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Education:

1985: B.S., Biology, Osmania University, India
1987: M.S., Microbiology, Osmania University, India
1994: Ph.D., Molecular Biology, All India Institute of Medical Sciences, India
1996: Pathology, Postdoctoral Fellow Tulane University School of Medicine, LA
1992: Diploma in Business Admin (DBA) Annamalai University, India
1998-2001: Research Associate, Department of Thoracic and Cardiovascular Surgery, The University of Texas M. D. Anderson Cancer Center, TX
1997-1998: Research Instructor, Department of Surgery, Louisiana State University Medical
1996-1997: Research Associate, Mentor: Dr. Scott M. Freeman, M.D., Department of Pathology, SL79, Tulane University School of Medicine, LA
1993-1996 Postdoctoral Fellow, Mentor: Scott M. Freeman, M.D., Department of Pathology, SL79, Tulane University School of Medicine, LA
1991-1993: Senior Research Fellow, Advisor: S.K. Panda, M.D., Department of Pathology, All India Institute of Medical Sciences, India
1988-1991 Junior Research Fellow, Advisor: S.K. Panda, M.D., Department of Pathology, All India Institute of Medical Sciences, India

Academic Appointments:

1996-1997: Research Associate, Department of Pathology, Tulane University School of Medicine, LA
1997-1998: Instructor, Department of Surgery, Louisiana State University Medical Center, LA
1997-1998: Instructor, Department of Surgery, Louisiana State University Medical Center, LA
1998-2001: Research Associate, Department of Thoracic and Cardiovascular Surgery, The University of Texas M. D. Anderson Cancer Center, TX
2001-2005: Assistant Professor, Department of Thoracic and Cardiovascular Surgery, The University of Texas M. D. Anderson Cancer Center, TX
2005-2010: Associate Professor, Department of Thoracic and Cardiovascular Surgery, The University of Texas M. D. Anderson Cancer Center, TX
2010-present: Professor (Tenured), Department of Pathology, The University of Oklahoma Health Sciences Center, OK
2017-present: Research Health Science Specialist, Veterans Affairs (VA) Health Care System, OK
2010-present: Adjunct Professor, Department of Pharmaceutical Science, College of Pharmacy, The University of Oklahoma Health

2018-present: Co-Program Leader, Cancer Biology Program, Stephenson Cancer Center, OK
2015-present: Co-Director, Nanomedicine Program, Stephenson Cancer Center, OK
2016-present: Co-Program Leader, Preclinical Translational Cancer Research, Stephenson Cancer Center, OK
2010-2015: Program Leader, Experimental Therapeutics Program, Stephenson Cancer Center, OK
2010-present: Director, Small Animal Bioluminescence Imaging Core Facility, Stephenson Cancer Center, OK

Awards and Honors:

1991: Best Paper in Basic Sciences Research, Annual Conference of the Indian Association for Study of Liver
1992: Searle Award, Best Oral Paper, Annual Conference of Indian Society of Gastroenterology
1993: Young Investigator Award in Medical Sciences, Indian National Science Academy (INSA) New Delhi
2005: Ben and Jay Lori Fellowship for Translational Research in Lung Cancer- Awarded to Dr. Began Gopalan, Post-Doctoral Fellow
2009: Manish Shankar, Merck-AACR-in Training Scholars Award- Awarded to Dr. Manish Shankar, Post- Doctoral Fellow

Other Professional Experiences and Memberships:

1994-present: Member, American Association for Cancer Research (AACR)
1995-present: Member, American Society of Cell and Gene Therapy (ASCGT)
2007-present: Member, American Society of Clinical Oncology (ASCO)
2006-present: NCI Career Development study section member
2008: Co-Chair, Suicide gene therapy and apoptosis section, American Society of Cell and Gene Therapy (ASCGT)
2009: NIH/NCI GDD Study section member (ad hoc)
2010-present: Member, American Association of Pharmaceutical Sciences (AAPS)
2010-present: Member, Graduate Program in Biological Sciences, The University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma

Research Support:

Current:

- 01/01/19-12/31/23: NIH/NCI Grant # 1R01CA233201-01, "An improved IL-24 gene-based therapeutic for cancer", Role: Principal Investigator, Awarded: \$224,529
- 05/01/18-04/30/23: NIH/NCI Grant # P30 CA225520-01, Cancer Center Support Grant (CCSG), Role: Program Co-Leade
- 04/01/17-03/31/21: VA Merit Grant # 101BX003420A1, "Molecular impact of platinum drugs on the proteasome and SQSTM1/P62 complexes: A paradigm shift in resistance", Role: Principal Investigator, Awarded: \$262,325
- 09/05/18-08/31/23: NIH/NIGMS Grant # 2P20GM103639-01, COBRE: Mentoring Translational Cancer Research in Oklahoma, Role: Mentor for Dr. Katherine Morris (Project # 2), Awarded: 150,000
- 09/05/18-08/31/23: NIH/NIGMS Grant # 2P20GM103639-01, COBRE: Mentoring Translational Cancer Research in Oklahoma, Role: Director of Small Animal Bioluminescence Imaging Core Facility (Core # 3), Awarded: \$70,000
- 07/08/2019-10/31/21: NIH/NIGMS Grant# 2P20 GM10347-19, INBRE: Oklahoma IDEA Network for Biomedical Excellence, Role: Mentor for Horrick Sharma (Project title: Development of Small Molecules Targeting Cancer Metabolism)
- 09/15/19-09/14/20: DOD-Lung Cancer Research Program Concept Grant # XXX, Role: PI, Awarded: \$100,000
- 07/01/18-06/30/20: Presbyterian Health Foundation (PHF) Symposium Grant, "END2CANCER: Emerging Nanotechnology and Drug Delivery Applications for Cancer", Role: Principal Investigator, Awarded: \$25,000
- 07/01/18-06/30/20: Stephenson Cancer Center Symposium Matching Grant, "END2CANCER: Emerging Nanotechnology and Drug Delivery Applications for Cancer", Role: Principal Investigator, Awarded: \$25,000
- 09/01/18-08/31/21: Oklahoma Center for Advanced Science and Technology (OCAST) Grant # HR18-088, "Non-invasive liquid approach as a surrogate for determining immunotherapy response in lung cancer patients", Role: Principal Investigator, Awarded: \$45,000

- 07/01/19-06/30/20: Presbyterian Health Foundation (PHF) Equipment Grant # C5121201, 'KrosFlo 2i TFF system for producing high-yield exosome and microvesicle', Role: PI, Awarded: \$42,000
- 07/01/19-06/30/20: Presbyterian Health Foundation (PHF) Symposium Grant # C5122701, "END2CANCER: Emerging Nanotechnology and Drug Delivery Applications for Cancer", Role: Principal Investigator, Awarded: \$50,000
- 07/01/19-06/30/20: Stephenson Cancer Center Symposium Matching Grant, "END2CANCER: Emerging Nanotechnology and Drug Delivery Applications for Cancer", Role: Principal Investigator, Awarded: \$25,000
- 05/01/19-04/30/20: Stephenson Cancer Center (SCC), Trainee Research Award, Role: Mentor, Awarded: \$7,500 Past:
- 2008-2012: NCI/NIH, "Systemic non-viral gene therapy for cancer", Role: Principal Investigator
- 2009-2011: NCI/NIH, "Preclinical Development and Testing of Multifunctional Tumor-Targeted Nanoparticles for Lung Cancer", Role: Principal Investigator
- 2009-2011: Joan's Legacy Foundation, "Targeted IMAT multifunctional nanoparticles for bronchioalveolar lung cancer", Role: Principal Investigator
- 07/01/16-09/30/18: Presbyterian Health Foundation (PHF) Bridge Grant, "BRG1 targeted therapy for non-small cell lung carcinoma", Role: Collaborator, Awarded: \$35,000
- 07/01/16-06/30/18: Presbyterian Health Foundation (PHF) Bridge Grant, "Nanodelivery of biomolecules targeting the Proteasome/SQSTM1 Complexes in Cancer", Role: Principal Investigator, Awarded: \$75,000
- 10/01/18-09/30/19: Presbyterian Health Foundation (PHF) Bridge Grant, "Exosomes as a theranostic for lung cancer", Role: Principal Investigator, Awarded: \$75,000
- 09/15/18-09/14/19: DOD-Lung Cancer Research Program Concept Grant # W81XWH-18-1-0637, "Development of exosome-based theranostic for lung cancer", Role: Mentor, Awarded: \$100,000
- 09/01/18-08/31/19: National Science Foundation (NSF) Grant # 1828234, "MRI Acquisition of an inductively coupled mass spectrometer to study interactions of engineered materials with biological systems", Role: Collaborator, Awarded: \$500,000
- 07/01/18-06/30/19: Presbyterian Health Foundation (PHF) Seed Grant, "Mitigating therapy resistance by targeting ARID1A in breast cancer", Role: Collaborator, Awarded: \$50,000
- 07/01/18-06/30/19: IBEST-OUHSC Funding for Interdisciplinary Research, "3D *In vitro* models to study the role of exosomes in tumor progression", Role: Collaborator, Awarded: 10,000

Selected Publications:

1. Srivastava, A., Amreddy, N., Razaq, M., Towner, R., Zhao, Y.D., Ahmed, R.A., Munshi, A., **Ramesh, R.***# Exosomes as theranostics for lung cancer. *Adv. Cancer Res.* 139: 1-33, 2018. PMID: 29941101.
2. Srivastava, A., Moxley, K., Ruskin, R., Dhanasekaran, D.N., Zhao, Y.D., **Ramesh, R.***# Non-invasive liquid biopsy screening of urine-derived exosomes for miRNAs as biomarkers in endometrial cancer patients. *AAPS J.* 20:82, 2018. doi: 10.1208/s12248-018-0220-y. PMID: 29987691.
3. Amreddy, N., Babu, A., Muralidharan, R., Panneerselvam, J., Srivastava, A., Ahmed, R., Mehta, M., Munshi, A., **Ramesh, R.***# Recent advances in nanoparticle-based cancer drug and gene delivery. *Adv. Cancer Res.* 137: 115-170, 2018. PMID: 29405974.
4. Amreddy, N., Babu, A., Panneerselvam, J., Srivastava, A., Muralidharan, R., Chen, A., Zhao, Y.D., Munshi, A., **Ramesh, R.***# Chemo-biologic combinatorial drug delivery using folate receptor-targeted dendrimer nanoparticles for lung cancer treatment. *Nanomedicine.* 14:373-384, 2017. PMID: 29155362.
5. Andrade, D., Mehta, M., Griffith, J., Panneerselvam, J., Srivastava, A., Kim, T-D., Janknecht, R., Herman, T., **Ramesh, R.**, Munshi, A. YAP1 inhibition radiosensitizes triple-negative breast cancer cells by targeting the DNA damage response and cell survival pathways. *Oncotarget* 8:98495-98508, 2017. PMID: 29228705.
6. Babu, A., Amreddy, N., Muralidharan, R., Pathuri, G., Gali, H., Chen, A., Zhao, Y.D., Munshi, A., **Ramesh, R.***# Chemodrug delivery using integrin-targeted PLGA- Chitosan hybrid nanoparticle for lung cancer therapy. *Sci. Rep.* 7, 14674; doi:10.1038/s41598-017-15012-5, 2017. PMID: 29116098.
7. Muralidharan, R., Mehta, M., Ahmed, R., Roy, S., Xu, L., Aube, J., Chen, A., Zhao, Y.D., Herman, T., **Ramesh, R.***# HuR-targeted small molecule inhibitor exhibits cytotoxicity towards human lung cancer cells. *Sci. Rep.* 7, 9694; doi: 10.1038/s41598-017-07787-4, 2017. PMID: 28855578.
8. Muralidharan, R., Babu, A., Amreddy, N., Srivastava, A., Kompella, U.B., Chen, A., Zhao, Y.D., Munshi, A., **Ramesh, R.***# Tumor-targeted nanoparticle delivery of HuR siRNA inhibits lung tumor growth *in vitro* and *in vivo* by disrupting the oncogenic activity of the RNA-binding protein HuR. *Mol Cancer Ther.* 8:1470-1486, 2017. PMID: 28572169.

9. Babu, A., Munshi, A., **Ramesh, R.***# Combinatorial therapeutics approaches with RNAi and anticancer drugs using nanodrug delivery systems. *Drug Dev Ind Pharm.* 43: 1391- 1401, 2017.PMID: 28523942.
10. Babu, A., **Ramesh, R.***# Multifaceted applications of chitosan in cancer drug delivery and therapy. *Marine Drugs*, 2017 Mar; 15(4) pii: E96. doi: 10.3390/md15040096. PMID: 28346381.
11. Amreddy, N., Babu, A., Muralidharan, R., Munshi, A., **Ramesh, R.***# Polymeric nanoparticle-mediated gene delivery for lung cancer treatment. *Topics Curr Chem.* 2017 Apr; 375(2):35. doi: 10.1007/s41061-017-0128-5. PMID: 28290155.
12. Griffith, J., Andrade, D., Mehta, M., Berry, W., Benbrook, D.M., Aravindan, N., Herman, T.S., **Ramesh, R.**, Munshi, A. Silencing BMI1 radiosensitizes human breast cancer cells by inducing DNA damage and autophagy. *Oncol Rep.* 37:2382-2390, 2017 PMID:28260023.
13. Babu, A., Muralidharan, R., Amreddy, N., Munshi, A., **Ramesh, R.***# Tumor-targeted HuRsiRNA nanotherapy for lung cancer. *IEEE Tran Nanobioscience.* 15: 849-863, 2016. PMID: 28092499.
14. Srivastava, A., Amreddy, N., Babu, A., Panneerselvam, J., Mehta, M., Muralidharan, R., Chen, A., Zhao, Y.D., Razaq, M., Riedinger, N., Kim, H., Liu, S., Wu, S., Abdel- Mageed, A.B., Munshi, A., **Ramesh, R.***# Nanosomes carrying doxorubicin exhibit potent anticancer activity against human lung cancer cells. *Sci. Rep.* 6, 38541; doi: 10.1038/srep38541, 2016. PMCID: PMC5150529; PMID:27941871.
15. Mehta, M., Basalingappa, K., Griffith, J., Andrade, D., Babu, A., Amreddy, N., Muralidharan, R., Gorospe, M., Herman, T., Ding, W-Q., **Ramesh, R.**, Munshi, A. HuR silencing elicits oxidative stress and DNA damage and sensitizes human triple negative breast cancer cells to radiotherapy. *Oncotarget.* 7: 64820-64835, 2016. PMID: 27588488.
16. Panneerselvam, J., Srivastava, A., Muralidharan, R., Wang, Q., Zheng, W., Zhao, L., Chen, A., Zhao, Y.D., Munshi, A., **Ramesh, R.***# IL-24 modulates the high mobility group (HMG) A1/miR222/AKT signaling in lung cancer cells. *Oncotarget* 7:70247- 70263, 2016.PMID: 27602961.
17. Muralidharan, R., Babu, A., Amreddy, N., Basalingappa, K., Mehta, M., Chen, A., Zhao, Y.D., Kompella, U.B., Munshi, A., **Ramesh, R.***# Folate receptor-targeted nanoparticle delivery of HuR-RNAi suppresses lung cancer cell proliferation and cell migration. *J Nanobiotechnology* 14: 47, 2016. DOI: 10:1186/s12951-016-0201-1. PMID: 27328938.
18. Klionsky, D.J., Abdelmoshen, K., Abe, A., Abdedin M.G., Hagai, A., Arozena, A.A., Adachi, H., Adams, C.M., Adams, P.D. et al. Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy* 12:1-222, 2016. PMID:26799652
19. Muralidharan, R., Panneerselvam, J., Chen, A., Zhao, Y.D., Munshi, A., **Ramesh, R.***# HuR-targeted nanotherapy in combination with AMD3100 suppresses CXCR4 expression, cell growth, migration and invasion in lung cancer. *Cancer Gene Ther.* 22: 581-590, 2015. PMCID: PMC4679684; PMID:26494555.
20. Amreddy, N., Muralidharan, R., Babu, A., Mehta, M., Johnson, E.V., Zhao, Y.D., Munshi, A., **Ramesh, R.***# Tumor-targeted and pH controlled delivery of doxorubicin using gold nanorods for lung cancer therapy. *Intl J Nanomed.* 10:6773-6788, 2015. PMID: 26604751.
21. Ha, J-H., Gomathinayagam, R., Yan, M., Jayaraman, M., **Ramesh, R.**, Dhanasekaran, D.N. Determinant role for the gep oncogenes, Gα12/13, in ovarian cancer cell proliferation and xenograft tumor growth. *Genes and Cancer* 6: 356-364, 2015. PMCID:PMC4575922; PMID: 26413218.
22. Srivastava, A., Babu, A., Filant, J., Moxley, K.M., Ruskin, R., Dhanasekaran, D., Sood, A., McMeekin, S., **Ramesh, R.***# Exploitation of exosomes as nanocarriers for gene-, drug-, and immune-therapy of cancer. *J Biomed Nanotechnol.* 12: 1174-1182, 2016.
23. Al Mubarak, Z.H., **Ramesh, R.**, Liu, L., Krishnan, S. Surface plasmon resonance imaging of low levels of small organic compounds by direct adsorption onto gold microarray spots. *J Colloid Interface Sci.*460: 209-213, 2015. PMCID: PMC4592839; PMID: 26321574.
24. Panneerselvam, J., Shanker, M., Jin, J., Branch, C.D., Muralidharan, R., Zhao, D.Y., Chada, S., Munshi, A., **Ramesh, R.***# Phosphorylation of interleukin (IL)-24 is required for its anticancer activity. *Oncotarget* 18: 16271-16286; 2015. PMID: 26009991.
25. Panneerselvam, J., Jin, J., Shanker, M., Lauderdale, J., Bates, J., Wang, Q., Zhao, D.Y., Archibald, S.J., Hubin, T.J., **Ramesh, R.***# IL-24 inhibits lung cancer cell migration and invasion by disruption the SDF/CXCR-4 signaling axis. *PLoS One* 10:e0122439; 2015. PMCID:PMC4361489; PMID:25775124.
26. Babu, A., Amreddy, N., **Ramesh, R.***# Nanoparticle based cisplatin therapy for cancer. How far has it advanced in cancer therapy? *Ther Deliv.* 6: 115-119; 2015. PMID: 25690081.
27. Srivastava, A., Filant, J., Moxley, K.M., Sood, A., McMeekin, S., **Ramesh, R.***# Exosomes: A role for naturally occurring nanovesicles in cancer growth, diagnosis and treatment. *Curr Gene Ther.* 15: 182-192; 2015. PMID:25537774.
28. Kuroda, S., Tam, J., Roth, J.A., Sokolov, K., **Ramesh, R.***# EGFR-targeted plasmonic magnetic nanoparticles induce DNA damage and inhibit G2/M checkpoint in non-small cell lung cancer cells. *Int J Nanomedicine* 9: 3825-3839, 2014; PMCID:PMC4134185; PMID:25143731.

29. Babu, A., Wang, Q., Muralidharan, R., Shanker, M., Munshi, A., **Ramesh, R.***# Chitosan coated poly(lactic acid) polymeric nanoparticle-mediated combinatorial delivery of cisplatin and siRNA/plasmid DNA chemosensitizes cisplatin-resistant human ovarian cancer cells. *Mol Pharm.* 11: 2720-2733, 2014; PMID: 24922589.
30. Babu, A., Templeton, A. K., Munshi, A., **Ramesh, R.***# Nanodrug delivery systems: A promising technology for detection, diagnosis, and treatment of cancer. *AAPS PharmSciTech* 15: 709-721, 2014. PMCID: PMC4037475; PMID: 24550101.
31. Templeton, A.K., Miyamoto, S., Babu, A., Munshi, A., **Ramesh, R.***# Lung cancer stem cells: growing evidence and unresolved Issues. *Stem Cell Invest.* 2014, 1:9. doi: 10.3978/j.issn.2306-9759.2014.03.06. PMID: 27358855
32. Panneerselvam, J., Munshi, A., **Ramesh, R.***# Molecular signaling events modulated by interleukin (IL)-24 in exerting its anticancer activity in cancer cells. *J Mol Signal.* 8:15. DOI: 10.1186/1750-2187-8-15, 2013. PMID: 24377906.
33. Munshi, A., **Ramesh, R.** Mitogen-activated protein kinases and their role in radiation response. *Genes Cancer.* 4: 401-408, 2013. PMID: 24349638.
34. Babu, A., Templeton, A.K., Munshi, A., **Ramesh, R.***# Nanoparticle-based Drug Delivery for Therapy of Lung Cancer: Progress and Challenges. *J Nanomat.* 2013: 863951; 2013. dx.doi.org/10.1155/2013/863951
35. Neves, L.F.F., Kraiss, J.J., Van Rite, B.D., **Ramesh, R.**, Resasco, D.E., Harrison, R.G. Targeting single-walled carbon nanotubes for the treatment of breast cancer using photothermal therapy. *Nanotechnology.* 24:375104; 2013. PMID: 23975064.
36. Lu, C., Stewart, D., Lee, J.J., Ji, L., **Ramesh, R.**, Jayachandran, G., Nunez, M., Wistuba, I.I., Erasmus, J.J., Hicks, M.E., Grimm, E.A., Reuben, J., Baladandayuthapani, V., Templeton, N.S., McMannis, J.D., Roth, J.A. Phase I clinical trial of systemically administered TUSC2 (FUS1)- nanoparticles mediating functional gene transfer in humans. *PLoS ONE.* 7: e34833; 2012. PMID:22558101.
37. Yokoyama, T., Tam, J., Kuroda, S., Scott, A.W., Aaron, J., Larson, T., Correa, A.M., Shanker, M., Kondo, S., Roth, J.A., Sokolov, K., **Ramesh, R.***# EGFR-targeted hybrid plasmonic magnetic nanoparticles synergistically induce autophagy and apoptosis in non-small cell lung cancer cells. *PLoS ONE.* 6: e25507; 2011. PMID:22087216
38. Ma LL, Tam JO, Willsey BW, Rigdon D, **Ramesh R**, Sokolov K, Johnston KP. Selective Targeting of Antibody Conjugated Multifunctional Nanoclusters (Nanoroses) to Epidermal Growth Factor Receptors in Cancer Cells. *Langmuir.* 27:7681-7690, 2011. PMID: 21591638.
39. Mandal, P., Gao, F., Lu, Z., **Ramesh, R.**, Sanderson Birtwistle, J., Ren, Z., Chen, X., Kaluarachichi, K.K., Ekmekcioglu, S., Bast, R.C., Liao, W.S., McMurray, J.S. Potent and selective phosphopeptide mimetic prodrugs targeted to the Src homology 2 (SH2) domain of signal transducer and activator of transcription 3. *J Med Chem.* 54:3549-3563 2011. PMID: 21486047
40. Yokoyama, T., Miyamoto, S., **Ramesh, R.***# Interleukin (IL)-24: A regulator of autophagy and apoptosis-mediated programmed cell death. *Trends in Cell and Mol Biol.* 5; 61-67, 2010. PMID:
41. Shanker, M., Jin, J., Branch, C.D., Miyamoto, S., Grimm, E.A., Roth, J.A., **Ramesh, R.***# Tumor suppressor gene-based nanotherapy: from test tube to the clinic. *J Drug Deliv.* 1-10; 2011 doi:10.1155/2011/465845. PMID: 21490751
42. Li, Y., Efferson, C.L., **Ramesh, R.**, Peoples, G.E., Hwu, P., Ioannides, C. G. A peptidoglycan, (PGN) monomer with a glutamine to serine change and charged peptides bind to close positions on TLR-2. Implications for design of novel synthetic vaccines. *Cancer Immunol Immunother;* 60:515-524, 2011; PMID: 21188584
43. Shanker, M., Willcuts, D., Roth, J.A., **Ramesh, R.***# Drug resistance in lung cancer. *Lung Cancer: Targets and Therapy.* 1: 1-14, 2010.