

Stanford



Rona Giffard

Professor of Anesthesiology, Perioperative and Pain Medicine, Emerita

CONTACT INFORMATION

- **Administrative Contact**

Christina Lum - Research Administrator

Email clum1@stanford.edu

Tel (650) 723-7442

Bio

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Anesthesiology, Perioperative and Pain Medicine
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Ellis Cohen Achievement Award, Stanford Department of Anesthesia (2009)
- AHA/Bugher Award, American Heart Association (2000-2004)
- Frontiers in Anesthesia Research Award, International Anesthesia Research Society (1998-2003)
- Ellen Weaver Award, Association for Women in Science, Northern California Chapters (1997)
- Young Investigator Award, Foundation for Anesthesia Education and Research (1991-1992)
- NIH Clinical Investigator Award, NIH (1990-1995)

PROFESSIONAL EDUCATION

- Ph.D., Stanford University, Structural Biology
- M.D., Stanford University, Medicine

LINKS

- Giffard Lab Web site: <http://giffardlab.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Brain injury from stroke, head trauma, and chronic neurologic degenerative diseases, is a major cause of morbidity and mortality. We are particularly interested in the cellular consequences of brain injury. To study this problem we work with primary cultures of neurons and astrocytes from mice and employ rodent models of stroke. Current work focuses on: 1) the role of miRNAs as a way to regulate groups of proteins important to ischemic outcome; 2) the interaction of neurons and glia during

injury; 3) the role of astrocytes in global ischemia; 4) protection using heat shock proteins and cell death regulatory proteins 4) changes in mitochondrial function and signaling in injury and ways to protect mitochondria; 5) ways to improve neurogenesis after stroke; 6) the interaction of oxidative stress and inflammation in stroke; 7) computational modeling of cell death.

We use gene transfer techniques to express genes and miRNAs of interest in brain cells and intact brain and analyze ways in which these can provide protection. We use fluorescent probes for pH, intracellular calcium, ROS, mitochondrial membrane potential, as well as morphologically evaluate outcome, and quantitate injury. We also use transgenic mice to analyze the effects of overexpression or loss of expression of specific genes on outcome from stroke. Mitochondria are central to energy metabolism, the regulation of inflammation, and the regulation of cell death. We study changes in mitochondria with stress. We are also interested in the interaction of oxidative stress and inflammation in stroke.

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Anesthesia (Fellowship Program)
- Molecular and Genetic Medicine (Fellowship Program)
- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **Nursing Markedly Protects Postpartum Mice From Stroke: Associated Central and Peripheral Neuroimmune Changes and a Role for Oxytocin.** *Frontiers in neuroscience*
Stary, C. M., Xu, L., Voloboueva, L. A., Alcántara-Hernández, M., Arvola, O. J., Idoyaga, J., Giffard, R. G.
2019; 13: 609
- **Pre-treatment with microRNA-181a Antagomir Prevents Loss of Parvalbumin Expression and Preserves Novel Object Recognition Following Mild Traumatic Brain Injury** *NEUROMOLECULAR MEDICINE*
Griffiths, B. B., Sahbaie, P., Rao, A., Arvola, O., Xu, L., Liang, D., Ouyang, Y., Clark, D. J., Giffard, R. G., Stary, C. M.
2019; 21 (2): 170–81
- **Pre-treatment with microRNA-181a Antagomir Prevents Loss of Parvalbumin Expression and Preserves Novel Object Recognition Following Mild Traumatic Brain Injury.** *Neuromolecular medicine*
Griffiths, B. B., Sahbaie, P., Rao, A., Arvola, O., Xu, L., Liang, D., Ouyang, Y., Clark, D. J., Giffard, R. G., Stary, C. M.
2019
- **Role of Myeloid Lineage Cell Autophagy in Ischemic Brain Injury** *STROKE*
Kotoda, M., Furukawa, H., Miyamoto, T., Korai, M., Shikata, F., Kuwabara, A., Xiong, X., Rutledge, C., Giffard, R. G., Hashimoto, T.
2018; 49 (6): 1488–95
- **MicroRNA Changes in Preconditioning-Induced Neuroprotection** *TRANSLATIONAL STROKE RESEARCH*
Bell, J. D., Cho, J., Giffard, R. G.
2017; 8 (6): 585–96
- **Reduction of microRNA-338 protects from ischemic injury in vivo and in vitro, and targets mitochondrial function**
Li, L., Voloboueva, L., Xu, L., Stary, C., Giffard, R.
ELSEVIER SCIENCE BV.2017: 508
- **Inhibition of miR-181a protects female mice from transient focal cerebral ischemia by targeting astrocyte estrogen receptor- α .** *Molecular and cellular neurosciences*
Stary, C. M., Xu, L., Li, L., Sun, X., Ouyang, Y., Xiong, X., Zhao, J., Giffard, R. G.
2017; 82: 118-125
- **Gpr124 is essential for blood-brain barrier integrity in central nervous system disease** *NATURE MEDICINE*

Chang, J., Mancuso, M. R., Maier, C., Liang, X., Yuki, K., Yang, L., Kwong, J. W., Wang, J., Rao, V., Vallon, M., Kosinski, C., Zhang, J. J., Mah, et al
2017; 23 (4): 450-?

- **High Dose Gamma Radiation Selectively Reduces GABAA-slow Inhibition.** *Cureus*
Dagne, B. A., Sunay, M. K., Cayla, N. S., Ouyang, Y., Knox, S. J., Giffard, R. G., Adler, J. R., Maciver, B.
2017; 9 (3)
- **Distinct effects of miR-210 reduction on neurogenesis: increased neuronal survival of inflammation but reduced proliferation associated with mitochondrial enhancement.** *journal of neuroscience*
Voloboueva, L. A., Sun, X., Xu, L., Ouyang, Y., Giffard, R. G.
2017
- **High dose gamma radiation selectively reduces GABAA-slow inhibition** *Cureus*
Dagne, B. A., Sunay, M. K., Cayla, N. S., Ouyang, Y., Knox, S. J., Giffard, R. G., Adler, J. R., MacIver, B.
2017; 9 (3): e1076
- **Alteration of Interneuron Immunoreactivity and Autophagic Activity in Rat Hippocampus after Single High-Dose Whole-Brain Irradiation.** *Cureus*
Ouyang, Y. B., Ning, S. n., Adler, J. R., Maciver, B. n., Knox, S. J., Giffard, R. n.
2017; 9 (6): e1414
- **miR-29a differentially regulates cell survival in astrocytes from cornu ammonis 1 and dentate gyrus by targeting VDAC1.** *Mitochondrion*
Stary, C. M., Sun, X., Ouyang, Y., Li, L., Giffard, R. G.
2016; 30: 248-254
- **A Pharmacogenetic Discovery: Cystamine Protects Against Haloperidol-Induced Toxicity and Ischemic Brain Injury** *GENETICS*
Zhang, H., Zheng, M., Wu, M., Xu, D., Nishimura, T., Nishimura, Y., Giffard, R., Xiong, X., Xu, L. J., Clark, J. D., Sahbaie, P., Dill, D. L., Peltz, et al
2016; 203 (1): 599-?
- **Physiologically normal 5% O2 supports neuronal differentiation and resistance to inflammatory injury in neural stem cell cultures.** *Journal of neuroscience research*
Sun, X., Voloboueva, L. A., Stary, C. M., Giffard, R. G.
2015; 93 (11): 1703-1712
- **Astrocytes Protect against Isoflurane Neurotoxicity by Buffering pro-brain-derived Neurotrophic Factor.** *Anesthesiology*
Stary, C. M., Sun, X., Giffard, R. G.
2015; 123 (4): 810-819
- **IL-4 Is Required for Sex Differences in Vulnerability to Focal Ischemia in Mice.** *Stroke; a journal of cerebral circulation*
Xiong, X., Xu, L., Wei, L., White, R. E., Ouyang, Y., Giffard, R. G.
2015; 46 (8): 2271-2276
- **Advances in Astrocyte-targeted Approaches for Stroke Therapy: An Emerging Role for Mitochondria and microRNAs.** *Neurochemical research*
Stary, C. M., Giffard, R. G.
2015; 40 (2): 301-307
- **MicroRNA-200c contributes to injury from transient focal cerebral ischemia by targeting Reelin.** *Stroke; a journal of cerebral circulation*
Stary, C. M., Xu, L., Sun, X., Ouyang, Y., White, R. E., Leong, J., Li, J., Xiong, X., Giffard, R. G.
2015; 46 (2): 551-556
- **Post-stroke treatment with miR-181 antagomir reduces injury and improves long-term behavioral recovery in mice after focal cerebral ischemia.** *Experimental neurology*
Xu, L., Ouyang, Y., Xiong, X., Stary, C. M., Giffard, R. G.
2015; 264: 1-7
- **The Use of microRNAs to Modulate Redox and Immune Response to Stroke.** *Antioxidants & redox signaling*
Ouyang, Y., Stary, C. M., White, R. E., Giffard, R. G.
2015; 22 (2): 187-202
- **microRNAs affect BCL-2 family proteins in the setting of cerebral ischemia** *NEUROCHEMISTRY INTERNATIONAL*
Ouyang, Y., Giffard, R. G.
2014; 77: 2-8

- **MicroRNAs affect BCL-2 family proteins in the setting of cerebral ischemia.** *Neurochemistry international*
Ouyang, Y. B., Giffard, R. G.
2014; 77: 2-8
- **Neuroprotection by astrocytes in brain ischemia: Importance of microRNAs** *NEUROSCIENCE LETTERS*
Ouyang, Y., Xu, L., Yue, S., Liu, S., Giffard, R. G.
2014; 565: 53-58
- **Overexpression of Heat Shock Protein 72 Attenuates NF- κ B Activation Using a Combination of Regulatory Mechanisms in Microglia.** *PLoS computational biology*
Sheppard, P. W., Sun, X., Khammash, M., Giffard, R. G.
2014; 10 (2)
- **Role of Astrocytes in Delayed Neuronal Death: GLT-1 and its Novel Regulation by MicroRNAs.** *Advances in neurobiology*
Ouyang, Y., Xu, L., Liu, S., Giffard, R. G.
2014; 11: 171-188
- **Inhibition of microRNA-181 reduces forebrain ischemia-induced neuronal loss** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Moon, J., Xu, L., Giffard, R. G.
2013; 33 (12): 1976-1982
- **MicroRNAs Regulate the Chaperone Network in Cerebral Ischemia** *TRANSLATIONAL STROKE RESEARCH*
Ouyang, Y., Giffard, R. G.
2013; 4 (6): 693-703
- **Astrocyte-enriched miR-29a targets PUMA and reduces neuronal vulnerability to forebrain ischemia.** *Glia*
Ouyang, Y., Xu, L., Lu, Y., Sun, X., Yue, S., Xiong, X., Giffard, R. G.
2013; 61 (11): 1784-1794
- **Anaesthetic neurotoxicity and neuroplasticity: an expert group report and statement based on the BJA Salzburg Seminar** *BRITISH JOURNAL OF ANAESTHESIA*
Jevtovic-Todorovic, V., Absalom, A. R., Blomgren, K., Brambrink, A., Crosby, G., Culley, D. J., Fiskum, G., Giffard, R. G., Herold, K. F., Loepke, A. W., Ma, D., Orser, B. A., Planel, et al
2013; 111 (2): 143-151
- **The future of molecular chaperones and beyond.** *The Journal of clinical investigation*
Giffard, R. G., Macario, A. J., de Macario, E. C.
2013; 123 (8): 3206-8
- **Selective activation of protein kinase C β in mitochondria is neuroprotective in vitro and reduces focal ischemic brain injury in mice.** *Journal of neuroscience research*
Sun, X., Budas, G. R., Xu, L., Barreto, G. E., Mochly-Rosen, D., Giffard, R. G.
2013; 91 (6): 799-807
- **Inflammatory response of microglial BV-2 cells includes a glycolytic shift and is modulated by mitochondrial glucose-regulated protein 75/mortalin** *FEBS LETTERS*
Voloboueva, L. A., Emery, J. F., Sun, X., Giffard, R. G.
2013; 587 (6): 756-762
- **Mitigation of Murine Focal Cerebral Ischemia by the Hypocretin/Orexin System is Associated With Reduced Inflammation** *STROKE*
Xiong, X., White, R. E., Xu, L., Yang, L., Sun, X., Zou, B., Pascual, C., Sakurai, T., Giffard, R. G., Xie, X. (.
2013; 44 (3): 764-770
- **microRNAs: Innovative Targets for Cerebral Ischemia and Stroke** *CURRENT DRUG TARGETS*
Ouyang, Y., Stary, C. M., Yang, G., Giffard, R.
2013; 14 (1): 90-101
- **Effects of heat shock protein 72 (Hsp72) on evolution of astrocyte activation following stroke in the mouse** *EXPERIMENTAL NEUROLOGY*
Barreto, G. E., White, R. E., Xu, L., Palm, C. J., Giffard, R. G.
2012; 238 (2): 284-296

- **Mice lacking the #2 adrenergic receptor have a unique genetic profile before and after focal brain ischaemia.** *ASN neuro*
White, R. E., Palm, C., Xu, L., Ling, E., Ginsburg, M., Daigle, B. J., Han, R., Patterson, A., Altman, R. B., Giffard, R. G.
2012; 4 (5)
- **MicroRNA-320 induces neurite outgrowth by targeting ARPP-1** *NEUROREPORT*
White, R. E., Giffard, R. G.
2012; 23 (10): 590-595
- **Stroke-induced activation of the alpha 7 nicotinic receptor increases Pseudomonas aeruginosa lung injury** *FASEB JOURNAL*
Lafargue, M., Xu, L., Carles, M., Serve, E., Anjum, N., Iles, K. E., Xiong, X., Giffard, R., Pittet, J.
2012; 26 (7): 2919-2929
- **Genomic Analysis of Reactive Astrogliosis** *JOURNAL OF NEUROSCIENCE*
Zamanian, J. L., Xu, L., Foo, L. C., Nouri, N., Zhou, L., Giffard, R. G., Barres, B. A.
2012; 32 (18): 6391-6410
- **Neuroprotection from Stroke in the Absence of MHCI or PirB** *NEURON*
Adelson, J. D., Barreto, G. E., Xu, L., Kim, T., Brott, B. K., Ouyang, Y., Naserke, T., Djuricic, M., Xiong, X., Shatz, C. J., Giffard, R. G.
2012; 73 (6): 1100-1107
- **miR-181 targets multiple Bcl-2 family members and influences apoptosis and mitochondrial function in astrocytes** *MITOCHONDRION*
Ouyang, Y., Lu, Y., Yue, S., Giffard, R. G.
2012; 12 (2): 213-219
- **ER-Mitochondria Crosstalk during Cerebral Ischemia: Molecular Chaperones and ER-Mitochondrial Calcium Transfer.** *International journal of cell biology*
Ouyang, Y., Giffard, R. G.
2012; 2012: 493934-?
- **Mice lacking the beta 2 adrenergic receptor have a unique genetic profile before and after focal brain ischaemia** *ASN NEURO*
White, R. E., Palm, C., Xu, L., Ling, E., Ginsburg, M., Daigle, B. J., Han, R., Patterson, A., Altman, R. B., Giffard, R. G.
2012; 4 (5): 343-356
- **miR-181 regulates GRP78 and influences outcome from cerebral ischemia in vitro and in vivo** *NEUROBIOLOGY OF DISEASE*
Ouyang, Y., Lu, Y., Yue, S., Xu, L., Xiong, X., White, R. E., Sun, X., Giffard, R. G.
2012; 45 (1): 555-563
- **Inflammation, Mitochondria, and the Inhibition of Adult Neurogenesis** *JOURNAL OF NEUROSCIENCE RESEARCH*
Voloboueva, L. A., Giffard, R. G.
2011; 89 (12): 1989-1996
- **Astrocyte Proliferation Following Stroke in the Mouse Depends on Distance from the Infarct** *PLOS ONE*
Barreto, G. E., Sun, X., Xu, L., Giffard, R. G.
2011; 6 (11)
- **Significance of Marrow-Derived Nicotinamide Adenine Dinucleotide Phosphate Oxidase in Experimental Ischemic Stroke** *ANNALS OF NEUROLOGY*
Tang, X. N., Zheng, Z., Giffard, R. G., Yenari, M. A.
2011; 70 (4): 606-615
- **Quantitative characterization and analysis of the dynamic NF-kappa B response in microglia** *BMC BIOINFORMATICS*
Sheppard, P. W., Sun, X., Emery, J. F., Giffard, R. G., Khammash, M.
2011; 12
- **Increased Brain Injury and Worsened Neurological Outcome in Interleukin-4 Knockout Mice After Transient Focal Cerebral Ischemia** *STROKE*
Xiong, X., Barreto, G. E., Xu, L., Ouyang, Y. B., Xie, X., Giffard, R. G.
2011; 42 (7): 2026-2032
- **Astrocytes: targets for neuroprotection in stroke.** *Central nervous system agents in medicinal chemistry*
Barreto, G., White, R. E., Ouyang, Y., Xu, L., Giffard, R. G.
2011; 11 (2): 164-173

- **Heat Shock Protein 72 Overexpression Prevents Early Postoperative Memory Decline after Orthopedic Surgery under General Anesthesia in Mice** *ANESTHESIOLOGY*
Vizcaychipi, M. P., Xu, L., Barreto, G. E., Ma, D., Maze, M., Giffard, R. G.
2011; 114 (4): 891-900
- **Endotoxin-activated microglia injure brain derived endothelial cells via NF-kappa B, JAK-STAT and JNK stress kinase pathways** *JOURNAL OF INFLAMMATION-LONDON*
Kacimi, R., Giffard, R. G., Yenari, M. A.
2011; 8
- **Overexpressing GRP78 influences Ca2+ handling and function of mitochondria in astrocytes after ischemia-like stress** *MITOCHONDRION*
Ouyang, Y., Xu, L., Emery, J. F., Lee, A. S., Giffard, R. G.
2011; 11 (2): 279-286
- **Glycyrrhizin Protects Against Focal Ischemia and Attenuates Peripheral Immunosuppression in Rats** *International Stroke Conference*
Xiong, X., Gu, L., Li, L., Lee, J., Li, M., Xu, L., Giffard, R., Krams, S. M., Steinberg, G. K., Zhao, H.
LIPPINCOTT WILLIAMS & WILKINS.2011: E67-E68
- **Heat shock protein 72 (Hsp72) improves long term recovery after focal cerebral ischemia in mice** *NEUROSCIENCE LETTERS*
Xu, L., Xiong, X., Ouyang, Y., Barreto, G., Giffard, R.
2011; 488 (3): 279-282
- **Direct protection of cultured neurons from ischemia-like injury by minocycline.** *Anatomy & cell biology*
Huang, W. C., Qiao, Y., Xu, L., Kacimi, R., Sun, X., Giffard, R. G., Yenari, M. A.
2010; 43 (4): 325-331
- **Mitochondrial Protection Attenuates Inflammation-Induced Impairment of Neurogenesis In Vitro and In Vivo** *JOURNAL OF NEUROSCIENCE*
Voloboueva, L. A., Lee, S. W., Emery, J. F., Palmer, T. D., Giffard, R. G.
2010; 30 (37): 12242-12251
- **Automation of neurobehavioral assays for the mouse stroke model assessment at homecage using SmartCage (TM) system** *14th Congress of European-Federation-of-Neurological-Societies*
Xie, X. S., Xu, L., Xiong, X., Zou, B., Xie, J., Zhang, J., Giffard, R.
WILEY-BLACKWELL.2010: 418-418
- **Intrathecal injection of an alpha seven nicotinic acetylcholine receptor agonist attenuates gp120-induced mechanical allodynia and spinal pro-inflammatory cytokine profiles in rats** *BRAIN BEHAVIOR AND IMMUNITY*
Loram, L. C., Harrison, J. A., Chao, L., Taylor, F. R., Reddy, A., Travis, C. L., Giffard, R., Al-Abed, Y., Tracey, K., Maier, S. F., Watkins, L. R.
2010; 24 (6): 959-967
- **Age-related Defects in Sensorimotor Activity, Spatial Learning, and Memory in C57BL/6 Mice** *JOURNAL OF NEUROSURGICAL ANESTHESIOLOGY*
Barreto, G., Huang, T., Giffard, R. G.
2010; 22 (3): 214-219
- **Astrocyte Targeted Overexpression of Hsp72 or SOD2 Reduces Neuronal Vulnerability to Forebrain Ischemia** *GLIA*
Xu, L., Emery, J. F., Ouyang, Y., Voloboueva, L. A., Giffard, R. G.
2010; 58 (9): 1042-1049
- **Protection of astrocytes from ischemia-like injury by endoplasmic reticulum chaperone protein Grp78** *24th International Symposium on Cerebral Blood Flow and Metabolism/9th International Conference on Quantification of Brain Function with PET*
Giffard, R. G., Emery, J. F., Xu, L., Lee, A. S., Ouyang, Y.
NATURE PUBLISHING GROUP.2009: S163-S164
- **TARGETING ASTROCYTES TO REDUCE LOSS OF CA1 HIPPOCAMPAL NEURONS IN FOREBRAIN ISCHEMIA** *9th European Meeting on Glial Cells in Health and Disease*
Giffard, R. G., Xu, L., Ouyang, Y. B., Emery, J. F.
WILEY-BLACKWELL.2009: S53-S54
- **Nadph oxidase from circulating inflammatory cells exacerbates injury in experimental stroke** *24th International Symposium on Cerebral Blood Flow and Metabolism/9th International Conference on Quantification of Brain Function with PET*
Tang, X., Zheng, Z., Giffard, R., Yenari, M.

NATURE PUBLISHING GROUP.2009: S83–S83

- **Mild Hypothermia Decreases Cerebral Hemorrhage Caused By Tissue Plasminogen Activator Treatment In Experimental Stroke.** *American-Association-International-Stroke Conference 2009*
Tang, X. N., Liu, L., Koike, M., Giffard, R. G., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2009: E246–E246
- **Inflammation and NF kappa B activation is decreased by hypothermia following global cerebral ischemia** *NEUROBIOLOGY OF DISEASE*
Webster, C. M., Kelly, S., Koike, M. A., Chock, V. Y., Giffard, R. G., Yenari, M. A.
2009; 33 (2): 301-312
- **Overexpression of mitochondrial Hsp70/Hsp75 in rat brain protects mitochondria, reduces oxidative stress, and protects from focal ischemia** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Xu, L., Voloboueva, L. A., Ouyang, Y., Emery, J. F., Giffard, R. G.
2009; 29 (2): 365-374
- **Postischemic Brain Injury Is Attenuated in Mice Lacking the beta(2)-Adrenergic Receptor** *ANESTHESIA AND ANALGESIA*
Han, R., Ouyang, Y., Xu, L., Agrawal, R., Patterson, A. J., Giffard, R. G.
2009; 108 (1): 280-287
- **Regulation of apoptotic and inflammatory cell signaling in cerebral ischemia - The complex roles of heat shock protein 70** *ANESTHESIOLOGY*
Giffard, R. G., Han, R., Emery, J. F., Duan, M., Pittet, J. F.
2008; 109 (2): 339-348
- **Overexpression of mitochondrial Hsp70/Hsp75 protects astrocytes against ischemic injury in vitro** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Voloboueva, L. A., Duan, M., Ouyang, Y., Emery, J. F., Stoy, C., Giffard, R. G.
2008; 28 (5): 1009-1016
- **NADPH oxidase from circulating inflammatory cells exacerbates injury in experimental stroke** *33rd International Stroke Conference*
Tang, X. N., Zheng, Z., Cairns, N., Cairns, B., Giffard, R. G., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2008: 533–33
- **Inhibition of mitochondrial function in astrocytes: implications for neuroprotection** *JOURNAL OF NEUROCHEMISTRY*
Voloboueva, L. A., Suh, S. W., Swanson, R. A., Giffard, R. G.
2007; 102 (4): 1383-1394
- **NOx and ADMA changes with focal ischemia, amelioration with the chaperonin GroEL** *NEUROSCIENCE LETTERS*
Xu, L., Wang, B., Kaur, K., Kho, M. F., Cooke, J. P., Giffard, R. G.
2007; 418 (2): 201-204
- **Selective dysfunction of hippocampal CA1 astrocytes contributes to delayed neuronal damage after transient forebrain ischemia** *JOURNAL OF NEUROSCIENCE*
Ouyang, Y., Voloboueva, L. A., Xu, L., Giffard, R. G.
2007; 27 (16): 4253-4260
- **Early loss of hippocampal CA1 astrocyte glutamate transporter GLT-1 contributes to delayed neuronal damage in ischemia** *32nd International Stroke Conference*
Ouyang, Y., Xu, L., Voloboueva, L., Giffard, R. G.
LIPPINCOTT WILLIAMS & WILKINS.2007: 585–85
- **Blood-brain barrier disruption is related to NADPH oxidase in experimental stroke** *32nd International Stroke Conference*
Tang, X. N., Wang, Q., Xu, L., Koike, M., Cairns, N., Cairns, B., Giffard, R. G., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2007: 555–55
- **Improved astrocyte function using ceftriaxone to upregulate GLT-1 is associated with decreased CA1 neuronal loss in forebrain ischemia**
Xu, L., Ouyang, Y., Giffard, R. G.
CAMBRIDGE UNIV PRESS.2007: S157–S157
- **Improved astrocyte function using ceftriaxone to upregulate GLT-1 is associated with decreased CA1 neuronal loss in forebrain ischemia** *8th European Meeting on Glial Cells in Health and Disease*

- Xu, L., Ouyang, Y. B., Giffard, R. G.
MEDIMOND S R L.2007: 185–188
- **Transplantation of embryonic stem cell derived endothelial cells promote functional recovery after cerebral ischemia** *79th Annual Scientific Session of the American-Heart-Association*
Wu, J. C., Li, Z., Xu, L., Giffard, R. G., Wu, J., Cooke, J. P.
LIPPINCOTT WILLIAMS & WILKINS.2006: 627–27
 - **Regulation of the rat brain Na⁺-driven Cl⁻/HCO₃⁻ exchanger involves protein kinase A and a multiprotein signaling complex** *FEBS LETTERS*
Lee, Y., Ouyang, Y., Giffard, R. G.
2006; 580 (20): 4865-4871
 - **Transplantation of embryonic stem cells-derived endothelial cells in rat stroke model promotes functional recovery** *3rd Annual Symposium of the American-Heart-Association-Council-on-Basic-Cardiovascular-Sciences*
Wu, J. C., Li, Z., Xu, L., Giffard, R., Wu, J., Cooke, J. P.
LIPPINCOTT WILLIAMS & WILKINS.2006: E49–E49
 - **Biphasic role of nuclear factor-kappa B on cell survival and COX-2 expression in SOD1 Tg astrocytes after oxygen glucose deprivation** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Lee, Y., Song, Y. S., Giffard, R. G., Chan, P. H.
2006; 26 (8): 1076-1088
 - **Transplantation of embryonic stem cell derived endothelial cells promotes functional recovery after transient cerebral ischemia** *28th Congress of the European-Society-of-Cardiology/World Congress of Cardiology*
Wu, J. E., Li, Z., Xu, L., Giffard, R., Wu, J. O., Cooke, J. O.
OXFORD UNIV PRESS.2006: 235–235
 - **The carboxyl-terminal domain of inducible Hsp70 protects from ischemic injury in vivo and in vitro** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Sun, Y., Ouyang, Y., Xu, L., Chow, A. M., Anderson, R., Hecker, J. G., Giffard, R. G.
2006; 26 (7): 937-950
 - **Overexpression of inducible heat shock protein 70 and its mutants in astrocytes is associated with maintenance of mitochondrial physiology during glucose deprivation stress** *5th International Workshop on Molecular Biology of Stress Responses*
Ouyang, Y., Xu, L., Sun, Y., Giffard, R. G.
SPRINGER.2006: 180–86
 - **Chaperonin GroEL and its mutant D87K protect from ischemia in vivo and in vitro** *5th Neurobiology of Aging Conference*
Xu, L. J., Dayal, M., Ouyang, Y. B., Sun, Y. J., Yang, C. F., Frydman, J., Giffard, R. G.
ELSEVIER SCIENCE INC.2006: 562–69
 - **Microglia potentiate damage to blood-brain barrier constituents - Improvement by minocycline in vivo and in vitro** *STROKE*
Yenari, M. A., Xu, L. J., Tang, X. N., Qiao, Y. L., Giffard, R. G.
2006; 37 (4): 1087-1093
 - **Antegrade cerebral perfusion reduces apoptotic neuronal injury in a neonatal piglet model of cardiopulmonary bypass** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
Chock, V. Y., Amir, G., DAVIS, C. R., Ramamoorthy, C., Riemer, R. K., Ray, D., Giffard, R. G., Reddy, V. M.
2006; 131 (3): 659-665
 - **Wild type and folding deficient chaperones protect from ischemic injury in vivo and in vitro** *37th Annual Meeting of the American-Society-for-Neurochemistry*
Giffard, R. G., Sun, Y., Xu, L., Ouyang, Y. B., Chow, A. M., Hecker, J. G., Anderson, R.
WILEY-BLACKWELL.2006: 140–140
 - **Microglia-derived reactive oxygen species potentiate blood-brain barrier disruption after stroke** *31st International Stroke Conference*
Tang, X. N., Xu, L. J., Qiao, Y. L., Giffard, R., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2006: 630–30
 - **Geldanamycin treatment reduces delayed CA1 damage in mouse hippocampal organotypic cultures subjected to oxygen glucose deprivation** *NEUROSCIENCE LETTERS*

- Ouyang, Y. B., Xu, L. J., Giffard, R. G.
2005; 380 (3): 229-233
- **Ischemia-induced programmed cell death in astrocytes** *GLIA*
Giffard, R. G., Swanson, R. A.
2005; 50 (4): 299-306
 - **Microglia enhance blood-brain barrier disruption** *36th Annual Meeting of the American-Society-for-Neurochemistry*
Tang, X. N., Qiao, Y., Xu, L., Giffard, R., Yenari, M. A.
WILEY-BLACKWELL.2005: 98-98
 - **Overexpression of copper/zinc superoxide dismutase decreases ischemia-like astrocyte injury** *FREE RADICAL BIOLOGY AND MEDICINE*
Wang, H., Ma, J. H., Giffard, R. G.
2005; 38 (8): 1112-1118
 - **Development of neonatal murine microglia in vitro: Changes in response to lipopolysaccharide and ischemia-like injury** *PEDIATRIC RESEARCH*
Chock, V. Y., Giffard, R. G.
2005; 57 (4): 475-480
 - **Effect of NF kappa B siRNA on SOD1 transgenic mice astrocytes during oxygen glucose deprivation** *30th International Stroke Conference*
Lee, Y. S., Song, Y. S., Wang, J., Giffard, R. G., Chan, P. H.
LIPPINCOTT WILLIAMS & WILKINS.2005: 468-68
 - **Mild intraoperative hypothermia during surgery for intracranial aneurysm** *NEW ENGLAND JOURNAL OF MEDICINE*
Todd, M. M., Hindman, B. J., Clarke, W. R., Torner, J. C., Todd, M., Hindman, B., Clarke, W., Chaloner, K., Torner, J., Davis, P., Howard, M., Tranel, D., Anderson, et al
2005; 352 (2): 135-145
 - **Antiapoptotic and anti-inflammatory mechanisms of heat-shock protein protection** *7th International Conference on Neuroprotective Agents*
Yenari, M. A., Liu, J. L., Zheng, Z., Vexler, Z. S., Lee, J. E., Giffard, R. G.
NEW YORK ACAD SCIENCES.2005: 74-83
 - **Susceptibility to apoptosis varies with time in culture for murine neurons and astrocytes: changes in gene expression and activity** *NEUROLOGICAL RESEARCH*
Xu, L. J., Chock, V. Y., Yang, E. Y., Giffard, R. G.
2004; 26 (6): 632-643
 - **Cellular neuroprotective mechanisms in cerebral ischemia: Bcl-2 family proteins and protection of mitochondrial function** *CELL CALCIUM*
Ouyang, Y. B., Giffard, R. G.
2004; 36 (3-4): 303-311
 - **Agmatine reduces infarct area in a mouse model of transient focal cerebral ischemia and protects cultured neurons from ischemia-like injury** *EXPERIMENTAL NEUROLOGY*
Kim, J. H., Yenari, M. A., Giffard, R. G., Cho, S. W., Park, K. A., Lee, J. E.
2004; 189 (1): 122-130
 - **Effect of overexpression of protective genes on mitochondrial function of stressed astrocytes** *Mitochondria and Neuroprotection Symposium*
Giffard, R., Ouyang, Y.
SPRINGER/PLENUM PUBLISHERS.2004: 313-15
 - **Protection by Hsp70 over-expression is associated with maintenance of astrocyte mitochondrial function during glucose deprivation** *35th Annual Meeting of the Transactions-of-the-American-Society-for-Neurochemistry*
Giffard, R. G., Xu, L., Ouyang, Y. B.
WILEY-BLACKWELL.2004: 18-18
 - **Minocycline protects against ischemia-like insults independent of microglial activation** *35th Annual Meeting of the Transactions-of-the-American-Society-for-Neurochemistry*
Yenari, M. A., Huang, W. C., Qiao, Y., Xu, L. J., Giffard, R. G.
WILEY-BLACKWELL.2004: 17-17
 - **Chaperones, protein aggregation, and brain protection from hypoxic/ischemic injury** *JOURNAL OF EXPERIMENTAL BIOLOGY*

Giffard, R. G., Xu, L. J., Heng, Z., Carrico, W., Ouyang, Y. B., Qiao, Y. L., Sapolsky, R., Steinberg, G., Hu, B. R., Yenari, M. A.
2004; 207 (18): 3213-3220

- **Cell-specific role for epsilon- and beta I-protein kinase C isozymes in protecting cortical neurons and astrocytes from ischemia-like injury** *NEUROPHARMACOLOGY*
Wang, J., Bright, R., Mochly-Rosen, D., Giffard, R. G.
2004; 47 (1): 136-145
- **Changes in astrocyte mitochondrial function with stress: effects of Bcl-2 family proteins** *NEUROCHEMISTRY INTERNATIONAL*
Ouyang, Y. B., Giffard, R. G.
2004; 45 (2-3): 371-379
- **The 70 kDa heat shock protein suppresses matrix metalloproteinases in astrocytes** *NEUROREPORT*
Lee, J. E., Kim, Y. J., Kim, Y. J., Lee, W. T., Yenari, M. A., Giffard, R. G.
2004; 15 (3): 499-502
- **Many mechanisms for Hsp70 protection from cerebral ischemia** *JOURNAL OF NEUROSURGICAL ANESTHESIOLOGY*
Giffard, R. G., Yenari, M. A.
2004; 16 (1): 53-61
- **Overexpression of the 70-kD heat shock protein in transgenic mice attenuates glial cell activation and nuclear translocation of the transcription factor, NF(kappa)B.** *29th International Stroke Conference*
Zheng, Z., Qiao, Y. L., Zambrano, G. J., Dunphy, N., Giffard, R. G., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2004: 275-75
- **HSP70 suppresses matrix metalloproteinases in experimental cerebral ischemia.** *29th International Stroke Conference*
Lee, J. E., Kim, J. Y., Zheng, Z., Dunphy, N., Giffard, R. G., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2004: 280-80
- **Microglia potentiate neuronal injury following ischemia-like insults: Possible role of tissue plasminogen activator.** *29th International Stroke Conference*
Huang, W. C., Qiao, Y. L., Xu, L. J., Giffard, R. G., Yenari, M. A.
LIPPINCOTT WILLIAMS & WILKINS.2004: 277-77
- **Two variants of the rat brain sodium-driven chloride bicarbonate exchanger (NCBE): developmental expression and addition of a PDZ motif** *EUROPEAN JOURNAL OF NEUROSCIENCE*
Giffard, R. G., Lee, Y. S., Ouyang, Y. B., Murphy, S. L., Monyer, H.
2003; 18 (11): 2935-2945
- **Microglia potentiate neuronal injury following ischemia-like insults: Possible role of tissue plasminogen activator (tPA)** *128th Annual Meeting of the American-Neurological-Association*
Huang, W. C., Qiao, Y. L., Xu, L. J., Giffard, R. G., Yenari, M. A.
WILEY-LISS.2003: 848-48
- **Overexpression of HDJ-2 protects Astrocytes from ischemia-like injury and reduces redistribution of ubiquitin staining in vitro** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Qiao, Y. L., Ouyang, Y. B., Giffard, R. G.
2003; 23 (10): 1113-1116
- **Geldanamycin reduces necrotic and apoptotic injury due to oxygen-glucose deprivation in astrocytes** *NEUROLOGICAL RESEARCH*
Xu, L. J., Ouyang, Y. B., Giffard, R. G.
2003; 25 (7): 697-700
- **Microglia potentiate injury in an in vitro blood brain barrier model of neonatal hypoxia/ischemia** *6th European Meeting on Glial Cell Function in Health and Disease*
Chock, V. Y., Yenari, M. A., Xu, L., Qiao, Y., Giffard, R. G.
WILEY-BLACKWELL.2003: 28-28
- **Perinatal brain injury: The role of development in vulnerability** *ANESTHESIOLOGY*
Giffard, R. G., Fiskum, G.
2003; 98 (5): 1039-1041

- **Bcl-x(L) maintains mitochondrial function in murine astrocytes deprived of glucose** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Ouyang, Y. B., Giffard, R. G.
2003; 23 (3): 275-279
- **Gene therapy and hypothermia for stroke treatment** *6th International Conference on Neuroprotective Agents*
Yenari, M. A., Zhao, H., Giffard, R. G., Sobel, R. A., Sapolsky, R. M., Steinberg, G. K.
NEW YORK ACAD SCIENCES.2003: 54-68
- **HDJ-2 protects astrocytes from oxygen-glucose deprivation** *28th International Stroke Conference*
Qiao, Y. L., Xu, L. J., Yenari, M. A., Giffard, R. G.
LIPPINCOTT WILLIAMS & WILKINS.2003: 298-98
- **Caspase inhibitors reduce the apoptotic but not necrotic component of kainate injury in primary murine cortical neuronal cultures** *NEUROLOGICAL RESEARCH*
Glassford, A., Lee, J. E., Xu, L. J., Giffard, R. G.
2002; 24 (8): 796-800
- **Neuroprotective effects of bcl-2 overexpression in hippocampal cultures: interactions with pathways of oxidative damage** *JOURNAL OF NEUROCHEMISTRY*
Howard, S., Bottino, C., Brooke, S., Cheng, E., Giffard, R. G., Sapolsky, R.
2002; 83 (4): 914-923
- **UV-vulnerability of human papilloma virus type-16 E7-expressing astrocytes is associated with mitochondrial membrane depolarization and caspase-3 activation** *MOLECULES AND CELLS*
Lee, W. T., Lee, S. H., Carriedo, S. G., Giffard, R. G., Yoon, Y. J., Kim, J. H., Park, K. A., Lee, J. E.
2002; 14 (2): 288-294
- **Advances in understanding protection from cerebral ischemia.** *Current opinion in anaesthesiology*
Giffard, R. G., Jaffe, R. A.
2002; 15 (5): 495-500
- **Effect of Bcl-x(L) overexpression on reactive oxygen species, intracellular calcium, and mitochondrial membrane potential following injury in astrocytes** *FREE RADICAL BIOLOGY AND MEDICINE*
Ouyang, Y. B., Carriedo, S. G., Giffard, R. G.
2002; 33 (4): 544-551
- **Gene transfer of HSP72 protects cornu ammonis 1 region of the hippocampus neurons from global ischemia: Influence of Bcl-2** *ANNALS OF NEUROLOGY*
Kelly, S., Zhang, Z. J., Zhao, H., Xu, L. J., Giffard, R. G., Sapolsky, R. M., Yenari, M. A., Steinberg, G. K.
2002; 52 (2): 160-167
- **Influence of mild hypothermia on inducible nitric oxide synthase expression and reactive nitrogen production in experimental stroke and inflammation** *JOURNAL OF NEUROSCIENCE*
Han, H. S., Qiao, Y. L., Karabiyikoglu, M., Giffard, R. G., Yenari, M. A.
2002; 22 (10): 3921-3928
- **Mild hypothermia reduces apoptosis of mouse neurons in vitro early in the cascade** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Xu, L. J., Yenari, M. A., Steinberg, G. K., Giffard, R. G.
2002; 22 (1): 21-28
- **Upregulation of Bcl-2 in CA1 neurons protected from global cerebral ischemia by HSP72 gene transfer**
Kelly, S., Zhang, Z. J., Xu, L. J., Giffard, R. G., Sapolsky, R. M., Yenari, M. A., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.2002: 355-56
- **Susceptibility of astrocytes, endothelial cells & microglia to oxygen & glucose deprivation**
Xu, L. J., Yenari, M. A., Qiao, Y. L., Giffard, R. G.
LIPPINCOTT WILLIAMS & WILKINS.2002: 356-56
- **Overexpression of HSP72 after induction of experimental stroke protects neurons from ischemic damage** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Hoehn, B., Ringer, T. M., Xu, L. J., Giffard, R. G., Sapolsky, R. M., Steinberg, G. K., Yenari, M. A.

2001; 21 (11): 1303-1309

- **Human papilloma virus type 16 E7 genes protect astrocytes against apoptotic and necrotic death induced by hydrogen peroxide** *YONSEI MEDICAL JOURNAL*
Lee, W. T., Lee, J. E., Lee, S. H., Jang, H. S., Giffard, R. G., Park, K. A.
2001; 42 (5): 471-479
- **Differential neuroprotection from human heat shock protein 70 overexpression in in vitro and in vivo models of ischemia and ischemia-like conditions** *EXPERIMENTAL NEUROLOGY*
Lee, J. E., Yenari, M. A., Sun, G. H., Xu, L. J., Emond, M. R., Cheng, D. Y., Steinberg, G. K., Giffard, R. G.
2001; 170 (1): 129-139
- **Differential sensitivity of murine astrocytes and neurons from different brain regions to injury** *EXPERIMENTAL NEUROLOGY*
Xu, L. J., Sapolsky, R. M., Giffard, R. G.
2001; 169 (2): 416-424
- **Ischemic vulnerability of primary murine microglial cultures** *NEUROSCIENCE LETTERS*
Yenari, M. A., Giffard, R. G.
2001; 298 (1): 5-8
- **Principles of gene therapy: potential applications in the treatment of cerebral ischaemia** *BRITISH JOURNAL OF NEUROSURGERY*
Papadopoulos, M. C., Giffard, R. G., Bell, B. A.
2000; 14 (5): 407-414
- **An introduction to the changes in gene expression that occur after cerebral ischaemia** *BRITISH JOURNAL OF NEUROSURGERY*
Papadopoulos, M. C., Giffard, R. G., Bell, B. A.
2000; 14 (4): 305-312
- **The electrogenic sodium bicarbonate cotransporter: Developmental expression in rat brain and possible role in acid vulnerability** *JOURNAL OF NEUROSCIENCE*
Giffard, R. G., Papadopoulos, M. C., van Hooft, J. A., Xu, L. J., Giuffrida, R., Monyer, H.
2000; 20 (3): 1001-1008
- **Response to injury varies with brain region in murine brain cells: Assessment of antioxidants and bcl-2 family protein expression**
Giffard, R. G., Xu, L. J.
LIPPINCOTT WILLIAMS & WILKINS.2000
- **Cell death in the central nervous system: Therapeutic possibilities?** *REGIONAL ANESTHESIA AND PAIN MEDICINE*
Giffard, R. G., Morgan, R. L.
2000; 25 (1): 22-25
- **Overexpression of the inducible 70 Kd heat shock protein (HSP70) worsens injury after transient focal cerebral ischemia in transgenic mice**
Yenari, M. A., Sun, G. H., Xu, L. J., Cheng, D., Giffard, R. R., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.2000: 342-42
- **Overexpression of bcl-2, bcl-x(L) or hsp70 in murine cortical astrocytes reduces injury of co-cultured neurons** *NEUROSCIENCE LETTERS*
Xu, L. J., Lee, J. E., Giffard, R. G.
1999; 277 (3): 193-197
- **The neuroprotective potential of heat shock protein 70 (HSP70)** *MOLECULAR MEDICINE TODAY*
Yenari, M. A., Giffard, R. G., Sapolsky, R. M., Steinberg, G. K.
1999; 5 (12): 525-531
- **Overexpression of bcl-x(L) protects astrocyte from glucose deprivation and is associated with higher glutathione, ferritin, and iron levels** *Annual Meeting of the American-Society-of-Anesthesiologists*
Xu, L. J., Koumenis, I. L., Tilly, J. L., Giffard, R. G.
LIPPINCOTT WILLIAMS & WILKINS.1999: 1036-46
- **Astrocytes overexpressing bcl-2 or bcl-xL protect neurons from glucose deprivation and oxygen glucose deprivation**
Giffard, R. G., Xu, L. J.
LIPPINCOTT WILLIAMS & WILKINS.1999: U345-U345

- **More tips for users of the Bullard (TM) laryngoscope - In response** *ANESTHESIA AND ANALGESIA*
Habibi, A., Bushell, E., Jaffe, R. J., Giffard, R. G., Brock-Utne, J. G.
1999; 89 (1): 267-267
- **Two tips for users of Bullard (TM) intubating laryngoscope** *ANESTHESIA AND ANALGESIA*
Habibi, A., Bushell, E., Jaffe, R. A., Giffard, R. G., Brock-Utne, J. G.
1998; 87 (5): 1206-1208
- **Overexpression of bcl-x(l) protects astrocytes from oxidative stress and is associated with higher ferritin and iron levels**
Giffard, R. G., Xu, L. J.
LIPPINCOTT WILLIAMS & WILKINS.1998: U743-U743
- **The E6 and E7 genes of human papilloma virus-type 16 protect primary astrocyte cultures from injury** *BRAIN RESEARCH*
Lee, J. E., Kim, C. Y., Giaccia, A. J., Giffard, R. G.
1998; 795 (1-2): 10-16
- **Potentiation of murine astrocyte antioxidant defence by bcl-2: protection in part reflects elevated glutathione levels** *EUROPEAN JOURNAL OF NEUROSCIENCE*
Papadopoulos, M. C., Koumenis, I. L., Xu, L. J., Giffard, R. G.
1998; 10 (4): 1252-1260
- **Acidosis reduces neuronal apoptosis** *NEUROREPORT*
Xu, L. J., Glassford, A. J., Giaccia, A. J., Giffard, R. G.
1998; 9 (5): 875-879
- **Increasing vulnerability of astrocytes to oxidative injury with age despite constant antioxidant defenses** *NEUROSCIENCE*
Papadopoulos, M. C., Koumenis, I. L., Yuan, T. Y., Giffard, R. G.
1998; 82 (3): 915-925
- **Selection of human cervical epithelial cells that possess reduced apoptotic potential to low-oxygen conditions** *CANCER RESEARCH*
Kim, C. Y., Tsai, M. H., OSMANIAN, C., Graeber, T. G., Lee, J. E., Giffard, R. G., DiPaolo, J. A., Peehl, D. M., Giaccia, A. J.
1997; 57 (19): 4200-4204
- **Increased production of extracellular glutamate by the mitochondrial glutaminase following neuronal death** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Newcomb, R., Sun, X. Y., Taylor, L., Curthoys, N., Giffard, R. G.
1997; 272 (17): 11276-11282
- **HSP70 protects murine astrocytes from glucose deprivation injury** *NEUROSCIENCE LETTERS*
Xu, L. J., Giffard, R. G.
1997; 224 (1): 9-12
- **Vulnerability to glucose deprivation injury correlates with glutathione levels in astrocytes** *BRAIN RESEARCH*
Papadopoulos, M. C., Koumenis, I. L., Dugan, L. L., Giffard, R. G.
1997; 748 (1-2): 151-156
- **Bcl-x(L) overexpression increases glutathione levels and decreases astrocyte substrate deprivation injury.**
Xu, L. J., Koumenis, I. L., Sun, X. Y., Giffard, R. G.
AMER SOC CELL BIOLOGY.1996: 3789-3789
- **Mechanism of heat shock protein 72 induction in primary cultured astrocytes after oxygen-glucose deprivation** *NEUROLOGICAL RESEARCH*
Bergeron, M., Mivechi, N. F., Giaccia, A. J., Giffard, R. G.
1996; 18 (1): 64-72
- **Over-expression of HSP-70 protects astrocytes from combined oxygen-glucose deprivation** *NEUROREPORT*
Papadopoulos, M. C., Sun, X. Y., Cao, J. M., Mivechi, N. F., Giffard, R. G.
1996; 7 (2): 429-432
- **Ultrastructure of excitotoxic neuronal death in murine cortical culture** *BRAIN RESEARCH*
Regan, R. F., Panter, S. S., Witz, A., Tilly, J. L., Giffard, R. G.
1995; 705 (1-2): 188-198

- **CORRELATION OF CGS-19755 NEUROPROTECTION AGAINST IN-VITRO EXCITOTOXICITY AND FOCAL CEREBRAL-ISCHEMIA** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
PEREZPINZON, M. A., Maier, C. M., Yoon, E. J., Sun, G. H., Giffard, R. G., Steinberg, G. K.
1995; 15 (5): 865-876
- **ACTIVATION OF CLASS-II OR CLASS-III METABOTROPIC GLUTAMATE RECEPTORS PROTECTS CULTURED CORTICAL-NEURONS AGAINST EXCITOTOXIC DEGENERATION** *EUROPEAN JOURNAL OF NEUROSCIENCE*
Bruno, V., Battaglia, G., Copani, A., Giffard, R. G., Raciti, G., Raffaele, R., Shinozaki, H., Nicoletti, F.
1995; 7 (9): 1906-1913
- **NEUROPROTECTION BY THE N-METHYL-D-ASPARTATE RECEPTOR ANTAGONIST CGP-40116 - IN-VIVO AND IN-VITRO STUDIES** *JOURNAL OF NEUROCHEMISTRY*
Maier, C. M., Sun, G. H., Kunis, D. M., Giffard, R. G., Steinberg, G. K.
1995; 65 (2): 652-659
- **GLIA MODULATE THE RESPONSE OF MURINE CORTICAL-NEURONS TO EXCITOTOXICITY - GLIA EXACERBATE AMPA NEUROTOXICITY** *JOURNAL OF NEUROSCIENCE*
Dugan, L. L., BRUNO, V. M., Amagasu, S. M., Giffard, R. G.
1995; 15 (6): 4545-4555
- **NEUROPROTECTIVE EFFECT OF HYPOTHERMIA IN CORTICAL CULTURES EXPOSED TO OXYGEN-GLUCOSE DEPRIVATION OR EXCITATORY AMINO-ACIDS** *JOURNAL OF NEUROCHEMISTRY*
BRUNO, V. M., Goldberg, M. P., Dugan, L. L., Giffard, R. G., Choi, D. W.
1994; 63 (4): 1398-1406
- **CGS 19755 (selfotel): Correlation of in vitro neuroprotection, protection against experimental ischemia and CSF levels in cerebrovascular surgery patients** *5th Symposium on Pharmacology of Cerebral Ischemia*
Steinberg, G. K., PEREZPINZON, M. A., Maier, C. M., Sun, G. H., Yoon, E., Kunis, D. M., Bell, T. E., Powell, M., Kotake, A., Giffard, R. G.
WISSENSCHAFTLICHE verlagsgesellschaft mbh.1994: 225-232
- **SECOBARBITAL ATTENUATES EXCITOTOXICITY BUT POTENTIATES OXYGEN-GLUCOSE DEPRIVATION NEURONAL INJURY IN CORTICAL CELL-CULTURE** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Giffard, R. G., Weiss, J. H., Swanson, R. A., Choi, D. W.
1993; 13 (5): 803-810
- **NEUROPROTECTIVE EFFECTS OF GLUTAMATE ANTAGONISTS AND EXTRACELLULAR ACIDITY** *SCIENCE*
KAKU, D. A., Giffard, R. G., Choi, D. W.
1993; 260 (5113): 1516-1518
- **EXTRACELLULAR ALKALINITY EXACERBATES INJURY OF CULTURED CORTICAL-NEURONS** *STROKE*
Giffard, R. G., Weiss, J. H., Choi, D. W.
1992; 23 (12): 1817-1821
- **OXYGEN OR GLUCOSE DEPRIVATION-INDUCED NEURONAL INJURY IN CORTICAL CELL-CULTURES IS REDUCED BY TETANUS TOXIN** *NEURON*
Monyer, H., Giffard, R. G., Hartley, D. M., Dugan, L. L., Goldberg, M. P., Choi, D. W.
1992; 8 (5): 967-973
- **SELECTIVE VULNERABILITY OF CULTURED CORTICAL GLIA TO INJURY BY EXTRACELLULAR ACIDOSIS** *BRAIN RESEARCH*
Giffard, R. G., Monyer, H., Choi, D. W.
1990; 530 (1): 138-141
- **ACIDOSIS REDUCES NMDA RECEPTOR ACTIVATION, GLUTAMATE NEUROTOXICITY, AND OXYGEN-GLUCOSE DEPRIVATION NEURONAL INJURY IN CORTICAL CULTURES** *BRAIN RESEARCH*
Giffard, R. G., Monyer, H., Christine, C. W., Choi, D. W.
1990; 506 (2): 339-342
- **Acute brain injury, NMDA receptors, and hydrogen ions: observations in cortical cell cultures.** *Advances in experimental medicine and biology*
Choi, D. W., Monyer, H., Giffard, R. G., Goldberg, M. P., Christine, C. W.
1990; 268: 501-504

- **Neuronal calcium channels.** *Journal of neurosurgical anesthesiology*
Giffard, R. G., Choi, D. W.
1989; 1 (4): 364-367
- **CA-2+-DEPENDENT BINDING OF SEVERIN TO ACTIN - A ONE-TO-ONE COMPLEX IS FORMED** *JOURNAL OF CELL BIOLOGY*
Giffard, R. G., Weeds, A. G., Spudich, J. A.
1984; 98 (5): 1796-1803
- **CA-2+-SENSITIVE ISOLATION OF A CORTICAL ACTIN MATRIX FROM DICTYOSTELIUM AMEBAS** *JOURNAL OF MUSCLE RESEARCH AND CELL MOTILITY*
Giffard, R. G., Spudich, J. A., Spudich, A.
1983; 4 (1): 115-131
- **MOLECULAR ASPECTS OF CORTICAL ACTIN FILAMENT FORMATION UPON FERTILIZATION** *CELL DIFFERENTIATION*
Spudich, A., Giffard, R. G., Spudich, J. A.
1982; 11 (5-6): 281-284