Stanford



Eric R. Gross

Associate Professor of Anesthesiology, Perioperative and Pain Medicine (MSD)

Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

- **Anesthesia**

  300 Pasteur Dr Rm H3580

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  Stanford, CA 94305

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ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

  Email ergross@stanford.edu

Bio

CLINICAL FOCUS

- Anesthesia

ACADEMIC APPOINTMENTS

- Associate Professor, Anesthesiology, Perioperative and Pain Medicine
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Faculty Senator, School of Medicine, (2022- present)
- Member, Center for Asian Research and Education, (2019- present)
- Co-Director, Neuroscience, Behavior, Cognition Medical Student Scholarly Concentration, (2014- present)
- Member, Stanford Diabetes Research Center, (2017- present)
- Director, Stanford Anesthesia Research Seminar Series, (2012- present)

HONORS AND AWARDS

- Best of Basic Science Abstract, American Society of Anesthesiologists Annual Meeting (2022)
- Best of Basic Science Meeting Award, International Anesthesia Research Society Annual Meeting (2021)
- NIGMS R35 MIRA award, NIH (2016-Pres)
- K99/R00 Award, NHLBI (2011-2016)
- Best Overall Abstract of Meeting- Basic Science, International Anesthesia Research Society (IARS) Annual Meeting (2013)
- Young Investigator Award, Runner-Up, International Society For Heart Research (ISHR) Annual Meeting (2005)

- Resident Research Award, 1st Place, New York Society of Anesthesiologists (2010)
- Kosaka Award Finalist, International Anesthesia Research Society (IARS) Annual Meeting (2010)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Journal of Pharmacology and Experimental Therapeutics (2022 - present)
- Associate Editor, British Journal of Anaesthesiology (2021 - present)
- Vice Chair, Sub-committee on Experimental Circulation, Anesthesiology (2020 - present)
- Handling Editor, Scientific Reports (2019 - present)
- Editorial Advisory Board Member, Journal of Pharmacology and Experimental Therapeutics (2019 - 2022)
- Member, Academic University Anesthesiologists (2015 - present)
- Board Certification in Anesthesiology, ABA (2013 - present)
- Professional Member, American Heart Association (2003 - present)

PROFESSIONAL EDUCATION

- Medical Education: Medical College Of Wisconsin (2007) WI
- Board Certification: Anesthesia, American Board of Anesthesiology (2013)
- Residency: Stanford University (2011) CA
- Internship: St Joseph's Regional Medical Center (2008) WI
- MD, Medical College of Wisconsin , Medicine (2007)
- PhD, Medical College of Wisconsin , Pharmacology (2005)
- MS, Marquette University , Biomedical Engineering (2000)
- BS, Marquette University , Biomedical Engineering (1997)

PATENTS

- Eric Gross, Carl Hurt, Daria Mochly-Rosen. "United States Patent 11,136,362 Peptide Modulators of Specific Calcineurin Protein-protein Interactions", Leland Stanford Junior University, Oct 5, 2021

LINKS

- Lab Website: http://med.stanford.edu/grosslab.html

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

For a full description, see http://med.stanford.edu/grosslab.html

PROJECTS

- NIGMS R35 GM119522 Precision Medicine for Asian Americans Requiring Anesthesia - Stanford Unviersity (5/1/2016)
- NHLBI R01 HL144388 E-cigarette Aerosol Effects On The Cardiovascular System In Rodents (9/1/2018 - 8/31/2022)
- University of California Sponsored Tobacco Research (7/1/2022 - 6/30/2025)

Teaching

COURSES

2026-27

- Current Controversies and Emerging Technologies in Applied Neuroscience: ANES 215, NBIO 215, NEPR 215 (Win)

2025-26

- Current Controversies and Emerging Technologies in Applied Neuroscience: ANES 215, NBIO 215, NEPR 215 (Win)

2024-25

- Current Controversies and Emerging Technologies in Applied Neuroscience: ANES 215 (Win)

2023-24

- Current Controversies and Emerging Technologies in Applied Neuroscience: ANES 215, NBIO 215, NEPR 215 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Barbara Martins

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Anesthesia (Fellowship Program)
- Chemical and Systems Biology (PhD Program)

Publications

PUBLICATIONS

- **Breath-based Propofol Pharmacometabolomics: Comment.** *Anesthesiology*
  Lee, H. D., Zhang, Z., Lowenthal, N. H., Gross, E. R.
  2026

- **Site-Specific Blockade of LPA-TRPV1 Interaction at K710 Residue Influences on Myocardial Ischemia/Reperfusion Injury in Ex Vivo Mouse Hearts.** *Anesthesia and analgesia*
  Qile, M., Luo, Z., Wu, C., Cheng, X., Zhang, Y., Liu, L., Wang, Q., Zhang, Y., Gross, E. R., He, S.
  2026

- **Quantification of breath metabolites in labouring versus non-labouring patients: a feasibility study.** *British journal of anaesthesia*
  Hengelage, J., Fowler, C., Goldsberry, M. D., Stockert, E., Bekemeyer, Z., Lee, H., Wagner, N. M., Sultan, P., Carvalho, B., Gross, E. R.
  2025

- **Pro-Con Debate: Opioids and Perioperative Organ Injury-Friend or Foe?** *Anesthesia and analgesia*
  Obal, D., Notarianni, A., Smith, L. E., Gross, E. R.
  2025

- **Breaking free from opioids: A turning point in acute pain management.** *The Journal of pharmacology and experimental therapeutics*
  Abd-Elrahman, K. S., Peterson, C. D., Gross, E. R., Greenwood-Van Meerveld, B.
  2025; 392 (8): 103653

- **Activation of Spinal Astrocyte α2A Adrenoceptors Protects Against Sepsis-Induced Heart Injury Through Inhibition of GABAergic Neuronal Necroptosis.** *Advanced science (Weinheim, Baden-Wurttemberg, Germany)*
  He, R., Wu, B., Han, L., Li, M., Guo, W., Fu, J., Mei, B., Gross, E. R., Liu, X., Lu, Y.
  2025: e04406

- **Nicotinamide adenine dinucleotide supplementation fails to enhance anesthetic recovery in rodents.** *Scientific reports*
  Goodnough, C. L., Montoya, J., Cartusciello, E. B., Floranda, E. L., Gross, E. R.
  2025; 15 (1): 1428

- **Precisely Providing Analgesia through Selectively Targeting the GABAA α2/α3 Subtypes.** *The Journal of pharmacology and experimental therapeutics*
  Stein Neto, B., Goodnough, C. L., Gross, E. R.
  2024; 391 (3): 387-388

- **Minor Cannabinoids as an Emerging Frontier for Pain Relief.** *The Journal of pharmacology and experimental therapeutics*
  Ippolito, M. J., Gross, E. R., Abd-Elrahman, K. S.
  2024; 391 (2): 132-134
- **Opioid overdose deaths are prominent in urban counties within the USA: an observational cross-sectional study.** *British journal of anaesthesia*
  Patankar, A. V., Octaviano, R., Gurachar, N., Chen, A. W., Guan, A., Hung, G. A., Kikuta, N., Jamal, A., Srinivasan, M., Bacong, A. M., Huang, R. J., Kim, G. S., Palaniappan, et al
  2024
- **Artificial Intelligence in Perioperative Care: Opportunities and Challenges.** *Anesthesiology*
  Han, L., Char, D. S., Aghaeepour, N.
  2024; 141 (2): 379-387
- **Uncovering newly identified aldehyde dehydrogenase 2 genetic variants that lead to acetaldehyde accumulation after an alcohol challenge.** *Journal of translational medicine*
  Rwere, F., White, J. R., Hell, R. C., Yu, X., Zeng, X., McNeil, L., Zhou, K. N., Angst, M. S., Chen, C. H., Mochly-Rosen, D., Gross, E. R.
  2024; 22 (1): 697
- **Nicotinamide Adenine Dinucleotide Does Not Improve Anesthetic Recovery in Rodents.** *Research square*
  Goodnough, C. L., Montoya, J., Cartusciello, E. B., Floranda, E. L., Gross, E. R.
  2024
- **The JPET Editorial Fellowship: Opening the Blinds to the Peer Review and Editorial Process.** *The Journal of pharmacology and experimental therapeutics*
  Ladumor, M. K., Mielnik, C. A., Peterson, C. D., Rwere, F., Gross, E. R.
  2024; 389 (2): 129-132
- **Interleukin-1β polarization in M1 macrophage mediates myocardial fibrosis in diabetes.** *International immunopharmacology*
  Guo, W., Yang, C., Zou, J., Yu, T., Li, M., He, R., Chen, K., Hell, R. C., Gross, E. R., Zou, X., Lu, Y.
  2024; 131: 111858
- **The Alcohol Flush Response.** *Graphic medicine review*
  Moh, I., Simon, D., Gross, E. R.
  2024; 4 (1)
- **Lysophosphatidic acid contributes to myocardial ischemia/reperfusion injury by activating TRPV1 in spinal cord.** *Basic research in cardiology*
  Wu, C., Sun, M., Qile, M., Zhang, Y., Liu, L., Cheng, X., Dai, X., Gross, E. R., Zhang, Y., He, S.
  2024
- **Novel aldehyde dehydrogenase 2 variants in Blacks affect acetaldehyde metabolism in vitro** *ASPET 2024 Annual Meeting Abstract - Cardiovascular Pharmacology*
  Rwere, F., Jamilpanah, ., Goldsberry, M., Gross, E. R.
  2024
- **COVID-19 pandemic impact on opioid overdose deaths among racial groups within the United States: an observational cross-sectional study.** *British journal of anaesthesia*
  Chu, R., Sarnala, S., Doan, T., Cheng, T., Chen, A. W., Jamal, A., Kim, G., Huang, R., Srinivasan, M., Palaniappan, L., Gross, E. R.
  2023
- **Fixing a Broken Heart Opens the Door to Developing KATP Channel Agonists as Pain Relievers.** *The Journal of pharmacology and experimental therapeutics*
  Zambelli, V. O., Gross, E. R.
  2023; 387 (1): 15-17
- **Effects of Short-term Electronic(e)-Cigarette Aerosol Exposure in the Mouse Larynx.** *The Laryngoscope*
  Easwaran, M., Maria, C. S., Martinez, J. D., Hung, B., Yu, X., Soo, J., Kimura, A., Gross, E. R., Erickson-DiRenzo, E.
  2023
- **Characterization of novel genetic mutations in aldehyde dehydrogenase 2 that cause alcohol flushing in humans**

Rwere, F., Hell, R. C. R., Yu, X., Gross, E. R.
AMER SOC PHARMACOLOGY EXPERIMENTAL THERAPEUTICS.2023

- **Statins improve endothelial function via suppression of epigenetic-driven EndMT.** *Nature cardiovascular research*
  Liu, C., Shen, M., Tan, W. L., Chen, I. Y., Liu, Y., Yu, X., Yang, H., Zhang, A., Liu, Y., Zhao, M. T., Ameen, M., Zhang, M., Gross, et al
  2023; 2 (5): 467-485
- **SGLT2 inhibitor ameliorates endothelial dysfunction associated with the common ALDH2 alcohol flushing variant.** *Science translational medicine*
  Guo, H., Yu, X., Liu, Y., Paik, D. T., Justesen, J. M., Chandy, M., Jahng, J. W., Zhang, T., Wu, W., Rwere, F., Zhao, S. R., Pokhrel, S., Shivnaraine, et al
  2023; 15 (680): eabp9952
- **Exosomes as perioperative therapeutics to limit organ injury.** *British journal of anaesthesia*
  Owen, A., Stary, C. M., Gross, E. R.
  2023
- **A human TRPV1 genetic variant within the channel gating domain regulates pain sensitivity in rodents.** *The Journal of clinical investigation*
  He, S., Zambelli, V. O., Sinharoy, P., Brabenec, L., Bian, Y., Rwere, F., Hell, R. C., Stein Neto, B., Hung, B., Yu, X., Zhao, M., Luo, Z., Wu, et al
  2022
- **Spinal cord astrocytes regulate myocardial ischemia-reperfusion injury.** *Basic research in cardiology*
  Wu, C., Liu, R., Luo, Z., Sun, M., Qile, M., Xu, S., Jin, S., Zhang, L., Gross, E. R., Zhang, Y., He, S.
  2022; 117 (1): 56
- **Effect of race on opioid drug overdose deaths in the United States: an observational cross-sectional study.** *British journal of anaesthesia*
  Le, A. D., Li, Y., Zhu, A., Singh, J., Xu, J. Y., Srinivasan, M., Palaniappan, L. P., Long, J., Gross, E. R.
  2022
- **Engineering genetically-encoded synthetic biomarkers for breath-based cancer detection**
  Vermesh, O., D'Souza, A., Alam, I., Wardak, M., McLaughlin, T., El Rami, F., Sathirachinda, A., Bell, J., Pitteri, S., James, M., Hori, S., Gross, E., Gambhir, et al
  AMER ASSOC CANCER RESEARCH.2022
- **E-cigarette aerosol exacerbates cardiovascular oxidative stress in mice with an inactive aldehyde dehydrogenase 2 enzyme.** *Redox biology*
  Yu, X., Zeng, X., Xiao, F., Chen, R., Sinharoy, P., Gross, E. R.
  2022; 54: 102369
- **Aldehydes, Aldehyde Metabolism, and the ALDH2 Consortium.** *Biomolecules*
  Rwere, F., Yu, X., Chen, C., Gross, E. R.
  2022; 12 (6)
- **V1-Cal hydrogelation enhances its effects on ventricular remodeling reduction and cardiac function improvement post myocardial infarction.** *Chemical engineering journal (Lausanne, Switzerland : 1996)*
  Wang, B., Wu, C., He, S., Wang, Y., Wang, D., Tao, H., Wang, C., Pang, X., Li, F., Yuan, Y., Gross, E. R., Liang, G., Zhang, et al
  2022; 433 (Pt 1)
- **TRP Channels as Sensors of Aldehyde and Oxidative Stress.** *Biomolecules*
  Hellenthal, K. E., Brabenec, L., Gross, E. R., Wagner, N.
  2021; 11 (10)
- **Topical analgesic BENGAY reduces myocardial infarct size in rodents.** *British journal of anaesthesia*
  Goodnough, C. L., Wu, Y., Gross, E. R.
  2021
- **Anaesthetic depth and delirium: a challenging balancing act.** *British journal of anaesthesia*
  Whitlock, E. L., Gross, E. R., King, C. R., Avidan, M. S.
  2021
- **Alcohol and analgesia: a fine wine getting better with age.** *British journal of anaesthesia*
  Zambelli, V. O., Alcantara, Q. A., Gross, E. R.

2021

- **E-Cigarettes and Cardiopulmonary Health.** *Function (Oxford, England)*
  Tarran, R., Barr, R. G., Benowitz, N. L., Bhatnagar, A., Chu, H. W., Dalton, P., Doerschuk, C. M., Drummond, M. B., Gold, D. R., Goniewicz, M. L., Gross, E. R., Hansel, N. N., Hopke, et al
  2021; 2 (2): zqab004

- **Development of heart failure with preserved ejection fraction in type 2 diabetic mice is ameliorated by preserving vascular function.** *Life sciences*
  Otto, M., Brabenec, L., Müller, M., Kintrup, S., Hellenthal, K. E., Holtmeier, R., Steinbuch, S. C., Karsten, O. S., Pryvalov, H., Rossaint, J., Gross, E. R., Wagner, N. M.
  2021: 119925

- **IcyHot analgesic topical cream limits cardiac injury in rodents.** *Translational research : the journal of laboratory and clinical medicine*
  Wu, Y., Chen, A. W., Goodnough, C. L., Lu, Y., Zhang, Y., Gross, E. R.
  2020

- **12(S)-HETE mediates diabetes induced endothelial dysfunction by activating intracellular endothelial cell TRPV1.** *The Journal of clinical investigation*
  Otto, M., Bucher, C., Liu, W., Muller, M., Schmidt, T., Kardell, M., Driessen, M. N., Rossaint, J., Gross, E. R., Wagner, N.
  2020

- **Aberrant reactive aldehyde detoxification by ALDH2 influences endometriosis development and pain-associated behaviors.** *Pain*
  McAllister, S. L., Sinharoy, P., Vasu, M.
  2020

- **Annals Graphic Medicine - Asian Flush.** *Annals of internal medicine*
  Jiang, S., Bastov, D., Bharadwaj, A., Gross, E. R.
  2019

- **A newly developed anesthetic based on a unique chemical core.** *Proceedings of the National Academy of Sciences of the United States of America*
  Cayla, N. S., Dagne, B. A., Wu, Y., Lu, Y., Rodriguez, L., Davies, D. L., Gross, E. R., Heifets, B. D., Davies, M. F., MacIver, M. B., Bertaccini, E. J.
  2019

- **Mitochondrial Bioenergetics and Quality Control Mechanisms in Health and Disease** *OXIDATIVE MEDICINE AND CELLULAR LONGEVITY*
  Ferreira, J. C. B., Mori, M. A., Gross, E. R.
  2019; 2019

- **Environmental Aldehyde Sources and the Health Implications of Exposure.** *Advances in experimental medicine and biology*
  Sinharoy, P., McAllister, S. L., Vasu, M., Gross, E. R.
  2019; 1193: 35–52

- **Alcohol consumption and vascular disease: other points to consider.** *Lancet (London, England)*
  Chen, C. H., Ferreira, J. C., Mochly-Rosen, D. n., Gross, E. R.
  2019; 394 (10209): 1617–18

- **Mitochondrial Bioenergetics and Quality Control Mechanisms in Health and Disease.** *Oxidative medicine and cellular longevity*
  Ferreira, J. C., Mori, M. A., Gross, E. R.
  2019; 2019: 5406751

- **Risks of Impaired Organ Protection with Inhibiting Transient Receptor Potential Vanilloid 1.** *Anesthesiology*
  Wu, Y., Gross, E. R., Qian, J.
  2018; 129 (2): 377–78

- **Risks of Impaired Organ Protection with Inhibiting Transient Receptor Potential Vanilloid 1** *ANESTHESIOLOGY*
  Wu, Y., Gross, E. R., Qian, J.
  2018; 129 (2): 377–78

- **Aldehyde-Induced DNA and Protein Adducts as Biomarker Tools for Alcohol Use Disorder.** *Trends in molecular medicine*
  Heymann, H. M., Gardner, A. M., Gross, E. R.

2018; 24 (2): 144–55

- **Association of Impaired Reactive Aldehyde Metabolism with Delayed Graft Function in Human Kidney Transplantation** *OXIDATIVE MEDICINE AND CELLULAR LONGEVITY*
  Wijermars, L. G. M., Schaapherder, A. F., George, T., Sinharoy, P., Gross, E. R.
  2018: 3704129

- **Peptidomimetic therapeutics: scientific approaches and opportunities.** *Drug discovery today*
  Qvit, N., Rubin, S. J., Urban, T. J., Mochly-Rosen, D., Gross, E. R.
  2017; 22 (2): 454-462

- **Transient receptor potential vanilloid 1 inhibitors block laparotomy- and opioid-induced infarct size reduction in rats.** *British journal of pharmacology*
  Heymann, H. M., Wu, Y. n., Lu, Y. n., Qvit, N. n., Gross, G. J., Gross, E. R.
  2017; 174 (24): 4826–35

- **Genetic variations of aldehyde dehydrogenase 2 and alcohol dehydrogenase 1B are associated with the etiology of atrial fibrillation in Japanese** *JOURNAL OF BIOMEDICAL SCIENCE*
  Nakano, Y., Ochi, H., Onohara, Y., Sairaku, A., Tokuyama, T., Matsumura, H., Tomomori, S., Amioka, M., Hironomobe, N., Motoda, C., Oda, N., Chayama, K., Chen, et al
  2016; 23

- **Developing precision medicine for people of East Asian descent** *JOURNAL OF BIOMEDICAL SCIENCE*
  McAllister, S. L., Sun, K., Gross, E. R.
  2016; 23

- **Transient Receptor Potential Ankyrin 1 Activation within the Cardiac Myocyte Limits Ischemia-reperfusion Injury in Rodents.** *Anesthesiology*
  Lu, Y., Piplani, H., McAllister, S. L., Hurt, C. M., Gross, E. R.
  2016: -?

- **Transient Receptor Potential Vanilloid 1 Regulates Mitochondrial Membrane Potential and Myocardial Reperfusion Injury.** *Journal of the American Heart Association*
  Hurt, C. M., Lu, Y., M Stary, C., Piplani, H., Small, B. A., Urban, T. J., Qvit, N., Gross, G. J., Mochly-Rosen, D., Gross, E. R.
  2016; 5 (9)

- **Transient Receptor Potential Vanilloid 1 Regulates Mitochondrial Membrane Potential and Myocardial Reperfusion Injury** *JOURNAL OF THE AMERICAN HEART ASSOCIATION*
  Hurt, C. M., Lu, Y., Stary, C. M., Piplani, H., Small, B. A., Urban, T. J., Qvit, N., Gross, G. J., Mochly-Rosen, D., Gross, E. R.
  2016; 5 (9)

- **A Slick Way Volatile Anesthetics Reduce Myocardial Injury** *ANESTHESIOLOGY*
  Wagner, N., Gross, E. R., Patel, H. H.
  2016; 124 (5): 986–88

- **Reactive aldehydes: an initial path to develop precision medicine for pain control.** *Annals of translational medicine*
  Zambelli, V. O., Chen, C., Gross, E. R.
  2015; 3 (17): 258-?

- **Happy 53rd Birthday GIK: Insulin, Cake, and Presents.** *Anesthesiology*
  Cole, S. P., Gross, E. R.
  2015; 123 (2): 249-250

- **A personalized medicine approach for asian americans with the aldehyde dehydrogenase 2*2 variant.** *Annual review of pharmacology and toxicology*
  Gross, E. R., Zambelli, V. O., Small, B. A., Ferreira, J. C., Chen, C., Mochly-Rosen, D.
  2015; 55: 107-127

- **Morphine Reduces Myocardial Infarct Size via Heat Shock Protein 90 in Rodents.** *BioMed research international*
  Small, B. A., Lu, Y., Hsu, A. K., Gross, G. J., Gross, E. R.
  2015; 2015: 129612-?

- **Aldehyde dehydrogenase-2 regulates nociception in rodent models of acute inflammatory pain.** *Science translational medicine*
  Zambelli, V. O., Gross, E. R., Chen, C., Gutierrez, V. P., Cury, Y., Mochly-Rosen, D.
  2014; 6 (251): 251ra118-?
- **TARGETING ALDEHYDE DEHYDROGENASE 2: NEW THERAPEUTIC OPPORTUNITIES** *PHYSIOLOGICAL REVIEWS*
  Chen, C., Batista Ferreira, J. C., Gross, E. R., Mochly-Rosen, D.
  2014; 94 (1): 1-34
- **Nociceptive-induced myocardial remote conditioning is mediated by neuronal gamma protein kinase C.** *Basic research in cardiology*
  Gross, E. R., Hsu, A. K., Urban, T. J., Mochly-Rosen, D., Gross, G. J.
  2013; 108 (5): 381-?
- **Factors Mediating Remote Preconditioning of Trauma in the Rat Heart: Central Role of the Cytochrome P450 Epoxygenase Pathway in Mediating Infarct Size Reduction** *JOURNAL OF CARDIOVASCULAR PHARMACOLOGY AND THERAPEUTICS*
  Gross, G. J., Hsu, A., Gross, E. R., Falck, J. R., Nithipatikom, K.
  2013; 18 (1): 38-45
- **Hunter Syndrome in an Adult: Beware of Tracheal Stenosis** *ANESTHESIA AND ANALGESIA*
  Gross, E. R., Lemmens, H. J.
  2010; 110 (2): 642-643
- **Acute Methadone Treatment Reduces Myocardial Infarct Size via the delta-Opioid Receptor in Rats During Reperfusion** *ANESTHESIA AND ANALGESIA*
  Gross, E. R., Hsu, A. K., Gross, G. J.
  2009; 109 (5): 1395-1402
- **Activation of kappa-opioid receptors at reperfusion affords cardioprotection in both rat and mouse hearts** *BASIC RESEARCH IN CARDIOLOGY*
  Peart, J. N., Gross, E. R., Reichelt, M. E., Hsu, A., Headrick, J. P., Gross, G. J.
  2008; 103 (5): 454-463
- **Delayed cardioprotection afforded by the glycogen synthase kinase 3 inhibitor SB-216763 occurs via a K-ATP- and MPTP-dependent mechanism at reperfusion** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
  Gross, E. R., Hsu, A. K., Gross, G. J.
  2008; 294 (3): H1497-H1500
- **Pharmacologic therapeutics for cardiac reperfusion injury** *EXPERT OPINION ON EMERGING DRUGS*
  Gross, E. R., Gross, G. J.
  2007; 12 (3): 367-388
- **Ischemic Preconditioning And Myocardial Infarction: An Update and Perspective.** *Drug discovery today. Disease mechanisms*
  Gross, E. R., Gross, G. J.
  2007; 4 (3): 165-174
- **GSK3 beta inhibition and K-ATP channel opening mediate acute opioid-induced cardioprotection at reperfusion** *BASIC RESEARCH IN CARDIOLOGY*
  Gross, E. R., Hsu, A. K., Gross, G. J.
  2007; 102 (4): 341-349
- **Impaired p38 MAPK/HSP27 signaling underlies aging-related failure in opioid-mediated cardioprotection** *JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY*
  Peart, J. N., Gross, E. R., Headrick, J. P., Gross, G. J.
  2007; 42 (5): 972-980
- **Diabetes abolishes morphine-induced cardioprotection via multiple pathways upstream of glycogen synthase kinase-3 beta** *DIABETES*
  Gross, E. R., Hsu, A. K., Gross, G. J.
  2007; 56 (1): 127-136
- **The JAK/STAT pathway is essential for opioid-induced cardioprotection: JAK2 as a mediator of STAT3, Akt, and GSK-3 beta** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
  Gross, E. R., Hsu, A. K., Gross, G. J.

2006; 291 (2): H827-H834

- **Ligand triggers of classical preconditioning and postconditioning** *CARDIOVASCULAR RESEARCH*
  Gross, E. R., Gross, G. J.
  2006; 70 (2): 212-221
- **Association of intravenous morphine use and outcomes in acute coronary syndromes: results from the CRUSADE Quality Improvement Initiative.** *American heart journal*
  Gross, G. J., Gross, E. R., Peart, J. N.
  2005; 150 (6)
- **Untitled** *AMERICAN HEART JOURNAL*
  Gross, G. J., Gross, E. R., Peart, J. N.
  2005; 150 (6)
- **Cytochrome P450 and arachidonic acid metabolites: Role in myocardial ischemia/reperfusion injury revisited** *CARDIOVASCULAR RESEARCH*
  Gross, G. J., Falck, J. R., Gross, E. R., Isbell, M., Moore, J., Nithipatikom, K.
  2005; 68 (1): 18-25
- **Extending the cardioprotective window using a novel delta-opioid agonist fentanyl isothiocyanate via the PI3-kinase pathway** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
  Gross, E. R., Peart, J. N., Hsu, A. K., Auchampach, J. A., Gross, G. J.
  2005; 288 (6): H2744-H2749
- **Opioid-induced preconditioning: Recent advances and future perspectives** *VASCULAR PHARMACOLOGY*
  Peart, J. N., Gross, E. R., Gross, G. J.
  2005; 42 (5-6): 211-218
- **Sarcolemmal K-ATP channel triggers delayed ischemic preconditioning in rats** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
  Patel, H. H., Gross, E. R., Peart, J. N., Hsu, A. K., Gross, G. J.
  2005; 288 (1): H445-H447
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