Curriculum Vitae

NAME: **Vickram Ramkumar**

STATUS: Professor

CITIZENSHIP: U.S.A.

ADDRESS: Dept. Pharmacology, SIU School of Medicine
P.O. Box 19629, Springfield, IL 62794-9230

EDUCATION

	Degree	Years	Field of Study
Anderson University, Anderson, Indiana	B.A.	1974-78	Biology
Metpath Inst. of Lab. Ed., Hackensack, NJ	M.T. (ASCP)	1979-80	Med. Tech.
University of Maryland, Baltimore, MD	Ph.D.	1982-86	Pharmacology

PROFESSIONAL EXPERIENCE

Southern Illinois University School of Medicine, Springfield IL, Professor (7/13 – Present)
Southern Illinois University School of Medicine, Springfield, IL, Associate Professor of Pharmacology (10/97-6/2013)
Southern Illinois University School of Medicine, Springfield, IL, Assistant Professor (10/92 – 6/97)
Duke University Medical Center (Cardiology) – Research Associate, (12/86 – 10/92)
Research Assistantship, University of Maryland School of Pharmacy, Baltimore, MD (9/82-9/85)
Medical Technologist, Metpath Labs. Inc., Teterboro, NJ (9/80 - 12/80)
Medical Technologist, Community Hospital of Indianapolis, Indianapolis, IN (1/81 - 8/82)

TEACHING EXPERIENCE

Medical Courses: Medical Neuroscience
Medical Pharmacology
Electives: Advanced Therapeutics

Graduate Courses: PHARM 550 - Advanced Pharmacology

PHARM 551 - Methods in Pharmacology
PHARM 574 - Neuropharmacology
PHARM 555 – Cardiovascular Pharmacology
MBMB 530 - Cell and Molecular Biology

PROFESSIONAL SERVICE

Honors and Awards:
Emerson Fellowship Award (University of Maryland) (1985-1986)
Resident Research Associateship at National Institutes of Health (1986)
Postdoctoral Fellowship from National Institutes of Health – Heart Lung Blood Institute (1988-1990)
Stroke Fellowship at Duke University (Neurology) from National Institute of Health (1990-1991)
A.P. Naney Award, American Heart Association (1994)
Fraternal Order of Eagles Grant Award for Research on the Kidney (1998)

Membership in Professional Associations:
American Society for Biochemistry and Molecular Biology

ASPET - American Soc. for Pharmacology and Experimental Therapeutics
Society for Neuroscience
Association for Research in Otolaryngology

Journal Editorial Board:
Journal of Biomedicine and Biotechnology

Journals Reviewer:

Hearing Research
Journal of Pharmacology and Exp Ther
American Journal of Physiology
Journal of Leukocyte Biology
Journal of Immunology
Pharmacological Research
International Journal of Cancer
Journal of Neuroscience
Antioxidant Redox Signaling
Proceedings of the National Academy Sciences
Journal of Neurochemistry
Molecular Pharmacology
Society for Exp. Biol. Medicine
Immunopharmacology
Biochemical Pharmacology
Journal of Mol. Cellular Cardiology
Life Sciences
Japanese Journal of Pharmacology
Trends in Neurological Sciences
Cell Research
Neoplasia

Evaluation of Grant Proposals for Agencies:

National Institutes of Health (Ad Hoc Reviewer, NIDCD 2000, 2014, 2015)
Member, Grant Reviewer for AUD Study Section, National Institutes of Health (2016-2020)
American Heart Association
British Medical Council
Swiss National Science Foundation

Scientific Consultant:
Glaxo-Welcome, Research Triangle Park, North Carolina

Patents:
Patents Application approved by SIU Patent and Copyright Committee

1. Rapid Screening Method for Nephrotoxic Drugs and Protective Agents (2001)
2. Methods for Treatment and Prevention of Ototoxicity by siRNA (2007) – Patent Application # 20110160279
3. Use of transplatin to prevent hearing: Patent # 9248150 (2014)
4. Use of transplatin to prevent hearing: Patent # 8648114 (2016)

UNIVERSITY SERVICE

Departmental Committes:
Search Committee for Assistant Professor, Chairman (1999)
Graduate Program Committee, Chairman (2000-2002)
Seminar Coordinator
Search Committee for Assistant Professor, Chairman (2013)

Present School-Wide Committees
Student Progress Committee (1994-Present)
Patent Review Committee (Chair)
Misconduct in Science Committee
Year 2 Student Curriculum Committee

Past School-Wide Committees
Laboratory Animal Care and Use Committee (Chairman-5 years)
Faculty Council (elected), Chair of Committe on Committes
Research Policy Committee

Infection Control and Safety Committee
Member and Chair of the Grant Review Committee

Service
Search Committee for Cancer Institute Faculty (2005-2006)
Chair, Clinician Scientist Award Committee, SIU School of Medicine (2009)
Search Committee Myers Institute Director SIU Carbondale (2013-2014)

Post-doctoral Fellows	**Doctoral Student (Chair or *Co-Chair)**	**Master's Student**
Sangay B. Maggirwar	Zhongzhen Nie	
Sarvesh Jajoo	Mary Ford	Veena Angadi
		Puspanjali Bhatta
Satyanarayan S. Bhat	Sandeep Pingle	
K. Gawai	Sarvesh Jajoo	
Zhongzhen Nie	Preeti Puntambekar	
Dan Hallam	Krishna Jhaveri*	
Adriana Marcuzzi	Xiaobin Xie*	
Sandeep Pingle	Snigdha Mishra	
Krishna Jhaveri	Kathy Hardiek	
Lynn Martin	Satish Kabra	
Srinivas Tupal	Tejbeer Kaur	
Raheem Alaameri	Sandeep Sheth	
Sandeep Sheth	Sumana Ghosh	
	Vikrant Borse	
	Ashmita Dhukwa	

RESEARCH

Research Interest and Specialties:
Mechanisms of Cisplatin and Noise Induced Hearing Loss
Inflammatory Mechanisms Mediating Hearing Loss
Peripheral Sensory (Pain) System in Diabetes
Endogenous Modulation of Prostate Cancer Metastasis
Oxidative Stress Regulation of Adenosine Receptor

Current Research Projects:
- Molecular mechanism underlying cisplatin and noise-induced hearing loss
- Function of TRPV1 in the auditory system
- Molecular events underlying the inhibition of prostate cancer metastasis by adenosine
- MicroRNAs and cancer metastasis
- Oxidative stress and regulation of transient receptor potential (TRP) channels
- Adenosine receptors and circadian rhythm

Research Support

Current Support
Principal Investigator: NIH- National Cancer Institute – *Transplatin: A novel treatment for the amelioration of cisplatin toxicities* (R01 CA166907), 7/1/13-6/30/2019
Principal Investigator: NIH- National Institute of Deafness and Communiative Disorders - *Oral epigallocatechin gallate (EGCG) for the treatment of cisplatin ototoxicity* (R01 DC016835), June 1, 2018 – May 31, 2023

Co-Investigator: NIH - National Institute on Deafness and Other Communicative Disorders - *Endogenous modulation of cochlear injury* (RO1-DC 002396), 3/1/14-2/28/19 **(**Len Rybak, P.I.)

Past Support

National Institute of Health, NIA - *Alzheimer Precursor Protein and Olfactory Bulb Lesioning*, $19,708, 10/93-9/94 (Principal Investigator)

SIU School of Medicine, CRC Grant, *Involvement of the Beta-Adrenergic Receptor Kinase in A_1 Adenosine Receptor Desensitization*, $10,000, 7/93-6/95, Principal Investigator,

American Lung Association, Illinois Affiliate, *Functional Regulation of a Novel Mast Cell Adenosine Receptor by Cytokines*, $6,600, 7/94-6/95 (Principal Investigator)

Deafness Research Foundation*, Role of Adenosine in Rat Cochlea, $30,000,* 1/94-12/95, (Principal Investigator)

SIU School of Medicine, CRC Program Project Grant, *Age-Related Changes: Cell and Molecular Approaches*, $37,505, 4/94-3/97 (Principal Investigator)

National Institutes of Health, **NIAID**, *Pharmacology of Mast Cell A3 Adenosine Receptor*, $106,482, 6/95-5/98 (Principal Investigator)

American Heart Association, Illinois Affiliate, *Role of an A_3 Adenosine Receptor in Endothelial Cells*, $49,788, 7/94-6/96 (Principal Investigator)

SIU School of Medicine, CRC Grant, *Role of A_{2a} Adenosine Receptor in Parkinson's Disease*, $5,000, 7/95-6/96, (Principal Investigator)

National Institutes of Health, NIHLB – *Adenosine and Antioxidant Enzymes*, $387,779, 4/96-3/00 (Principal Investigator)

CRC SIU School of Medicine - *Role of A1 Adenosine Receptors in Mediating the Nephrotoxicity Induced by the Chemotherapeutic Agent Cisplatin*, $46,038, 10/97-12/98 (Principal Investigator)

CRC SIU School of Medicine - *Cisplatin-Adenosine Interactions in the Kidney*, $45,786, 9/98-8/99 (Principal Investigator)

National Institutes of Health, NIDCD - *Endogenous modulation of cochlear injury,* $1,651,328, 1/99-12/04 (Co-Investigator; Len Rybak, P.I.)

SIU School of Medicine - Excellence in Academic Medicine Award, *Potential interaction of adenosine with HIV-1 Tat in AIDS dementia*, $57, 360, 10/01 – 9/02 (Principal Investigator)

SIU School of Medicine - Excellence in Academic Medicine Award, *Mechanisms of tumor metastasis suppression by the KAI1 gene*, $52, 000, 10/01 – 9/02 (Co-investigator, K. Watabe, P.I.)

SIU School of Medicine - Central Research Committee - *Interaction between NF-κB and the A_1 Adenosine Receptor in Sleep,* $41, 421, 10/02- 9/03 (Co-investigator; L. Toth, P.I.)

SIU School of Medicine – Central Research Service**,** *Mechanism of nerve growth factor regulation of TRPV1 expression* , $15,000, 7/04 – 6/05 (Principal Investigator)

SIU School of Medicine - *Adenosine and Prostate Cancer*, $30,000, 11/05 – 8/07 (Principal Investigator)

National Organization for Hearing Research Foundation - *Kidney Injury Molecule (KIM)-1, a Novel Cellular Marker for Cisplatin Ototoxicity* - $25,000, 2/06-1/07 (Principal Investigator)

SIU School of Medicine - Excellence in Academic Medicine Award, *Kidney Injury Molecule (KIM)-1, a Novel Cellular Marker of Cisplatin Ototoxicity*, $38,000, 12/1/05-6/28/07 (Co-Investigator)

Quark Pharmaceutical, *Testing the efficacy of p53 siRNA against cisplatin ototoxicity*, $75,000, 2/06 -1//07 (Co-investigator; Len Rybak, P.I.)

CRC Grant (SIU School of Medicine) - *Suppression of Adenosine-Mediated Endothelial Cell Proliferation by Glucose*, $15,000, 7/1/2007 – 6/30/2008 (Principal Investigator)

DOD/Department of Defense - *Mechanism of tumor suppression by the KAI1 gene*, 2/1/04-1/31/08 Co-Investigator (Co-Investigator; K. Watabe, P.I.)

National Organization of Hearing Research (NOHR) - *Inhibition of the cochlear NADPH oxidase isoform (NOX3) by short interfering (si)RNA as a novel treatment for cisplatin ototoxicity*, 2/08-1/09 Role: P.I.

NIH/National Institute of Neurological Diseases and Stroke - *Nerve growth factor and transient receptor potential channel (TRPV1) in diabetic peripheral neuropathy*, $216,000, 2/1/08 – 3/31/11 (Principal Investigator)

Department of Defense - *Solidago virgaurea for Prostate Cancer Therapy* (PC061256), 4/1/07 – 2/28/10 (Co-investigator; Ko Watabe, P.I.)

SIU School of Medicine – Concept Development Award – *Protection of Ototoxicity by Transplatin*, $7,500, 11/30/08-11/29/09 (Principal Investigator)

SIU Alzheimer's Center - *Development of Amyloid and Inflammation in the Mouse Brain* , $3,000, (July 1, 2009-June 30, 2010).

NIH (NCI) - *Role of adenosine A_3 receptor in suppression of prostate cancer metastasis* (R15 CA135494-01), $216,000, 8/15/08 – 8/14/11 **(**Principal Investigator)

SIU School of Medicine – Excellence in Academic Medicine Award – *Adenosine and Prostate Cancer Lymphangiogenesis,* $50,000, 1/1/10 – 6/30/11 (Principal Investigator)

NIH – NIDCD Post Doctoral Fellowship (Debashree Mukherjea) – *Inhibition of cisplatin-induced ototoxicity by Transplatin*, 9/01/09 - 8/31/11

DOD – Postdoctoral Fellowship – **(Sarvesh Jajoo)** - *Adenosine A_3 receptor suppresses prostate cancer metastasis by inhibiting lymphangiogenesis,* 1/1/11 – 12/31/11

SIU School of Medicine – Excellence in Academic Medicine Award – *Capsaicin ingestion and protection against cisplatin ototoxicity*, $50,000, 1/1/2011 - 1/06/2012 (Co-investigator; Len Rybak, P.I.)

NIH – National Institute on Deafness and Other Communicative Disorder - Targeting inflammation for the amelioration of cisplatin-induced hearing loss (R15DC011412), 7/04/11 – 5/31/2015 (Principal Investigator)

RO3- National Institute on Deafness and Other Communicative Disorder - prevention and treatment of noise-induced hearing loss, 7/1/2012-6/30/2015 (Mentor; Debashree Mukherjea, Principal Investigator).

Peer-Reviewed Publications

1. **Ramkumar V** and El-Fakahany EE (1988) Prolonged morphine treatment increases rat brain dihydropyridine binding sites:possible involvement in morphine dependence. Eur. J. Pharmacol. 146:73-83.
2. Lai, W.S., **V. Ramkumar** and E.E. El-Fakahany (1984) Possible allosteric interaction of 4-aminopyridine with rat brain muscarinic receptors. *J. Neurochem.* 44, 1936-1942.
3. **Ramkumar, V.** and E.E. El-Fakahany (1985) Changes in the affinity of [^{3}H]nimodipine binding sites in the brain upon chlorpromazine treatment and subsequent withdrawal. *Res. Commun. Chem. Pathol. Pharmacol.* 48, 463-466.
4. El-Fakahany, E.E., **V. Ramkumar** and W.S. Lai (1986)Multiple binding affinities of N-methylscopolamine to brain muscarinic acetylcholine receptors: differentiation from M_1 and M_2 receptor subtypes. *J. Pharmacol. Exp. Ther.* 238, 554-563.
5. Wynn, R.L., R.D. Ford, P.J. McCourt, **V. Ramkumar**, S.A. Bergman and F.G. Rudo (1986) Rabbit tooth pulp compared to mouse hot plate assay for detection of antinociceptive activity of opiate and non-opiate central analgesics. *Drug Dev. Res.* 9, 233-239.
6. Lee, N.H., **V. Ramkumar** and E.E. El-Fakahany (1986) Charge but not chemical class explains the selective binding of [^{3}H]quinuclidinyl benzilate binding sites in rat cerebral cortex homogenates. *Eur. J. Pharmacol.* 130, 153-155.
7. **Ramkumar, V.** and E.E. El-Fakahany (1986) Morphine treatment increases [^{3}H]nimodipine binding sites in rat brain: attenuation by nimodipine and other Ca^{2+} channel antagonists of naloxone-precipitated withdrawal in morphine-dependent animals. *Ann. N.Y. Acad. Sci.*, 522, 207-209.
8. **Ramkumar, V.** and E.E. El-Fakahany (1988) Prolonged morphine treatment increases rat brain dihydropyridine binding sites: possible involvement in morphine dependence. *Eur. J. Pharmacol.* 146, 73-83.
9. Parsons WJ, **Ramkumar V** and Stiles GL (1988) The new positive inotropic agents functionally block Gi, the inhibitory regulator of adenylate cyclase. *Mol. Pharmacol.* 33:441-448.
10. **Ramkumar V**, Bumgarner JR, Jacobson KA and Stiles GL (1988) Multiple components of the A1 adenosine receptor-adenylate cyclase system are regulated in rat cerebral cortex by chronic caffeine ingestion. *J. Clin. Invest.* 82:242-247.

11. **Ramkumar V** and Stiles GL (1988) The new positive inotrope, sulmazole, inhibits the function of guanine nucleotide regulatory proteins by affecting GTP turnover. *Mol. Pharmacol.* 34:761-768.
12. Parsons WJ, **Ramkumar V** and Stiles GL (1988) Isobutylmethylxanthine stimulates adenylate cyclase by blocking the inhibitory regulatory protein, Gi. *Mol. Pharmacol.* 34:37-41.
13. **Ramkumar V** and Stiles GL (1988) Reciprocal modulation of agonist and antagonist binding to A1 adenosine receptors by guanine nucleotides is mediated via a pertussis toxin sensitive G protein. *J. Pharmacol. Exp. Ther.* 246:1194-1200.
14. **Ramkumar V.** and Stiles GL (1988) A novel site of action of a high affinity A1 adenosine receptor antagonist. *Biochem. Biophys. Res. Commun.* 153:939-944.
15. Bumgarner JR, **Ramkumar V** and Stiles GL (1989) Altered thyroid status regulates the adipocyte A1 adenosine receptor-adenylate cyclase system. *Life Sci.* 44:1705-1712.
16. **Ramkumar V** and Stiles GL (1989) In vivo pertussis toxin administration: effects on the function and levels of $G_{i\alpha}$ proteins and their mRNAs. *Endocrinology* 126:1295-1304.
17. **Ramkumar V**, Barrington WW, Jacobson KA and Stiles GL (1990) Demonstration of both A_1 and A_2 adenosine receptors in DDT_1 MF-2 smooth muscle cells. *Mol. Pharmacol.* 37:149-156.
18. **Ramkumar V**, Olah ME, Jacobson KA and Stiles GL (1991) Distinct pathways of desensitization of A_1- and A_2-adenosine receptors in DDT_1 MF-2 Cells. *Mol. Pharmacol.* 40:639-647.
19. Gettys TW, **Ramkumar V** and Uhing RJ, Sieger L and Taylor I (1991) Alterations in mRNA levels, expression and function of GTP-binding regulatory proteins in adipocytes from obese mice (C57BL/6J-ob/ob). *J. Biol. Chem.* 266:15949-55.
20. **Ramkumar V**, Kwatra M and Stiles GL (1993) Phosphorylation of A_1 adenosine receptor by the beta -adrenergic receptor kinase decreases its coupling to G_i and G_o proteins. *Biochem. Biophys. Acta.* 1129:89-97.
21. **Ramkumar V**, Stiles GL, Beaven MA and Ali H (1993) The A_3AR is the unique adenosine receptor mediating allergic responses in RBL-2H3 cells. *J. Biol. Chem.* 268:16887-16890.
22. Collins S, Daniels KW, Rohlfs EM, **Ramkumar V**, Taylor IL and Gettys TW (1993) Impaired expression and functional activity of the β3- and the β1-adrenergic receptors in adipose tissue of congenitally obese (C57B1/6J ob/ob) mice. *Mol. Endocrinol.* 8:518-527.
23. **Ramkumar V**, Ravi R, Wilson MC, Gettys TW, Whitworth C and Rybak LP (1994) Identification of A_1 adenosine receptors in the rat cochlea coupled to the inhibition of adenylyl cyclase. *Am. J. Physiol.* 267:C731-C737.
24. Maggirwar SB, Dhanraj DN, Somani SM and **Ramkumar V** (1994) Adenosine acts as an endogenous activator of the cellular antioxidant defense system. *Biochem.Biophys.Res.Commun.* 201(2):508-515.
25. Davies MG, **Ramkumar V**, Gettys TW and Hagen P-O (1994) The expression and function of G-proteins in experimental intimal hyperplasia. *J. Clin. Invest.* 94:1680-1689.
26. Gettys TW, **Ramkumar V**, Cochrane C, Surwit R and Taylor IL (1995) Tissue specific alterations in G-protein expression in genetic Vs diet-induced models of NIDDM in the mouse. *Metabolism* 44:1-9.
27. **Ramkumar V**, Wilson M, Dhanraj DN, Gettys TW and Ali H (1995) Dexamethasone upregulates A_3 adenosine receptors in rat basophilic leukemia (RBL-2H3) cells. *J. Immunol.* 154:5436-5443.
28. Antonysamy MA, Moticka EJ and **Ramkumar V** (1995) Adenosine acts as an endogenous modulator of IL-2 dependent proliferation of cytotoxic T lymphocytes. *J. Immunol.* 155:2813-2821.
29. Davies MG, Barber L, Dhanraj DN, Gettys TW, **Ramkumar V** and Hagen P-O (1996) The temporal sequence of G-protein expression in intimal hyperplasia. *J. Surgical Res.* 63:115-122.
30. Ford M, Maggirwar SB, Rybak LP, Whitworth C, and **Ramkumar V** (1997) Expression and function of adenosine receptors in the chinchilla cochlea. *Hear. Res.* 105:130-140.
31. Struble RG, Dhanraj DN, Wilson M, Wang R, and **Ramkumar V** (1998) Beta amyloid precursor protein (APP), GAP43 and the G-protein, G, are differentially regulated during olfactory nerve regeneration in adult rat. *Brain Res.* 780:129-137.
32. Ford MS, Nie Z, Whitworth C, Rybak LP and **Ramkumar V** (1997) Up-regulation of adenosine receptors in the cochlear by cisplatin. *Hear. Res.* 111:143-152.
33. Zhongzhen N, Mei Y and **Ramkumar V** (1997) Short term desensitization of the A_1 adenosine receptors in DDT_1MF-2 Cells. *Mol. Pharmacol* 52:456-454.
34. Nie Z, Mei Y, Ford M, Rybak L, Marcuzzi A, Ren H, Stiles GL and **Ramkumar V** (1998) Oxidative stress increases A_1 adenosine receptor expression by activating nuclear factor □B. *Mol. Pharmacol.* 53:663-669.

35. Bhat, SG, Wilson M, and **Ramkumar V** (1998) Age-dependent reductions in A_1 adenosine receptor expression in rat testes. *Am. J. Physiol.* 274:C1057-C1064.

36. Nie Z, Mei Y, Malek RL, Marcuzzi A, Lee NH, and Ramkumar V (1998) Activation of nerve growth factor receptor (p75) down-regulates A_{2A} adenosine receptors in PC12 cells. *Mol. Pharmacol.* 56:947-954.

37. Bhat SG, Nie Z and **Ramkumar V** (1999) Cisplatin up-regulates adenosine A_1 receptors in rat testes. *Eur. J. Pharmacol.* 382:35-43.

38. Mei Y, Gawai KR, Nie Z, **Ramkumar V** and Helfer RH (1999) Age –related reductions in the activities of antioxidant enzymes in the rat inferior colliculus. *Hear. Res.* 135:169-180.

39. Malek R., Nie Z, **Ramkumar V** and Lee NH(1999) Adenosine A2a receptor mRNA rregulation by nerve growth factor in TrkA-, Src-and Ras-dependent via extracellular regulated kinase and stresss-activated protein kinase/c-Jun NH (2) terminal kinase . *J. Biol. Chem.* 274:35499-35505.

40. Hardiek K, Katholi RE, **Ramkumar V** and Deitrick C (2001) Proximal tubule cell response to radiographic contrast media. *Am. J. Physiol. Renal Physiol.* 280:F61-F70.

41. Bhat SG, Mishra S, Mei Y, Nie Z, Whitworth CA, Rybak LP and **Ramkumar V** (2002) Cisplatin up-regulates the A1 adenosine receptor in the rat kidney. *Eur. J. Pharmacol.*, 442:251-264.

42. Helfert RH, Glatz FR, Wilson TS, **Ramkumar V** and Hughes LF (2002) Hsp70 in the inferior colliculus of Fischer-344 rates: effects of age and acoustic stress. *Hear. Res.* 170:155-165.

43. Pingle SC, Sanchez JF, Hallam DM, Williamson AL, Maggirwar SB and **Ramkumar V** (2003) Hypertonicity inhibits lipopolysaccharide-induced nitric oxide synthase expression in smooth muscle cells by Inhibiting Nuclear Factor κB. *Mol. Pharmacol.* 63, 1238-1247.

44. Pingle SC, Mishra S, Marcuzzi A, Bhat SG, Sekino Y, Rybak LP and **Ramkumar V** (2004) Osmotic diuretics induce adenosine A_1 receptor expression and protect renal proximal tubular epithelial cells against cisplatin-mediated apoptosis. *J. Biol. Chem.* 279:43157-43167.

45. Ramirez SH, Fan S, Maguire CA, Perry S, Hardiek K, **Ramkumar V,** Gelbard HA, Dewhurst S and Maggirwar SB (2004) Activation of adenosine A2A receptor protects sympathetic neurons against nerve growth factor withdrawal. *J. Neurosci. Res.* 77:258-269

46. Whitworth CA, **Ramkumar V**, Jones B, Tsukasaki N and Rybak LP (2004) Protection against cisplatin ototoxicity by adenosine agonists. *Biochem Pharmacol* 67:1801-1807.

47. Puntambekar P, Van Buren J, Raisinghani M, Premkumar LS and **Ramkumar V** (2004) Direct interaction of adenosine with the TRPV1 channel protein. *J Neurosci* 24:3663-3671.

48. **Ramkumar V**, Whitworth CA, Pingle SC, Hughes LF and Rybak LP (2004) Noise induces A_1 adenosine receptor expression in the chinchilla cochlea. *Hear Res* 188:47-56.

49. Puntambekar, P., Mukherjea, D., Rybak, L., and **Ramkumar, V.** (2005) Essential role of Rac1/NADPH oxidase in Nerve Growth Factor Induction of TRPV1 Expression. *J Neurochem* 95:1689-1703.

50. Martin, L., Pingle, S.C., Hallam, D.M., Rybak, L.P., and **Ramkumar, V.** (2005) Activation of the adenosine A_3 receptor in RAW 264.7 cells inhibits LPS-stimulated TNF-α release by reducing calcium-dependent activation of NF-κB and ERK1/2. *J. Pharmacol Exp Ther* 316:71-78.

51. Jajoo, S., Mukherjea, D., Pingle, S.C., Sekino, Y., and **Ramkumar, V.** (2006) Induction of adenosine A_1 receptor expression by pertussis toxin via an ADP ribosylation independent pathway. *J Pharmacol Exp Ther* 317: 1-10.

52. Mukherjea, D., Whitworth, C.A., Nandish, S., Rybak, L.P., Dunaway, G.A., and **Ramkumar, V.** (2006) Expression of kidney injury molecule (KIM-1) in the rat cochlea and induction by cisplatin. *Neuroscience* 139: 733-740.

53. Jhaveri, K.A., Toth, L.A., and **Ramkumar, V.** (2006) Nitric oxide serves as an endogenous regulator of neuronal adenosine A_1 receptor expression. *J Neurochem* 99:42-53

54. Jhaveri, K.A., **Ramkumar, V.**, Trammell, R.A., and Toth, L.A. (2006) Spontaneous, homeostatic, and inflammation-induced sleep in NF-{kappa}B p50 knockout mice. *Am J Physiol Regul Integr Comp Physiol* 291:R1516-R1526.

55. Pingle, S.C., Sarvesh Jajoo, S., Mukherjea, D., Jhaveri, K.A., Sniderhan, L.F., Marcuzzi, A., Rybak, L.P., Maggirwar S.B., and **Ramkumar, V.** (2007) Activation of the adenosine A_1 receptor inhibits HIV-1 Tat-induced apoptosis by reducing nuclear factor-κB activation and inducible nitric oxide synthase. *Mol Pharmacol* 72:856-67.

56. Xie X, Jhaveri KA, Ding M, Hughes LF, Ramkumar V, and Toth L (2007) Expression of striatal adenosine and dopamine receptors in mice deficient in the p50 subunit of NF-κB. *Life Sci* 81:1031-41.

57. Jajoo S, Mukherjea D, Brewer G, and **Ramkumar V** (2008) Pertussis toxin B-oligomer suppresses HIV-1 Tat induced neuronal apoptosis through feedback inhibition of phospholipase C-beta by protein kinase C. *Neuroscience* 151:525-32.

58. Mukherjea D., Jajoo S, Whitworth CA, Rybak LP, and **Ramkumar** V. (2008) Short Interfering (si)RNA against transient receptor potential vanilloid-1 (TRPV1) attenuates cisplatin-induced hearing loss in the rat. *J Neurosci* 28:13056-13065.

59. Jajoo, S., Mukherjea, D., S. Kumar, S. Sheth, Rybak, L.P., **Ramkumar, V.** (2009) Role of β-Arrestin1/ERK MAP kinase pathway in regulating adenosine A_1 receptor desensitization and recovery. *Am J Physiol* 298:C56-C65.

60. Jajoo S, Mukherjea D, Watabe K, and Ramkumar V (2009) Adenosine A_3 receptor suppresses prostate cancer metastasis by inhibiting NADPH oxidase activity. *Neoplasia* 11:1132-1145.

61. Mukherjea D, Jajoo S, Kaur T, Sheehan KE, **Ramkumar V**, Rybak LP (2010) Transtympanic Administration of Short Interfering (si)RNA for the NOX3 Isoform of NADPH Oxidase Protects Against Cisplatin-Induced Hearing Loss in the Rat. Antioxid Redox Signal. 13:589-598.

62. Ding M, Arnold J, Turner J, **Ramkumar** V, Hughes LF, Trammell RA, Toth LA. (2010) Lack of association of a spontaneous mutation of the Chrm2 gene with behavioral and physiologic phenotypic differences in inbred mice. Comp Med 60:272-281.

63. Mukherjea D, Jajoo S, Sheehan KE, Kaur T, Sheth S, Bunch J, Perro C, Rybak LP, **Ramkumar V** (2011) NOX3 NADPH oxidase couples transient receptor potential vanilloid to STAT1-mediated inflammation and hearing loss. Antioxid Redox Signal 14:999-1010.

64. Kaur T, Mukherjea D, Sheehan K, Jajoo S, Rybak LP, and Ramkumar V (2011) Short interfering RNA against STAT1 attenuates cisplatin induced ototoxicity in the rat by suppressing inflammation. Cell Death Diseases 2:e180. doi: 10.1038/cddis.2011.63.

65. **Rybak** LP, Mukherjea D, Jajoo S, Kaur T, **Ramkumar** V. (2012) si-RNA mediated knockown of NOX3:therapy for hearing loss. Cell Mol Life Sci. 6(5):491-505. doi: 10.1517/17460441

66. **Sheth** S, Jajoo S, Kaur T, Mukherjea D, Sheehan K, Rybak LP, **Ramkumar** V. (2012) Resveratrol Reduces Prostate Cancer Growth and Metastasis by Inhibiting the Akt/MicroRNA-21 Pathway. PLoS One 7(12):e51655. doi: 10.1371 Epub 2012 Dec 13.

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74. Asmita Dhukhwa, Debashree Mukherjea, Sumana Ghosh, Kelly Sheehan, Vikrant Borse, Sandeep Sheth, Peter S. Steyger, Leonard P. Rybak, Vickram Ramkumar. Transplatin, a Novel Treatment for Cisplatin Ototoxicity. ARO Midwinter meeting, Abstract PS 597, 2017.

75. Debashree Mukherjea; Sumana Ghosh; Kelly Sheehan; Asmita Dhukhwa; Sandeep Sheth; Leonard Rybak; Vickram Ramkumar The Essential Role of Cannabinoid Receptor (CB2) in the Cochlea in Otoprotection. ARO Midwinter Abstract PS 172, 2018.

76. Asmita Dhukhwa; Debashree Mukherjea; Kelly Sheehan; Sumana Ghosh; Sandeep Sheth; Leonard Rybak; Vickram Ramkumar. Regulator of G-protein Signaling 17 (RGS17), a Novel Mediator of Cisplatin-induced Ototoxicity. ARO Midwinter Meeting. Abstract PS 175, 2018.

77. Debashree Mukherjea; Asmita Dhukhwa; Sumana Ghosh; Kelly Sheehan; Leonard Rybak; Vickram Ramkumar; Per Gjorstrup. AP-001/NPD1 prevents cisplatin-induced hearing loss in the rat and confers

protection through unique pleiotropic actions on multiple targets. ARO Midwinter Meeting, Abstract PS 1079, 2018.

Seminar/Meeting Presentations

1. **Desensitization of adenosine A_1 receptors.** Department of Pharmacology. SIU Sch Medicine, Springfield IL, May 1992.
2. **Mechanisms underlying desensitization of adenosine receptors.** Department of Physiology, Univ Arkansas, March 1992.
3. **Adenosine receptors and asthma.** SIU School of Medicine, Internal Medicine Grand Rounds, 1994
4. **Adenosine acts as an endogenous activator of the cellular antioxidant enzymes.** Purines '94 Philadelphia, PA.
5. **Regulation of Adenosine A3 Receptor Function in Rat Basophilic Leukemia (RBL-2H3) Cells by Nitric Oxide.** Purines '96 Molecular, Pharmacological, and Therapeutic Advances, Milan Italy.
6. **Ramkumar, V. Role of Adenosine Receptor in Protecting Against HIV-1 Dementia,** Indian Defense Institute, Gwalior India, December 2003
7. **Adenosine Receptors and Human Diseases** – Department of Physiology, SIU School of Medicine, Carbondale, IL, November 2, 2007.
8. **Adenosine Receptors: Novel Targets for Cancer Therapy** – SIU Cancer Center, Springfield, IL, January 30, 2008.
9. **Novel Approaches to Treat Ototoxicity** – Dean's Symposium, SIU School of Medicine, Springfield, IL, January 24, 2008.
10. **Treatment of Ototoxicity** – Department of Medicine, SIU School of Medicine, Springfield, IL, October 3, 2008.
11. **Adenosine and Dopamine Receptor Interactions in Striatum and Caffeine-Induced Behavioral Activation.** NIDA-ODS Symposium. Caffeine: Is the Next Problem Already Brewing? Neuroscience Center, Rockville, MD July 7-8, 2009.
12. **Protective role of A_1 adenosine receptor against β-amyloid toxicity.** 11th International Geneva/Springfield Symposium on Advances in Alzheimer Therapy, Geneva Switzerland, March 24-27, 2010.
13. **Capsaicin preconditions the cochlea against cisplatin ototoxicity.** Association for Research in Otolaryngology (ARO) Midwinter Meeting, Baltimore, MD, Feb 19th -Feb 23rd 2011.
14. **Novel approaches for treating drug-induced ototoxicity.** Department of Pharmaceutical Sciences, SIU School of Pharmacy, Edwardsville, IL, December 2, 2011.
15. **Targeting adenosine receptors for the treatment of hearing loss.** Purine Club, Ouro Preto, Brazil, September 22-24, 2012
16. **Targeting Cochlear Inflammation for the Treatment of Cisplatin-Induced Hearing Loss.** Society of Neuroimmune Pharmacology Annual Meeting, Miami, FL, April, 21-24, 2015
17. **Novel approaches for treatment of cisplatin-induced hearing loss.** Institute of Environmental Health Sciences, Wayne State University, September 28, 2017