaceutics, UNC Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC
09/2106-present	<b>Assistant Professor</b> , Department of Neurosurgery, UNC School of Medicine, The University of North Carolina at Chapel Hill, Chapel Hill, NC (This is a secondary appointment that coincides with my primary appointment in the Eshelman School of Pharmacy)
06/2010-03/2012	<b>Instructor</b> , Department of Radiology, Massachusetts General Hospital/Harvard Medical School, Boston, MA.
02/2008-06/2010	<b>Post-doctoral Fellow</b> , Dept. of Radiology, Nuclear Medicine and Molecular Imaging, Massachusetts General Hospital/Harvard Medical School, Boston, MA <ul style="list-style-type: none"><li>• Advisor: Khalid Shah</li><li>• Gained experience in mouse model of surgical resection</li><li>• Developed new anti-cancer molecules for delivery by therapeutic stem cells</li></ul>
02/2005-02/2008	<b>Post-doctoral Fellow</b> , Dept. of Radiology, Center for Molecular Imaging Research (CMIR), Massachusetts General Hospital/Harvard Medical School, Boston, MA <ul style="list-style-type: none"><li>• Advisor: Ralf Weissleder, Khalid Shah</li><li>• Developed novel imaging tools for non-invasive tracking of stem cell therapies for brain cancer and novel anti-cancer molecules</li><li>• Gained experience in molecular biology, molecular imaging, animal surgery</li></ul>

### HONORS AND AWARDS

2021	American Institute for Medical and Biological Engineering College of Fellows
2018	UNC Hettleman Prize for Scholarly and Artistic Achievement by Young Faculty
2014	Young Investigator Award, Society for Neuro-Oncology
2013	Finalist, The Damon Runyon-Rachleff Innovation Award

2010	Keystone Symposia Underrepresented Minority Scholarship
2008	American Brain Tumor Association Post-doctoral Research Fellowship
2005	National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) Minority Travel Award
2005	Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award
2004	College of Medicine Public Health Research Week Award
2004	National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) Minority Travel Award
2004	Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award
2003	New Investigator Award, Society for Free Radical Biology and Medicine
2003	National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) Minority Travel Award
2003	Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award
2002	Merck New Investigator Award
2001	Honorable Mention-James F. Jackobsen Forum
1994-98	Undergraduate Scholar Assistant
1994-98	Opportunity at Iowa Underrepresented Minority Scholarship

## BIBLIOGRAPHY & PRODUCTS OF SCHOLARSHIP

### BOOKS AND CHAPTERS

Citation statistics from Google Scholar: *h-index: 26; Citations: 2755 (2284 in past 5 years)*

- Hingtgen, S.D.** Multi-functional Molecules for Interrogating Stem Cell-based Therapeutics. *Stem Cell Therapeutics for Cancer*. Hoboken, NJ, Wiley Publishing, 2013, pp. 257-272
- Sheets, K.T., Bago, J.R., **Hingtgen, S.D.** Delivery of cytotoxic neural stem cells with biodegradable scaffolds for treatment of postoperative brain cancer. *Methods in Targeted Drug Delivery*, Springer Publishing, 2018.

### REFERRED PAPERS/ARTICLES

- Enhancing TRAIL-based Therapy for Glioblastoma Through Combining the Constitutive TRAIL-secreting Induced Neural Stem Cells with the Novel Small Molecule Drug TR-107. Thang, M., Mellows, Kass, L.E., Daghli, S., Fennell, E.M.J., Mann, B.E., Mercer-Smith, A., Valdivia, A., Aponte-Collazo, L.J., Graves, L.M., **Hingtgen, S.D.**, *Mol. Ther. Oncolytics (Under Review)*
- Thang, M., Mellows, C., Mercer-Smith, A., Nguyen, W., **Hingtgen, S.D.**, Current Approaches in Enhancing TRAIL Therapies in Glioblastoma. *Neuro-Onc (Under Review)*
- He, S., Lao, YH, Shankar, S., Kunes, R., Berry, R., Jiang, W., Lee, J.H., **Hingtgen, S.D.**, Azizi, E., Leong, K., Topological defects induced by MSC–cancer cell interactions correlate with cancer cell apoptosis, *Biomaterials (Under Review)*
- Trans-lesion Synthesis and Mismatch Repair Pathway Crosstalk Defines Chemoresistance and Hypermutation Mechanisms in Glioblastoma. Cheng X, An J, Lou J, Gu Q, Ding W, Droby G, Wang Y, Wang C, Gao Y, Shelton A, Satterlee AB, Mann BE, Hsiao YC, Liu CW, Liu K, **Hingtgen S.D.**, Wang J, Liu Z, Miller R, Wu D, Vaziri C, Yang Y. *Nat. Comms (In Press)*
- Longitudinal 3-D Visualization of Microvascular Disruption and Perfusion Changes in Mice During the Evolution of Glioblastoma Using Super-Resolution Ultrasound. McCall, J.R., DeRuiter, R., Ross, M., Santibanez, F., **Hingtgen, S.D.**, Pinton, G.F., Dayton, P.A., *IEEE Trans Ultrason Ferroelectr Freq Control* 2023 Nov;70(11):1401-1416. Epub 2023 Nov 1.
- Mann B, Zhang X, Bell N, Adefolaju A, Thang M, Dasari R, Kanchi K, Valdivia A, Yang Y, Buckley A, Lettry V, Quinsey C, Rauf Y, Kram D, Cassidy N, Vaziri C, Corcoran DL, Rego S, Jiang Y, Graves LM, Dunn D, Floyd S, Baldwin A, **Hingtgen S**, Satterlee AB. A living ex vivo platform for functional, personalized brain cancer diagnosis. *Cell Rep Med*. 2023 Jun 20;4(6):101042. doi: 10.1016/j.xcrm.2023.101042.
- Woodell, A., Landoni, E., Valdivia, A., Buckley, A., Ogunnaike, E., Dotti, G., **Hingtgen, S.D.**, Utilizing Induced Neural Stem Cell-Based Delivery of a Cytokine Cocktail to Enhance CAR-T Cell Therapy for Brain Cancer. *Bioeng Transl Med*. 2023 May 29. doi: 10.1002/btm2.10538

8. Nehama D, Woodell AS, Maingi SM, **Hingtgen SD**, Dotti G. Cell-based therapies for glioblastoma: Promising tools against tumor heterogeneity. *Neuro Oncol*. 2023 May 14;noad092. doi: 10.1093/neuonc/noad092.
9. Abdelnabi, D., Watts, C., **Hingtgen, S.D.**, Valdivia, A., McConville, C. ChemoSeed®: A Novel Implantable Device for the Treatment of High Grade Gliomas, *Neuro-Oncology*, Volume 24, Issue Supplement\_4, October 2022, Pages iv1–iv2, doi.org/10.1093/neuonc/noac200.003
10. King JL, Maturavongsadit P, **Hingtgen SD**, Benhabbour SR. Injectable pH Thermo-Responsive Hydrogel Scaffold for Tumoricidal Neural Stem Cell Therapy for Glioblastoma Multiforme. *Pharmaceutics*. 2022 Oct 20;14(10):2243. doi: 10.3390/pharmaceutics14102243.
11. Mercer-Smith, A.R., Buckley, A., Valdivia, A., Jiang, W., Thang, M., Bell, N., Kumar, R.J., Bomba, H.N., Woodell, A.S., Luo, J., Floyd, S.R., **Hingtgen, S.D.** Next-generation Tumor-homing Induced Neural Stem Cells as an Adjuvant to Radiotherapy for the Treatment of Metastatic Lung Cancer. *Stem Cell Rev Rep*. 2022 Oct;18(7):2474-2493. doi: 10.1007/s12015-022-10375-3. Epub 2022 Apr 19.
12. Satterlee, A.B, Dunn, D.E., Valdivia, A., Malawsky, D., Buckley, A., Gershon, T., Floyd, S., **Hingtgen, S.D.** Spatiotemporal analysis of induced neural stem cell therapy to overcome advanced glioblastoma recurrence. *Mol Ther Oncolytics*. 2022 Jun 7;26:49-62. doi: 10.1016/j.omto.2022.06.004. eCollection 2022 Sep 15.
13. McLaughlin, J.E., Greene, J., Olsen, A.A., Coste-Sanchez, C., Jay, M., Anselmo, A., and **Hingtgen, S.** Successful use of pre-class videos from a pharmacy course for pre-class learning in a biomedical graduate course. *Educ Health Prof*. 2022;5:72-5
14. Bomba, H.N., Cary-Ewend, A., Sheets, K.T., Goetz, M.J., Findlay, I.A, Mercer-Smith, A.R., Khagi, S., **Hingtgen, S.D.** Use of FLOSEAL® as a Scaffold and its Impact on Induced Neural Stem Cell Phenotype, Persistence, and Efficacy. *Bioeng Transl Med*. 2022 Jan 21;7(2):e10283. doi: 10.1002/btm2.10283. eCollection 2022 May.
15. Ogunnaike, E.A., Valdivia, A., Yazdimamaghani, M., Leon, E., Hudson, H., Du, H., Khagi, S., Zhen, G., Savoldo, B., Ligler, F., **Hingtgen, S.D.**, Dotti, G. Fibrin-Based Gel for Loco Regional Delivery of Chimeric Antigen Receptor T Cells in Glioblastoma. *Sci. Adv.* Sci Adv. 2021 Oct 8;7(41):eabg5841.  
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16. Mercer-Smith, A.R., Jiang, W., Bago, J.R., Valdivia, A., Woodell, A.S., Montgomery, S.A., Sheets, K.T., Anders, C.K., **Hingtgen, S.D.** Cytotoxic Engineered Induced Neural Stem Cells as an Intravenous Therapy for Primary Non-Small Cell Lung Cancer and Triple-Negative Breast Cancer. *Mol Cancer Ther*. 2021 Aug 25:molcanther.0109.2021. doi: 10.1158/1535-7163.MCT-21-0109. Online ahead of print.  
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17. Mercer-Smith, A.R., Findlay, I.A, Bomba, H.N., **Hingtgen, S.D.** Intravenously infused stem cells for cancer treatment. *Stem Cell Rev Rep*. 2021 Jun 17. doi: 10.1007/s12015-021-10192-0. Online ahead of print.  
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18. Jiang, W., Yang, Y., Mercer-Smith, A.R., Valdivia, A., Bago, J.R., Woodell, A.S., Buckley, A., Marand, M., Qian, L., Anders, C.K., **Hingtgen, S.D.** Development of next-generation tumor-homing induced neural stem cells to enhance treatment of metastatic cancers. *Sci Adv*. 2021 Jun 9;7(24):eabf1526. doi: 10.1126/sciadv.abf1526. Print 2021 Jun.  
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19. Cary-Ewend, A., Hagler, S.B., Bomba, H.N., Goetz, M.J., Bago, J.R., **Hingtgen, S.D.** Developing Bio-inspired 3D Models of Brain Cancer to Evaluate Tumor-homing Stem Cell Therapy. *Tissue Eng. Part A* 2020 Oct 20;doi: 10.1089/ten.tea.2020.0113.  
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20. Bomba, H.N., Sheets, K.T., Valdivia, A., Khagi, S., Ruterbories, L, Mariani, C.L., Borst, L.B., Tokarz, D.A., **Hingtgen, S.D.** Personalized Neural Stem Cell Therapy: Generation, Transplant, and Safety in a Large Animal Model. *Bioengineering & Transla Med* 2021 January 6(1): e10171. doi.org/10.1002/btm2.10171  
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25. Graham-Gurysh E., Murthy, A.B., Moore, K.M., Satterlee A.B., Sheets, K.T., Lin, F.C., Bachelder, E.M., **Hingtgen, S.D.**, Ainslie, K.M. Synergistic Drug Combinations for a Precision Medicine Approach to Interstitial Glioblastoma Therapy. *J Control Release.* 2020 Apr 23;323:282-292. doi: 10.1016/j.jconrel.2020.04.028. Online ahead of print. PMID: 32335153

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29. Sheets, K., Bago, J.R., Paulk, I.L., **Hingtgen, S.D.**, Image Guided Resection of Glioblastoma and Intracranial Implantation of Therapeutic Stem Cell-seeded Scaffolds. *JoVE* 2018 Jul 16;(137). Doi 10.3791/57452. PMID: 30059037

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31. Graham-Gurysh E, Moore KM, Satterlee AB, Sheets KT, Lin FC, Bachelder EM, Miller CR, **Hingtgen, S.D.**, Ainslie KM. Sustained Delivery of Doxorubicin via Acetalated Dextran Scaffold Prevents Glioblastoma Recurrence after Surgical Resection. *Mol Pharm.* 2018 Mar 5;15(3):1309-1318. doi: 10.1021/acs.molpharmaceut.7b01114. Epub 2018 Feb 2. PMID:29342360

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Impact Factor: **16.3**  
*Featured on the cover of the journal, was the cover story for the NIH NCATS website, and featured in numerous other on-line and media outlets including "The Stem Cell Podcast", Genetic Engineering & Biotechnology news, and the international TV show "Carte Blanche".*
34. Lettry, V., Hagler, S.B., Khagi, S, **Hingtgen, S.D.**, Tumor-homing Stem Cell Therapy for Brain Cancer. *Curr. Surg. Rep* (2017), .5: 28. <https://doi.org/10.1007/s40137-017-0190-5>  
Impact Factor: **NA**
35. Okolie, O., Bago, J.R., Schmid, R.S., Irvin, D.M., Bash, R.E., Miller, C.R., **Hingtgen, S.D.** Reactive Astrocytes Potentiate Tumor Aggressiveness in a Murine Glioma Resection Recurrence Model. *Neuro Oncol.* June 13, 2016 PMID: 27298311  
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37. Bago, J.R., Alfonso-Pecchio, A., Okolie, O., Dumitru, R., Rinkenbaugh, A., Baldwin, A.S., Miller, C.R., Magness, S.T., **Hingtgen, S.D.** (2016). Therapeutically engineered induced neural stem cells are tumor-homing and inhibit progression of glioblastoma. *Nat. Commun.*, Feb 2;7:10593. PMID: 26830441  
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42. Duebgen M., Martinez-Quitanilla J., Tamura K., **Hingtgen S.D.**, Redjal N., Wakimoto H., Shah K. Stem cells loaded with multimechanistic oncolytic herpes simplex virus variants for brain tumor therapy. *J Natl. Cancer Inst.* 2014 May 16; 106 (6) [Epub ahead of print]. PMID: 24838834 (PMC Journal in process)  
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44. Haney M.J., Zhao Y., Harrison E.B., Mahajan V., Ahmed S., He Z., Suresh P., **Hingtgen S.D.**, Klyachko N.L., Mosley R.L., Gendelman H.E., Kabanov A.V., Batrakova E.V. (2013) Specific Transfection of Inflamed Brain by Macrophages: A New Therapeutic Strategy for Neurodegenerative Diseases. *PLoS One* 2013 Apr 19;8(4): e61852. PMID: 23620794  
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- 47. Hingtgen, S.D.,** Sarkar, D., Yacoub, A., Fisher, P.B., Shah, K. A first-generation multi-functional cytokine for simultaneous optical tracking and tumor therapy. *PLoS One* 2012;7(7):e40234  
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- 53. Shah, K., Hingtgen, S.D.,** Kasmieh, R., Figueiredo, J.L., Martinez-Serrano, A., Breakefield, X.O., Weissleder, R. Bimodal viral vectors and in vivo imaging reveal the fate of human neural stem cells in experimental glioma model. *J Neurosci* 2008 April 28(17):4406-4413  
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## REFEREED ABSTRACTS

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3. Adefolaju A, Mann B, Zhang X, Bell N, Thang M, Dasari R, Kanchi K, Valdivia A, Yang Y, Quinsey C, Rauf Y, Kram D, Cassidy N, Vaziri C, Corcoran DL, Rego S, Jiang Y, Graves LM, Dunn D, Floyd S, Baldwin A, **Hingtgen S**, Satterlee AB. Living ex vivo organotypic brain slice cultures as a comprehensive substrate for tumor engraftment and analysis. *Society for Neuro-Oncology Annual Meeting, November 15-19, 2023. Vancouver CA*
4. Zhang X, Mann B, Bell N, Adefolaju A, Thang M, Dasari R, Kanchi K, Valdivia A, Yang Y, Quinsey C, Rauf Y, Kram D, Cassidy N, Vaziri C, Corcoran DL, Rego S, Jiang Y, Graves LM, Dunn D, Floyd S, Baldwin A, **Hingtgen S**, Satterlee AB. An ex vivo platform based on organotypic brain slice culture informing personalized brain cancer therapy. *Society for Neuro-Oncology Annual Meeting, November 15-19, 2023. Vancouver CA*
5. Dasari R, Mann B, Zhang X, Bell N, Adefolaju A, Thang M, Kanchi K, Valdivia A, Yang Y, Quinsey C, Rauf Y, Kram D, Cassidy N, Vaziri C, Corcoran DL, Rego S, Jiang Y, Graves LM, Dunn D, Floyd S, Baldwin A, **Hingtgen S**, Satterlee AB. Generation and characterization of living organotypic brain slice cultures as a novel pre-clinical model for brain cancer. *Society for Neuro-Oncology Annual Meeting, November 15-19, 2023. Vancouver CA*
6. Kass, L., DeVane, C., Tessema, A., Logan, L., Perry, J., **Hingtgen, S.D.**, Development of 3D biocompatible hydrogels using Continuous Liquid Interface Production (CLIP) for the sustained delivery of therapeutic neural stem cells against Glioblastoma. *European Society of Biomaterials. September 4-8, 2023. Davos, Switzerland*
7. Mann B, Zhang X, Bell N, Adefolaju A, Thang M, Dasari R, Kanchi K, Valdivia A, Yang Y, Quinsey C, Rauf Y, Kram D, Cassidy N, Vaziri C, Corcoran DL, Rego S, Jiang Y, Graves LM, Dunn D, Floyd S, Baldwin A, **Hingtgen S**, Satterlee AB. A living ex vivo platform for functional, personalized pediatric brain cancer diagnosis. *Pediatric Neuro-Oncology Research Conference, June 22-24, 2023. Washington DC*
8. Thang, M., Mellows, Kass, L.E., Daghli, S., Valdivia, A., Graves, L.M., **Hingtgen, S.D.**, Combining TRAIL-secreting Induced Neural Stem Cells with a Novel Sensitizing Drug TR-107. *American Society of Gene and Cell Therapy Annual Meeting. May 16-20, 2023. Los Angeles, CA*
9. Kass, L., DeVane, C., Tessema, A., Logan, L., Perry, J., **Hingtgen, S.D.**, Printed Hydrogel Scaffolds Generated Using Continuous Liquid Interface Production for the Delivery of Neural Stem Cells to Treat Glioblastoma. *American Society of Gene and Cell Therapy Annual Meeting. May 16-20, 2023. Los Angeles, CA*
10. Bomba, H., Kass, L., Carey-Ewend, A., Sheets, K., Valdivia, A., Goetz, M., Findlay, I., Mercer-Smith, A., Khagi, S., **Hingtgen, S.D.**, Biomaterial Scaffolds for the Delivery of Neural Stem Cell Therapies into the Glioblastoma Resection Cavity. *Society for Neuro-oncology. November 16-20, 2022. Tampa, FL.*
11. Zhang, X., Dunn, D., Valdivia, A., Buckley, A., Floyd, S., **Hingtgen, S.D.**, Satterlee, A., Modeling the intratumoral heterogeneity of aggressive glioblastoma on organotypic brain slices to optimize tumor-homing tumoricidal iNSC treatment. *Society for Neuro-oncology. November 16-20, 2022. Tampa, FL.*
12. Mann, B., Zhang, Z., Bell, N., Adefolaju, A., Dasari, R., **Hingtgen, S.D.**, Satterlee, A.B., Organotypic Brain Slice Culture Platform as a Novel Pre-Clinical Model for Patient Derived Cell Lines. *Society for Neuro-oncology. November 16-20, 2022. Tampa, FL.*
13. Thang, M., Valdivia, A., Hingtgen, S.D., Combining Induced Neural Stem Cell Therapy and Immunomodulation in Glioblastoma. *Society for Neuro-oncology. November 16-20, 2022. Tampa, FL.*
14. Mann, B., Bell, N., Dunn, D.E., Floyd, S., **Hingtgen, S.D.**, Satterlee, A.B., An Organotypic Brain Slice Culture Platform as a Novel Pre-Clinical Model for Diffuse Intrinsic Pontine Glioma and Diffuse Midline Glioma. *International Society for Pediatric Neuro-Oncology, June 11-12, 2022, Hamburg, Germany.*
15. Morrent, T, Jiang, W., Valdivia, A., Mercer-Smith, A.R., Anders, C.K., **Hingtgen, S.D.** Tumor-homing Induced Neural Stem Cell Therapy Inhibits the Progression of Breast Cancer Brain Metastasis and Leptomeningeal Carcinomatosis. *Society for Neuro-oncology. November 18-20, 2021.*
16. Mann, B., Bell, N., Dunn, D.E., Floyd, S., **Hingtgen, S.D.**, Satterlee, A.B., An organotypic tissue platform to bridge in vitro and in vivo assays for brain cancer treatment. *Society for Neuro-oncology Meeting. November 18-20, 2021.*

17. Jiang, W., Valdivia, A., Mercer-Smith, A.R., Anders, C.K., **Hingtgen, S.D.** Tumor-homing Induced Neural Stem Cell Therapy Inhibits the Progression of Breast Cancer Brain Metastasis and Leptomeningeal Carcinomatosis. *Society for Neuro-oncology Meeting. November 19-21, 2020. Held Virtually*
18. Mercer-Smith, A.R., Jiang, W., Valdivia, A., Bago, J.R., Floyd, S., Khagi, S., **Hingtgen, S.D.** Tumor-homing induced neural stem cells secreting a cytotoxic payload as an adjuvant treatment for non-small cell lung cancer brain metastases. *Society for Neuro-oncology Brain Metastasis Meeting. November 19-21, 2020. Held Virtually*
19. Jiang, W., Valdivia, A., Mercer-Smith, A.R., Anders, C.K., **Hingtgen, S.D.** Tumor-homing Induced Neural Stem Cell Therapy Inhibits the Progression of Breast Cancer Brain Metastasis and Leptomeningeal Carcinomatosis. *Society for Neuro-oncology Brain Metastasis Meeting. August 14, 2020. Held Virtually*
20. Mercer-Smith, A.R., Jiang, W., Valdivia, A., Bago, J.R., Floyd, S., Khagi, S., **Hingtgen, S.D.** Tumor-homing induced neural stem cells secreting a cytotoxic payload as an adjuvant treatment for non-small cell lung cancer brain metastases. *Society for Neuro-oncology Brain Metastasis Meeting. August 14, 2020. Held Virtually*
21. Satterlee, A., Dunn, D., Floyd, S., **Hingtgen, S.D.** Understand and Overcoming Glioblastoma Resistance with Novel In Vivo and Ex Vivo Models. American Society of Cell & Gene Therapy. *American Society of Gene and Cell Therapy Annual Meeting. May 12-15, 2020. Held Virtually*
22. Bomba, H.N., Sheets, K.T., Valdivia, A., Khagi, S., Ruterbories, L, Mariani, C.L., Borst, L.B., Tokarz, D.A., **Hingtgen, S.D.** Personalized Neural Stem Cell Therapy: Generation, Transplant, and Safety in a Large Animal Model. *American Society of Gene and Cell Therapy Annual Meeting. May 12-15, 2020. Held Virtually*
23. Jiang, W., Mercer-Smith, A, Anders, C.A., **Hingtgen, S.D.**, Personalized tumor-homing cell-based treatments for metastatic cancer *American Society of Gene and Cell Therapy Annual Meeting. May 12-15, 2020. Held Virtually*
24. Gopakumar, S., Gumin, J., Daou, M., Ledbetter, D., McDonald, M.F., Hossain, A., **Hingtgen, S.D.**, Ewend, M.G., Lang, F.F. Stem cell delivery of oncolytic adenovirus DNX-2401 following surgical resection for the treatment of glioblastoma. *Society for Neuro-oncology Annual Meeting. November 19-23, 2019. Phoenix, AZ*
25. Satterlee, A., Dunn, D., Floyd, S., **Hingtgen, S.D.** Adapting Engineered Cell Therapies to Understand and Overcome Glioblastoma Resistance Using Integrated In Vivo and Ex Vivo Models. *Society for Neuro-oncology Annual Meeting. November 19-23, 2019. Phoenix, AZ*
26. Bomba, H, Sheets, K.T., Carey-Ewend, A., Goetz, M., Bago, J.R., Khagi, S., **Hingtgen, S.D.** Increasing Induced Neural Stem Cell Persistence in the Tumor Resection Cavity. *Society for Neuro-oncology Annual Meeting. November 19-23, 2019. Phoenix, AZ*
27. Jiang, W., Mercer-Smith, A, Anders, C.A., **Hingtgen, S.D.** Creating personalized tumor-homing cell-based treatments for metastatic brain cancer. *Society for Neuro-oncology Brain Metastasis Meeting. September 15-17, 2019. New York, NY*
28. Jiang, W., Mercer-Smith, A, Anders, C.A., **Hingtgen, S.D.** Development of tumor-homing cell therapy for breast cancer. *American Society of Gene and Cell Therapy Annual Meeting. April 29-May 2, 2019. Washington D.C.*
29. Hagler, S., Bago, J.R., Ewend, M.E., **Hingtgen, S.D.** Developing patient-derived induced neural stem cells therapy for glioblastoma. *American Society of Gene and Cell Therapy Annual Meeting. April 29-May 2, 2019. Washington D.C.*
30. Satterlee, A., Dunn, D.E., Lo, D.C., Khagi, S., **Hingtgen, S.D.** Tumoricidal Stem Cell Therapy Enables Killing in Novel Hybrid Models of Heterogeneous Glioblastoma. *American Society of Gene and Cell Therapy Annual Meeting. April 29-May 2, 2019. Washington D.C.*
31. Sheets, K.T., Okolie, O., Ewend, M., Mohiti-Asli, M., Turin, S., Loba, E.G., Aboody, K., **Hingtgen, S.D.** Creating Implantable Scaffolds to Enhance Neural Stem Cell Therapy for Post-surgical Glioblastoma. *Society for Neuro-Oncology Annual Meeting. November 14-17, 2018. New Orleans, LA*
32. Satterlee, A., Dunn, D.E., Lo, D.C., Khagi, S., **Hingtgen, S.D.** Developing Tumoricidal Stem Cell Therapy To Induce Killing in Novel Hybrid Models of Heterogeneous Glioblastoma. *Society for Neuro-Oncology Annual Meeting. November 14-17, 2018. New Orleans, LA*
33. Sheets, K.T., Okolie, O., Ewend, M., Mohiti-Asli, M., Turin, S., Loba, E.G., Aboody, K., **Hingtgen, S.D.** Implantable Scaffolds Enhance Neural Stem Cell Therapy for Post-surgical Glioblastoma. *American Society of Gene and Cell Therapy Annual Meeting. May 16-19, 2018. Chicago, IL*
34. Hagler, S., Bago, J.R., Ewend, M.E., **Hingtgen, S.D.** Characterizing patient-derived induced neural stem cells as drug delivery platform for glioblastoma. *American Society of Gene and Cell Therapy Annual Meeting. May 16-19, 2018. Chicago, IL*



35. Okolie, O., Irvin, D.M., Bago, J.R., Sheets, K., Satterlee, A., Dumitru, R., Elton, S., Ewend, M.G., Miller, C.R., **Hingtgen, S.D.** Investing Intra-Cavity Stem Cell Therapy For Post-operative Medulloblastoma. *American Society of Gene and Cell Therapy Annual Meeting. May 10-13, 2017. Washington D.C.*
36. Sheets, K.T., Okolie, O., Khagi, S., Ewend, M.G., Mohiti-Asli, M., Tuin, S., Loba, E.G., Aboody, K., **Hingtgen, S.D.** Engineering Polymeric Scaffolds to Improve the Transplant and Efficacy of Neural Stem Cell Therapy for Post-operative Glioblastoma. *American Society for Gene and Cell Therapy Annual Meeting. May 10-13, 2017. Washington D.C.*
37. Okolie, O., Bago, J.R., Miller, C.R., **Hingtgen, S.D.** Astrocytes Enhance Glioma Aggressiveness in a Mouse Models of Resection and Recurrence. *Society for Neuro-Oncology Annual Meeting. November 17-20, 2016. Scottsdale, AZ*
38. Sheets, K.T., Okolie, O., Khagi, S., Ewend, M.G., Mohiti-Asli, M., Tuin, S., Loba, E.G., Aboody, K., **Hingtgen, S.D.** Polymeric Scaffolds to Enhance Neural Stem Cell Therapy for Post-operative Glioblastoma. *Society for Neuro-Oncology Annual Meeting. November 17-20, 2016. Scottsdale, AZ*
39. Bago, J.R., Okolie, O., Dumitru, R., Ewend, M.G., **Hingtgen, S.D.** Tumor-homing Human Induced Neural Stem Cells: Towards Personalized Cell Therapy for Glioblastoma. *Gordon Research Conference on Drug Carriers in Medicine & Biology. August 7-12, 2016 Waterville Valley, NH,*
40. Bago, J.R., Pegna, G.J., Okolie, O., Mohiti-Asli, M., Loba, E.G., **Hingtgen, S.D.** Developing polymeric bio-scaffolds that increase the efficacy of stem cell-mediated therapy for brain tumors. *American Society of Cell and Gene Therapy Annual Meeting. April 4-7, 2016. Washington D.C.*
41. Bago, J.R., Okolie, O., Mohiti-Asli, M., Loba, E.G., **Hingtgen, S.D.** Developing novel bio-scaffolds that enhance the efficacy of stem cell-mediated therapy for brain tumors. *Society for Neuro-Oncology Annual Meeting. November 17-20, 2015. San Antonio, TX*
42. Bago, J.R., Sheet, K.R., Okolie, O., Mohiti-Asli, M., Loba, E.G., **Hingtgen, S.D.** Biocompatible scaffolds improve the transplant and efficacy of stem cell-mediated therapy for post-surgical brain tumors. *UNC Small Animal Imaging Symposium. October, 22, 2015, UNC Chapel Hill, Chapel Hill, NC- Awarded best poster.*
43. Bago, J.R., Okolie, O., Dumitru, R., Ewend, M.G., **Hingtgen, S.D.** Tumor-homing Human Induced Neural Stem Cells: Towards Personalized Cell Therapy for Glioblastoma *North Carolina Tissue Engineering and Regenerative Medicine Society. October 16, 2015. Wake Forest University, Winston Salem, N.C.*
44. Bago, J.R., Sheet, K.R., Okolie, O., Mohiti-Asli, M., Loba, E.G., **Hingtgen, S.D.** Polymeric bio-scaffolds increase the efficacy of stem cell-mediated therapy for brain tumors. *North Carolina Tissue Engineering and Regenerative Medicine Society. October 16, 2015. Wake Forest University, Winston Salem, N.C.*
45. Bago, J.R., Okolie, O., Dumitru, R., Ewend, M.G., **Hingtgen, S.D.** Engineered induced neural stem cells for cancer therapy. Association for Clinical and Translational Science Meeting, April 16-18, 2015. Washington D.C.
46. Alfonso-Pecchio, A., Bago, J.R., Okolie, O., Dumitru, R., **Hingtgen, S.D.** Engineered Induced Neural Stem Cells are Tumor-homing Drug Carriers the Regress Glioblastoma. *Society for Neuro-Oncology Annual Meeting. November 13-17, 2014. Miami, FL.- Young Investigator Award presentation.*
47. Alfonso-Pecchio, A., Bago, J.R., Okolie, O., Dumitru, R., **Hingtgen, S.D.** Therapeutically engineered induced neural stem cells for glioblastoma therapy. *North Carolina Tissue Engineering and Regenerative Medicine Society. October 13, 2014. Duke University, Durham, N.C.*
48. **Hingtgen, S.D.**, Kasmieh, R, Nesterenko, I, Figueiredo, J.F., Dash, R., Sarkar, D., Fisher, P.B., Shah, K. Exploring Multiple Aspects of Stem Cell-based Therapy for Cancer Using Novel Multi-functional Molecules. *Society for Neuro-Oncology Annual Meeting. November 14-18, 2013. Washington D.C.*
49. **Hingtgen, S.D.** Developing Stem Cell-based Therapies for Cancer Treatment. Inaugural UNC/NC State Joint Symposium on Stem Cells and Regenerative Medicine. *October 15, 2013, Raleigh, NC.*
50. **Hingtgen, S.D.** Using Novel Multi-functional Molecules to Develop Stem Cell-based Therapies for Cancer Using. National Institute of Health Stem Cell Symposium. *March 28, 2013, Research Triangle Park, NC.*
51. **Hingtgen, S.D.**, Figueiredo, J.F., Ferrar, C., Duebgen, M., Martinez-Quitanilla, J., Bhere, D., Shah, K. Developing a glioblastoma surgical resection using multi-modality imaging. *UNC Radiology Research Day. January 18, 2013, Chapel Hill, NC.*
52. **Hingtgen, S.D.**, Figueiredo, J.F., Ferrar, C., Duebgen, M., Martinez-Quitanilla, J., Bhere, D., Shah, K. Real-time assessment of glioblastoma surgical resection and recurrence using multi-modality imaging. *Society for Neuro-Oncology Annual Meeting. November 14-18, 2012. Washington D.C.*

53. **Hingtgen, S.D.**, Kasmieh, R., van de Water J.A., Figueiredo, J.L., Shah, K. Determining Multiple Aspects of Stem Cell-based Therapies using Novel Diagnostic and Therapeutic Multifunctional Molecules. *Keystone Symposia on Stem Cell Differentiation & Dedifferentiation, February 15-20, 2010, Keystone, CO.*
54. **Hingtgen, S.D.**, Kasmieh, R., Figueiredo, J., Weissleder, R., and Shah, K. Fate and therapeutic efficacy of neural Stem Cells in mouse model of glioma. (2008) *Society for Neuro-Oncology.*
55. **Hingtgen, S.D.**, Kasmieh, R., Terwilliger, E.F., Weissleder, R., and Shah, K. Adeno-associated viral vector encoding secretable TRAIL inhibits glioma progression assessed by bioluminescent imaging. *Society for Molecular Imaging Annual Meeting, September 8-11, 2007. Providence, RI.*
56. **Hingtgen, S.D.**, Kasmieh, R., Figueiredo, J., Chung, S., Kim, K., Weissleder, R., and Shah, K. *In vivo* imaging of embryonic stem cell-derived neural precursor cells and gliomas transduced with bi-modal lentiviral vectors. *Society for Molecular Imaging Annual Meeting, September 8-11, 2007. Providence, RI.*
57. Arwert, E., **Hingtgen, S.D.**, Figueiredo, J., van de Water, J., Bergquist, J., Mahmood, U., Weissleder, R., and Shah, K. Visualizing the dynamics of EGFR activity and anti-glioma therapies *in vivo*. *Society for Molecular Imaging Annual Meeting, September 8-11, 2007. Providence, RI.*
58. **Hingtgen, S.D.**, Kasmieh, R., Weissleder, R., Shah, K. (2006). Using bi-modal viral vectors for imaging delivery of S-TRAIL and fate of gliomas *in vivo*. *Society for Molecular Imaging Annual Meeting, August 31-September 2, 2006. Kona, HI.*
59. Shah, K, **Hingtgen, S.D.**, Kasmieh, R., Figueiredo, J.L., Weissleder, R. (2006). *In Vivo* Imaging of Human NSC Fate in Mouse Glioma Models. *Society for Molecular Imaging Annual Meeting, August 31-September 2, 2006. Kona, HI.*
60. Sharma, R.V., **Hingtgen, S.D.**, Yang, J, Li, Z, Tian, X, Kutschke, W, Engelhardt, J.F., Davisson, R.L. (2005). Activation of Akt by Superoxide ( $O_2^{\cdot-}$ ) is Required for NF $\kappa$ B Activation and Cardiac Hypertrophy. *FASEB J.* 19:A136.
61. **Hingtgen, S.D.**, Tian, X, Li, Z, Kutschke, W, Sharma, R.V., Davisson, R.L. (2005). gp91<sup>phox</sup> is the Predominant Nox Homologue Expressed in Cardiomyocytes and siRNA-Mediated Silencing of its Expression Abolishes Ang II-Induced Superoxide Generation and Cardiomyocyte Hypertrophy. *FASEB J.* 19:A388
62. **Hingtgen, S.D.**, Kutschke, W., , Li, Z., Sharma. R.V., Davisson, R.L. (2004). Bioluminescent Imaging of Pressure Overload-Induced Myocardial NF $\kappa$ B Activation *In Vivo*: Role of Superoxide ( $O_2^{\cdot-}$ ). *Hypertension.* 44:538
63. **Hingtgen, S.D.**, Tian, X., Sharma, R.V., Davisson, R.L. (2004). The Role of gp91phox in Angiotensin II (AngII)-induced Cardiomyocyte Hypertrophy. *FASEB J.* 18:A279
64. **Hingtgen, S.D.**, Yang, J., Sharma, R.V., Engelhardt, J.E., Davisson, R.L. (2003). Angiotensin (AngII)-Induced Cardiomyocyte Hypertrophy: Role of Reactive Oxygen Species, NF $\kappa$ B, and Akt/Protein Kinase B. *Free Radical Biol. Med.* 35:S66
65. Ma, X., Sigmund, C.D., **Hingtgen, S.D.**, Tian, X., Davisson, R.L., Abboud, F.M., Chappleau, M. W. (2003). Significant Contribution of a Ganglionic Action of Endogenous Angiotensin to Sympathetic Nerve Activity in Renin-angiotensin Double Transgenic Mice. *Hypertension.* 42:408
66. **Hingtgen, S.D.**, Yang, J., Sharma, R.V., Engelhardt, J.E., Davisson, R.L. (2003). Angiotensin II (AngII)-Induced Cardiomyocyte Hypertrophy: Role of Reactive Oxygen Species and Akt/Protein Kinase B. *FASEB J.* 17:A883
67. **Hingtgen, S.D.**, Yang, J., Wise, M.E., Engelhardt, J.E., Davisson, R.L. (2001). Angiotensin II-Induced Cardiomyocyte Hypertrophy: Role of Rac1-Activated NAD(P)H Oxidase and Reactive Oxygen Species. *Hypertension.* 38:510-511
68. **Hingtgen, S.D.**, Yang, J., Wise, M.E., Hill, J.A., Engelhardt, J.E., Davisson, R.L. (2000). Role of reactive oxygen species in angiotensin II-induced cardiomyocyte hypertrophy. College of Medicine Research Week, The University of Iowa Carver College of Medicine.
69. Yang, J., **Hingtgen, S.D.**, Hill, J.A., Wise, M.E., Engelhardt, J.F., Davisson, R.L. (2000). Reactive oxygen species mediate angiotensin II-induced cardiomyocyte hypertrophy. *Circulation.* 102:S642.
70. Yang, J., Hjelmstad M., **Hingtgen, S.D.**, Ritchie, T.L., Hill, J.A., Davisson, R.L., Engelhardt, J.F. (2000). Redox Modulating Gene Therapy for Myocardial Ischemia/Reperfusion Injury. *Mol. Ther.* 1:S257.

#### INVITED ORAL PRESENTATIONS (*Only invitations associated with UNC research are listed*)

1. Developing New Approaches for Cancer Care: Cell Therapies to Living Tissue Platforms. *USC School of Medicine, The University of South Carolina, December 3-4, 2023. Columbia, SC.*

2. Better Treatments for Cancer: Cell Therapies to Living Tissue Platforms. *The University of Iowa, October 18, 2023. Iowa City, IA.*
3. Advancing Personalized Treatments for Brain Cancer Through Living Tissue Platforms, *ARPA-H Team Visit, May 31, 2023, The University of North Carolina at Chapel Hill, Chapel Hill, NC*
4. Developing Better Treatments for Brain Cancer, *October 19, 2022, J. Craig Venter Institute, La Jolla, CA*
5. Engineering Better Treatments for Brain Cancer: Cell Therapies to Living Tissue Platforms, *Bioinnovations in Brain Cancer, September 30-October 1, 2022, The University of Michigan, Ann Arbor, MI*
6. Living Tissue Platforms to Advance Pediatric Brain Cancer Care, *Ian's Friends Foundation, September 9-10, 2022. Atlanta, GA*
7. New Approaches to Treatments for Ovarian Cancer, *SheROCKS Event, October 14, 2021. Attended Virtually*
8. Developing Novel Cellular Medicines for Ovarian Cancer, *SheROCKS Triad Event, September 24, 2021. Attended Virtually*
9. Cell Therapies for Ovarian Cancer, *SheROCKS Event, November 5, 2020. Held Virtually*
10. Creating a novel tissue platform for personalized cancer therapy. *The University of Florida, January 22-23, 2020, Gainesville, FA*
11. Developing Personalized Tumor-homing Cell Therapies for Cancer, *J. Craig Venter Institute, October 8, 2019. La Jolla, CA*
12. Developing Therapies for Ovarian Cancer, *SheROCKS Event, November 4, 2019. Wilmington, N.C.*
13. A Novel Tissue Platform to Rapidly Elucidate Therapeutic Vulnerabilities of Pediatric Brain Cancer, *Ian's Friends Foundation, September 13-14, 2019. Atlanta, GA*
14. Tumor-homing Cell Therapy for Cancer, *SheROCKS Event, November 1, 2018. Wilmington, N.C.*
15. Accelerate Brain Cancer Cure, Emerging Leaders Workshop, *The Case Foundation, October 9-11, 2018. Washington D.C.*
16. Developing Personalized Stem Cell Therapies for Cancer, *National Center for Advancing Translational Sciences, April 11, 2018. Washington D.C.*
17. Testing Tumor-homing Stem Cell Therapies in Unique Models of Cancer, *3D Tissue Models of Cancer, April 8-9, 2018. Boston, MA.*
18. For All Kind. The University of North Carolina at Chapel Hill Campaign Launch, *The University of North Carolina at Chapel Hill, October 6, 2017. Chapel Hill, NC.*
19. Towards Personalized Stem Cell Therapies for Cancer, *The New York Stem Cell Foundation, October 23, 2017. New York, NY.*
20. Stem Cell Therapies and Novel Technology. The High Content Analysis and 3D Screening Summit, *November 6 2017. Boston MA.*
21. Investigating Intra-Cavity Stem Cell Therapy For Post-operative Medulloblastoma. *American Society of Gene and Cell Therapy Annual Meeting. May 10-13, 2017. Washington D.C.*
22. Light-activated Cell Therapies for Cancer: Replacing the Scalpel with a Laser. *Eshelman Institute for Innovation Symposium, The University of North Carolina at Chapel Hill, April 26, 2017. Chapel Hill, NC.*
23. Advancing Stem Cell Therapies for Cancer Towards the Clinic. *The Chancellors Philanthropic Council, The University of North Carolina at Chapel Hill, April 21, 2017. Chapel Hill, NC.*
24. Developing Cell-based Therapies for Cancer. *The University of Nebraska, March 31, 2017. Omaha, NE.*
25. Molecular Imaging to Develop Stem Cell Therapies for Cancer. *Triangle Imaging Symposium. The University of North Carolina at Chapel Hill, March 15, 2017. Chapel Hill, NC.*
26. Creating Stem Cell Therapies to Treat Cancer. School of Pharmacy. *The University of Birmingham, March 1, 2017. Birmingham, United Kingdom.*
27. Developing Personalized Tumor-homing Stem Cell Therapies for Cancer: The Perspective of a K Scholar. *The University of Buffalo Translational Science Institute, February 14-15, 2017. Buffalo, NY.*
28. Tumor-homing Stem Cell Therapy for Cancer. *Chapel Hill Rotary Society, February 10, 2017, Chapel Hill, NC.*

29. Accelerating the Achievement of Translational Milestones within the KL2 Scholar Program at NC TraCS. *National Institute of Health Clinical and Translational Science Awards Consortium Fall Meeting, October 25, 2016. Chicago, IL.*
30. Stem Cell Therapy: A New Approach to Cancer Therapy. *UNC Living Legends, UNC Friday Center, October 28, 2016. Chapel Hill, NC.*
31. Tumor-homing Stem Cell Therapy for Metastatic Breast Cancer. *UNC Division of Hematology-Oncology Annual Retreat. Carolina Club, October 14, 2016. Chapel Hill, NC.*
32. Stem Cell Therapy for Cancer. *Coulter Lecture Series, North Carolina State University, August 26, 2016. Raleigh, NC.*
33. Personalized Stem Cell Therapy for Cancer. *OneCarolina Symposium, UNC Development Team, UNC Friday Center, June 13, 2016. Chapel Hill, NC.*
34. Advancing Stem Cell Therapy for Cancer Towards the Clinics. *UNC Friends Fighting Cancer, May 22, 2016. Raleigh, N.C.*
35. Human Induced Neural Stem Cell Therapy for Cancer: Towards Personalized Cell Therapy. *American Society of Cell and Gene Therapy Annual Meeting. April 4-7, 2016. Washington D.C.*
36. Cell Therapies for Cancer. *Carolina Nanoformulations Workshop. March 15, 2016. Chapel Hill, NC. (2015)*
37. Creating tumor-homing Human Induced Neural Stem Cells for Personalized Cancer Therapy. *Society for Neuro-Oncology Annual Meeting. November 17-20, 2015. San Antonio, TX.*
38. Treating Cancer with Engineered Stem Cells. *UNC Neuroscience Center Seminar Series, November 4, 2015, Chapel Hill, NC.*
39. Developing Stem Cell-mediated Therapies for Cancer. *University of North Carolina Board of Trustees, October 1, 2015. Chapel Hill, NC.*
40. A New Approach to Cancer Therapy: Engineered Stem Cells. *University of North Carolina Development Team, May 18, 2015. Chapel Hill, NC.*
41. Tumor-homing Stem Cell Therapies: A New Approach to Treating Cancer. *UNC Eshelman School of Pharmacy, 50Plus Reunion, May 9, 2015. Chapel Hill, NC.*
42. Tumor-homing Stem Cell Treatment for Brain Cancer. *UNC Department of Neurosurgery Grand Rounds. May 8, 2015. Chapel Hill, NC.*
43. Stem cell-mediated Therapy for Cancer. *Lineberger Comprehensive Cancer Center Joint Retreat, December 1, 2014. Chapel Hill, NC.*
44. Engineered Induced Neural Stem Cells are Tumor-homing Drug Carriers that Prevent Glioblastoma Progression. *The Society for Neuro-Oncology Annual Meeting. November 14, 2014. Miami, FL.*
45. Stem Cell-based Therapies for Cancer: An Innovative Treatment. *The Institute for Clinical and Translational Science, The University of Iowa, August 8, 2014. Iowa City, IA.*
46. Induced Neural Stem Cell-Based Therapies: An Innovative Approach to Glioblastoma Therapy. *The Damon Runyon Foundation. November 14, 2013. New York, NY.*
47. Developing Stem Cell Therapy for Cancer. *Association for Clinical and Translational Science Annual Meeting. April 9-11, 2014. Washington D.C.*
48. Stem Cell-based Delivery of Targeted Therapeutics For Cancer Therapy. *Wake Forest Institute for Regenerative Medicine. November 10, 2013. Winston-Salem, NC.*
49. Developing Stem Cell-based Therapies for Cancer. *The University of North Carolina Lineberger Comprehensive Cancer Center's Annual Research Day. April 22, 2013, Chapel Hill, NC.*

## PRODUCTS OF ENGAGED SCHOLARSHIP

### PRESS/MEDIA FEATURES

November 1, 2019	WTVD ABC11: <i>UNC, Duke Join Forces to Help Fight Childhood Brain Cancer</i>
October 13, 2017	Carte Blanche TV: <i>Brain Cancer Hunters</i>
May 1, 2017	NIH NCATS Translational Science Highlights: <i>CTSA Program Mentoring Paves Way for Brain Cancer Therapy</i>
April 2, 2017	UNC TV, Science: <i>Glioblastoma Tumor Removal Can Actually Increase Growth</i>
March 28, 2017	The Stem Cell Podcast

February 6, 2017	theverge.com: <i>The next weapon against brain cancer may be human skin</i>
February 2, 2017	genengnews.com: <i>Brain cancer treatment puts skin in the game</i>
February 2, 2017	Newatlas.com: <i>Stem cells beat the clock for brain cancer</i>
February 1, 2017	Sciencemag.org: <i>Reprogrammed skin cells shrink brain tumors in mice</i>
December 19, 2016	Lineberger Comprehensive Cancer Center: <i>Funding brochure, featured story</i>
May 31, 2016	WNCN News: <i>At UNC, stem cell treatment for brain tumors shows promise.</i>
March 30, 2016	Radio In Vivo: <i>Stem Cell Therapy for Cancer.</i>
March 10, 2016	WRAL News: <i>Stem cells may increase survival for brain cancer patients.</i>
February 24, 2016	UNC News: <i>UNC researchers make groundbreaking discovery, use skin cells to kill cancer</i>
February 24, 2016	Carolina Alumni Review: <i>Skin cells-to-stem cells can destroy brain tumors.</i>
February 24, 2016	Oncologia.com: <i>Groundbreaking discovery made uses skin cells to kill cancer</i>
February 2, 2016	The News & Observer: <i>'A big step': UNC researchers use stem cells to treat brain cancer</i>
September 27, 2015	Daily Tarheel: <i>\$100 million gift prompts innovation in Pharmacy School</i>

## ENTREPRENEURIAL ACTIVITIES

### Filed Patents

1. Hingtgen, S.D., Dumitru, R., Bago, J.R., "Methods for Making Neural Stem Cells and Uses Thereof", March 8, 2015. PCT/US2016/020649.
2. Hingtgen, S.D., Pegna, G.J., Bago, J.R., "Delivery Vehicles for Neural Stem Cells and Uses Thereof", March 16, 2015. PCT/US2016/024896.
3. Hingtgen, S.D., Nichols, S. "Transdifferentiated Cell Compositions and Methods for Use in Therapeutic Methods", January 15, 2019. PCT/US2019/62/792,837.
4. Hingtgen, S.D., Nichols, S. "Tumor Homing Cell Compositions For Use In Therapeutic Methods". November 20, 2019. PCT/US2019/059532.
5. Satterlee, A., Hingtgen, S.D., Baldwin, A.S., Mann, B.E., Zhang, X., Bell, N., Valdivia-Acosta, A. "A Normalized Ex Vivo Platform for Functional Precision Diagnosis of Patient Tumor Tissue". September 8, 2022. US63/404866.

### Start-up Company

#### Falcon Therapeutics-Launched September 2015

- Shawn Hingtgen, Ph.D.: *Founding Scientist, SAB and BOD member*

*The goal of Falcon Therapeutics is to advance cell therapy discoveries generated in the Hingtgen Lab towards the clinic to redefine the care for patients with cancers that are currently incurable. Our lead product is a personalized stem cell therapy/biomaterial combination device designed initially for treatment of cancer. We are expanding this platform technology for a variety of cancer types and working to launch first-in-human trials.*

#### Round Table Research-Launched January, 2023

- Shawn Hingtgen, Ph.D.: *Founding Scientist*

*The goal of Round Table Research is to advance a variety of discoveries generated across a team of academic scientists at UNC towards the clinic to improve outcomes for cancer patients.*

### Related Activities

2015 Selected for participation in the *Chancellor's Faculty Entrepreneurial Boot Camp*

2014 Selected for membership in the *4D Program* whose goal is to advance medical innovations towards commercial endpoints.

## IRB PROTOCOLS

IRB #: 13-0839

PI: Hingtgen

Approval date: 05/30/2013-07/13/2016

Enrollment: 30 patients

Status: Completed

Title: LCCC 1308: Engineering Reprogramed Patient-derived Neural Stem Cells for Novel Malignant Glioma Therapy

Goal: To allow the collection of skin punch biopsy samples from patients diagnosed with glioblastoma. At the time of surgery for tumor debulking, a small skin punch is excised from the surgical field. The tissue is collected by the UNC Tissue Procurement facility and transferred to the Hingtgen lab where the skin sample is converted into fibroblast cell cultures, and converted into novel transdifferentiated neural stem cells.

IRB #: 16-1749

PI: Khagi

Approval date: 07/14/2016-2020

Enrollment: 10 patients

Status: Completed

Title: Engineering induced Neural Stem Cells from Skin Tissue of Non-Cancer Patients

Goal: Defining the size of the initial skin punch required to generate a clinical dose of iNSCs in a clinically-compatible time frame is a vital step towards defining the protocol for the generation of clinical iNSC therapies. The goal of this IRB is to allow the collection of skin punch biopsy samples of various sizes to address this question. Skin samples are collected from operating rooms at UNC Hospitals or affiliated surgery centers. This tissue would otherwise be discarded as waste after a medical procedure. The tissue is transferred to the Hingtgen lab. It is measured and weighed, then processed into iNSCs. The time required to generate  $1 \times 10^9$  iNSCs (the desired clinical dose) is recorded and compared across skin samples of different sizes to define the required starting biopsy size.

IRB #: 20-2342

PI: Bae-Jump (Hingtgen, Co-I)

Approval date: 09/10/2020-current

Enrollment: 30 patients

Status: Active (enrolling)

Title: MASCOT: Manufacturing and Analysis of Stem Cells from Skin Cells for Ovarian Cancer Treatment

Goal: This pre-clinical study examines the feasibility of manufacturing stem cells from skin of 30 ovarian cancer patients, and the ability of these stem cells to migrate toward an autologous tumor, *in vitro*. Skin and tumor samples will be collected from enrolled subjects at the time of standard of care debulking surgery for ovarian cancer. Two skin samples, approximately 6mm in length, will be collected from along the abdominal incision during surgery to de-bulk the ovarian tumor. These skin samples, and tumor from the same subject will be transferred to the Hingtgen lab in the University of North Carolina (UNC) Eshelman School of Pharmacy to determine the feasibility of generating patient-specific tumor-homing stem cells, as well as the anti-tumor properties and efficacy of each patient-derived line.

IRB #: 20-1878

PI: Hingtgen

Approval date: 08/31/2020-current

Enrollment: 60 patients

Status: Active (enrolling)

Title: SLICE-BMC: Surrogate Live Organ Model In Clinical Evaluation of Brain Metastases and Cancers

Goal: This pilot study aims to collect fresh primary brain tumor and fresh brain metastasis samples from adult and pediatric patients for analysis on a micro-engineered tissue platform, which uses living organ slices derived from mouse organs, called "surrogates".

IRB #: 23-0834

PI: Satterlee (Hingtgen, Co-I)

Approval date: 07/31/2023-current

Enrollment: 50 patients

Status: Approved

Title: A feasibility study to determine if a novel patient-derived explant platform can produce drug sensitivity scores within a clinically relevant time frame in patients with CNS tumors

Goal: This clinical trial will determine the feasibility of using a novel patient-derived explant (PDE) platform to generate drug sensitivity scores from patients with central nervous system tumors within a clinically meaningful timeframe.

## TEACHING ACTIVITIES

### LECTURES

Year	Course name	Course Number	Lectures Taught	Enrollment	Course type	Overall Evaluation
2024 SP	Pharmaceutics & Drug Delivery Systems	PHCY 514	4		Professional	
2024 SP	Nanomedicine	DPMP 738	4		Graduate	
2023 AU	Biomedical Imaging Science Seminar	BMME 796	1	11	Graduate	
2023 AU	Advances in Drug Delivery	DPMP 864	1	12	Graduate	
2023 SP	Pharmaceutics & Drug Delivery Systems	PHCY 514	4	120/25	Professional	
2023 SP	Seminar	PHRS 899.004	5	22	Graduate	
2023 SP	Nanomedicine	DPMP 738	1	8	Graduate	
2022 AU	Seminar	PHRS 899.004	5	22	Graduate	
2022 AU	Advances in Drug Delivery	DPMP 864	1	12	Graduate	
2022 SP	Pharmaceutics & Drug Delivery Systems	PHCY 514	4	120/25	Professional	
2022 SP	Nanomedicine	DPMP 738	1	9	Graduate	
2021 AU	Advances in Drug Delivery	DPMP 864	2	8	Graduate	
2021 SP	Pharmaceutics & Drug Delivery Systems	PHCY 514	4	120/25	Professional	5.00/5
2021 SP	Nanomedicine	MOPH 738	1	10	Graduate	5.00/5
2020 AU	The American Professoriate	IDST-890	1	25	Graduate	NA
2020 AU	Advances in Drug Delivery	DPMP 864	29	8	Graduate	5.00/5
2020 SP	Pharmaceutics & Drug Delivery Systems	PHCY 514	3	125/25	Professional	5.00/5
2020 SP	Nanomedicine	MOPH 738	1	10	Graduate	4.00/5
2019 AU	Advances in Drug Delivery	DPMP 864	29	10	Graduate	5.00/5
2019 SP	Pharmaceutics & Drug Delivery Systems	PHCY 514	3	125/25	Professional	5.00/5
2019 SP	Nanomedicine	MOPH 738	1	10	Graduate	5.00/5
2018 AU	Advances in Drug Delivery	DPMP 864	10	6	Graduate	4.00/5
2018 SP	Experimental Approaches to Human Disease	CBPH863	1	11	Graduate	NA
2018 SP	Pharmaceutics & Drug Delivery Systems	PHCY 512	1	125/25	Professional	4.25/5
2017 SP	Pharmaceutics II	PHCY 512	1	125/25	Professional	4.25/5
2017 SP	BioPsych: CNS	NBIO 703	1	7	Graduate	NA

Year	Course name	Course Number	Lectures Taught	Enrollment	Course type	Overall Evaluation
2016 AU	PiPs 2	PHCY 621	7	122/25	Professional	4.67/5
2016 AU	Nanomedicine	MOPH 868	4	6	Graduate	4.00/5
2016 AU	BRIC Certificate Program	BME890-16	1	10	Graduate	NA
2016 AU	Advanced Drug Delivery Systems	BME590	1	6	Graduate	NA
2016 SP	Pharmaceutics II	PHCY 512	3	125/25	Professional	4.34/5
2016 SP	BioPsych: CNS	NBIO 703	1	7	Graduate	NA
2015 AU	Advances in Drug Delivery	MOPH 864	2	15	Graduate	3.8/5
2015 AU	Advanced Drug Delivery Systems	BME590	1	10	Graduate	NA
2014 AU	Pharmaceutics I	PHCY 410	4	161	Professional	4.17/5
2014 AU	Nanomedicine	MOPH 864	5	18	Graduate	NA
2014 AU	Seminar	PHRS 899.004	14	30	Graduate	NA
2013 AU	Pharmaceutics I	PHCY 410	4	132	Professional	4.46/5
2013 AU	Nanomedicine	MOPH 864	2	18	Graduate	NA
2013 AU	Seminar	PHRS 899.004	14	30	Graduate	NA
2013 SP	Pharmaceutics of Pharmacodynamics	PHCY 412	2	174	Professional	4.27/5
2012AU	Nanomedicine	MOPH 738	2	18	Graduate	NA

## ADVISING

### Current Lab Members

Name	Previous Degree	Position	Year Started	Topic/Thesis	Awards
<b>Visiting Professor</b>					
Dennis Steindler	PhD, Neuroscience	Former Director, McKnight Brain Institute, Univ. of Florida	2020	Neuroscience, neural stem cells, brain cancer	
<b>Research Associate</b>					
Andrew Buckley	PhD, Molecular Biology, U. of Rochester	Research Scientist	2021	Synthetic technology	
Alain Valdivia	PharmD, MS, Pharmacology, Havana University	Research Scientist	2018	Surgery and cell therapy development	
<b>Research Scholar</b>					
Adebimpe Adefolaj	BS. Troy	Brain Slice Scientist	2021	Developing organotypic slice models	
Rajaneekar Dasari	Ph.D. Jawaharlal Nehru Tech. U.	Tissue Slice Scientist	2021	Advancing development of slice models	
<b>Post-Doctoral Fellows</b>					
Xiaopei Xiang	PhD, Molecular Pharmaceutics, UCLA	Post Doc	2020	Organotypic brain slice models	
<b>Graduate</b>					



Name	Previous Degree	Position	Year Started	Topic/Thesis	Awards
Yu Zhang	BS, Pharm Sci, U. Michigan	Graduate Student, MD-PhD Program	2022	Polymer matrices for cell therapy	
Morrent Thang	BS, Neuroscience, Indiana U	Graduate Student, Pharmaceutical Sciences	2021	Tumor-homing cell therapy	
Lauren Kass	BS, NC St.	Graduate Student, MD-PhD Program	2021	Polymer matrices for cell therapy	
Breanna Mann	BS, Georgia Tech	Graduate Student, Pharmaceutical Sciences	2021	Pediatric cancer therapies	
Caroline Stockwell	BS. U. Rochester	Graduate Student, Pharmaceutical Sciences	2023	Novel cell-derived drug therapies	
<b>Undergraduate Students</b>					
Ike Keku				2022	
Rami Darawsheh				2022	
Clara Mellows			2022		
Alexi Callinicos			2022		
Noah Bell			2019		
Ingrid Findlay			2019		

### Former Lab Members

Name	Previous Degree	Position	Years	Thesis Title/Topic	Awards	Current Position
<b>Research Scientist</b>						
Kevin Sheets	PhD, Biomedical Engineering, Virginia Tech	Research Associate (Post-doc in the Hingtgen Group from 2014-2016)	2014-2019	Clinical scaffold development		Stride Bio
Juli Bago`	PhD, Centre d'Investigación Cardiovascular, Spain	Research Scholar (Post-doc in the Hingtgen Group from 2013-2016)	2017-2018	Human iNSC therapy; Polymeric scaffolds for cell therapy		PI, Ostrava, Czech Republic
<b>Post-Doctoral Fellows</b>						
Andrew Satterlee	PhD, Molecular Pharmaceutics, UNC	Post Doc	2016-2020	iNSC durability & slice models	TL1 Fellow	Eshelman Institute for Innovation
Vivien Lettry	PhD, Animal Surgery, Hokkaido, Japan	Post Doc	2016-210	Patient-derived iNSC Therapies		Project Manager, NC St.
Aldofo Alfonso	PhD, National University of Córdoba, Córdoba, Argentina.	Post Doc	2012-2014	Mouse iNSC therapy		Research Scientist, GlaxoSmithKline

<b>Name</b>	<b>Previous Degree</b>	<b>Position</b>	<b>Years</b>	<b>Thesis Title/Topic</b>	<b>Awards</b>	<b>Current Position</b>
<b>Graduate</b>						
Alex Woodell	BS, Clemson U	Graduate Student, Pharmaceutical Sciences	2018-2022	Hybrid immune-stem cell therapies		Alcami Corporation
Wulin Jiang	M.S., Biotechnology, Northwestern U.	Graduate Student, Pharmaceutical Sciences	2017-2021	Cell therapy for metastatic disease	Venture Catalyst Fellow	L.E.K. Consulting
Alison Mercer-Smith	BS, Chemistry, Pomona College	Graduate Student, MD-PhD Program	2017-2021	Metastatic Cancer Therapy	Dissertation award, Graduation speaker	Medical School, UNC
Hunter Bomba	BS, NC St. U	Graduate Student, Pharmaceutical Sciences	2018-2021	Polymer matrices for NSC therapy		Virtici, LLC
Shaye Hagler	BS, Biochemistry, Florida St.	Graduate Student, Pharmaceutical Sciences	2015-2019	iNSC Therapies	GSO Representative	IsoPlexis
Onyinyechukwu Okolie	BS, Biomedical Engineering, U. of Washington	Graduate Student, Pharmaceutical Sciences	2012-2016	Mouse models of brain cancer resection		Washington St. Patrol
<b>Clinical Fellows</b>						
Elizabeth Finch	MD, Hematology-Oncology, UNC Hospitals	Fellow	2016	Impact of surgery on NSC transplant		Penn St. Hershey
<b>Medical Students</b>						
Guillame Pegna	BS, UNC	Medical Student	2013-2014	Polymeric Scaffolds		Resident; UNC Hospitals
<b>Post-Bachelorette</b>						
Ivory Paulk	BS, University of Central Florida	Post-bach	2016-2017	Stem cell therapies for metastatic cancer	UNC PREP Program	Graduate School; UCLA
<b>Undergraduates</b>						
Abby Ewend	BS, Biology, UNC	Undergraduate Scholar	2017-2021	Cancer models		Medical School, Washington U.
Spencer Maingi	BS, Chemistry, UNC	Undergraduate Researcher	201-2021	iNSC therapy		Masters Program, NC St.
Morgan Goetz	BS, BME, UNC	Undergraduate Researcher	2017-2019	Matrix development		Graduate School, Harvard U.
Becca Sikora	BS, Chemistry, UNC	Undergraduate Researcher	2012-2014	iNSC therapy		DPM, Kent State University College of Podiatric Medicine
<b>High School Students</b>						

<b>Name</b>	<b>Previous Degree</b>	<b>Position</b>	<b>Years</b>	<b>Thesis Title/Topic</b>	<b>Awards</b>	<b>Current Position</b>
Luke Garges	TBD		2016			Trinity High School
Abby Ewend	Durham Academy	Undergraduate Scholar	2017			UNC
Michael Marand	Panther Creek High School	Summer intern	2017		YIP Fellow	UNC
<b>Other</b>						
Nicole Tan	Pharm Sci, U. College London		2022	Live cell platform		
David Hesmer	BS, NC State	Researcher	2018-2020		Brain cancer survivor	
Sari Freedman		Pharmacy Student	2013	iNSC therapy		Resident; U. of Colorado; School of Pharmacy and Pharmaceutical Sciences
Neil Cornwell		Summer Intern	2013, 2014	Polymeric Scaffolds		BME Student; NC State
<b>Dissertation Committees and Rotation Advisor</b>						
<b>Student's Name</b>	<b>Department</b>	<b>Date</b>	<b>Role</b>	<b>Current Position</b>		
Zhongbo Li	Division of Pharmacoengineering and Molecular Pharmaceutics	2023-Present	Dissertation Committee	UNC Chapel Hill		
Madelyn VanBlunk	Joint Department of Biomedical Engineering	2023-Present	Dissertation Committee	UNC Chapel Hill, NC State		
Ryan Woodring	Division of Pharmacoengineering and Molecular Pharmaceutics	2023-Present	Dissertation Committee	UNC Chapel Hill		
Rania Tsahouridis	Department of Pharmacology	2023-Present	Dissertation Committee	UNC Chapel Hill		
Sophie Mendell	Division of Pharmacoengineering and Molecular Pharmaceutics	2022-2023	Dissertation Committee	UNC Chapel Hill		
Shreeya Bhonge	Applied Physical Sciences	2022-Present	Dissertation Committee	UNC Chapel Hill		
Jessica Tetterton	Division of Pharmacoengineering and Molecular Pharmaceutics	2022-Present	Dissertation Committee	UNC Chapel Hill		
Ameya Chaudhari	Division of Pharmacoengineering and Molecular Pharmaceutics	2022	Dissertation Committee	UNC Chapel Hill		
Peter Voorhees	Division of Pharmacoengineering and Molecular Pharmaceutics	2021-Present	Dissertation Committee	UNC Chapel Hill		
Phillip Durham	Division of Pharmacoengineering and Molecular Pharmaceutics	2021-2022	Dissertation Committee	UNC Chapel Hill		
Kyle Riker	Department of Applied Physical Sciences	2021-Present	Dissertation Committee	UNC Chapel Hill		

Marshall Fritz	Division of Pharmacoengineering and Molecular Pharmaceutics	2021-Present	Dissertation Committee	UNC Chapel Hill
Emily Bonacquisti	Division of Pharmacoengineering and Molecular Pharmaceutics	2021-2022	Dissertation Committee	UNC Chapel Hill
Misha Fini	Microbiology and Immunology	2020	Masters Committee	UNC Chapel Hill
Timothy Little	Division of Pharmacoengineering and Molecular Pharmaceutics	2020	Rotation Advisor	UNC Chapel Hill
Abigail Cleveland	UNC Neuroscience Center, Department of Neurology	2019-2023	Dissertation Committee	UNC Chapel Hill
Jasmine King	Department of Biomedical Engineering, Division of Pharmacoengineering and Molecular Pharmaceutics	2019-2023	Dissertation Committee	UNC Chapel Hill
Mairead Heavy	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2019	Rotation Advisor	UNC Chapel Hill
Emelia Zwyot	Chemical Biology, UNC Eshelman School of Pharmacy	2017-2021	Dissertation Committee	UNC Healthcare
Kathryn Moore	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-2020	Dissertation Committee	Emory U.
Randolph Qian	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-2020	Dissertation Committee	RegenXBio
Dean Nehama	MD-PhD Program, UNC Chapel Hill	2012-2019	Dissertation Committee	UNC Chapel Hill
Quan Jin	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-2019	Dissertation Committee	Biogen
Duhyeong Hwang	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-2020	Dissertation Committee	UNC Chapel Hill
Mengying Hu	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-2019	Dissertation Committee	Weill Cornell
Jing Fu	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2013-2017	Dissertation Committee	Tergus Pharma, RTP
Tojan Rahhal	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2014-2017	Dissertation Committee	Alliance Professional Development, LLC
Dongfen Yuan	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2014-2017	Dissertation Committee	Post-doctoral Fellow, UNC
Cassie Caudill	UNC Biological and Biomedical Sciences PhD Program	2014	Rotation Advisor	Vaxess
Christina Parker	UNC Biological and Biomedical Sciences PhD Program	2014-2019	Dissertation Committee	Eli Lilly

Samantha Fix	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2014	Rotation Advisor	MD Anderson
Katherine Stember	UNC Biological and Biomedical Sciences PhD Program	2015	Rotation Advisor	
Tejash Patel	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-2018	Dissertation Committee	RegenxBio
Karen Bulaklak	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-2017	Dissertation Committee	Post-doctoral Fellow; Duke University
Michael Collier	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-2017	Dissertation Committee	Avanti Polar Lipids, Alabama
Junghyun Kim	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-2017	Dissertation Committee	Post-doctoral Fellow, IBS-POSTECH, Seoul, South Korea
Nihan Chen	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-2019	Dissertation Committee	Pfizer
Carla Costa- Sanchez	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-2018	Dissertation Committee	UNC Chapel Hill
Emelia Zwiyott	UNC Biological and Biomedical Sciences PhD Program	2017	Rotation Advisor	
Randolph Qian	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2017	Rotation Advisor	

## GRANTS

### ONGOING GRANT SUPPORT

Source of Support: UNC Lineberger Comprehensive Cancer Center  
Project Number: N/A  
Principal Investigator: Hingtgen, Freeman  
Total Period of Support: 08/01/2023-07/31/2025  
Total Direct Funding: \$200,000  
Percent Effort: 10% effort  
Project Title: UberCell technology: programmable peptide-cell delivery vehicles drive cancer therapy in a new direction.

Goal: This project will advance development of novel cell-peptide therapies for cancer.

Source of Support: Ian's Friends Foundation  
Project Number: N/A  
Principal Investigator: Hingtgen, Floyd  
Total Period of Support: 08/01/2023-07/31/2024  
Total Direct Funding: \$115,000  
Percent Effort: 10% effort  
Project Title: Targeting tumor-microenvironment interactions in pediatric brain tumors  
Goal: This project will investigate the impact of tumor microenvironment on tumor progression and drug response using spatial transcriptomics and living tissue brain slice technology.

Source of Support: UNC Lineberger Comprehensive Cancer Center  
Project Number: N/A  
Principal Investigator: Hingtgen, Baldwin, Satterlee  
Total Period of Support: 02/01/2023-01/31/2024  
Total Direct Funding: \$200,000  
Percent Effort: 10% effort  
Project Title: Advancing UNC Brain Cancer Translation Through a Living Tissue Platform  
Goal: These dedicated funds will further advance our work on living tissue brain slices within a translational framework and across these exemplar projects.

Source of Support: NIH/NINDS PA-13-302: Research Project Grant (Parent R01)  
Project Number: R01 CA269974  
Principal Investigator: Hingtgen, Perry  
Total Period of Support: 02/01/2022-01/31/2027  
Total Direct Funding: \$1,675,000  
Percent Effort: 20% effort  
Project Title: Harnessing Continuous Liquid Interface 3D Printing to Improve Tumor-homing Stem Cell Therapy for Post-surgical Brain Cancer  
Goal: This R01 is focused on utilizing additive manufacturing technology to generate new matrices that maximize the efficacy of stem cell therapy for post-surgical glioblastoma.

Source of Support: Kids Beating Cancer Foundation  
Principal Investigator: Hingtgen  
Total Direct Funding: \$126,200  
Total Period of Support: 01/30/2023-01/29/2024  
Percent Effort: 2% effort  
Project Title: Stem Cell-delivered Particles for Hyperthermia Therapy to Treat Glioblastoma  
Goal: Through a new partnership with the Tarantula and Baumgarten groups, we will develop NSC-nanoparticle therapies that will eradicate brain cancer when an oscillating field is applied.

Source of Support: NIH/NCATS PAR-19-099: Research Project- Cooperative Agreement: Clinical and Translational Science Award, Collaborative Innovation Award (U01)  
Project Number: U01TR003715  
Principal Investigators: Hingtgen, Baldwin  
Total Period of Support: 07/01/2021-06/30/2025  
Total Direct Funding: \$4,598,428  
Percent Effort: 20% effort  
Project Title: A consortium effort to translate therapies for neurological disease via an *ex vivo* organotypic tissue platform  
Goal: This large multi-PI U01 project brings together basic science and clinical experts across UNC, Duke, and U. of Florida is to add new capabilities, discover new mechanisms of disease, and drive translation of promising new therapeutic agents towards human patients in living tissue models of brain cancer, neurodegenerative disease, and ischemic disease.

Source of Support: Eshelman Institute for Innovation  
Principal Investigator: Hingtgen  
Total Direct Funding: \$500,000  
Total Period of Support: 06/01/2019-06/30/2024  
Percent Effort: 10% effort  
Project Title: Harnessing synthetic biology to develop next-generation cell therapies  
Goal: Through a new partnership with the J. Craig Venter Institute, blend the latest in synthetic biology with emerging cell therapy techniques to create a new class of anti-cancer cell therapies.

Source of Support: Accelerate Brain Cancer Cure  
Principal Investigator: Hingtgen  
Total Direct Funding: \$169,000

Total Period of Support: 03/01/2019-3/30/2024  
Percent Effort: 10% effort  
Project Title: Developing cellular hybrids to treat glioblastoma  
Goal: Create a new approach to cell-based immune therapy

Source of Support: NIH/NINDS PA-20-185: Research Project Grant (Parent R01)  
Project Number: R01CA257009  
Principal Investigator: K Ainslie  
Total Direct Funding: \$1,925,265  
Total Period of Support: 07/01/2021-06/30/2026  
Percent Effort: 5% effort  
Project Title: Tunable Temporal Drug Release for Optimized Synergistic Combination Therapy of Glioblastoma

Goal: To create polymer scaffolds as local controlled release drug delivery platforms for tuned drug release within the surgical cavity of GBM

Role: Co-I

### COMPLETED GRANT SUPPORT

Source of Support: UNC Creativity Hub (Pre-proposal funded)  
Principal Investigator: Dayton  
Total Direct Funding: \$500,000 (\$5,000 pre-proposal)  
Total Period of Support: 07/01/2023-06/30/2024  
Percent Effort: 5% effort  
Project Title: Planning for The Carolina Center for Ultrasound Brain Imaging and Therapeutics (C-CUBIT)  
Goal: Create an infrastructure to advance funding, development, and translation of therapies based on ultrasound imaging for treatment of brain disorders

Source of Support: NIH/NINDS PA-13-302: Research Project Grant (Parent R01)  
Project Number: R01NS099368  
Principal Investigator: Hingtgen  
Total Direct Funding: \$1,903,983  
Total Period of Support: 11/01/2017-08/30/2023  
Percent Effort: 25% effort  
Project Title: Engineering stem cell therapies to understand and overcome glioblastoma adaption

Goal: To define mechanisms underlying escape of GBM from NSC therapy and devise strategies to achieve durable suppression of post-operative disease.

Source of Support: NIH/NCI PA-18-668 Pre-Doctoral Dual-Degree Training Program (F30)  
Principal Investigator: Mercer-Smith  
Total Direct Funding: \$80,000  
Total Period of Support: 07/11/2019-07/10/2023  
Percent Effort: 5% effort  
Project Title: Therapeutic Engineered Stem Cells as a New Adjuvant Therapy for Non-small Cell Lung Cancer Brain Metastases

Goal: This F30 training grant is designed to create a new-based approach to treating lung cancer brain metastases

Source of Support: Extrude Pharmaceuticals  
Project Number: Contract  
Principal Investigator: Hingtgen  
Total Direct Funding: \$149,550  
Total Period of Support: 07/01/2021-04/30/2023  
Percent Effort: 2% effort  
Project Title: Testing controlled released systems for brain cancer

Goal: To test novel polymer-based drug delivery systems in resection models of GBM

Source of Support: Eshelman Institute for Innovation  
Principal Investigator: Hingtgen, Freeman  
Total Direct Funding: \$150,000  
Total Period of Support: 06/01/2020-06/30/2023  
Percent Effort: 10% effort  
Project Title: UberCell Therapy  
Goal: Create a new hybrid peptide-cell therapy for treating cancer

Source of Support: Cancer Targeted Therapy  
Project Number: Contract  
Principal Investigator: Hingtgen  
Total Direct Funding: \$30,382  
Total Period of Support: 07/01/2022-01/30/2023  
Percent Effort: 2% effort  
Project Title: CTT industry contract to develop the C4-2B animal model  
Goal: to establish a reproducible model of metastatic prostate cancer in mice using the C4-2BGFP- Fluc cell line and characterize tumor growth over time.

Source of Support: Cancer Targeted Therapy  
Project Number: Contract  
Principal Investigator: Hingtgen  
Total Direct Funding: \$96,633  
Total Period of Support: 04/01/2023-03/30/2024  
Percent Effort: 2% effort  
Project Title: Development of a PSMA-Targeted Monomethyl Auristatin E Prodrug for Prostate Cancer

Goal: Evaluate the pharmacokinetic and biodistribution of CTT2101 and, 2. Evaluate the efficacy of CTT2101 at ED50 of cabazitaxel parent drug.

Source of Support: NIH/NINDS PA-13-302: Research Project Grant (Parent R01)  
Project Number: R01NS097507  
Principal Investigator: Hingtgen  
Total Period of Support: 06/01/2016-07/30/2022  
Total Direct Funding: \$1,750,904  
Percent Effort: 21.9% effort  
Project Title: Nanofiber matrices to improve neural stem cell-mediated cancer therapy  
Goal: This R01 is focused on developing and testing a panel of novel nanofiber matrices in order to define the design parameters required to maximize the efficacy of stem cell therapy for post-surgical glioblastoma.

Source of Support: Extrude Pharmaceuticals  
Project Number: Contract  
Principal Investigator: Hingtgen  
Total Direct Funding: \$149,550  
Total Period of Support: 07/01/2021-12/30/2022  
Percent Effort: 2% effort  
Project Title: Testing controlled released systems for brain cancer  
Goal: To test novel polymer-based drug delivery systems in resection models of GBM

Source of Support: NIH/NCATS PA-15-270, Omnibus Solicitation of the NIH for Small Business Technology Transfer Grant Applications (Parent STTR [R42])  
Project Number: 2 R42TR001789-02A1  
Principal Investigator: Nichols  
Role: Co-PI



Total Direct Funding: \$1,499,150  
Total Period of Support: 02/01/2019-01/31/2022  
Percent Effort: 10% effort  
Project Title: Personalized stem cell therapy for cancer  
Goal: This small business grant is focused on exploring multiple aspects of developing a clinical version of the iNSC therapy for human patient testing.

Source of Support: Eshelman Institute for Innovation  
Principal Investigator: Hingtgen  
Total Direct Funding: \$200,000  
Total Period of Support: 06/01/2018-05/30/2021  
Percent Effort: 10% effort  
Project Title: Native and Bioprinted 3D Tissue Array Platform for Predicting Cancer Metastasis and Drug Response  
Goal: To create a novel tissue-slice based screening platform to predict the drug response of metastatic cancer.

Source of Support: UNC Eshelman Institute for Innovation  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$200,000  
Total Period of Support: 06/01/2016-12/31/2020  
Percent Effort: 5% effort  
Project Title: Systemic Stem Cell Therapy for Multi-organ Metastatic Breast Cancer  
Goal: To create the first systemically delivered tumor-homing stem cell therapy to target metastatic breast cancer distributed throughout multiple organs of the body.

Source of Support: Eshelman Institute for Innovation  
Principal Investigator: Hingtgen  
Total Direct Funding: \$200,000  
Total Period of Support: 06/01/2017-05/30/2021  
Percent Effort: 10% effort  
Project Title: Personalized therapy for the incurable: metastatic lung cancer  
Goal: To create a novel cell-based therapy for metastatic lung cancer.

Source of Support: Ian's Friends Foundation  
Principal Investigator: Hingtgen, Floyd  
Total Direct Funding: \$192,000  
Total Period of Support: 12/01/2019-08/30/2021  
Percent Effort: 10% effort  
Project Title: Creating a novel tissue-based platform to rapidly elucidate therapeutic vulnerabilities of pediatric brain cancer  
Goal: Create a new approach to profile and treat pediatric brain cancers using a tissue-based platform

Source of Support: UNC Eshelman Institute for Innovation  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$750,000  
Total Period of Support: 11/01/2015-12/01/2020  
Percent Effort: 15% effort  
Project Title: Transdifferentiation: A novel approach to personalized cancer therapy  
Goal: To advance iNSC therapy for GBM towards human patient testing by developing multiple strategies for iNSC generation, therapy, and characterization that will enable use in the clinical setting.

Source of Support: North Carolina State University  
Principal Investigator: Pourdeyhimi

Role: Co-PI  
Total Direct Funding: \$750,000 (\$110,000 to our sub-project)  
Total Period of Support: 02/01/2017-12/31/2019  
Percent Effort: 10% effort  
Project Title: Game-changing Research Incentive Program: 3D Printing of Fibrous Tissue Engineered Medical Products

Goal: To engineer a novel 3D printing nonwoven scaffold fabrication system and demonstrate the versatility and utility in different exemplars of regenerative medicine and cancer therapy.

Source of Support: UNC Eshelman Institute for Innovation  
Principal Investigator: Lawrence  
Total Direct Funding: \$750,000 (\$300,000 to our project)  
Total Period of Support: 11/01/2015-06/01/2019  
Percent Effort: 10% effort  
Project Title: Light-Triggered Cell-Mediated Targeting of Glioblastoma

Goal: To create a new approach to cancer therapy where small molecule drugs are released from stem cell drug carriers using light activation.

Source of Support: NIH/NCATS PA-15-270, Omnibus Solicitation of the NIH for Small Business Technology Transfer Grant Applications (Parent STTR [R41])

Principal Investigator: Nichols  
Total Direct Funding: \$250,000 (\$106,417 to our lab)  
Total Period of Support: 06/15/2017-06/14/2019  
Percent Effort: 10% effort  
Project Title: Personalized Neural Stem Cell Therapy for Cancer

Goal: This small business grant is focused on exploring multiple aspects of developing a clinical version of the iNSC therapy for human patient testing.

Source of Support: University of Birmingham, United Kingdom  
Principal Investigator: McConville  
Total Direct Funding: \$15,000 (\$12,000 to our sub-project)  
Total Period of Support: 06/01/2017-05/30/2018  
Percent Effort: 3% effort  
Project Title: Development of irinotecan-loaded PLGA millirods for the treatment of glioblastoma

Goal: Our portion of the project will focus on testing drug-eluting nanorods in mouse models of GBM resection/recurrence.

Source of Support: North Carolina General Assembly  
Principal Investigator: Jay, Ligler  
Role: Co-PI  
Total Direct Funding: \$1,830,00 (\$225,000 to our sub-project)  
Total Period of Support: 06/01/2015-06/01/2018  
Percent Effort: 10% effort  
Project Title: Program in PharmacoEngineering: Integrating Engineering with Pharmaceutical Sciences to Improve the Delivery of Therapeutic and Diagnostic Agents.

Goal: To develop heterogeneous scaffolding materials designed to optimize the retention, persistence, and migration of tumoricidal neural stem cells transplanted into the GBM resection cavity.

Source of Support: UNC Eshelman Institute for Innovation  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$50,000  
Total Period of Support: 11/01/2015-06/01/2017  
Percent Effort: 5% effort

Project Title: Developing cytotoxic stem cell therapy for pediatric brain cancer  
The goal of this project is to create new tumoricidal stem cell treatments that effectively treat various forms of pediatric brain cancer and can be easily translated into the clinical setting.

Source of Support: North Carolina General Assembly-Supplement  
Principal Investigator: Jay, Ligler  
Role: Co-PI  
Total Direct Funding: \$35,000  
Total Period of Support: 06/01/2015-06/01/2016  
Percent Effort: 10% effort  
Project Title: Enhancing neural stem cell tumor-homing migration using novel single-cell genetics

The goal of this project is to perform single-cell genetic analysis to identify pathways mediating migration in neural stem cells and convert this information into more effective treatments.

Source of Support: NIH/NCATS KL2TR000084  
Principal Investigator: Runge  
Role: Scholar  
Total Direct Funding: \$75,000 (an additional \$258,000 provided 75% salary coverage for 3 years)  
Total Period of Support: 11/1/2013-4/30-2018  
Percent Effort: 75% effort and 75% salary support  
Project Title: UNC Clinical Translational Science Award-K12 Scholars Program (KL2)  
The overall goal of this application is to combine the research strengths, resources and opportunities at UNC and new partner, RTI International, to build on the foundation established in the CTSA's last five years. On this project, I was a Scholar.

Source of Support: UNC Lineberger Comprehensive Cancer Center  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$100,000  
Total Period of Support: 01/01/2013-01/31/2015  
Percent Effort: 20% effort  
Project Title: Transdifferentiated Neural Stem Cells: A Novel Approach for Cancer Therapy  
The goal of this small research grant is to support develop induced neural stem cell carriers for cancer therapy.

Source of Support: UNC IBM Junior Faculty Development Award  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$7,500  
Total Period of Support: 01/01/2014-12/31/2014  
Percent Effort: 10% effort  
Project Title: Developing Personalized Cell-based Therapies for Cancer Using Patient Biopsies  
The goal of this small research grant is to support develop induced neural stem cell carriers from the skin of brain cancer patients.

Source of Support: UNC University Research Council Award  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$5,000  
Total Period of Support: 01/01/2013-11/30/2015  
Percent Effort: 10% effort  
Project Title: Generation of Novel Patient-specific Induced Neural Stem Cell Carriers for Cancer Therapy.

The goal of this small research grant is to cover the expense of deriving and culturing induced neural stem cell carriers generated from the skin of brain cancer patients.

Source of Support: UNC Translational and Clinical Sciences Institute  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$50,000  
Total Period of Support: 11/01/2014-10/31/2015  
Percent Effort: 10% effort  
Project Title: Neural Stem Cell Mediated Brain Tumor Therapy: Increased Efficacy with Electrospun Scaffolds

The goal of this project is to develop a new scaffold-based system for transplanting tumoricidal stem cells for cancer therapy.

Source of Support: NIH/NCATS 2KR461203  
Principal Investigator: Hingtgen  
Role: PI  
Total Direct Funding: \$2,000  
Total Period of Support: 06/01/2013-05/01/2013  
Percent Effort: 2% effort  
Project Title: Developing translatable personalized cell therapies for glioblastoma

The goal of this small research grant is to support the conversion of patient-derived skin biopsy samples into fibroblasts. These cells will then be used to explore the first induced neural stem cells created from the skin of cancer patients.

Source of Support: NIH T32 CA079443  
Principal Investigator: Weissleder  
Role: Post-doctoral Fellow  
Total Direct Funding: \$115,000  
Total Period of Support: 02/2005-06/2008  
Percent Effort: 100% effort and salary  
Project Title: Training Grant in Molecular Imaging Research

Source of Support: American Brain Tumor Association  
Principal Investigator: Hingtgen  
Role: Post-doctoral Fellow  
Total Direct Funding: \$100,000  
Total Period of Support: 07/2008-07/2010  
Percent Effort: 75% effort and salary  
Project Title: Developing stem cells delivery of the targeted immunotoxin IL13-PE for treatment of Glioblastoma.

## PROFESSIONAL SERVICE

### SERVICE TO THE DISCIPLINE (NATIONAL/INTERNATIONAL)

#### Professional Organizations

2012-present Society for Neuro-oncology  
2012-present American Society of Gene and Cell Therapy

#### Editorial Board Member

2017 *Biomaterials*, International Editorial Board Member

#### Ad hoc Scientific Manuscript Reviewer for:

- 1) *Science Translational Medicine*
- 2) *ACS Nano*
- 3) *Stem Cells Translational Medicine*

- 4) *Biomaterials*
- 5) *Cancer Letters*
- 6) *Journal of Neuro-oncology*
- 7) *Neuro-oncology*
- 8) *Methods*
- 9) *Chemical Engineering Journal*
- 10) *Science Advances*
- 11) *Nature Biomedical Engineering*

**Reviewer Activities:**

2023	Florida Center for Brain Tumor Research
2023	Lineberger Comprehensive Cancer Center, UCFR Award Committee
2023	Eshelman Institute for Innovation
2022	Florida Center for Brain Tumor Research
2021	Florida Center for Brain Tumor Research
2021	Lineberger Comprehensive Cancer Center, UCFR Award Committee
2019	NIH Nano Study Section Ad Hoc
2017	NIH Nano Study Section Ad Hoc
2016	Society of Neuro-oncology, Young Investigator Award
2015	Society of Neuro-oncology, Young Investigator Award
2015	Lineberger Comprehensive Cancer Center, UCFR Award Committee
2014	Lineberger Comprehensive Cancer Center, UCFR Award Committee

**SERVICE TO COMPANIES:**

2015- present	Co-founder, BOD, SAB, Falcon Therapeutics
2023- present	Co-founder, Round Table Research, Inc.
2023- present	Consultant, QHP Capital

**UNIVERSITY SERVICE:**

**Departmental/Division:**

2024-present	Divisional Director of Graduate Students
2024-present	Bill and Karen Campbell Faculty Mentoring Program: Mentor for Dr. Derek Bartlett
2023	Associate Professor Search Committee, Chair
2023	Eshelman Institute for Innovation Opportunistic Proposals, Reviewer
2022-2023	DPMP Director of BBSP Recruitment
2021	Eshelman Institute for Innovation Opportunistic Proposals, Reviewer
2021	IPhO panel discussion
2021	DPMP Recruitment Webinar
2020-present	ESOP Budget Committee
2020-present	Industry Pharmacists Organization (IPhO) faculty representative
2020	DPMP Recruitment Webinar
2020	ESOP Capital Working Group
2020	Focus group for FDA's biosimilar curriculum landscape assessment
2018	DPMP Faculty Search Committee
2018	Executive Vice Dean Search Committee
2017	Eshelman Institute for Innovation Symposium planning committee
2017	Graduate Curriculum Planning Committee
2016	EII Associate Director Search Committee Member
2016	Curricular Transformation Committee: Research/Scholarship Planning Team
2016	Curricular Transformation Committee: Student Practicum Planning Committee
2016	Graduate School self-study committee
2013-2020	DPMP Representative, Facilities Advisory Committee
2012	Research Assistant Professor Search Committee, Chair Division of Molecular Pharmaceutics

**Institutional/UNC Campus:**

2021	Member, Senior Director of Development Search Committee
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2020-2021 Member, Lineberger Cancer Center Team Science Working Group  
 2019-present Member, UNC Biosafety Committee  
 2017 Campaign Faculty Ambassador, UNC Campaign for Carolina  
 2016-present Member, UNC Animal Studies Core Advisory Panel  
 2016-present Member, UNC Small Animal Imaging Core Advisory Panel  
 2015 Candidate interviewer for MD-PhD and BBSP program  
 2014 NanoDDS Conference, session chair  
 2014 Candidate interviewer for MD-PhD and BBSP program  
 2012-2014 Biomedical Research Imaging Center Retreat planning committee, member

**Public:**

2019, 2020 Created a unique research opportunity for David Hesmer, an active brain cancer patient, within our research team. This partnership was featured in a press release from the Lineberger Comprehensive Cancer Center “*Grateful patient works with lab team to find cancer therapies*”.

2019 Organized a story on two cancer survivors working in our research team. Together with the UNC Development Office, “Minds meet hearts in the hunt for a cure” featured the stories of Dr. Andrew Satterlee and Alison Mercer-Smith who both survived cancer and are now working with us to create better treatment options.

2017-present Participated in the *Head for the Cure* event to raise funding and awareness for brain cancer. Our research group participated in the race and attended the post-race event where we talked with fellow researchers, clinicians, and cancer survivors

2017 Organized *Trinity Winter Term: Day in the life of a scientist*. This program enabled high school students to gain exposure to careers in science. Over the course of two weeks, 12 students from Trinity High School met with 15 faculty members from the schools of Pharmacy and Medicine in 1 hour blocks. This provided the students with exposure and insights into careers as researchers, administrators, and leaders in the sciences.

2016, 2017 Participated in the Young Innovators Program (YIP) to provide bright and eager high school students with early immersive experiences in laboratory research.

2016 Participated in the Postbaccalaureate Research Education Program (PREP), where we train students with a Bachelor’s degree to strengthen skills with the goal of enabling entry into PhD programs across the nation.

2016 Led a tour of research labs and the imaging center for the UNC Pediatric Cancer Survivor’s Teen Support Group and their families.

2016 Volunteered at the SECU Family House. Our research group bought food, supplies, and cooked dinner for the guests whose families or loved ones are being treated at UNC Hospitals.

**UNIVERSITY AFFILIATIONS:**

02/2014-present **Member**, 4D Initiative, UNC Translational and Clinical Sciences Institute, UNC  
 11/2013-present **Member**, Neuroscience Center; UNC  
 12/2012-present **Member**, Center for Nanotechnology and Drug Delivery; UNC  
 10/2012-present **Associate Member**, Lineberger Comprehensive Cancer Center; UNC  
 04/2012-present **Member**, Biomedical Research Imaging Center, UNC