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Education

- B.Sc (Honours), **Queen's University at Kingston**, Ontario, CANADA, 1992-1996
- Ph.D, **University of Western Ontario**, London, Ontario, CANADA, 1996-2001
- Postdoctoral Fellow, **The Scripps Research Institute**, La Jolla, California, 2001-2003
- Postdoctoral Fellow, **MD Anderson Cancer Center**, Houston, Texas, 2003-2007
- Research Assistant Professor, **MD Anderson Cancer Center**, Houston, Texas, 2007

Research

Our research focuses on the study of specific genes located at the 3q26.2 locus which are aberrantly expressed at the DNA, RNA, and protein level in epithelial cancer development. These genes of interest are mediators in the TGF-beta signaling pathway. Our goal is to improve our understanding of the role of these as well as other TGF-beta signaling mediators during cancer development and the mechanism by which they are regulated. Cross-talk between the TGF-beta signaling pathway and other signaling pathways aberrant in cancer is one area of current research focus. To address these research areas, our laboratory is utilizing a number of experimental approaches including in vitro cellular studies, studies with model organisms, as well as a variety of proteomic approaches.

Recent Publications

- [Guidelines for the use and interpretation of assays for monitoring autophagy \(3rd edition\).](#) Klionsky DJ, Abdelmohsen K, Abe A, Abedin MJ, Abeliovich H, Acevedo Arozena A. . .Moris A, Moriyasu Y, Morrison JL, Morrison LA, Morselli E, Moscat J, Moseley PL, Mostowy S, Motori E, Mottet D, Mottram JC, Moussa CE, Mpakou VE, Mukhtar H, Mulcahy Levy JM, Muller S, Muñoz-Moreno R, Muñoz-Pinedo C, Münz C, Murphy ME, Murray JT, Murthy A, Mysorekar IU, Nabi IR, Nabissi M, Nader GA, Nagahara Y, Nagai Y, Nagata K, Nagelkerke A, Nagy P, Naidu SR, Nair S, Nakano H, Nakatogawa H, **Nanjundan M**, . . . *Autophagy*. 2016;12(1):1-222. doi: 10.1080/15548627.2015.1100356. No abstract available. Erratum in: *Autophagy*. 2016;12(2):443. Selliez, Iban [corrected to Seilliez, Iban]. PMID: 26799652
- [MIR494 reduces renal cancer cell survival coinciding with increased lipid droplets and mitochondrial changes.](#) Dutta P, Haller E, Sharp A, **Nanjundan M**. *BMC Cancer*. 2016 Jan 21;16:33. doi: 10.1186/s12885-016-2053-3. PMID: 26794413

- [Effect of hydroxychloroquine and characterization of autophagy in a mouse model of endometriosis.](#) Ruiz A, Rockfield S, Taran N, Haller E, Engelman RW, Flores I, Panina-Bordignon P, **Nanjundan M.** *Cell Death Dis.* 2016 Jan 14;7:e2059. doi: 10.1038/cddis.2015.361. PMID: 26775710
- [Iron modulates cell survival in a mitochondria-dependent pathway in ovarian cancer cells.](#) Bauckman K, Haller E, Taran N, Rockfield S, Ruiz-Rivera A, **Nanjundan M.** *Biochem J.* 2015 Mar 1;466(2):401-13. doi: 10.1042/BJ20140878. PMID: 25697096
- [Induction of PLSCR1 in a STING/IRF3-dependent manner upon vector transfection in ovarian epithelial cells.](#) Kodigepalli KM, **Nanjundan M.** *PLoS One.* 2015 Feb 6;10(2):e0117464. doi: 10.1371/journal.pone.0117464. eCollection 2015. PMID: 25658875
- [Roles and regulation of phospholipid scramblases.](#) Kodigepalli KM, Bowers K, Sharp A, **Nanjundan M.** *FEBS Letters.* 2015 Jan 2;589(1):3-14. doi: 10.1016/j.febslet.2014.11.036. Epub 2014 Dec 3. Review. PMID: 25479087
- [Design and validation of a multi-electrode bioimpedance system for enhancing spatial resolution of cellular impedance studies.](#) Alexander FA Jr, Celestin M, Price DT, **Nanjundan M,** Bhansali S. *Analyst.* 2013 Jul 7;138(13):3728-34. doi: 10.1039/c3an00176h.
- [Phospholipid Scramblase 1, an interferon-regulated gene located at 3q23, is regulated by SnoN/SkiL in ovarian cancer cells.](#) Kodigepalli KM, Anur P, Spellman P, Sims PJ, **Nanjundan M.** *Mol Cancer.* 2013 Apr 26;12:32. doi: 10.1186/1476-4598-12-32.
- [Iron modulates cell survival in a Ras- and MAPK-dependent manner in ovarian cells.](#) Bauckman KA, Haller E, Flores I, **Nanjundan M.** *Cell Death Dis.* 2013 Apr 18;4:e592. doi: 10.1038/cddis.2013.87.
- [EVI1 splice variants modulate functional responses in ovarian cancer cells.](#) Dutta P, Bui T, Bauckman KA, Keyomarsi K, Mills GB, **Nanjundan M.** *Mol Oncol.* 2013 Jun;7(3):647-68. doi: 10.1016/j.molonc.2013.02.008. Epub 2013 Mar 5.
- [SnoN/SkiL expression is modulated via arsenic trioxide-induced activation of the PI3K/AKT pathway in ovarian cancer cells.](#) Kodigepalli KM, Dutta PS, Bauckman KA, **Nanjundan M.** *FEBS Letters.* 2013 Jan 4;587(1):5-16. doi: 10.1016/j.febslet.2012.11.003. Epub 2012 Nov 21.
- [Guidelines for the use and interpretation of assays for monitoring autophagy.](#) Klionsky DJ, Abdalla FC, Abeliovich H, . . ., McQuibban GA, Meijer AJ, Meisler MH, Meléndez A, Melia TJ, Melino G, Mena MA, Menendez JA, Menna-Barreto RF, Menon MB, Menzies FM, Mercer CA, Merighi A, Merry DE, Meschini S, Meyer CG, Meyer TF, Miao CY, Miao JY, Michels PA, Michiels C, Mijaljica D, Milojkovic A, Minucci S, Miracco C, Miranti CK, Mitroulis I, Miyazawa K, Mizushima N, Mograbi B, Mohseni S, Molero X, Mollereau B, Mollinedo F, Momoi T, Monastyrska I, Monick MM, Monteiro MJ, Moore MN, Mora R, Moreau K, Moreira PI, Moriyasu Y, Moscat J, Mostowy S, Mottram JC, Motyl T, Moussa CE, Müller S, Muller S, Mürger K, Münz C,

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- [Proteomic profiling identifies pathways dysregulated in non-small cell lung cancer and an inverse association of AMPK and adhesion pathways with recurrence.](#)
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- [The ubiquitin-proteasome system and assays to determine responses to inhibitors.](#)
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- [SnoN/SkiL, a TGFβ signaling mediator: a participant in autophagy induced by arsenic trioxide.](#)
Raffoul F, Campla C, **Nanjundan M**. *Autophagy*. 2010 Oct;6(7):955-7. doi: 10.4161/auto.6.7.13041. Epub 2010 Oct 16.
- [Steroid receptor coactivator-3 expression in lung cancer and its role in the regulation of cancer cell survival and proliferation.](#)
Cai D, Shames DS, Raso MG, Xie Y, Kim YH, Pollack JR, Girard L, Sullivan JP, Gao B, Peyton M, **Nanjundan M**, Byers L, Heymach J, Mills G, Gazdar AF, Wistuba I, Kodadek T, Minna JD. *Cancer Res*. 2010 Aug 15;70(16):6477-85. doi: 10.1158/0008-5472.CAN-10-0005. Epub 2010 Jul 27.
- [Arsenic trioxide induces a beclin-1-independent autophagic pathway via modulation of SnoN/SkiL expression in ovarian carcinoma cells.](#)
Smith DM, Patel S, Raffoul F, Haller E, Mills GB, **Nanjundan M**. *Cell Death Differ*. 2010 Dec;17(12):1867-81. doi: 10.1038/cdd.2010.53. Epub 2010 May 28.
- [Reciprocal regulation of c-Src and STAT3 in non-small cell lung cancer.](#) Byers LA, Sen B, Saigal B, Diao L, Wang J, **Nanjundan M**, Cascone T, Mills GB, Heymach JV, Johnson FM. *Clin Cancer Res*. 2009 Nov 15;15(22):6852-61. doi: 10.1158/1078-0432.CCR-09-0767. Epub 2009 Oct 27. PMID: 19861436
- [Overexpression of SnoN/SkiL, amplified at the 3q26.2 locus, in ovarian cancers: a role in ovarian pathogenesis.](#) **Nanjundan M**, Cheng KW, Zhang F, Lahad J, Kuo WL, Schmandt R, Smith-McCune K, Fishman D, Gray JW, Mills GB. *Mol Oncol*. 2008 Aug;2(2):164-81. doi: 10.1016/j.molonc.2008.05.001. Epub 2008 May 10. PMID: 19383336
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- [Amplification of MDS1/EVI1 and EVI1, located in the 3q26.2 amplicon, is associated with favorable patient prognosis in ovarian cancer.](#) **Nanjundan M**, Nakayama Y, Cheng KW, Lahad J, Liu J, Lu K, Kuo WL, Smith-McCune K, Fishman D, Gray JW, Mills GB. *Cancer Res*. 2007 Apr 1;67(7):3074-84. PMID: 17409414

- [Identification of a novel splice variant of AML1b in ovarian cancer patients conferring loss of wild-type tumor suppressive functions.](#) **Nanjundan M**, Zhang F, Schmandt R, Smith-McCune K, Mills GB. *Oncogene*. 2007 Apr 19;26(18):2574-84. Epub 2006 Oct 30. PMID: 17072347
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- [Palmitoylation of phospholipid scramblase 1 controls its distribution between nucleus and plasma membrane.](#) Wiedmer T, Zhao J, **Nanjundan M**, Sims PJ. *Biochemistry*. 2003 Feb 11;42(5):1227-33. PMID: 12564925
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- [Plasma membrane phospholipid scramblase 1 is enriched in lipid rafts and interacts with the epidermal growth factor receptor.](#) Sun J, **Nanjundan M**, Pike LJ, Wiedmer T, Sims PJ. *Biochemistry*. 2002 May 21;41(20):6338-45. PMID: 12009895
- [Molecular cloning and expression of pulmonary lipid phosphate phosphohydrolases.](#) **Nanjundan M**, Possmayer F. *Am J Physiol Lung Cell Mol Physiol*. 2001 Dec;281(6):L1484-93. PMID: 11704545
- [Pulmonary lipid phosphate phosphohydrolase in plasma membrane signaling platforms.](#) **Nanjundan M**, Possmayer F. *Biochem J*. 2001 Sep 15;358(Pt 3):637-46. PMID: 11535125
- [Characterization of the pulmonary N-ethylmaleimide-insensitive phosphatidate phosphohydrolase.](#) **Nanjundan M**, Possmayer F. *Exp Lung Res*. 2000 Jul-Aug;26(5):361-81. PMID: 10914334