CURRICULUM VITAE

PERSONAL INFORMATION

Shawn David Hingtgen, Ph.D.

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EDUCATION

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

PROFESSIONAL EXPERIENCE

04/2018-Present **Associate Professor with Tenure,** Division of Molecular Pharmaceutics, UNC Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC

09/2016-Present **Assistant Professor,** 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)

04/2012-03/2018 **Assistant Professor,** Division of Molecular Pharmaceutics, UNC Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC

06/2010-03/2012 **Instructor**, Department of Radiology, Massachusetts General Hospital/Harvard Medical School, Boston, MA.

02/2008-06/2010 **Post-doctoral Fellow**, Dept. of Radiology, Nuclear Medicine and Molecular Imaging, Massachusetts General Hospital/Harvard Medical School, Boston, MA

- Advisor: Khalid Shah
- Gained experience in mouse model of surgical resection
- Developed new anti-cancer molecules for delivery by therapeutic stem cells

02/2005-02/2008 **Post-doctoral Fellow**, Dept. of Radiology, Center for Molecular Imaging Research (CMIR), Massachusetts General Hospital/Harvard Medical School, Boston, MA

- Advisor: Ralf Weissleder, Khalid Shah
- Developed novel imaging tools for non-invasive tracking of stem cell therapies for brain cancer and novel anti-cancer molecules
- Gained experience in molecular biology, molecular imaging, animal surgery

HONORS AND AWARDS

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

1. 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

2. 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.* (in press)

REFERRED PAPERS/ARTICLES

Citation statistics from Google Scholar: *h-index: 15; Citations: 1035 (769 since joining UNC in 2012)*

1. Sheets, K., Bago., J.R., Paulk, I.L., Hingtgen, S.D., Image Guided Resection of Glioblastoma and Itnracranial Implantation of Therapeutic Stem Cell-seeded Scaffolds. *JoVE (In Press)*

2. Bago, J.R., Okolie, O., Dumitru, R., Ewend, M.G., **Hingtgen, S.D.** Tumor-homing Cytotoxic Induced Neural Stem Cells for Cancer Therapy. *Sci Transl Med* 2017 Feb 1;9(375). pii: eaah6510. doi: 10.1126/scitranslmed.aah6510. PMID: 28148846

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".

3. 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
Impact Factor: **7.4** (leading journal in the field)

4. Bago, J.R., Pegna, G.L., Okolie, O., Mohiti-Asli, M., Loboa, E.G., **Hingtgen, S.D.** (2016). Electrospun nanofibrous scaffolds increase the efficacy of stem cell-mediated therapy for surgically resected glioblastoma. *Biomaterials,* (2016) Jun;90:116-25. PMID: 2701662
Impact Factor: **8.4**

5. 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
Impact Factor: **11.3**

Featured in "The News Observer", WRAL nightly news, WNCN news, "Radio In Vivo" talk show, and in numerous other media outlets.

6. Bago, J.R., Pegna, G.L., Okolie, O., **Hingtgen, S.D.** (2016). Fibrin matrices enhance the transplant and efficacy of cytotoxic stem cell therapy for post-surgical cancer. *Biomaterials,* (2016) Apr;84:42-53. PMID: 26803410
Impact Factor: **8.4**

7. Bago, J.R., Sheets, K.T., **Hingtgen, S.D.** (2015). Neural Stem Cell Therapy for Cancer. *Methods.* 2015 Aug 24; S1046-2023 doi: 10.1016/j.ymeth.2015.08.013. [Epub ahead of print]
Impact Factor: **3.5**

8. Kim MS, Haney MJ, Zhao Y, Mahajan V, Deygen I, Klyachko NL, Inskoe E, Piroyan A, Sokolsky M, Okolie O, **Hingtgen SD**, Kabanov AV, Batrakova EV. Development of exosome-encapsulated paclitaxel to overcome MDR in cancer cells. *Nanomedicine.* 2015 Nov 14.
Impact Factor: **4.4**

9. Stuckey D.W.*, **Hingtgen S.D.*,** Karakas N., Rich B.E., Shah K. Engineering toxin-resistant therapeutic stem cells to treat brain tumors. *Stem Cells*. 2014 Oct. [Epub]. PMID: 25346520 (PMC Journal in process). *co-first authors.
Impact Factor: **5.9**

10. 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)
Impact Factor: **12.6**

11. Klyachko N.L., Haney M.H., Zhao Y., Manickam D.S., Mahajan V., Suresh P., **Hingtgen, S.D.,** Mosley R.L., Gendelman H.E., Kabanov A.V., Batrakova E.V. (2013) Macrophages Offer a Paradigm Switch for CNS Nanozyme Delivery, *Nanomedicine*. 2013 Nov 18. [Epub ahead of print]
Impact Factor: **4.4**

12. 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
Impact Factor: **3.2**

13. **Hingtgen, S.D.** Glioblastoma Therapy. *Encyclopedia of Cancer*. In: Schwab M. (Ed.) *Encyclopedia of Cancer*: SpringerReference (www.springerreference.com). Springer-Verlag Berlin Heidelberg. DOI: 10.1007/SpringerReference_332223 2012-11-11 12:16:21 UTC

14. **Hingtgen, S.D.,** Figueiredo, J.F., Ferrar, C., Shah, K. A multi-modality image-guided mouse model of Glioblastoma resection and recurrence. *J. Neuroonc.* 2012 Dec 16. [Epub ahead of print]
Impact Factor: **3.1**

15. **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
Impact Factor: **3.2**

16. Kauer, T.M., Figueiredo, J.F., **Hingtgen, S.D.,** Shah, K. Novel approach to deliver stem-cell based therapy in a mouse model of glioma resection. *Nat Neurosci.* 2011 Dec 25;15(2):197-204.
Impact Factor: **16.7**

17. **Hingtgen, S.D.,** Kasmieh, R., van de Water J.A., Figueiredo, J.L., Weissleder, R., Shah, K. A novel molecule integrating therapeutic and diagnostic activities reveals multiple aspects of stem cell-based therapy. *Stem Cells.* 2010 Apr;28(4):832-41.
Impact Factor: **5.9**

18. **Hingtgen, S.D.,** Li, Z., Kutschke, W., Tian, X., Sharma, R.V., Davisson, R.L. Superoxide Scavenging and AKT Inhibition in the Myocardium Ameliorate Pressure Overload-induced NFκB Activation and Cardiac Hypertrophy. *Physiol Genomics.* 2010 Apr;41:127-136.
Impact Factor: **2.7**

19. Sasportas, L.S., Kasmieh, R., Wakimoto, H., **Hingtgen S.D.,** van de Water J.A., Mohapatra, G., Figueiredo, J.L., Martuza, R.L., Weissleder, R., Shah, K. Assessment of therapeutic efficacy and fate of engineered human mesenchymal stem cells for cancer therapy. *Proc Natl Acad Sci U S A.* 2009 Mar 24;106(12):4822-7.
Impact Factor: **9.4**

20. **Hingtgen, S.D.,** Ren, X., Terwilliger, E.F., Classon, M., Weissleder, R., Shah, K. Targeting Multiple Pathways in Gliomas with Stem Cell and Viral Delivered S-TRAIL and Temozolomide. *Mol Cancer Ther.* 2008 Nov;7(11):3575-85
Impact Factor: **5.6**

21. 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
Impact Factor: **6.3**

22. Arwert, E., **Hingtgen, S.D.,** Figueiredo, J.L., Bergquist, H., Mahmood, U., Weissleder, R., Shah, K. Visualizing the dynamics of EGFR activity and antiglioma therapies in vivo. *Cancer Res.* 2007 Aug 1;67(15):7335-42
Impact Factor: **9.3**

23. **Hingtgen, S.D.,** Tian, X., Sharma, R.V., Davisson, R.L. A $gp91^{phox}$-Containing NADPH Oxidase is a Key Signaling Molecule in Angiotensin II-Induced Cardiomyocyte. *Physiol Genomics* 2006 Aug; 26 (3):180-91
Impact Factor: **2.7**

24. Xiuying Ma, Curt D. Sigmund, **Shawn D. Hingtgen,** Xin Tian, Robin L. Davisson, Francois M. Abboud, and Mark W. Chapleau. Ganglionic Action of Angiotensin Contributes to Sympathetic Activity in Renin-angiotensinogen Transgenic Mice. *Hypertension.* 2004 Feb;43(2):312-6
Impact Factor: **6.3**

25. **Hingtgen, S.D.,** Davisson, R.L. Gene therapeutic approaches to oxidative stress-induced cardiac disease: principles, progress and prospects. *Antioxid. Redox Signal.* 2001 Jun; 3(3):433-49
Impact Factor: **7.4**

Articles under review

1. 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.** Intra-Cavity Stem Cell Therapy Inhibits Tumor Progression in a Novel Murine Model of Medulloblastoma Surgical Resection. *PLoS One.* (under review)

REFEREED ABSTRACTS

1. 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.*

2. Sheets, K.T., Okolie, O., Khagi, S., Ewend, M.G., Mohiti-Asli, M., Tuin, S., Loboa, 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.*

3. 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*

4. Sheets, K.T., Okolie, O., Khagi, S., Ewend, M.G., Mohiti-Asli, M., Tuin, S., Loboa, 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*

5. 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,*

6. Bago, J.R., Pegna, G.J., Okolie, O., Mohiti-Asli, M., Loboa, 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.*

7. Bago, J.R., Okolie, O., Mohiti-Asli, M., Loboa, E.G., **Hingtgen, S.D.** Developing novel bio-scaffolds that enahnce the efficacy of stem cell-mediated therapy for brain tumors. *Society for Neuro-Oncology Annual Meeting. November 17-20, 2015. San Antonio, TX*

8. Bago, J.R., Sheet, K.R., Okolie, O., Mohiti-Asli, M., Loboa, 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.*

9. 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.*

10. Bago, J.R., Sheet, K.R., Okolie, O., Mohiti-Asli, M., Loboa, 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.*

11. 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.

12. 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.*

13. 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.*

14. **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.*

15. **Hingtgen, S.D.** Developing Stem Cell-based Therapies for Cancer Treatment. Inagural UNC/NC State Joint Symposium on Stem Cells and Regenerative Medicine. *October 15, 2013, Raleigh, NC.*

16. **Hingtgen, S.D.** Using Novel Multi-functional Molecules to Develop Stem Cell-based Therapies for Cancer Using. National Institue of Health Stem Cell Symposium. *March 28, 2013, Research Triangle Park, NC.*

17. **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.*

18. **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.*

19. **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.*

20. **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.*

21. **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.*

22. **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.*

23. 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.*

24. **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.*

25. 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.*

26. 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 ($O_2^{\bullet-}$) is Required for NFκB Activation and Cardiac Hypertrophy. *FASEB J.* 19:A136.

27. Hingtgen, S.D., Tian, X, Li, Z, Kutschke, W, Sharma, R.V., Davisson, R.L. (2005). $gp91^{phox}$ 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

28. Hingtgen, S.D., Kutschke, W., , Li, Z., Sharma. R.V., Davisson, R.L. (2004). Bioluminescent Imaging of Pressure Overload-Induced Myocardial NFκB Activation In Vivo: Role of Superoxide ($O_2^{\bullet-}$). *Hypertension.* 44:538

29. 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

30. 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, NFκB, and Akt/Protein Kinase B. *Free Radical Biol. Med.* 35:S66

31. Ma, X., Sigmund, C.D., **Hingtgen, S.D.,** Tian, X., Davisson, R.L., Abboud, F.M., Chapleau, 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

32. 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

33. 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

34. 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.

35. 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.

36. 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. 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.*

2. Towards Personalized Stem Cell Therapies for Cancer, *The New York Stem Cell Foundation, October 23, 2017. New York, NY.*

3. Stem Cell Therapies and Novel Technology. The High Content Analysis and 3D Screening Summit, *November 6 2017. Boston MA.*

4. 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.*

5. 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.*

6. 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.*

7. Developing Cell-based Therapies for Cancer. *The University of Nebraska, March 31, 2017. Omaha, NE.*

8. Molecular Imaging to Develop Stem Cell Therapies for Cancer. *Triangle Imaging Symposium. The University of North Carolina at Chapel Hill, March 15, 2016. Chapel Hill, NC.*

9. Creating Stem Cell Therapies to Treat Cancer. School of Pharmacy. *The University of Birmingham, March 1, 2017. Birmingham, United Kingdom.*

10. 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.*

11. Tumor-homing Stem Cell Therapy for Cancer. *Chapel Hill Rotary Society, February 10, 2017, Chapel Hill, NC.*

12. 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.*

13. Stem Cell Therapy: A New Approach to Cancer Therapy. *UNC Living Legends, UNC Friday Center, October 28, 2016. Chapel Hill, NC.*

14. Tumor-homing Stem Cell Therapy for Metastatic Breast Cancer. *UNC Division of Hematology-Oncology Annual Retreat. Carolina Club, October 14, 2016. Chapel Hill, NC.*

15. Stem Cell Therapy for Cancer. *Coulter Lecture Series, North Carolina State University, August 26. 2016. Raleigh, NC.*

16. Personalized Stem Cell Therapy for Cancer. *OneCarolina Symposium, UNC Development Team, UNC Friday Center, June 13, 2016. Chapel Hill, NC.*

17. Advancing Stem Cell Therapy for Cancer Towards the Clinics. *UNC Friends Fighting Cancer, May 22, 2016. Raleigh, N.C.*

18. 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.*

19. Cell Therapies for Cancer. *Carolina Nanoformulations Workshop. March 15, 2016. Chapel Hill, NC. (2015)*

20. 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.*

21. Treating Cancer with Engineered Stem Cells. *UNC Neuroscience Center Seminar Series, November 4, 2015, Chapel Hill, NC.*

22. Developing Stem Cell-mediated Therapies for Cancer. *University of North Carolina Board of Trustees, October 1, 2015. Chapel Hill, NC.*

23. A New Approach to Cancer Therapy: Engineered Stem Cells. *University of North Carolina Development Team, May 18, 2015. Chapel Hill, NC.*

24. Tumor-homing Stem Cell Therapies: A New Approach to Treating Cancer. *UNC Eshelman School of Pharmacy, 50Plus Reunion, May 9, 2015. Chapel Hill, NC.*

25. Tumor-homing Stem Cell Treatment for Brain Cancer. *UNC Department of Neurosurgery Grand Rounds. May 8, 2015. Chapel Hill, NC.*

26. Stem cell-mediated Therapy for Cancer. *Lineberger Comprehensive Cancer Center Joint Retreat, December 1, 2014. Chapel Hill, NC.*

27. 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.*

28. 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*.

29. Induced Neural Stem Cell-Based Therapies: An Innovative Approach to Glioblastoma Therapy. *The Damon Runyon Foundation. November 14, 2013. Ney York, NY.*

30. Developing Stem Cell Therapy for Cancer. *Association for Clinical and Translational Science Annual Meeting. April 9-11, 2014. Washington D.C.*

31. Stem Cell-based Delivery of Targeted Therapeutics For Cancer Therapy. *Wake Forest Institute for Regenerative Medicine. November 10, 2013. Winston-Salem, NC.*

32. 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

October 13, 2017	Carte Blanche TV: *Brain Cancer Hunters*
May 1, 2017	NIH NCATS Translational Science Highlights: *CTSA Program Mentoring Paves Way for Brain Cancer Therapy*
April 2, 2017	UNC TV, Science: *Glioblastoma Tumor Removal Can Actually Increase Growth*
March 28, 2017	The Stem Cell Podcast
February 6, 2017	theverge.com: *The next weapon against brain cancer may be human skin*
February 2, 2017	genengnews.com: *Brain cancer treatment puts skin in the game*
February 2, 2017	Newatlas.com: *Stem cells beat the clock for brain cancer*
February 1, 2017	Sciencemag.org: *Reprogrammed skin cells shrink brain tumors in mice*
December 19, 2016	Lineberger Comprehensive Cancer Center*: Funding brochure, featured story*
May 31, 2016	WNCN News: *At UNC, stem cell treatment for brain tumors shows promise.*
March 30, 2016	Radio In Vivo*: Stem Cell Therapy for Cancer.*
March 10, 2016	WRAL News: *Stem cells may increase survival for brain cancer patients.*
February 24, 2016	UNC News: *UNC researchers make groundbreaking discovery, use skin cells to kill cancer*
February 24, 2016	Carolina Alumni Review: *Skin cells-to-stem cells can destroy brain tumors.*
February 24, 2016	Oncologia.com: *Groundbreaking discovery made uses skin cells to kill cancer*
February 2, 2016	The News & Observer: *'A big step': UNC researchers use stem cells to treat brain cancer*
September 27, 2015	Daily Tarheel: *$100 million gift prompts innovation in Pharmacy School*

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. *Licensed to Falcon Therapeutics.*
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. *Licensed to Falcon Therapeutics.*
3. Hingtgen, S.D., Dumitru, R., Bago, J.R., "Systemic Stem Cell Therapy for Multi-organ Peripheral Cancer", September 8, 2017, PCT 62/555,977. *Provisional filed*

Start-up Company

Falcon Therapeutics-Launched September 2015

- Shawn Hingtgen, Ph.D.: *Founding Scientist, Board Member, CSO*
- Susan Nichols: *CEO*
- Matt Ewend, M.D.: *Consultant, Board Member (Chair, UNC Department of Neurosurgery)*
- Joy Cavagnaro, Ph.D.: *Regulatory Affairs (former member of FDA cell therapy regulatory group, member of Human Genome Sciences)*
- Jerry Canada, J.D.*: Intellectual Property (former patent attorney at Kenyon & Kenyon)*
- Raluca Dumitru, M.D., Ph.D.: *Cell Manufacturing*

The goal of Falcon Therapeutics is to advance the 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 adult brain cancer. We are expanding this platform technology for a variety of additional cancers, including pediatric brain cancer and metastatic breast cancer.

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

Enrollment: 30 patients
Status: Active (10 of 30 patients enrolled)
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: Hingtgen
Approval date: 07/14/2016
Enrollment: 10 patients
Status: Active (6 of 10 patients enrolled)
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 $1x10^9$ iNSCs (the desired clinical dose) is recorded and compared across skin samples of different sizes to define the required starting biopsy size.

TEACHING ACTIVITIES

LECTURES

Year	Course name	Course Number	Lectures Taught	Enrollment	Course type	Overall Evaluation
2017 SP	Pharmaceutics II	PHCY 512	1	125/25	Professional	4.25/5
2017 SP	BioPsych: CNS	NBIO 703	1	7	Graduate	NA
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
Research Associate					
Kevin Sheets	PhD, Biomedical Engineering, Virginia Tech	Research Associate (Post-doc in the Hingtgen Group from 2014-2016)	2016	Clinical Scaffold Development	
Research Scholar					
Juli Bago`	PhD, Centre d'Investigación Cardiovascular, Spain	Research Scholar (Post-doc in the Hingtgen Group from 2013-2016)	2017	Human iNSC therapy; Polymeric scaffolds for cell therapy	
Post-Doctoral Fellows					
Vivien Lettry	PhD, Animal Surgery, Hokkaido, Japan	Post Doc	2016	Patient-derived iNSC Therapies	
Andrew Satterlee	PhD, Molecular Pharmaceutics, UNC	Post Doc	2016	Polymeric Scaffolds for iNSC Therapy	
Clinical Fellows					
Elizabeth Finch	MD, Hematology-Oncology, UNC Hospitals	Fellow	2016	Impact of surgery on NSC transplant	
Graduate					
Shaye Hagler	BS, Biochemistry, Florida St.	Graduate Student, Pharmaceutical Sciences	2015	iNSC Therapies	*GSO Representative*
Alison Mercer-Smith	BS, Chemistry, Pomona College	Graduate Student, MD-PhD Program	2017	Photo-activated cell therapies	
Wulin Jiang	M.S., Biotechnology, Northwestern U.	Graduate Student, Pharmaceutical Sciences	2017	Cell Therapy for Metastatic Disease	
High School Students					
Luke Garges	Trinity High School	Summer intern	2017		
Abby Ewend	Durham Academy	Undergraduate Scholar	2017		
Michael Marand	Panther Creek High School	Summer intern	2017		YIP Fellow

Former Lab Members

Name	Previous Degree	Position	Years	Thesis Title/Topic	Awards	Current Position
Post-Doctoral Fellows						
Aldofo Alfonso	PhD, National University of Córdoba, Córdoba, Argentina.	Post Doc	2012-2014	Mouse iNSC therapy		Research Scientist, GlaxoSmithKline
Graduate						

Name	Previous Degree	Position	Years	Thesis Title/Topic	Awards	Current Position
Onyinyechukwu Okolie	BS, Biomedical Engineering, U. of Washington	Graduate Student, Pharmaceutical Sciences	2012-2016	Mouse models of brain cancer resection		
Medical Students						
Guillame Pegna	BS, UNC	Medical Student	2013-2014	Polymeric Scaffolds		Resident; UNC Hospitals
Post-Bachelorette						
Ivory Paulk	BS, University of Central Florida	Post-bach	2016-2017	Stem cell therapies for metastatic cancer	UNC PREP Program	Graduate School; UCLA
Undergraduates						
Becca Sikora	BS, Chemistry, UNC	Undergraduate Researcher	2012-2014	iNSC therapy		DPM, Kent State University College of Podiatric Medicine
High School Students						
Luke Garges	TBD		2016			Trinity High School
Other						
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

Dissertation Committees and Rotation Advisor

Student's Name	Department	Date	Role	Current Position
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-Present	Dissertation Committee	
Cassie Caudill	UNC Biological and Biomedical Sciences PhD Program	2014	Rotation Advisor	
Christina Parker	UNC Biological and Biomedical Sciences PhD Program	2014-Present	Dissertation Committee	
Samantha Fix	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2014	Rotation Advisor	
Katherine Stember	UNC Biological and Biomedical Sciences PhD Program	2015	Rotation Advisor	
Tejash Patel	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-Present	Dissertation Committee	
Karen Bulaklak	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2015-2017	Dissertation Committee	Post-doctoral Fellow; Duke University
Michael Collier	Molecular Pharmaceutics, UNC	2015-2017	Dissertation	Avanti Polar Lipids,

	Eshelman School of Pharmacy		Committee	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-Present	Dissertation Committee	
Carla Costa-Sanchez	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy	2016-Present	Dissertation Committee	
Emelia Zwyott	UNC Biological and Biomedical Sciences PhD Program	2017	Rotation Advisor	
Randolph Qian	Molecular Pharmaceutics, UNC Eshelman School of Pharmacy		Rotation Advisor	

GRANTS

ONGOING GRANT SUPPORT **TOTAL: $5,596,304**

Source of Support: NIH/NINDS PA-13-302: Research Project Grant (Parent R01)
Project Number: R01NS097507
Principal Investigator: S Hingtgen
Total Period of Support: 06/01/2016-05/30/2021
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 project 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: NIH/NINDS PA-13-302: Research Project Grant (Parent R01)
Project Number: R01NS099368
Principal Investigator: S Hingtgen
Total Direct Funding: $1,903,983
Total Period of Support: 11/01/2017-10/31/2022
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/NCATS PA-15-270, Omnibus Solicitation of the NIH for Small Business Technology Transfer Grant Applications (Parent STTR [R41])
Project Number: R41TR001789
Principal Investigator: K. Giroux
Role: Co-PI
Total Direct Funding: $250,000 ($106,417 to our lab)
Total Period of Support: 06/15/2017-06/14/2018
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: 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: $750,000
Total Period of Support: 11/01/2015-06/01/2018
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: UNC Eshelman Institute for Innovation
Principal Investigator: Hingtgen
Role: PI
Total Direct Funding: $200,000
Total Period of Support: 06/01/2016-05/31/2018
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: UNC Eshelman Institute for Innovation
Principal Investigator: Lawrence
Role: Co-PI
Total Direct Funding: $750,000 ($300,000 to our project)
Total Period of Support: 11/01/2015-06/01/2018
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: 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: 02/01/2017-12/31/2020
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: Hingtgen
Role: PI
Total Direct Funding: $50,000
Total Period of Support: 06/01/2017-05/30/2018
Percent Effort: 5% effort
Project Title: T-STEM: A new approach to cancer therapy through cellular hybrids
Goal: To develop a new class of anti-cancer cell therapies created by molecularly fusing parts of different cells into a composite tumoricidal cellular hybrid.

Source of Support: Eshelman Institute for Innovation
Principal Investigator: S Hingtgen
Total Direct Funding: $200,000
Total Period of Support: 06/01/2017-05/30/2019
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: 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.

GRANT PROPOSALS PENDING

Source of Support: National Institute of Health
Principal Investigator: Baldwin
Role: co-I
Total Direct Funding: $2,000,485
Percent Effort: 10% effort
Project Title: Elucidating glioblastoma intratumoral heterogeneity and therapeutic vulnerabilities through ex vivo and in vivo models
Review date: Summer 2018

Source of Support: National Institute of Health; Phase II STTR
Principal Investigator: Hingtgen
Role: co-I
Total Direct Funding: $1,499,150
Percent Effort: 10% effort
Project Title: Personalized stem cell therapy for cancer
Review date: Summer 2018

COMPLETED GRANT SUPPORT **TOTAL: $581,250**

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: S 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: S 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: S 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: S 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:	S 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:	R 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:	S 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*

Reviewer Activities:

2013	Lineberger Comprehensive Cancer Center, UCFR Award Committee
2014	Lineberger Comprehensive Cancer Center, UCFR Award Committee
2015	Society of Neuro-oncology, Young Investigator Award
2016	Society of Neuro-oncology, Young Investigator Award
2017	NIH Nano Study Section Ad Hoc

UNIVERSITY SERVICE:

Departmental/Division:

2012	Research Assistant Professor Search Committee, Chair Division of Molecular Pharmaceutics
2013-present	MOPH Representative, Facilities Advisory 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
2017	Eshelman Institute for Innovation Symposium planning committee
2017	Graduate Curriculum Planning Committee

Institutional/UNC Campus:

2012	Biomedical Research Imaging Center Retreat planning committee, member
2013	Lineberger Cancer Research Fund Competitive Grant Awards, Reviewer
2014	Judge, MD-PhD Research Day
2014, 2015	Interviewed candidates for MD-PhD and BBSP program
2014	Lineberger Cancer Research Fund Competitive Grant Awards, Reviewer
2014	NanoDDS Conference, session chair
2016-present	Member, UNC Animal Studies Core Advisory Panel
2016-present	Member, UNC Small Animal Imaging Core Advisory Panel
2017	Campaign Faculty Ambassador, UNC Campaign for Carolina

Public:

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

UNIVERSITY AFFILIATIONS:

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