

Saurabh Agarwal, Ph.D.**Honors and Awards:**

- 2019 *St. John's University Research Infrastructure Award*
- 2019 *St. John's University Venture Capital Fund Award*
- 2017 *David's Warriors Neuroblastoma Hero Award*
- 2017 *St. Baldrick's Foundation Scholar Career Development Award*
- 2017 *Wipe Out Kids' Cancer Foundation Research Award*
- 2016 *Pediatric Pilot Award*
- 2016 *Lerner Family Foundation Award at Cairns, Australia*
- 2016 *Plenary presentation at Cairns, Australia, on epigenetic regulation of neuroblastoma*
- 2014 *Villa Joep Foundation Research Excellence Award, Cologne, Germany*
- 2013 *Best Poster Award, 9th Annual Texas Children's Cancer Center Symposium, Houston*
- 2010 *French National Institute of Health and Medicine Research Fellowship, France*
- 2009 *Best Presentation Award, 78th Annual General Meeting of Society of Biological Chemists*
- 2009 *Best Presentation Award, 6th Annual Convention of the Biotech Research Society*
- 2007 *CSIR- Senior Research Fellowship, India*
- 2004 *CSIR-Diamond Jubilee Research Fellowship, India*

Professional Memberships:

- 2008- Member, Society of Biological Chemists (SBC)
- 2012- Full Member, Advances in Neuroblastoma Research Association (ANRA)
- 2015- Active Member, American Association of Cancer Research (AACR)
- 2015- Active Member, AACR- Pediatric Working Group
- 2019- Active Member, American Association of Pharmaceutical Scientists (AAPS)

Grant Review Activities:

- 2017- Scientific Peer Review Panel for Pediatric Cancer Research, St. Baldrick's Foundation Fellow Awards
- 2017- External Review Member, Villa Joep Foundation for Neuroblastoma Research, The Netherlands

National Scientific Participation**Editorial Board Member:**

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| Journal of Brain Tumors & Neuro-oncology | 2015 – Present |
| Hematology and Blood Disorders | 2017 – Present |

Ad hoc Reviewer: (93 manuscripts reviewed since 2015)

1. Cancer Research
2. Molecular Cancer Research
3. Oncotarget
4. PLOS One
5. Cancer Letters
6. Scientific Reports
7. Cancer Genetics
8. Apoptosis
9. Anti-Cancer Drugs
10. Genes
11. Journal of Pediatric Hematology and Oncology
12. Cancers
13. Pharmaceutics
14. Journal of Personalized Medicine
15. Journal of Brain Tumors & Neuro-oncology
16. Cells
17. Healthcare
18. Medicines
19. Hematology and Blood Disorders
20. Journal of Tumor Research and Reports

Research Support/ Funding:

Current Independent Funding:

1. St. Baldrick's Foundation

Novel epigenetic therapies for high-risk neuroblastoma

2. Wipe Out Kids' Cancer Foundation

Epigenetic targeting of neuroblastoma cancer stem cells

3. St. John's University Seed Grant

Developing novel therapeutic approaches for childhood cancers

4. St. John's University Venture capital Award

Targeting neuroblastoma cancer stem cells

Media Coverages: Media coverage for significant publication and contributions in pediatric cancer research.

[Neuroblastoma Canada](#); Solving Kids' Cancer; Medscape News; Baylor College of Medicine News; Cancer Stem Cell News; Children's Hospital Los Angeles (CHLA)

Publications: (24 peer-reviewed publications with total 509 citations) (h-index- 12; i10-index- 14)

([Click here to go to MyNCBI.nih.gov page](#)) or ([Google Scholar page](#))

1. Li H, Yu Y, Zhao Y, Wu D, Yu X, Lu J, Chen Z, Zhang H, Hu Y, Zhai Y, Su J, Aheman A, De Las Casas A, Jin J, Xu X, Shi Z, Woodfield SE, Vasudevan SA, **Agarwal S** (10%), Yan Y, Yang J, Foster JH (2019) Small molecule inhibitor agerafenib effectively suppresses neuroblastoma tumor growth in mouse models via inhibiting ERK MAPK signaling. **Cancer Letters**. 2019 May 14. pii: S0304-3835(19)30294-0.
2. **Agarwal S**, Milazzo G, Rajapakshe K, Bernardi R, Chen Z, Vasudevan S, Perini G, Coarfa C, Shohet J. (2018) MYCN acts as a direct co-regulator of p53 in MYCN amplified neuroblastoma. **Oncotarget**, DOI: 10.18632/oncotarget.24859.
3. Yang A, **Agarwal S*** (2018) Role of G-CSF and G-CSFR in cancer development. *Journal of Tumor Research and Report*. (Editorial) (*Corresponding Author).
4. Guan S, Lu J, Zhao Y, Yu Y, Li H, Chen Z, Shi Z, Liang H, Wang M, Guo K, Chen X, Sun W, Xu X, **Agarwal S***, Yang J (2017) MELK is a MYCN/MYC transcriptional target and is required for the cell proliferation of neuroblastoma. **Oncotarget**, DOI: 10.18632/oncotarget.23515. (***Senior Author**)
5. Tomolonis J, **Agarwal S**, Shohet J (2017) Neuroblastoma pathogenesis: deregulation of embryonic neural crest development. **Cell and Tissue Research**, DOI:10.1007/s00441-017-2747-0 (Review Article)
6. Sun W, Rojas Y, Wang H, Yu Y, Wang Y, Chen Z Xu X, Huang W, **Agarwal S**, Patel R, Woodfield S, Jin J, Zhang H, Major A, Hicks J, Shohet J, Vasudevan S, Coarfa C, Yang J, Nuchtern J. (2017) EWS-FLI1 and RNA helicase A interaction inhibitor YK-4-279 inhibits growth of neuroblastoma. **Oncotarget**. DOI: 10.18632/oncotarget.21933
7. **Agarwal S**, Ghosh R, Chen Z, Lakoma A, Gunaratne P, Kim E, Shohet J (2016) Transmembrane adaptor protein PAG1 is a novel tumor suppressor in neuroblastoma. **Oncotarget** DOI: 10.18632/oncotarget.8116. PMID: 26993602.
8. Ghaghada K, Starosolski Z, Lakoma A, Kaffes C, **Agarwal S**, Athreya K, Shohet J, Kim E, Annapragada A (2016) Heterogeneous uptake of nanoparticles in mouse models of pediatric high-risk neuroblastoma. **PLoS One** 11(11):e0165877. PMID: 27861510; PMCID: PMC5115667.
9. Zhang S, Wei J, Li S, Badgett T, Song Y, **Agarwal S**, Coarfa C, Tolman C, Hurd L, Liao H, He J, Wen X, Liu Z, Thiele CJ, Westermann F, Asgharzadeh S, Seeger RC, Maris JM, Guidry Auvil JM, Smith MA, Kolaczyk ED, Shohet J, Khan J (2016) MYCN controls an alternative RNA splicing program in high-risk metastatic neuroblastoma. **Cancer Letters** 371(2): 214-224. PMID: 26683771; PMCID: PMC4738031.
10. Jha S, **Agarwal S**, Sanyal I, Amla DV. (2016) Single-Step Purification and Characterization of a Recombinant Serine Proteinase Inhibitor. **Applied Biochemistry & Biotechnology** 179(2): 220-36. PMID: 26852026.
11. **Agarwal S**, Lakoma A, Chen Z, Hicks J, Metelitsa L, Kim E, Shohet J (2015) G-CSF promotes neuroblastoma tumorigenicity and metastasis via STAT3-dependent cancer stem cell activation. **Cancer Research** 75 (12):2566-2579. PMID: 25908586; PMCID: PMC4470771.

Comments: Maris et al., **Cancer Research** 2015, 15; 75(18): 3991. PMID: 26337906

Clinical Translation: A Multi-Institutional Clinical Trial is undergoing based on my research and publication. A Safety and Pilot Study of Induction chemotherapy for Neuroblastoma without prophylactic administration of Granulocyte colony stimulating factor (SPRING). Texas Children's Hospital, Baylor College of Medicine

12. Zheng L, **Agarwal S**, Shohet J, Zage P (2015) CD114 Expression Mediates Melanoma Tumor Cell Growth and Treatment Resistance. ***Anticancer Research*** 35: 3787-3792. PMID: 26124323.
13. Lakoma A, Barbieri E, **Agarwal S**, Jackson J, Chen Z, Kim Y, McVay M, Shohet J, Kim E (2015) The MDM2 small molecule inhibitor RG7388 leads to potent tumor inhibition in p53 wild-type neuroblastoma". ***Cell Death Discovery*** 1: 15026. PMID: 26998348; PMCID: PMC4794278.
14. Rihani A, Van Goethem A, Ongenaert M, De Brouwer S, Volders P, **Agarwal S**, De Preter K, Mestdagh P, Shohet J, Speleman F, Vandesompele J, Van Maerken T (2015) Genome wide expression profiling of p53 regulated miRNAs in neuroblastoma. ***Scientific Reports*** 12;5:9027. PMID: 25762502; PMCID: PMC4356961.
15. Beckers A, Van P, Carter D, Gartlgruber M, Herrmann C, **Agarwal S**, Helmsmoortel HH, Althoff K, Molenaar JJ, Cheung BB, Schulte JH, Benoit Y, Shohet JM, Westermann F, Marshall GM, Vandesompele J, De Preter K, Speleman F (2015) MYCN-driven regulatory mechanisms controlling LIN28B in neuroblastoma. ***Cancer Letters*** 366(1):123-32. PMID: 26123663; PMCID: PMC4837470.
16. Kim E, **Agarwal S**, Shohet J (2015) G-CSF is a cancer stem cell-specific growth factor-response. ***Cancer Research*** 75(18):3992. PMID: 26337907; PMCID: PMC4608385.
17. Hsu D*, **Agarwal S***, Benham A, Coarfa C, Trahan D, Chen Z, Stowers P, Courtney A, Man C, Olutoye O, Metelitsa L, Gunaratne P, Kim E, Shohet J (2013) G-CSF receptor positive neuroblastoma subpopulations are enriched in chemotherapy-resistant or relapsed tumors and are highly tumorigenic. ***Cancer Research*** 73 (13):4134-4146. PMID: 23687340; PMCID: PMC4298227. (*Co-first Author)
18. Jha S, **Agarwal S**, Sanyal I, Jain GK, Amla DV. (2012) Differential subcellular targeting of recombinant human α_1 -proteinase inhibitor influences yield, biological activity and in planta stability of the protein in transgenic tomato plants. ***Plant Science*** 196: 53-66. PMID: 23017899.
19. Coulon S, Dussiot M, Grapton D, Maciel T, Wang P, Callens C, **Agarwal S**, Fricot A, Tamouza H, Zermati Y, Ribeil J, Djedaini K, Oruc Z, Pascal V, Courtois G, Arnulf B, Alyanakian M, Benhamou M, Cogné M, Monteiro RC, Hermine O, Moura IC (2011) Polymeric IgA1 controls erythroblast proliferation and accelerates erythropoiesis recovery in anemia. ***Nature Medicine*** 17 (11):1456-1465. PMID: 22019886.

Comments: Paulson RF (2011). *Nature Medicine* 17, 1346–1348.

[F1000 Immunology. DOI: 10.3410/f.13408016.14778125](https://doi.org/10.3410/f.13408016.14778125)

20. Callens C, Coulon S, Naudin J, Radford I, Boissel N, Wang PH, **Agarwal S**, Tamouza H, Paubelle E, Asnafi V, Ribeil JA, Dessen P, Canioni D, Chandresis O, Rubio MT, Beaumont C, Benhamou M, Monteiro RC, Moura IC, Hermine O. (2010) Targeting iron homeostasis induces cellular differentiation and synergizes with differentiating agents in acute myeloid leukemia. ***Journal of Experimental Medicine*** 207(4):731-750. PMID: 20368581; PMCID: PMC2856037.

Comments: Abdel-Wahab O, Levine RL. (2010) Metabolism and the leukemic stem cell. *The Journal of Experimental Medicine* 207(4):677-680.

F1000 Hematology. DOI: 10.3410/f.3069957.2752055

21. Jha S, **Agarwal S**, Sanyal I, Jain V, Amla D. (2010) Over-expression of human serum alpha-1-protease inhibitor (α 1-PI) in alternate hosts for therapeutic applications. ***Journal of Surgical Sciences***. 2010; 1(1):31-37. (*Review Article*)
22. **Agarwal S**, Jha S, Sanyal I, Amla DV (2010) Expression and purification of recombinant human alpha-1-proteinase inhibitor and its single amino acid substituted variants in *Escherichia coli* for enhanced stability and biological activity. ***Journal of Biotechnology*** 147 (1): 64-72. PMID: 20346993.
23. **Agarwal S**, Jha S, Sanyal I, Amla DV. (2009) Effect of point mutations in translation initiation context on the expression of recombinant human alpha(1)-proteinase inhibitor in transgenic tomato plants. ***Plant Cell Reports*** 28(12): 1791-8. PMID: 19834712.
24. **Agarwal S**, Singh R, Sanyal I, Amla DV (2008) Expression of modified gene encoding functional human alpha-1-antitrypsin protein in transgenic tomato plants. ***Transgenic Research*** 17: 881-896. PMID: 18320339.

Abstracts Published/Presented as First Author: (*since 2012*)

1. **Agarwal S**, Tomolonis J Vasudevan S, Shohet J “Epigenetic modifiers MLL1 and JMJD3 regulate neuroblastoma tumorigenicity by maintaining a cancer stem cell-like population”, in *Advances in Neuroblastoma Research Conference (ANR 2018)*, May 2018, San Francisco, USA. Poster presentation.
2. **Agarwal S** “Epigenetic modifiers MLL1 and JMJD3 regulate neuroblastoma tumorigenicity by maintaining a cancer stem cell-like population” in *Advances in Neuroblastoma Research Conference (ANR 2018)*, May 2018, San Francisco, USA. Rapid Oral Presentation.
3. **Agarwal S**, Tomolonis J, Vasudevan S, Shohet J “Epigenetic modifiers MLL1 and JMJD3 regulate neuroblastoma tumorigenicity by maintaining a cancer stem cell-like population” in *AACR Special Conference: Pediatric Cancer Research: From Basic Science to the Clinic*: December 3-6, 2017 at Omni Resort Atlanta CNN Center, Atlanta, Georgia.
4. **Agarwal S**, Chen Z, Tomolonis J, Zhang H, Vasudevan S, Shohet J. “Epigenetic regulation of neuroblastoma tumorigenicity through MLL1 and JMJD3 modulation in cancer stem cells” in AACR Annual Meeting: April 2017, Washington DC.
Published in- ***Cancer Research*** DOI: 10.1158/1538-7445.AM2017-4781
5. **Agarwal S**, Chen Z, Tomolonis J, Zhang H, Vasudevan S, Shohet J. “Epigenetic regulation of neuroblastoma tumorigenicity through MLL1 and JMJD3 modulation in cancer stem cells” in TXCH Annual Research Symposium: March 2017, Houston.
6. **Agarwal S**, Chen Z, Tomolonis J, Zhang H, Vasudevan S, Shohet J. “Epigenetic regulation of neuroblastoma tumorigenicity through MLL1 and JMJD3 modulation in cancer stem cells” in Center for Cell and Gene Therapy 2016 Conference: 17th November, 2016 at The San Luis Resort, Galveston, USA

7. **Agarwal S**, Chen Z, Lanza D, Heaney J, Shohet J. “Development of a novel transgenic neuroblastoma tumor model using genome editing” in *Advances in Neuroblastoma Research Conference (ANR 2016)*, May 2016, Cairns, Australia.
8. **Agarwal S**, Ghosh R, Chen Z, Gunaratne PH, Kim ES, Shohet JM. “Transmembrane adaptor protein PAG1 is a novel tumor suppressor in neuroblastoma” in *Advances in Neuroblastoma Research Conference (ANR 2016)*, May 2016, Cairns, Australia.
9. **Agarwal S**, Chen Z, Vasudevan S, Shohet J. “MLL1 and JMJD3 regulate neuroblastoma cancer stem cells” in *Advances in Neuroblastoma Research Conference (ANR 2016)*, May 2016, Cairns, Australia.
(Plenary Presentation) (Lerner Family Foundation Award)
10. **Agarwal S**, Ghosh R, Chen Z, Gunaratne PH, Kim ES, Shohet JM. “Transmembrane adaptor protein PAG1 is a novel tumor suppressor in neuroblastoma” in TXCH Annual Research Symposium: March 2016, Houston.
11. **Agarwal S**, Rajapakshe K, Milazzo G, Chen Z, Perini G, Shohet J “Genome wide transcriptional assessment of MYCN mediated alteration in p53 activity” in MYC: from biology to therapy: January, 2015, La Jolla, California.
12. **Agarwal S**, Chen Z, Vasudevan S, Shohet J “Epigenetic regulators maintain neuroblastoma cancer stem cells: Model to Treatment” in AACR Special Conference: Advances in Pediatric Cancer Research: From Mechanisms and Models to Treatment and Survivorship: November, 2015, Fort Lauderdale, Florida, USA
Published in- **Cancer Research** 76 (5 Supplement), A15-A15.
13. **Agarwal S**, Chen Z, Lakoma A, Kim E, Shohet J “Granulocyte Colony Stimulating Factor (G-CSF) is a potent growth factor for Neuroblastoma and potentiates NB CSC functions” in 11th Annual Texas Children’s Cancer Center Symposium: May, 2015, Houston, USA **(Oral Presentation)**
14. **Agarwal S**, Chen Z, Lakoma A, Kim E, Shohet J “G-CSF/STAT3 signaling axis regulates the tumorigenic and metastatic potential of neuroblastoma cancer stem cells” in center for cell and gene therapy 2014 conference: at The Moody gardens, Galveston, USA
15. **Agarwal S**, Chen Z, Lakoma A, Kim E, Shohet J “G-CSF/STAT3 signaling axis regulates the tumorigenic and metastatic potential of neuroblastoma cancer stem cells (CSCs). at *Advances in Neuroblastoma Research Conference (ANR 2014)*, May 2014, Cologne, Germany **(Oral presentation)**
16. **Agarwal S**, Rajapakshe K, Coarfa C, Shohet JM “MYCN alters p53 chromatin binding and modulates p53 target gene activation via direct MYCN-p53 binding: a novel tumorigenic mechanism” at *Advances in Neuroblastoma Research Conference (ANR 2014)*, May 2014, Cologne, Germany **(Plenary Presentation)**
17. **Agarwal S**, Rajapakshe K, Coarfa C, Shohet JM “MYCN modifies p53 transcriptional responses to oppose apoptosis and activate cell cycle progression” in AACR Pediatrics cancers at the crossroads conference: November 2013, San Diego, USA.
Published in- **Cancer Research** 74 (20 Supplement), A26-A26.
18. **Agarwal S**, Chen Z, Adhikari C, Kim E, Shohet J “Neuroblastoma CSC-like cells respond to G-CSF cytokine via STAT3 mediated transcription” in AACR Pediatrics cancers at the crossroads conference: November 2013, 3-6, San Diego, CA, USA

19. **Agarwal S**, Chen Z, Hsu D, Kim E, Shohet J “G-CSF dependent regulation of STAT3 in Neuroblastoma Cancer Stem Cell subpopulations” in *9th Annual Texas Children’s Cancer Center Symposium*: April, 2013, Houston, USA (**Best poster award**)
20. **Agarwal S**, Chen Z, Hsu D, Kim E, Shohet J “G-CSF dependent regulation of STAT3 in Neuroblastoma Cancer Stem Cell subpopulations” in *AACR annual meeting*, April 2013, Washington, DC, USA.
Published in- **Cancer Research** 73(8 Supplement):3744-3744
21. **Agarwal S**, Chen Z, Benham A, Kim E, Gunaratne P, Shohet J “Epigenetic regulation of cancer stem cell enriched microRNAs in neuroblastoma” in *Keystone Symposia on Molecular and Cellular Biology*: February 2013, Banff, Alberta, Canada
22. **Agarwal S**, Hsu D, Chen Z, Coarfa C, Kim E, Shohet J “Targeting STAT3 pathway by Stattic inhibits the upregulation of Neuroblastoma Cancer Stem Cell marker CD114” in *innovations in cancer prevention and research conference, CPRIT-2012*, October 2012 at Austin, USA
23. **Agarwal S**, Hsu D, Chen Z, Barbieri E, Coarfa C, Kim E, Gunaratne P, Shohet J “Epigenetic Regulation of Differentially Expressed microRNAs in Neuroblastoma Cancer Stem Cell-like Cells” at *Advances in Neuroblastoma Research Conference (ANR 2012)*: June 18 to 21st, 2012 at Fairmont Royal York Hotel, Toronto, Ontario, Canada
24. **Agarwal S**, Hsu D, Metelitsa L, Kim E, Shohet J “Neuroblastoma cancer stem cells reflect a molecular and cellular iPSC phenotype” in *Reprogramming Cell Fate” Gordon Research Conference*: 26th February to 2nd March, 2012 at Galvez hotel, Galveston, Texas, USA
25. **Agarwal S**, Chen Z, Metelitsa L, Kim E, Shohet J “STAT3 regulates neuroblastoma tumor initiation cancer stem cells-like cells” in *10th annual Dan L. Duncan cancer center symposium*: 13th November, 2012 at Baylor college of medicine, Houston, Texas, US
26. **Agarwal S**, Hsu D, Chen Z, Coarfa C, Kim E, Shohet J “Neuroblastoma cancer stem cells share epigenetic features of reprogrammed pluripotent cells” in *center for cell and gene therapy 2012 conference*: 1-2nd November, 2012 at The Moody gardens, Galveston, USA
27. **Agarwal S**, Chen Z, Metelitsa L, Kim E, Shohet J “Targeting STAT3 pathway in neuroblastoma tumor initiation cancer stem cells” in *center for cell and gene therapy 2012 conference*: 1-2nd November, 2012 at The Moody gardens, Galveston, Texas, USA
28. **Agarwal S**, Hsu D, Metelitsa L, Kim E, Shohet J “Neuroblastoma cancer stem cells reflect a molecular and cellular iPSC phenotype” in *Reprogramming Cell Fate” Gordon Research Conference*: 26th February to 2nd March, 2012 at Galvez hotel, Galveston, Texas, USA