



## Bibliography of Selected Publications Describing TUSC2/FUS1 Tumor Suppressor, GPX-001 (Intravenous TUSC2 Nanoparticle Therapy) and Related Technologies

1. Meraz IM, Majidi M, Feng M, et al. [Abstract A75: Efficacy of novel immunogene combinations for Kras and LKB1 mutant NSCLC in a humanized mouse model](#). *Cancer Immunology Research*. 2020; 8(3):A75. Published 2020, March 1.
2. Mariniello, R.M.; Orlandella, F.M.; Stefano, A.E.D.; Iervolino, P.L.C.; Smaldone, G.; Luciano, N.; Cervone, N.; Munciguerra, F.; Esposito, S.; Mirabelli, P.; Salvatore, G. [The TUSC2 Tumour Suppressor Inhibits the Malignant Phenotype of Human Thyroid Cancer Cells via SMAC/DIABLO Protein](#). *Int. J. Mol. Sci.* 2020, 21, 702.
3. Nama S, Muhuri M, Di Pascale F, Quah S, Aswad L, Fullwood M, Sampath P. [MicroRNA-138 is a Prognostic Biomarker for Triple-Negative Breast Cancer and Promotes Tumorigenesis via TUSC2 repression](#). *Nature Research*. 2019; 9:12718. doi.org/10.1038/s41598-019-49155-4.
4. To C, Jang J, Janne PA, et al. [Single and dual targeting of mutant EGFR with an allosteric inhibitor](#). *Cancer Discovery*. 2019, May 15. doi: 10.1158/2159-8290.CD-18-0903.
5. Meraz I, Majidi M, Feng M, Shao R, Ha M, Neri S, Fang B, Lin S, Tinkey P, Shpall E, Morris J, Roth JA. [Development of an improved humanized patient-derived xenograft, Hu-PDX, mouse model for evaluation of antitumor immune response in lung cancer](#). AACR Annual Meeting, Atlanta GA, April 3, 2019 (#4984), 4/2019.
6. Liu F, Gong R, He B, Chen F, Hu Z. [TUSC2P suppresses the tumor function of esophageal squamous cell carcinoma by regulating TUSC2 expression and correlates with disease prognosis](#). *BMC Cancer*. 2018;18(1):894. Published 2018 Sep 15. doi:10.1186/s12885-018-4804-9.
7. Meraz IM, Majidi M, Cao X, et al. [TUSC2 Immunogene Therapy Synergizes with Anti-PD-1 through Enhanced Proliferation and Infiltration of Natural Killer Cells in Syngeneic Kras-Mutant Mouse Lung Cancer Models](#). *Cancer Immunol Res*. 2018;6(2):163–177. doi:10.1158/2326-6066.CIR-17-0273.
8. Cao X, Zhao Y, Wang J, et al. [TUSC2 downregulates PD-L1 expression in non-small cell lung cancer \(NSCLC\)](#). *Oncotarget*. 2017;8(64):107621–107629. Published 2017 Nov 21. doi:10.18632/oncotarget.22581.
9. Rimkus T, Sirkisoon S, Harrison A, Lo HW. [Tumor suppressor candidate 2 \(TUSC2, FUS-1\) and human cancers](#). *Discov Med*. 2017;23(128):325–330.
10. Meraz I, Majidi M, Shao R, Feng M, Cao X, Rice D, Sepesi B, Lin J, Roth JA. [Tumor suppressor TUSC2 immunogene therapy is synergistic with anti-PD1 in lung cancer syngeneic mouse models](#). AACR Annual Meeting, Washington DC, April 1, 2017 (#621), 4/2017.

11. Uzhachenko R, Boyd K, Olivares-Villagomez D, et al. [Mitochondrial protein Fus1/Tusc2 in premature aging and age-related pathologies: critical roles of calcium and energy homeostasis](#). *Aging* (Albany NY). 2017;9(3):627–649. doi:10.18632/aging.101213.
12. Xiaobo C, Majidi M, Feng M, et al. [TUSC2\(FUS1\)-erlotinib Induced Vulnerabilities in Epidermal Growth Factor Receptor\(EGFR\) Wildtype Non-small Cell Lung Cancer\(NSCLC\) Targeted by the Repurposed Drug Auranofin](#). *Sci Rep*. 2016;6:35741. Published 2016 Nov 15. doi:10.1038/srep35741.
13. Lara-Guerra H, Roth JA. [Gene Therapy for Lung Cancer](#). *Crit Rev Oncog*. 2016;21(1-2):115–124. doi:10.1615/CritRevOncog.2016016084.
14. Xu JH, Hu SL, Shen GD, Shen G. [Tumor suppressor genes and their underlying interactions in paclitaxel resistance in cancer therapy](#). *Cancer Cell Int*. 2016;16:13. Published 2016 Feb 20. doi:10.1186/s12935-016-0290-9.
15. Uzhachenko R, Shanker A, Yarbrough WG, Ivanova AV. [Mitochondria, calcium, and tumor suppressor Fus1: At the crossroad of cancer, inflammation, and autoimmunity](#). *Oncotarget*. 2015;6(25):20754–20772. doi:10.18632/oncotarget.4537.
16. Xin J, Zhang X-K, Xin D-Y, Li X-F, Sun D-K, Ma Y-Y, et al. [FUS1 acts as a tumor-suppressor gene by upregulating miR-197 in human glioblastoma](#). *Oncology Reports*. 2015 Aug;34(2):868–76.
17. Pastuszak-Lewandoska D, Kordiak J, Migdalska-Sęk M, et al. [Quantitative analysis of mRNA expression levels and DNA methylation profiles of three neighboring genes: FUS1, NPRL2/G21 and RASSF1A in non-small cell lung cancer patients](#). *Respir Res*. 2015;16(1):76. Published 2015 Jun 26. doi:10.1186/s12931-015-0230-6.
18. Tricker E, Xu C, Uddin S, Capelletti M, Ercan D, Ogino A, Pratilas C, Rosen N, Gray N, Wong K, Janne PA. [Combined EGFR/MEK Inhibition Prevents the Emergence of Resistance in EGFR mutant Lung Cancer](#). *Cancer Discovery*. 2015 Jun 2. doi: 10.1158/2159-8290.CD-15-0063.
19. Dai B, Yan S, Lara-Guerra H, et al. [Exogenous Restoration of TUSC2 Expression Induces Responsiveness to Erlotinib in Wildtype Epidermal Growth Factor Receptor \(EGFR\) Lung Cancer Cells through Context Specific Pathways Resulting in Enhanced Therapeutic Efficacy](#). *PLoS One*. 2015;10(6):e0123967. Published 2015 Jun 8. doi:10.1371/journal.pone.0123967.
20. Loginov VI, Dmitriev AA, Senchenko VN, Pronina IV, Khodyrev DS, Kudryavtseva AV, et al. [Tumor Suppressor Function of the SEMA3B Gene in Human Lung and Renal Cancers](#). Suzuki H, editor. *PLoS ONE*. 2015 May 11;10(5):e0123369.
21. Li L, Yu C, Ren J, Ye S, Ou W, Wang Y, et al. [Synergistic effects of eukaryotic coexpression plasmid carrying LKB1 and FUS1 genes on lung cancer in vitro and in vivo](#). *J Cancer Res Clin Oncol*. 2014 Jun;140(6):895–907.
22. Rutnam ZJ, Du WW, Yang W, Yang X, Yang BB. [The pseudogene TUSC2P promotes TUSC2 function by binding multiple microRNAs](#). *Nat Commun*. 2014;5:2914. doi:10.1038/ncomms3914.

23. Meng J, Majidi M, Fang B, et al. [The tumor suppressor gene TUSC2 \(FUS1\) sensitizes NSCLC to the AKT inhibitor MK2206 in LKB1-dependent manner.](#) *PLoS One*. 2013;8(10):e77067. Published 2013 Oct 17. doi:10.1371/journal.pone.0077067.
24. Schaake EE, Kappers I, Codrington HE, Valdez Olmos RA, Teertstra HJ, van Pel R, Burgers JA, van Tinteren H, Klomp HM. [Tumor response and toxicity of neoadjuvant erlotinib in patients with early-stage non-small cell lung cancer.](#) *J Clin Oncol*, August 2012 30(22), 2731-2738.
25. Ganguly SS, Plattner R. [Activation of abl family kinases in solid tumors.](#) *Genes Cancer*. 2012;3(5-6):414-425. doi:10.1177/1947601912458586.
26. Lu C, Stewart DJ, Lee JJ, Ji L, Ramesh R, Jayachandran G, Nunez MI, Wistuba II, Erasmus JJ, Hicks ME, Grimm EA, Reuben JM, Baladandayuthapani V, Templeton NS, McMannis JD, Roth JA. [Phase I clinical trial of systemically administered TUSC2 \(FUS1\)-nanoparticles mediating functional gene transfer in humans.](#) *PLoS ONE*, April 2012 7(4), e34833. Doi:10.1371/journal.pone.0034833.
27. Meng J, Lara-Guerra H, Ji L, Roth JA. [Synergistic antitumor activity of AKT inhibitor MK2206 and FUS1 nanoparticles in LKB1 mutant NSCLC.](#) AACR Annual Meeting, Chicago IL, April 10, 2012 (#870), 4/2012.
28. Yan S, Lin J, Xu K, Jayachandran G, Watanabe Y, Ge Q, Wu Y, Guo D, Chen Y, Roth JA, Ji L. [Synergistic inhibition of tumor growth and overcoming resistance in Lung Cancer by combining novel dual-targeting DNA-alkylating/HDAC inhibitor with Tumor Suppressor NPRL2- and p53-nanoparticles.](#) AACR Annual Meeting, Chicago IL, April 10, 2012 (#3127), 4/2012.
29. Zandi R, Xu K, Poulsen HS, Roth JA, Ji L. [Overexpression of the Novel Tumor Suppressor Gene FUS1 Suppresses the Growth of Small Cell Lung Cancer Cells.](#) *J Clin Exp Pathol* 2011;S5:001. doi:10.4172/2161-0681.S5-001
30. da Costa Prando E, Cavalli LR, Rainho CA. [Evidence of epigenetic regulation of the tumor suppressor gene cluster flanking RASSF1 in breast cancer cell lines.](#) *Epigenetics*. 2011;6(12):1413-1424. doi:10.4161/epi.6.12.18271.
31. Lin J, Xu K, Gitanjali J, Roth JA, Ji L. [Regulation of tumor suppressor gene FUS1 expression by the untranslated regions of mRNA in human lung cancer cells.](#) *Biochem Biophys Res Commun* 2011 Jul 1;410(2):235-41. Epub 2011 May 27.
32. Edfeldt K, Björklund P, Åkerström G, Westin G, Hellman P, Stålberg P. [Different gene expression profiles in metastasizing midgut carcinoid tumors.](#) *Endocr Relat Cancer* 2011 Jul 11;18(4):479-89. Print 2011.
33. Lu C, Stewart DJ, Ji L, Ramesh R, Jayachandran G, Nunez MI, Wistuba II, Erasmus JJ, Lee JJ, McMannis JD, Templeton NS, Roth JA. [Systemic gene therapy with tumor suppressor TUSC2/FUS1 nanoparticles for recurrent/metastatic lung cancer.](#) AACR Annual Meeting, Orlando, FL, April 6, 2011 (#5391), 4/2011.
34. Shanker M, Jin J, Branch CD, Miyamoto S, Grimm EA, Roth JA, Ramesh R. [Tumor suppressor gene-based nanotherapy: from test tube to the clinic.](#) *J Drug Deliv* 2011; 2011:465845.

35. Li G, Kawashima H, Ji L, Ogose A, Ariizumi T, Umezu H, Xu Y, Hotta T, Endo N. [Frequent absence of tumor suppressor FUS1 protein expression in human bone and soft tissue sarcomas](#). *Anticancer Res* 2011 Jan;31(1):11-21.
36. Jayachandran G, Ueda K, Wang B, Roth JA, Ji L. [NPRL2 sensitizes human non-small cell lung cancer \(NSCLC\) cells to cisplatin treatment by regulating key components in the DNA repair pathway](#). *PLoS ONE*, August 2010 5(8), e11994:1-12.
37. Lu C, Stewart DJ, Ji L, Ramesh R, Jayachandran G, Erasmus JJ, Lee J, Templeton NS, McMannis JD, Roth JA. [Systemic gene therapy with tumor suppressor FUS1-nanoparticles for recurrent/metastatic lung cancer](#). *J Clin Oncol* 28(Supplement):558s (#7582), 6/2010.
38. Sakai R, Xu K, Fang B, Roth JA, Ji L. [Overcoming drug resistance to EGFR-tyrosine kinase inhibitors by FUS1 or FHIT-gene therapy in human lung cancer](#). AACR Annual Meeting, Washington, D.C., April 20, 2010 (#3634), 4/2010.
39. Liu Q, Wu G, Xu K, Roth JA, Ji L. [FUS1-mediated tumor suppression by inhibiting PDGF/PDGFR signaling pathway in human lung cancer](#). AACR Annual Meeting, Washington, D.C., April 18, 2010 (#706), 4/2010.
40. Senchenko VN, Anedchenko EA, Kondratieva TT, et al. [Simultaneous down-regulation of tumor suppressor genes RBSP3/CTDSPL, NPRL2/G21 and RASSF1A in primary non-small cell lung cancer](#). *BMC Cancer*. 2010;10:75. Published 2010 Mar 1. doi:10.1186/1471-2407-10-75.
41. Baker L. [Found in translation: SPORE grants turn into hope for patients](#). *Conquest* (publication of The University of Texas MD Anderson Cancer Center, Houston) Spring 2010:16-19.
42. Ivanova AV, Ivanov SV, Prudkin L, Nonaka D, Liu Z, Tsao A, Wistuba I, Roth J, Pass HI. [Mechanisms of FUS1/TUSC2 deficiency in mesothelioma and its tumorigenic transcriptional effects](#). *Mol Cancer* 8:91, 10/2009.
43. Du L, Schageman JJ, Subauste MC, Saber B, Hammond SM, Prudkin L, Wistuba II, Ji L, Roth JA, Minna JD, Pertsemidis A. [miR-93, miR-98, and miR-197 regulate expression of tumor suppressor gene FUS1](#). *Mol Cancer Res* 2009 Aug;7(8):1234-43. Epub 2009 Aug 11.
44. Ivanov SV, Miller J, Lucito R, et al. [Genomic events associated with progression of pleural malignant mesothelioma](#). *Int J Cancer*. 2009;124(3):589-599. doi:10.1002/ijc.23949.
45. Anedchenko EA, Dmitriev AA, Krasnov GS, Kondrat'eva OO, Kopantsev EP, Vinogradova TV, et al. [Downregulation of RBSP3/CTDSPL, NPRL2/G21, RASSF1A, ITGA9, HYAL1, and HYAL2 in non-small cell lung cancer](#). *Mol Biol*. 2008 Dec;42(6):859-69.
46. Templeton NS. [Nonviral delivery for genomic therapy of cancer](#). *World J Surg* 2009; 33:685-697. Epub 2008 Nov 21.
47. Engelman JA, Janne PA. [Mechanisms of acquired resistance to epidermal growth factor receptor tyrosine kinase inhibitors in non-small cell lung cancer](#). *Clin Cancer Res* 14:2895, 5/2008.
48. Lin J, Arlinghaus R. [Activated c-Abl tyrosine kinase in malignant solid tumors](#). *Oncogene* 2008 Jul 24;27(32):4385-91. Epub 2008 Apr 7.

49. Ji L, Roth JA. [Tumor suppressor FUS1 signaling pathway](#). *J Thorac Oncol* 3(4):327-30, 4/2008.
50. Prudkin L, Behrens C, Liu DD, Zhou X, Ozburn NC, Bekele BN, Minna JD, Moran C, Roth JA, Ji L, Wistuba II. [Loss and reduction of TUSC2 protein expression is a frequent phenomenon in the pathogenesis of lung cancer](#). *Clin Cancer Res* 14(1):41-47, 1/2008.
51. Deng WG, Wu G, Ueda K, Xu K, Roth JA, Ji L. [Enhancement of antitumor activity of cisplatin in human lung cancer cells by tumor suppressor FUS1](#). *Cancer Gene Ther* 15(1):29-39, 1/2008. Epub 2007 Sep 7.
52. Lee DY, Deng Z, Wang CH, Yang BB. [MicroRNA-378 promotes cell survival, tumor growth, and angiogenesis by targeting SuFu and Fus-1 expression](#). *Proc Natl Acad Sci USA* 2007;104:20350-20355, 12/2007.
53. Hesson LB, Cooper WN, Latif F. [Evaluation of the 3p21.3 tumour-suppressor gene cluster](#). *Oncogene* 2007 Nov 15;26(52):7283-301. Epub 2007 May 28.
54. Lin J, Sun T, Ji L, Deng W, Roth J, Minna J, Arlinghaus R. [Oncogenic activation of c-Abl in non-small cell lung cancer cells lacking FUS1 expression: inhibition of c-Abl by the tumor suppressor gene product Fus1](#). *Oncogene* 26(49):6989-96, 10/2007. Epub 2007 May 7.
55. Ivanova AV, Ivanov SV, Pascal V, Lumsden JM, Ward JM, Morris N, Tessarolo L, Anderson SK, Lerman MI. [Autoimmunity, spontaneous tumorigenesis, and IL-15 insufficiency in mice with a targeted disruption of the tumour suppressor gene Fus 1](#). *J Pathol* 211:591-601. Epub 22 Feb 2007.
56. Deng WG, Kawashima H, Wu G, Jayachandran G, Xu K, Minna JD, Roth JA, Ji L. [Synergistic tumor suppression by coexpression of FUS1 and p53 is associated with down-regulation of murine double minute-2 and activation of the apoptotic protease-activating factor 1-dependent apoptotic pathway in human non-small cell lung cancer cells](#). *Cancer Res* 67(2):709-17, 1/2007.
57. Ueda K, Kawashima H, Ohtani S, Deng WG, Ravoori M, Bankson J, Gao B, Girard L, Minna JD, Roth JA, Kundra V, Ji L. [The 3p21.3 tumor suppressor NPRL2 plays an important role in cisplatin-induced resistance in human non-small-cell lung cancer cells](#). *Cancer Res* 66(19):9682-90, 10/2006.
58. Ji L, Minna JD, Roth JA. [3p21.3 tumor suppressor cluster: prospects for translational applications](#). *Future Oncol* 2005 Feb;1(1):79-92.
59. Ito I, Ji L, Tanaka F, Saito Y, Gopalan B, Branch CD, Xu K, Atkinson EN, Bekele BN, Stephens LC, Minna JD, Roth JA, Ramesh R. [Liposomal vector mediated delivery of the 3p FUS1 gene demonstrates potent antitumor activity against human lung cancer in vivo](#). *Cancer Gene Ther* 11(11):733-9, 11/2004.
60. Senchenko VN, Liu J, Loginov W, Bazov I, Angeloni D, Seryogin Y, Ermilova V, Kazubskaya T, Garkavtseva R, Zabarovska VI, Kashuba VI, Kisselev LL, Minna JD, Lerman MI, Klein G, Braga EA, Zabarovsky ER. [Discovery of frequent homozygous deletions in chromosome 3p21.3 LUCA and AP20 regions in renal, lung and breast carcinomas](#). *Oncogene* 23, 5719-5728, 6/2004.

61. Chow LS, Lo KW, Kwong J, To KF, Tsang KS, Lam CW, Dammann R, Huang DP. [RASSF1A is a target tumor suppressor from 3p21.3 in nasopharyngeal carcinoma](#). *Int J Cancer* 2004 May 10;109(6):839-47.
62. Uno F, Sasaki J, Nishizaki M, Carboni G, Xu K, Atkinson EN, Kondo M, Minna JD, Roth JA, Ji L. [Myristoylation of the fus1 protein is required for tumor suppression in human lung cancer cells](#). *Cancer Res* 64(9):2969-76, 5/2004.
63. Gopalan B, Ito I, Branch CD, Stephens C, Roth JA, Ramesh R. [Nanoparticle based systemic gene therapy for lung cancer: molecular mechanisms and strategies to suppress nanoparticle-mediated inflammatory response](#). *Technol Cancer Res Treat* 3(6):647-57, 12/2004.
64. Imreh S, Klein G, Zabarovsky ER. [Search for unknown tumor-antagonizing genes](#). *Genes, Chromosomes and Cancer*. 2003;38(4):307-21.
65. Ito I, Began G, Mohiuddin I, Saeki T, Saito Y, Branch CD, Vaporciyan A, Stephens LC, Yen N, Roth JA, Ramesh R. [Increased uptake of liposomal-DNA complexes by lung metastases following intravenous administration](#). *Mol Ther* 7(3):409-18, 3/2003.
66. Zabarovsky ER, Lerman MI, Minna JD. [Tumor suppressor genes on chromosome 3p involved in the pathogenesis of lung and other cancers](#). *Oncogene*. 2002 Oct 7;21(45):6915-35.
67. Ji L, Nishizaki M, Gao B, Burbee D, Kondo M, Kamibayashi C, Xu K, Yen N, Atkinson EN, Fang B, Lerman MI, Roth JA, Minna JD. [Expression of several genes in the human chromosome 3p21.3 homozygous deletion region by an adenovirus vector results in tumor suppressor activities in vitro and in vivo](#). *Cancer Res* 62(9):2715-20, 5/2002.
68. Kondo M, Ji L, Kamibayashi C, Tomizawa Y, Randle D, Sekido Y, et al. [Overexpression of candidate tumor suppressor gene FUS1 isolated from the 3p21.3 homozygous deletion region leads to G1 arrest and growth inhibition of lung cancer cells](#). *Oncogene*. 2001 Sep;20(43):6258-62.
69. Ramesh R, Saeki T, Templeton NS, Ji L, Stephens LC, Ito I, Wilson DR, Wu Z, Branch CD, Minna JD, Roth JA. [Successful treatment of primary and disseminated human lung cancers by systemic delivery of tumor suppressor genes using an improved liposome vector](#). *Mol Ther* 3(3):337-50, 3/2001.
70. Lerman MI, Minna JD. [The 630-kb Lung Cancer Homozygous Deletion Region on Human Chromosome 3p21.3: Identification and Evaluation of the Resident Candidate Tumor Suppressor Genes](#). *Cancer Res*. 2000 Nov 1;60(21):6116-33.
71. Martinez A, Fullwood P, Kondo K, et al. [Role of chromosome 3p12-p21 tumour suppressor genes in clear cell renal cell carcinoma: analysis of VHL dependent and VHL independent pathways of tumorigenesis](#). *Mol Pathol*. 2000;53(3):137-144. doi:10.1136/mp.53.3.137.
72. Templeton NS, Lasic DD, Frederik PM, Strey HH, Roberts DD, Pavlakis GN. [Improved DNA: liposome complexes for increased systemic delivery and gene expression](#). *Nature Biotech* 15:647-652, 7/1997.

