The Faculty of Medicine of Harvard University

Curriculum Vitae

Date Prepared: **January 23, 2023**

Name: **Lei Xu**

Office Address: **Massachusetts General Hospital (MGH)**
55 Fruit Street, Cox-7
Boston, MA, 02114

Work Email: **lexu@mgh.harvard.edu**

Education:

MD	Medicine	Capital University of Medical Science Beijing, China
PhD	Cancer Biology Thesis advisor: Isaiah J. Fidler	University of Texas, MD Anderson Cancer Center Houston, TX
Postdoctoral Fellow	Tumor Biology Mentor: Rakesh K. Jain	Massachusetts General Hospital Boston, MA

Faculty Academic Appointments:

Instructor	Radiation Oncology	Massachusetts General Hospital
Assistant Professor	Radiation Oncology	Massachusetts General Hospital
Associate Professor	Radiation Oncology	Massachusetts General Hospital

Professional Societies

1996 - Present	American Association of Cancer Research	Active member
2023 - Present	Society of Immunotherapy of Cancer	Member
2024 – Present	American Association for the Advancement of Science	Member
2024 – Present	Microcirculatory Society	Member

Honors and Prizes:

1995 - 2000	R.E. Bob Smith Research Fellowship	MD Anderson Cancer Center	Outstanding research in cancer research
2005	Claflin Distinguished Scholar Award	Harvard Medical School	Outstanding research in tumor biology

Report of Funded and Unfunded Projects

Past

2012 - 2013 Reprogramming the tumor microenvironment to improve hearing and treatment efficacy in NF2 vestibular schwannoma.
MGH Executive Committee on Research (ECOR) Interim Support Grant
PI ($85,000)
The major goal of this grant is to investigate the effect of modulating the tumor microenvironment on enhancing treatment efficacy and preserve hearing function in schwannoma models.

2012 - 2015 Strategies for personalized treatment of metastatic breast cancer: vascular normalization and sensitization.
Department of Defense Medical Research Grant
Co-Director of Cell, Molecular and Histology Core - Project PI, Jain, Rakesh
The goal of this grant is to improve antiangiogenic therapy in metastatic breast cancer by optimizing the schedule of therapy, and identifying new targets and biomarkers of response.

2012 - 2017 Enhancing chemosensitivity of ovarian cancer with TGF-beta blockade.
American Cancer Society Research Scholar Grant
PI ($800,000)
The major goal of this grant is to investigate TGF-beta blockade as a novel approach to overcome chemoresistance in ovarian cancer and miR-155 as a novel biomarker for chemosensitivity.

2013 - 2015 Effect of anti-VEGF and radiation on NF2 Vestibular Schwannoma.
Children's Tumor Foundation Clinical Research Award
PI ($150,000)
The major goal of this grant is to investigate whether anti-VEGF therapy can enhance the efficacy of radiation therapy.

2013 - 2015 A correlative study of angiogenic markers in human brain arteriovenous malformations.
National Cancer Institute/MGH
PI ($50,000)
The major goal of this grant is to investigate the angiogenic markers in human brain arteriovenous malformations using clinical samples and the zebrafish model.

2014 - 2016 Effect of TGF-beta blockade in recurrent NF2 vestibular Schwannoma.
Children's Tumor Foundation Drug Discovery Initiative
PI ($85,000)
The major goal of this grant is to investigate whether TGF-beta blockade can enhance the efficacy of radiation therapy and reduce recurrence/relapse after radiation therapy.

2016 - 2017 Combining immunotherapy and antiangiogenic therapy in NF2 schwannoma model.
Children's Tumor Foundation Drug Discovery Initiative
PI ($85,000)
The major goal of this grant is to test the optimal schedule and dosing to combine anti-VEGF and immune checkpoint inhibitors.

2016 - 2017 Combining immune checkpoint blockade and radiation therapy for NF2 vestibular schwannomas.
NCI-MGH Ira Spiro Translational Research Awards
PI ($50,000)
The goal of this grant is to test the therapeutic potential of combined radiation therapy with immune checkpoint inhibitors.

2016 - 2019 Immunotherapy for NF2 Vestibular Schwannomas.
Department of Defense New Investigator Award
PI ($450,000)
The major goal of this grant is to characterize the immune response after anti-VEGF treatment and investigate the therapeutic potential of combined anti-VEGF and immune checkpoint inhibitors.

2016 - 2020 Normalizing tuberculosis granuloma vasculature and matrix to improve drug delivery and efficacy.
Bill and Melinda Gates Foundation Research Grant
Co-Investigator - Project PI, Jain, Rakesh
The major goal of this grant is to normalize the blood vessels and matrix in tuberculosis granulomas to improve the delivery and efficacy of anti-TB drugs.

2018 - 2019 Reprogramming the tumor microenvironment to enhance anti-tumor immunity in NF2 schwannoma model.
Children's Tumor Foundation Drug Discovery Initiative
PI ($85,000)
The major goal of this grant is to test the hypothesis that reprogramming the tumor microenvironment can enhance the efficacy of immunotherapy.

2019 - 2020 Reprogramming the tumor microenvironment to improve hearing and treatment efficacy in NF2 vestibular schwannoma.
MGH Executive Committee on Research (ECOR) Interim Support Grant
PI ($85,000)
The major goal of this grant is to investigate the effect of modulating the tumor microenvironment on enhancing treatment efficacy and preserve hearing function in schwannoma models.

2020 - 2022 Targeting the NRG1/ErbB signaling axes for the treatment of Schwannomatosis and associated pain.
Children's Tumor Foundation Drug Discovery Initiative
PI ($85,000)
The major goal of this grant is to investigate the effect of modulating the NRG1/ErbB signaling on tumor growth and pain behavior in schwannomatosis models.

2020 - 2022 Leveraging Synodos NF2 data to test novel single and combination drugs in NF2-deficient meningioma models.
Children’s Tumor Foundation, Accelerator Award
PI ($85,000)
The major goal of this grant is to investigate the effect of single or combined use of drugs from targets identified in the NF2 Synodos studies in meningioma models.

2020 - 2022 Targeted therapy for NF2-associated and sporadic meningiomas expressing SSTR2
NF Therapeutics, Inc – Investigator initiated.
Co-PI - Project PI (Ramesh, Vijaya) ($88,032)
The major goal of this grant is to investigate the efficacy of SSTR-ADC in NF2 and meningiomas models.

2020 - 2023 Reprogramming the tumor microenvironment to improve hearing and treatment efficacy in NF2 vestibular schwannoma.
Department of Defense Investigator-Initiated Research Award
PI - Co-PI, Stankovic, Konstantina ($802,057)
The major goal of this grant is to investigate the effect of modulating the tumor microenvironment on enhancing treatment efficacy and preserving hearing function in schwannoma models.

2022 - 2023 Co-targeting IL-6 and EGFR signaling for the treatment of Schwannomatosis.
MGH Executive Committee on Research (ECOR) Interim Support Grant
PI ($85,000)
The major goal of this grant is to test a novel therapeutic strategy to target IL-6 and EGFR signaling to simultaneously control tumor growth and pain response in Schwannomatosis models.

Current

2022 - 2024 Profile losartan-induced changes in tumor microenvironment and inflammation in NF2 VS patient samples.
Children's Tumor Foundation Clinical Research Award
PI - Co-PI, Plotkin, Scott ($150,000)
The major goal of this grant is to investigate in NF2 patient samples of the changes induced by losartan treatment.

2024 - 2026 Reprogramming the tumor microenvironment to enhance immunotherapy in ovarian cancer.
American Cancer Society Mission Boost Award
PI ($600,000)
The major goal of this grant is to investigate the effect of modulating the tumor microenvironment on enhancing treatment efficacy in ovarian cancer models.

2022 - 2026 Screening trial for pain relief in Schwannomatosis (STARFISH).
Department of Defense Clinical Trial Award
Co-PI - Project PI, Plotkin, Scott ($1,204,851)
The major goal of this grant is to study the analgesic effect of erenumab-aooe, an FDA-approved CGRP receptor inhibitor, in SWN patients with moderate-to-severe pain.

2022 - 2027 Co-targeting IL-6 and EGFR signaling for the treatment of Schwannomatosis and associated pain.
NIH-NINDS R01
PI - Co-PI, Mao, Jianren ($2,386,445)
The goal of this grant is to investigate the biology of tumor-induced pain response and develop novel therapeutic strategies to simultaneously control tumor growth and tumor-associated pain in Schwannomatosis models.

2023 - 2024 Targeting the Ang II signaling to uncouple the efficacy and toxicity of immunotherapy in NF2.

MGH Executive Committee on Research (ECOR) Interim Support Grant
PI ($90,000)
This study aims to investigate the efficacy of losartan in enhancing the efficacy and limiting the toxicity of immunotherapy in NF2 mouse models.

2023 - 2024 Developing a thrombopoietin inhibitor to treat NF2 hearing loss and schwannoma growth.
Children's Tumor Foundation Drug Discovery Initiative Award
Co-PI - Project PI, Sherman, Lawrence ($85,000)
The goal of this grant is to test novel thrombopoietin inhibitors in modulating the tumor microenvironment, tumor progression and hearing loss in vestibular schwannoma models.

2023 - 2028 Targeting HMGB1 to improve hearing and enhance therapy for NF2 Vestibular Schwannomas.
NIH-NIDCD R01
PI - Co-PI, Stankovic, Konstantina ($2,874,318)
The goal of this grant is to investigate the treatment efficacy and mechanisms of blocking HMGB1 in preserving hearing function and controlling tumor growth.

2024-2026 Targeting HIF-2 for the treatment of NF2 Vestibular Schwannoma
Children's Tumor Foundation
PI ($200,000)
The goal of this grant is to investigate the treatment efficacy and mechanisms of blocking HIF2 signaling in preserving hearing function and controlling tumor growth.

Training Grants and Mentored Trainee Grants

2023 - 2025 Co-Targeting HMGB1 and EGF signaling for the treatment of NF2 and associated hearing loss.
Children's Tumor Foundation Young Investigator Award
Mentor to Zhenzhen Yin, post-doctoral fellow
The goal of the study is to test combinatory strategy to preserve hearing function in NF2 models.

2023 - 2025 To understand the role of apelin mediated angiogenesis in NF2 associated tumors.
Children's Tumor Foundation Young Investigator Award
Co-Mentor to Srirupa Bhattacharyya, post-doctoral fellow
The goal of the study is to study the functional role of apelin in tumor angiogenesis in NF2 models.

2024 - 2027 Co-Targeting HMGB1 and EGF signaling for the treatment of NF2 and associated hearing loss.
American Cancer Society Post-Doctoral Award
Mentor to Zhenzhen Yin, post-doctoral fellow
The goal of the study is to test combinatory strategy to preserve hearing function in NF2 models.

Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. Xie, K., Wang, Y., Huang, S., **Xu, L**., Bielenberg, D., Salas, T., McConkey, D.J., Jiang, W., Fidler, I.J. Nitric oxide-mediated apoptosis of K-1735 melanoma cells is associated with down regulation of Bcl-2. ***Oncogene.*** 1997; 15(7): 771-9. PMID:9266963

2. Xie, K., Wang, YF., Huang, S., **Xu, L**., Bielengerg, D., Salas, T., McConkey, D.J., Jiang, W., Fidler, I.J. Nitric oxide-mediated apoptosis of K-1735 melanoma cells is associated with down regulation of Bcl-2. ***Oncogene.*** 1997; 15:771-9. PMID:9266963

3. Xie, K., Bielenberg, D., Huang, S., **Xu, L**., Salas, T., Juang, S.H., Dong, Z., Fidler, I.J. Abrogation of tumorigenicity and metastasis of murine and human tumor cells by transfection with the murine IFN-beta gene: possible role of nitric oxide. ***Clinical Cancer Research***. 1997; 3: 2283-94. PMID:9815626

4. Juang, SH., Xie, K., **Xu, L**., Wang, Y., Yoneda, J., Fidler, I.J. Use of retroviral vectors encoding murine inducible nitric oxide synthase gene to suppress tumorigenicity and cancer metastasis of murine melanoma. ***Cancer Biotherapy & Radiopharmaceuticals.*** 1997; 12: 167-75. PMID:10851463

5. Juang, SH., Xie, K., **Xu, L**., Shi,Q., Wang, YF., Yoneda, J., Fidler, I.J. Suppression of tumorigenicity and metastasis of human renal carcinoma cells by infection with retroviral vectors harboring the murine inducible nitric oxide synthase gene. ***Human Gene Therapy***. 1998; 9:845-54. PMID:9581907

6. **Xu, L**., Xie, K., Fidler, I.J. Therapy of human ovarian cancer by transfection with the murine Interferon beta gene: role of macrophage-inducible nitric oxide synthase. ***Human Gene Therapy***. 1998; 9:2699-27-8. PMID:9874268

7. **Xu L.**, Xie, K., Mukaida, N., Matsushima, K., Fidler, I.J. Hypoxia-induced elevation in Interleukin-8 expression by human ovarian carcinoma cells***. Cancer Research***. 1999; 59(22): 5822-9. PMID:10582705

8. Fidler, I.J., Singh, RK., Yoneda, J., Kumar, R., **Xu, L.,** Dong, Z., Bielenberg, DR., McCarty, M., Ellis, LM. Critical determinants of neoplastic angiogenesis. ***The Cancer Journal*** 2000; 6 (supl 3): S225-S236. PMID: 10874492

9. **Xu, L**., Fidler, I.J. Interleukin 8: An autocrine growth factor for human ovarian cancer. ***Oncology Research***. 2000; 12:97-106. PMID:11132928

10. **Xu L**. Yoneda J. Herrera C. Wood J. Killion JJ. Fidler IJ. Inhibition of malignant ascites and growth of human ovarian carcinoma by oral administration of a potent inhibitor of the vascular endothelial growth factor receptor tyrosine kinases. ***International Journal of Oncology***. 2000; 16(3): 445-54. PMID:10675474

11. **Xu, L**., Fidler, I.J. Acidic pH-induced elevation in Interleukin-8 expression by human ovarian carcinoma cells. ***Cancer Research***. 2000; 60: 4610-6. PMID 10969814

12. Fidler, IJ., Bielenberg, D.R., Slaton, J., **Xu, L.,** Dinney, CPN., Dong, Z. Interferon-mediated antiangiogenic therapy. ***Journal of National Cancer Institute*** 2000; 1092: 4-12

13. Brown, E.B., Campbell, R.B., Tsuzki, Y., **Xu, L.,** Carmeliet, P., Fukumura, D., Jain, R.K. *In vivo* measurement of gene expression, angiogenesis and physiological function in tumors using multiphoton laser scanning microscopy. ***Nature Medicine***. 2001; 7(7): 864-8. PMID:11433354

14. Tsuzuki, Y., Carreira, C.M., **Xu, L.,** Jain, R.K., Fukumura, D. Pancreas microenvironment promotes VEGF expression and tumor growth: novel window model for pancreas tumor angiogenesis and microcirculation. ***Laboratory Investigation***. 2001; 81(10): 1439-51. PMID:11598156

15. Fukumura, D,, **Xu, L.,** Chen, Y., Gohongi, T., Seed, B., Jain, R.K. Hypoxia and acidosis independently up-regulate vascular endothelial growth factor transcription in brain tumors *in vivo*. ***Cancer Research***. 2001; 61(16): 6020-24. PMID:11507045

16. **Xu, L**., Fukumura, D., Jain, R.K. Acidic extracellular pH induces VEGF in human glioblastoma cells via AP-1 and requires ERK1/2 MAPK. ***Journal of Biological Chemistry***. 2002; 277 (13): 11368-74. PMID:11741977

17. Herrera, C.A., **Xu, L.,** Bucana, C.D., Silva, E.G., Hess, K.R., Gershenson, D.M., Fidler, I.J. Expression of metastasis-related genes in human epithelial ovarian tumors. International ***Journal of Oncology***. 2002; 20(1): 5-13. PMID: 11907566

18. Izumi, Y., **Xu, L.,** di Tomaso, E., Fukumura, D., Jain, R.K. Tumour biology: herceptin acts an anti-angiogenic cocktail. ***Nature***.2002; 416:279-80. PMID: 11907566

19. Fidler, I.J., Yoneda, J., Herrera, C., Wood, J., **Xu, L.** Specific Keynote: Molecular determinants of angiogenesis in ovarian cancer. ***Gynecologic Oncology*** 2003; 88: S29-S36. PMID:12586082

20. Fukumura, D., Ushiyama, A., Duda, D.G., **Xu, L**., Chatterjee, V.K.K., Garkavtsev, I., Jain, RK. Paracrine regulation of angiogenesis and adipocyte differentiation during adipogenesis *in vivo*. ***Circulation Research***. 2003; 93(9): e88-97. PMID:14525808

21. Bockhorn, M., Tsuzuki, Y., **Xu, L**., Frilling, A., Broelsch, C.E., Fukumura, D. Differential vascular and transcriptional responses to anti-vascular endothelial growth factor antibody in orthotopic human pancreatic cancer xenografts. ***Clinical Cancer Research.*** 2003; 9 (11): 4221-4226. PMID:14519649

22. Garkavtsev, I., Kozin, S., Chernova, O., **Xu, L**., Winkler, F., Brown, E., Barnett, G.H., and Jain, R.K. The candidate tumour suppressor protein ING4 regulates brain tumour growth and angiogenesis. ***Nature Medicine***. 2004; 428(6980): 328-32. PMID:15029197

23. Winkler, F., Kozin, S.V., Tong, R.T., Chae, S.S., Booth, M.F., Garkavtsev, I., **Xu, L.,** Hicklin, D. J., Fukumura, D., di Tomaso, E., Munn, L.L., and Jain, R.K. Kinetics of vascular normalization by VEGFR2 blockade governs brain tumor response to radiation: role of oxygenation, angiopoietin-1, and matrix metalloproteinases. ***Cancer Cell***. 2004; 6(6): 553-63

24. **Xu, L**., Pathak, P.S., Fukumura, D. Hypoxia-induced activation of p38 MAPK and PI3K signaling pathways contributes to expression of Interleukin-8 in human ovarian carcinoma cells. ***Clinical Canacer Research***. 2004; 10(2): 701-7. PMID:14760093

25. **Xu, L**.*, Tong R., Cochran, D.M., and Jain, R.K. Blocking platelet-derived growth factor-D/platelet-derived growth factor receptor beta signaling inhibits human renal cell carcinoma progression in an orthotopic mouse model. ***Cancer Research***. 2005; 65 (13): 5711-9. PMID:15607960. *Corresponding author.

26. Kashiwagi, S., Izumi, Y., Gohongi, T., Demou, Z.N., **Xu, L**., Huang, P.L., Buerk, D.G., Munn, L.L., Jain, R.K., and Fukumura, D. NO mediates mural cell recruitment and vessel

morphogenesis in murine melanomas and tissue-engineered blood vessels. ***Journal of Clinical Investigation.*** 2005; 115(7): 1816-27. PMID:15951843

27. Hagendoorn, J., Tong R., Fukumura D., Lin Q., Lobo J., Padera T.P., **Xu L**., Kucherlapati R., Jain R.K. Onset of abnormal blood and lymphatic vessel function and interstitial hypertension in early stages of carcinogenesis. ***Cancer Research*.** 2006; 66(7): 3360-4. PMID:16585153

28. **Xu, L**.*, Cochran, D.M., Tong, R.T., Winkler, F., Kashiwagi, S., Jain, R.K., and Fukumura, D. PlGF overexpression inhibits tumor growth, angiogenesis and metastasis by depleting VEGF homodimers in orthotopic mouse models. ***Cancer Research***. 2006; 66(8): 3971-7. PMID:16618713. *Corresponding author.

29. Lawenda, B.D., Smith D.E., **Xu, L**., Niemierko, A., Silverstein, J.R., Boucher, Y., Kashiwagi, S., Held, K.D., Jain R.K., Loeffler, J.S., Eisenberg D.M., Blumberg. J.B. Do the dietary supplements epigallocatechin gallate or vitamin e cause a radiomodifying response on tumors in vivo? A pilot study with murine breast carcinoma. ***Journal of the Society Integrative Oncology***. 2007; 5(1): 11-7. PMID:17309809

30. **Xu, L**., Jain, R.K. Downregulation of PlGF by promoter hypermethylation in human lung and colon carcinoma. ***Molecular Cancer Research***. 2007; 5(9): 873-80. PMID:17704140

31. Kashiwagi, S., Tsukada, K., **Xu, L**., Miyazaki, J., Kozin, S.V., Tyrrell, J.A., Sessa, W.C., Gerweck, L.E., Jain, R.K., Fukumura, D. Perivascular nitric oxide gradients normalize tumor vasculare. ***Nature Medicine***. 2008; 14(3): 255-7. PMID:18278052

32. **Xu, L**., Duda, DG., di Tomaso, E., Ancukiewicz, M., Chung, DC., Lauwers, GY., Samuel, R., Shellito, P., Czito, BG., Lin, PC., Poleski, M., Bentley, R., Clark, JW., Willett, CG., Jain, RK. Direct evidence that Bevacizumab, an anti-Vascular Endothelial Growth Factor antibody, upregulates SDF-1a, CXCR4, CXCL6, and Neuropilin 1 in tumors from patients with Rectal cancer. ***Cancer Research***. 2009. 69(20): 7905-10. PMID: 19826039

33. **Xu, L.*,** Czito, BG., Willett, CG. Epigenetic markers in rectal cancer. ***Clinical Cancer Research***. 2010. 16(10):2699-701. PMID: 24060492. *Corresponding author.

34. Gerstner, E.R., Eichler, A.F., Plotkin, S.R., Drappatz, J., Doyle, C.L., **Xu, L**., Duda, D.G., Wen, P.Y., Jain, R.K. and Batchelor, T.T. Phase I trial with biomarker studies of vatalanib (PTK787) in patients with newly diagnosed glioblastoma treated with enzyme inducing anti-epileptic drugs and standard radiation and temozolomide. ***J. Neuro-Oncology***. 2011. 103(2):325-32. PMID: 20821342

35. Liao, S., Liu, JQ., Lin, P., Shi, T., Jain, RK., **Xu, L.** TGF-beta blockade controls ascites by preventing abnormalization of lymphatic vessels in orthotopic human ovarian carcinoma model. ***Clinical Cancer Research***. *2011. 17(6):1415-24.* PMID: 21278244.

    Figure from the paper featured as journal cover.

36. Liu, JQ., Liao, S., Huang, YH., Samuel, R., Shi, T., Naxerova, K., Huang, P., Kamoun, W., Jain, RK., Fukumura, D. and **Xu, L**. PDGF-D improves drug delivery and efficacy via vascular normalization, but promotes lymphatic metastasis by activating CXCR4 in breast cancer. ***Clinical Cancer Research***. 2011. *17(11):3638-48*. PMID: 21459800

37. Duda, D.G., Kozin, S.V., Kirkpatrick, N.D., **Xu, L.,** Fukumura, D., Jain, R.K. CXCL12(SDF1a)-CXCR4/CXCR7 pathway inhibition: an emerging sensitizer for anti-cancer therapies? ***Clinical Cancer Research***. 2011. 17(8): 2074-80. PMID:21349998

38. Liu, J. Liao, S. Diop-Frimpong, B., Chen, W., Goel, S., Naxerova, K., Ancukiewicz, M., Boucher, Y., Jain, R.K., **Xu, L.** TGF-beta blockade improves the distribution and efficacy of

therapeutics in breast carcinoma by normalizing the tumor stroma. ***Proceedings of National Academy of Science USA.*** 2012. 109(41): 16618-23. PMID: 22996328

39. Snuderl, M., Batista, A., Kirkpatrick, N.D., de Almodovar, C.R., Riedemann, L., Walsh, E.C., Anolik, R., Huang, Y., Martin, J.D., Kamoun, W., Knevels, E., Schmidt, T., Farrar, C.T., Vakoc, B.J., Mohan, N., Chung, E., Roberge, S., Peterson, T., Bais, C., Zhelyazkova, B.H., Yip, S., Hasselblatt, M., Rossig, C., Niemeyer, E., Ferrara, N., Klagsbrun, M., Duda, D.G., Fukumura, D., **Xu, L.,** Carmeliet, P., and Jain, R.K. Placental growth factor/neuropilin 1 signaling is a therapeutic target in pediatric medulloblastoma. ***Cell.*** 2013. 152(5):1065-76. PMID: 23452854

40. Datta, M., Via, L.E., Kamoun, W.S., Liu, C., Chen, W., Seano, G., Weiner, D.M., Schimel, D., England, K., Martin, J.D., Gao, X., **Xu, L.,** Barry 3rd, C.E., Jain, R.K. Anti-vascular endothelial growth factor treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery. ***Proceedings of National Academy of Science USA*** 2015. 112 (6):1827-32. PMID: 25624495

41. Gao X, Zhao Y, Stemmer-Rachamimov AO, Liu H, Huang P, Chin S, Selig MK, Plotkin SR, Jain RK, **Xu L.** Anti-VEGF treatment improves neurological function and augments radiation response in NF2 schwannoma model. ***Proceedings of National Academy of Science USA.*** 2015.112(47):14676-81. PMID: 26554010.

    Featured on DoD website.

42. Datta M, Via LE, Chen W, Baish JW, **Xu L,** Barry CE 3rd, Jain RK. Mathematical Model of Oxygen Transport in Tuberculosis Granulomas. ***Ann Biomedical Engineer***. 2016. 44(4):863-72. PMID: 26253038

43. Zhang, L., Gao, X., Zhao, Y., Datta, M., Liu, P., **Xu, L**. Rationally combining anti-VEGF therapy with radiation in NF2 schwannoma. ***Journal of Rare Diseases Research and Treatment.*** 2016. 1(2): 51-55. PMID: 28191549

44. J. Kloepper, L. Riedemann, Z. Amoozgar, G. Seano, K. H. Susek, V. Yu, N. Dalvie, R. L. Amelung, M. Datta, J. W. Song, V. Askoxylakis, J. W. Taylor, C. LuEmerson, A. Batista, N. D. Kirkpatrick, K. Jung, M. Snuderl, A. Muzikansky, K. G. Stubenrauch, O. Krieter, H. Wakimoto, L. **Xu, L**. Munn, L. D. G. Duda, D. Fukumura, T. T. Batchelor, and R. K. Jain. Ang2/VEGF bispecific antibody reprograms macrophages and resident microglia to antitumor phenotype and prolongs glioblastoma survival. ***Proceedings of National Academy of Science USA.*** 2016; 113 (16):4476-81. PMID: 27044098

45. T. E. Peterson, N. D. Kirkpatrick, Y. Huang, C. T. Farrar, K. Marijt, J . Kloepper, M. Datta, Z. Amoozgar, G. Seano, K. Jung, W. S. Kamoun, T. Vardam, M. Snuderl, J. Goveia, S. Chatterjee, A. Muzikansky, C. C. Leow, **Xu, L**. T. T. Batchelor, D. G. Duda, D. Fukumura, and R. K. Jain. Dual inhibition of Ang2 and VEGF receptors normalizes tumor vasculature and prolongs survival in glioblastoma by altering macrophages. ***Proceedings of National Academy of Science USA.*** 2016; 113(16):4470-5. PMID: 27044097

46. Zhao F, Ohgaki H, **Xu L,** Giangaspero F, Chunde L, Li P, Yang Z, Wang B, Wang X, Wang Z, Ai L, Zhang J, Luo L, Liu P. Molecular subgroups of adult medulloblastoma: a long-term single-institution study. ***Neuro-Oncology***. 2016. 18(7):982-90. PMID:27106407

47. Zhang N, Chen J, Ferraro G, Wu L, Datta M, Jain RK, Plotkin SR, Stemmer-Rachamimov. A, **Xu, L.** AntiVEGF treatmentimproves neurological function in tumors of the ner vous system. ***Experimental Neurology*** 2018. 299(PtB):326-333. PMID: 28911884

48. Zhao Y, Liu P, Zhang N, Chen J, Landegger LD, Wu L, Zhao F, Zhao Y, Zhang J, Fujita T, Stemmer-Rachamimov A, Ferraro GB, Liu H, Muzikansky A, Plotkin SR, Stankovic KM, Jain

RK, **Xu L.** Targeting the cMET pathway augments radiation response without adverse effect on hearing in NF2 schwannoma models. ***Proceedings of National Academy of Science. USA*.** 2018. 115(9): E2077-E2084. PMID:29440379.

Featured on HMS website.

49. Zhao, Y., Cao, J., Melamed, A., Worley, M., Gockley, A., Jones, D., Nia, H.T., Zhang, Y., Stylianopoulos, T., Kumar, A.S., Mpekris, F., Datta, M., Sun, Y., Wu, L., Gao, X., Yeku, O., del Carmen, M., Spriggs, D.R., Jain, R.K., and **Xu, L.** Losartan treatment enhances chemotherapy efficacy and reduces ascites in ovarian cancer models by normalizing the tumor stroma. ***Proceedings of National Academy of Science USA.*** 2019; 116(6):2210-2219. PMID:30659155.

    Featured on HMS website.

50. Landegger, LD, Vasilijic, S, Fujita, T, Soares, V, Seist, R, **Xu, L** and Stankovic, KM. Cytokine levels in inner ear fluid of young and aged mice as molecular biomarkers of noise-induced hearing loss. ***Frontiers in Neurology***. 2019, 11: 977. PMID: 31632328

51. Sagers JE, Beauchamp RL, Zhang Y, Vasilijic S, Wu L, DeSouza P, Seist R, Zhou W, **Xu L**, Ramesh V, Stankovic KM. Combination therapy mTOR kinase inhibitor and dasatinib as a novel therapeutic strategy for vestibular schwannoma. ***Scientific Reports*.** 2020. 10(1):4211. PMID:32144278

52. Amoozgar, Z., Kloepper, J., Ren, J., Tay, R.E. Kazer, S.W., Kiner, E., Krishnan, S., Posada, J.M., Ghosh, M., Mamessier, E., Wong, C., Ferraro, G.B., Batista, A., Wang, N., Badeaux, M., Roberge, S., **Xu, L.,** Huang, P., Shalek, A.K., Fukumura, D., Kim, H.J., Jain, R.K. Targeting Treg cells with GITR activation alleviates resistance to immunotherapy in murine glioblastomas. ***Nature Communication*.** 2021, 12(1):2582. PMID: 33976133

53. Wu, L., Vasilijic, S., Sun, Y., Chen, J., Landegger, L.D., Zhang, Y., Zhou, W., Ren, J., Early, S., Yin, Z., Ho, W.W., Zhang, N., Gao, X., Lee, G.Y., Datta, M., Sagers, J.E., Brown, A., Muzikansky, A., Stemmer-Rachamimov, A., Zhang, L., Plotkin, S.R., Jain, R.K., Stankovic, K.M., and **Xu, L.** Losartan prevents tumor-induced hearing loss and augments radiation efficacy by normalizing the tumor microenvironment in NF2 schwannoma. ***Science Translational Medicine.***2021, 13(602):eabd4816. PMID: 34261799.

    Figure from the paper featured as an online rotator for the journal, and the study is featured on HMS and DoD website.

54. Kong XJ, Liu J, Liu K, Koh M, Sherman H, Liu S, Tian R, Sukijthamapan P, Wan J, Fong M, **Xu L,** Clairmont C, Jeong M, Li A, Lopes M, Hgan V, Dutton T, Chan ST, Lee H, Kendall A, Kwong K, Song Y. Probiotic and oxytocin combination therapy in patients with autism spectrum disorder: a randomized double-blinded placebo-controlled pilot trial. ***Nutrients.*** 2021, 13(5): 1522. PMID: 32082606

55. Ho, W.W., Gomes-Santos, I.L., Aoki, S., Datta, M., Kawaguchi, K., Talele, N.P., Roberge, S., Ren, J., Liu, H., Chen, I.X., Andersson, P., Chatterjee, S., Kumar, A.S., Amoozgar, Z., Zhang, Q., Huang, P., Ng, M.R., Chauhan, V.P., **Xu, L.,** Duda, D.G., Clark, J.W., Pittet, M.J., Fukumura, D., Jain. R.K. Dendritic cell paucity in mismatch repair-proficient colorectal cancer liver metastases limits immune checkpoint blockade efficacy. ***Proceedings of National Academy of Science. USA*.** 2021, 118 (45):e2105323118. PMID:34725151

56. Zhao, F., Chen, Y., Li, S., Zhang, J., Zhang, S., Zhao, X., Wang, L., Yang, Z., Wang, B., He, Q., **Xu, L.**, Liu, P., Novel patient-derived xenograft and cell line models for therapeutic screening in NF2-associated Schwannoma. ***Journal of Pathology***. 2022, 257(5):620-634. PMID: 35394061

57. Da, J.L.W., Merker, V.L., Jordan, J.T., Ly, K.I., Muzikansky, A., Parsons, M., Wolters, P.L., **Xu, L.**, Styren, S., Brown, M.T.,Plotkin, S.R. Design of a randomized, placebo-controlled, phase 2 study evaluating the safety and efficacy of tanezumab for treatment of schwannomatosis-related pain. ***Contemporary Clinical Trials.*** 2022, 121:106900. PMID: 36038003

58. Datta, M. Chatterjee, S., Perez, E.M., Gritsch, S., Roberge, S., Duquette, M., Chen, I.X., Naxerova, K., Kuman, A.S., Ghosh, M., Emblem, K.E., Ng, M.R., Ho, W.W., Kumar, P., Krishnan, S., Dong, X., Speranza, M.C., Neagu, M.R., Iorgulescu, J.., Huang R.Y., Youssef, G., Reardon, D.A., Sharpe, A.H., Freeman, G.J., Suva, M.L., **Xu, L**., Jain, R.K. Losartan controls immune checkpoint block-induced edema and improves survival in gliobastoma mouse models. ***Proceedings of National Academy of Science. USA*.** 2023, 120(6):e2219199120. PMID: 36724255

59. Bhattacharyya, S, Oblinger, JL, Beauchamp RL, Yin Z, Erdin S, Koudinya P, Ware AD, Ferrer M, Jordan JT, Plotkin SR, **Xu L,**Chang LS, Ramesh V. Proteasomal pathway inhibition as a potential therapy for NF2-associated meningioma and schwannoma. ***Neuro-Oncology.*** 2023, noad037. PMID: 36806881

60. Datta, M., Kennedy, M., Siri, S., Via, LE., Baish, JW., **Xu, L**., Dartois, V., Barry, CE., Jain, RK. Mathematical Model of Oxygen, Nutrient, and Drug Transport in Tuberculosis Granulomas. Plos Computational Biology. In print.

Other peer-reviewed scholarship

60. Jain, R.K., **Xu, L.** alphaPlGF: a new kid on the antiangiogenesis block. ***Cell.*** 2007; 131(3):443-5. PMID: 17981110

61. Goel, S., Duda, D.G., **Xu, L.,** Munn, L.L., Boucher, Y., Fukumura, D., Jain, R.K. Normalization of the vasculature for treatment of cancer and other diseases. ***Physiology Review.*** 2011. 91(3): 1071-121. PMID: 21742796

62. Askoxylakis V, Badeaux M, Roberge S, Batista A, Kirkpatrick N, Snuderl M, Amoozgar Z, Seano G, Ferraro GB, Chatterjee S, **Xu L**, Fukumura D, Duda DG, Jain RK. A cerebellar window for intravital imaging of normal and disease states in mice. ***Nature Protocol***. 2017. 12(11):2251-2262. PMID: 28981123

63. Chen J, Landegger LD, Sun Y, Ren J, Maimon N, Wu L, Ng MR, Chen JW, Zhang N, Zhao Y, Gao X, Fujita T, Roberge S, Huang P, Jain RK, Plotkin SR, Stankovic KM, **Xu L.** A cerebellopontine angle mouse model for the investigation of tumor biology, hearing, and neurological function in NF2-related vestibular schwannoma. ***Nature Protocol***. 2019. 14(2):541-555. PMID: 30617350

Non-peer reviewed scholarship in print or other media:

Reviews, chapters, and editorials

64. Jain, R.K., **Xu, L.** alphaPlGF: a new kid on the antiangiogenesis block. ***Cell.*** 2007; 131(3):443-5. PMID: 17981110

Books/textbooks for the medical or scientific community

65. Gao, X., Wu, L., Thalheimer, R.D., Chen, J., Sun, Y., Lee, G.Y., Plotkin, S.R., **Xu, L.** Assessing neurological function in brain tumor mouse model. ***Brain Tumors,*** Neuromethods**,** Springer, New York, NY. 2021. v158, 199-220.