

ALAN R. PARRISH
Medical Pharmacology and Physiology

Publications

Refereed Journals:

1. Wishnies S.M., Parrish A.R., Sipes I.G., Gandolfi A.J., Putnam C.W., Krumdieck C.L., Brendel K. (1991) Biotransformation activity in vitrified human liver slices. *Journal of Cryobiology* 28:216-226.
2. Parrish A.R., Shipp N.G., Spall R.D., Dorr R.T., Krumdieck C.L., Gandolfi A.J., Brendel K. (1992) Organ culture of rat myocardial slices: An alternative in vitro tool in organ specific toxicology. *Toxicology Methods* 2:101-111.
3. Parrish A.R., Wishnies S.M., Dorr R.T., Gandolfi A.J., Brendel K. (1994) Coculture of rabbit liver and myocardial slices: Potentiation of the cardiotoxicity of allyl alcohol but not allylamine. *In Vitro Toxicology* 7:53-57.
4. Parrish A.R., Dorr R.T., Gandolfi A.J., Brendel K. (1994) Adult rat myocardial slices: A tool for studies of comparative cardiotoxicity. *Toxicology In Vitro* 8:1233-1237.
5. Parrish A.R., Ramos K.S. (1995) Osteopontin mRNA expression in a chemically-induced model of atherogenesis. *Annals of the New York Academy of Sciences* 760:354-356.
6. Bowes III R.C., Parrish A.R., Steinberg M.A., Willett K.L., Zhao W., Savas U., Jefcoate C.R., Safe S.H., Ramos K.S. (1996) Atypical cytochrome P-450 induction profiles in glomerular mesangial cells at the mRNA and enzyme level: Evidence for CYP1A1 and CYP1B1 expression and their involvement in benzo(a)pyrene metabolism. *Biochemical Pharmacology* 52:587-595.
7. Parrish A.R., Ramos K.S. (1997) Differential processing of osteopontin characterizes the proliferative vascular smooth muscle cell phenotype induced by allylamine. *Journal of Cellular Biochemistry* 65:267-275.
8. Parrish A.R., Weber T.J., Ramos K.S. (1997) Osteopontin overexpression in vascular smooth muscle cells transfected with the c-Ha-ras^{ej} oncogene. *In Vitro Cellular and Developmental Biology* 33:584-587.
9. Parrish A.R., Alejandro N.F., Bowes III R.C., Ramos K.S. (1998) Cytotoxic response profiles of cultured renal epithelial and mesenchymal cells to selected aromatic hydrocarbons. *Toxicology In Vitro* 12:219-232.
10. Gupta M., Miggins J., Parrish A., Womack J., Ramos K.S., Rodriguez L.V., Goldstein L.S., Holtzapple C., Stanker L., Safe S.H. (1998) Ah receptor-independent induction of CYP1A2 gene expression in genetically-inbred mice. *Environmental Toxicology and Pharmacology* 5:205-213.
11. Zhao W., Parrish A.R., Ramos K.S. (1998) Constitutive and inducible expression of cytochrome P450IA1 and IB1 in vascular endothelial and smooth muscle cells. *In Vitro Cellular and Developmental Biology* 34:671-673.
12. Parrish A.R., Fisher R.L., Bral C.M., Burghardt R.C., Gandolfi A.J., Brendel K., Ramos K.S. (1998) Benzo(a)pyrene-induced alterations in growth-related gene expression and signaling in precision-cut rat liver and kidney slices. *Toxicology and Applied Pharmacology* 152:302-308.
13. Parrish A.R., Zheng X-H., Turney K.D., Younis H.S., Gandolfi A.J. (1999) Enhanced transcription factor DNA binding and gene expression induced by arsenite or arsenate in renal slices. *Toxicological Sciences* 50:98-105.
14. Parrish A.R., Catania J.M., Orozco J., Gandolfi A.J. (1999) Chemically-induced oxidative stress disrupts the E-cadherin/catenin cell adhesion complex. *Toxicological Sciences* 51:80-86.

15. Turney K.D., Parrish A.R., Orozco J., Gandolfi A.J. (1999) Selective activation in the MAPK pathway by Hg(II) in precision-cut rabbit renal cortical slices. *Toxicology and Applied Pharmacology* 160:262-270.
16. Alejandro N.F., Parrish A.R., Bowes R.C., Burghardt R.C., Ramos K.S. (2000) Phenotypic profiles of cultured glomerular cells following repeated cycles of hydrocarbon injury. *Kidney International* 57:1571-1580.
17. Wijeweera J.B., Gandolfi A.J., Parrish A., Lantz R.C. (2001) Sodium arsenite enhances AP-1 And NF κ B DNA binding and induces stress protein expression in precision-cut rat lung slices. *Toxicological Sciences* 61:283-294.
18. Catania J.M., Parrish A.R., Gandolfi A.J. (2001) Toxicity of a sevoflurane degradation product incubated with liver and renal cortical slices. *Drug and Chemical Toxicology* 24:347-357.
19. Schmelz M., Schmid V.J., Parrish A.R. (2001) Selective disruption of cadherin/catenin complexes by oxidative stress in precision-cut mouse liver slices. *Toxicological Sciences* 61:389-394.
20. Wilson E., Parrish A.R., Bral C.M., Williams E.S., Ramos K.S. (2002) Collagen suppresses the proliferative phenotype of allylamine-injured vascular smooth muscle cells. *Atherosclerosis* 162:289-297.
21. Parrish A.R., Sallam K., Nyman D.W., Orozco J., Cress A.E., Dalkin B.L., Nagle R.B., Gandolfi A.J. (2002) Culturing precision-cut human prostate slices as an in vitro model of prostate pathobiology. *Cell Biology and Toxicology* 18:205-219.
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23. Parrish A.R., Alejandro N.F., Bral C.M., Kerzee J.K., Bowes III R.C., Ramos K.S. (2002) Characterization of glomerular cell phenotypes following repeated cycles of benzo(a)pyrene injury in vitro. *Biochemical Pharmacology* 64:31-39.
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26. Catania J.M., Parrish A.R., Kirkpatrick D.S., Chitkara M., Bowden G.T., Henderson C.J., Wolf C.R., Clark A.J., Brendel K., Fisher R.L., Gandolfi A.J. (2003) Precision-cut tissue slices from transgenic mice as an in vitro toxicology system. *Toxicology In Vitro* 17:201-205.
27. Zhang W., Jiang J., Qin C., Thomson L.M., Parrish A.R., Safe S.H., Simanek E.E. (2003) Triazine dendrimers for drug delivery: Evaluation of solubilization properties, activity in cell culture, and in vivo toxicity of a candidate vehicle. *Supramolecular Chemistry* 15:607-616.
28. Younis H.S., Parrish A.R., Sipes I.G. (2003) The role of hepatocellular oxidative stress in Kupffer cell activation during 1,2-dichlorobenzene induced hepatotoxicity. *Toxicological Sciences* 76:201-211.
29. Neerman M.F., Zhang W., Parrish A.R., Simanek E.E. (2004) In vitro and in vivo evaluation of a melamine dendrimer as a vehicle for drug delivery. *International Journal of Pharmaceutics* 281:129-132.
30. Chen H-T., Neerman M.F., Parrish A.R., Simanek E.E. (2004) Cytotoxicity, hemolysis and acute in vivo toxicity of dendrimers based on melamine, candidate vehicles for drug delivery. *Journal of the American Chemical Society* 126:10044-10048.

31. DuBois D.W., Parrish A.R., Trzeciakowski J.P., Frye G.D. (2004) Binge ethanol exposure delays development of GABAergic miniature postsynaptic currents in septal neurons. *Brain Research Developmental Brain Research* 152:199-212.
32. Neerman M.F., Chen H-T., Parrish A.R., Simanek E.E. (2004) Reduction of drug toxicity using dendrimers based on melamine. *Molecular Pharmaceutics* 1:390-393.
33. Jiang J., Dean D., Burghardt R.C., Parrish A.R. (2004) Disruption of cadherin/catenin expression, localization and interactions during HgCl₂-induced nephrotoxicity. *Toxicological Sciences* 80:170-182.
34. Jung K-Y., Dean D., Jiang J., Gaylor S., Griffith W.H., Burghardt R.C., Parrish A.R. (2004) Loss of N-cadherin and α -catenin in the proximal tubules of aging male Fischer 344 rats. *Mechanisms of Ageing and Development* 125:445-453.
35. Parrish A.R., Oliver S., Jenkins D., Ruscio B., Green J.B., Colenda C. (2005). A short medical school course on responding to bioterrorism and other disasters. *Academic Medicine* 80:820-823.
36. Covington M.D., Bayless K.J., Burghardt R.C., Davis G.E., Parrish A.R. (2005) Ischemia-induced cleavage of cadherins in NRK cells: Evidence for a role of metalloproteinases. *American Journal of Physiology: Renal Physiology* 289:F280-F288.
37. Dubois D.W., Trzeciakowski J.P., Parrish A.R., Frye G.D. (2006) GABAergic miniature postsynaptic currents in septal neurons show differential allosteric sensitivity after binge-like ethanol exposure. *Brain Research* 1089:101-115.
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41. Chen G, Bridenbaugh EA, Akintola AD, Catania JM, Vaidya VS, Bonventre JV, Dearman AC, Sampson HW, Zawieja DC, Burghardt RC, Parrish AR. (2007) Increased susceptibility of aging kidney to ischemic injury: Identification of candidate genes changed during aging, but corrected by caloric restriction. *American Journal of Physiology: Renal Physiology* 293:F1272-F1281.
42. Silenas R, Akins R, Parrish A.R., Edwards J.C. (2008) Developing bioterrorism preparedness competence: an experiential learning exercise for multi-professional education. *Teaching and Learning in Medicine* 20:62-68.
43. Parrish AR, Daniels DE, Hester RK, Colenda CC. (2008) Addressing medical school diversity through an undergraduate partnership at Texas A&M Health Science Center: A blueprint for success. *Academic Medicine* 83:512-515.
44. Basile DP, Fredrich K, Chelladurai B, Leonard EC, Parrish AR. (2008) Renal ischemia reperfusion inhibits VEGF expression and induces ADAMTS-1, a novel VEGF inhibitor. *American Journal of Physiology: Renal Physiology* 294:F928-F936.
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46. Parrish AR, Chen G, Burghardt RC, Watanabe T, Morisseau C, Hammock BD. (2009) Attenuation of cisplatin nephrotoxicity by an inhibitor of soluble epoxide hydrolase. *Cell Biology and Toxicology* 25:217-225.

47. Barhoumi R, Catania JM, Parrish AR, Awooda I, Tiffany-Castiglioni E, Safe S, Burghardt RC. (2009) Multiphoton spectral analysis of benzo[a]pyrene uptake and metabolism in breast epithelial cell lines. *Journal of Toxicological Sciences* 34:13-25.
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52. Whaley-Connell AT, Habibi J, Nistala R, Demarco VG, Pulakat L, Hayden MR, Joginpally T, Ferrario CM, Parrish AR, Sowers JR. (2012) Mineralocorticoid receptor-dependent proximal tubule injury is mediated by a redox-sensitive mTOR/S6K1 pathway. *American Journal of Nephrology* 35:90-100.
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54. Deo SH, Jenkins NT, Padilla J, Parrish AR, Fadel PJ. (2013) Norepinephrine increases NADPH oxidase-derived superoxide in human peripheral blood mononuclear cells via α -adrenergic receptors. *American Journal of Physiology: Integrative and Comprehensive Physiology* 305:R1124-R1132.
55. Slusarz A, Nichols LA, Grunz-Borgmann EA, Chen G, Akintola AD, Catania JM, Burghardt RC, Trzeciakowski JP, Parrish AR. (2013) Overexpression of MMP-7 increases collagen 1A2 in the aging kidney. *Physiological Reports*, Oct; 1(5).
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57. Trzeciakowski JP, Gardiner L, Parrish AR. (2014) Effects of environmental levels of cadmium, lead and mercury on human renal function evaluated by structural equation modeling. *Toxicology Letters* 228:34-41.
58. Nichols LA, Grunz-Borgmann EA, Wang X, Parrish AR. (2014) A role for the age-dependent loss of α (E)-catenin in regulation of N-cadherin expression and cell migration. *Physiological Reports*, Jun 11: 2(6).
59. Wang X, Grunz-Borgmann EA, Parrish AR. (2014). Loss of α (E)-catenin potentiates cisplatin-induced nephrotoxicity via increasing apoptosis in renal tubular epithelial cells. *Toxicological Sciences* 141:254-262.
60. Wang X, Parrish AR. (2015). Loss of α (E)-catenin promotes Fas mediated apoptosis in tubular epithelial cells. *Apoptosis* 20:921-929.
61. Grunz-Borgmann E, Mossine V, Fritsche K, Parrish AR. (2015) Ashwagandha attenuates TNF- α - and LPS-induced NF- κ B activation and CCL2 and CCL5 gene expression in NRK-52E cells. *BMC Complementary and Alternative Medicine* 15:434.

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63. Restaino R, Shekar HD, Parrish AR, Fadel PJ, Padilla J. (2016). Increased monocyte derived reactive oxygen species in type 2 diabetes: Role of endoplasmic reticulum stress. *Experimental Physiology* 102:139-153.
64. Kneedler SC, Phillips LE, Hudson KR, Beckman KM, Lopez Gelston CA, Rutkowski JM, Parrish AR, Doris PA, Mitchell BM. (2017) Renal inflammation and injury are associated with lymphangiogenesis in hypertension. *Am J Physiol Renal Physiol* 312:F861-869.
65. Wang X, Nichols L, Grunz-Borgmann EA, Sun Z, Meininger GA, Domeier TL, Baines CP, Parrish AR. (2017) Fascin2 regulates cisplatin-induced apoptosis in NRK-52E cells. *Toxicology Letters* 266:56-64.
66. Grunz-Borgmann EA, Nichols LA, Wang X, Parrish AR. (2017) Twist2 is upregulated in early stages of repair following acute kidney injury. *International Journal of Molecular Sciences* 18:e368.
67. Akin R, Hannibal D, Loida M, Stevens EM, Grunz-Borgmann EA, Parrish AR. (2019) Cadmium and lead decrease cell-cell aggregation and increase migration and invasion in Renca mouse renal cell carcinoma cells. *International Journal of Molecular Sciences* 20:e6315.
68. Joshi K, Parrish A, Grunz-Borgmann EA, Gerkovich M, Folk WR. (2020) Toxicology studies of aqueous-alcohol extracts of *Harpagophytum procumbens* subsp. *Procumbens* (Burch.) DC. Ex Meisn. (Pedaliaceae) in female and male rats. *BMC Complementary Medicine and Therapies* 20:9.
69. Grunz-Borgmann EA, Nichols LA, Spagnoli S, Trzeciakowski JP, Valliyodan B, Hou J, Li J, Cheng J, Kerley M, Fritsche K, Parrish AR. (2020) The renoprotective effects of soy protein in the aging kidney. *Medical Research Archives* 8

Review Articles:

1. Parrish AR, Gandolfi AJ, Brendel K. (1995) Precision-cut organ slices in pharmacology and toxicology. *Life Sciences* 57:1887-1901.
2. Ramos KS, Parrish AR. (1995) Growth related signal transduction as a target of toxic insult in vascular smooth muscle cells: Implications in atherogenesis. *Life Sciences* 57:627-635.
3. Prozialeck WC, Grunwald GB, Dey PM, Reuhl KR, Parrish AR. (2002) Cadherins and N-CAM as potential targets in metal toxicity. *Toxicology and Applied Pharmacology* 182:255-265.
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5. Neerman MF, Umali AP, Chen H.-T, Waghela SD, Parrish AR, Simanek EE. (2005) Biological evaluation of dendrimers based on melamine. *Journal of Drug Delivery Science and Technology* 15:31-40.
6. Catania JM, Chen G, Parrish AR. (2007) Role of matrix metalloproteinases in renal pathophysiology. *American Journal of Physiology: Renal Physiology* 292:F905-F911.
7. Sun Z, Parrish AR, Hill MA, Meininger GA. (2014) N-cadherin, a vascular smooth muscle cell-cell adhesion molecule: Function and signaling for vasomotor control *Microcirculation* 21:208-218.
8. Wang X, Bonventre JV, Parrish AR. (2014) The aging kidney: Increased susceptibility to nephrotoxicity. *International Journal of Molecular Sciences* 15:15358-15376.
9. McGraw NJ, Krul ES, Grunz-Borgmann E, Parrish AR. (2016) Soy-based renoprotection. *World Journal of Nephrology* 5:233-257.

10. Parrish AR. (2016) The cytoskeleton as a novel target for treatment of renal fibrosis. *Pharmacology Therapeutics* 166:1-8.
11. Parrish AR. (2017) The impact of aging on epithelial barriers. *Tissue Barriers* 5(4):e1343172.
12. Parrish AR. (2017) Matrix metalloproteinases in kidney disease: Role in pathogenesis and potential as a therapeutic target. *Prog Mol Biol Transl Sci* 148:31-65.

Book Chapters:

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2. Akintola AD, Parrish AR. (2009) Gene-specific hypermethylation in aging. In *Epigenetics of Aging*, TO Tollefsbol, ed. Springer Science, 29-41.
3. Sampson HW, Parrish AR. (2010) Immunohistochemical localization of adhesion molecules. In *Modern Insights Into Disease From Molecules to Man: Adhesion Molecules*, VR Preedy, ed. Science Publishers, 21-36.
4. Parrish AR. (2010) Hypoxia/Ischemia signaling. In *Comprehensive Toxicology: Cellular and Molecular Toxicology (Volume 2)*, KS Ramos, ed. Elsevier, 2.27.
5. Parrish AR, Prozialeck WC. (2010) Metals and cell adhesion molecules. In *Cellular and Molecular Biology of Metals*, RK Zalups and J Koropatnick, CRC Press, 327-350.