

# CRYSTAL M. (CORDES) KRAUSE

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## HOME ADDRESS

6435 S. 92<sup>nd</sup> St  
Omaha, NE 68127

## LABORATORY ADDRESS

University of Nebraska Medical Center  
Wittson Hall, 3030  
Omaha, NE 68198-6245

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## EDUCATION

### DOCTOR OF PHILOSOPHY–PHARMACOLOGY AND EXPERIMENTAL NEUROSCIENCE

University of Nebraska Medical Center July 2003-December 2008  
Omaha, NE

- Doctoral Dissertation – Nitrosylative and oxidative regulation of insulin-degrading enzyme

### BACHELOR OF ARTS – BIOLOGY

August 1999-May 2003

Dana College  
Blair, NE

- *Cum Laude* • *Morton Scholar Honors Graduate*

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## POST-DEGREE TRAINING

### ASSISTANT PROFESSOR

October 2019 – Present

Department of Surgery  
College of Medicine  
Center for Advanced Surgical Technology  
University of Nebraska Medical Center  
Omaha, NE 68198

### RESEARCHER

July 2014 – October 2019

Center for Advanced Surgical Technology  
University of Nebraska Medical Center  
Omaha, NE 68198

### CONSULTANT

July 2018 – August 2019

Virtual Incision Corporation  
2125 Transformation Drive  
Lincoln, NE, 68521

### POSTDOCTORAL ASSOCIATE

July 2011 – June 2014

Laboratory of Dr. John S. Davis  
Department of Obstetrics and Gynecology  
University of Nebraska Medical Center  
Omaha, NE 68198

### POSTDOCTORAL ASSOCIATE

October 2009 – June 2011

Laboratory of Dr. Mark Carlson  
Department of Surgery  
University of Nebraska Medical Center  
Omaha, NE 68198

**RESEARCH TECHNOLOGIST L3**

July 2009 – September 2009

Laboratory of Dr. Frederick G. Hamel  
Internal Medicine Department – Diabetes, Endocrinology, and Metabolism Section  
University of Nebraska Medical Center  
Omaha, NE 68198-8090

**PHARMACEUTICAL RESEARCH TRAINEE**

April 2009 – June 2009

Laboratory of Dr. Olivier Leupin  
Musculoskeletal Diseases Department  
Novartis Pharma AG  
CH-4056 Basel, Switzerland

**RESEARCH TECHNOLOGIST L3**

January 2009 – March 2009

Laboratory of Dr. Frederick G. Hamel  
Internal Medicine Department – Diabetes, Endocrinology, and Metabolism Section  
University of Nebraska Medical Center  
Omaha, NE 68198-8090

**PUBLICATIONS (ORCID ID: 0000-0001-9523-4798)**

- 1) Plewes M, Krause C, Talbot H, Przygodzka E, Wood J, Cupp A, Davis J. (2020) Trafficking of cholesterol from lipid droplets to mitochondria in bovine luteal cells: acute control of progesterone synthesis. *FASEB Journal*. DOI: 10.1096/fj.202000671R. 2020In Press
- 2) Rodrigues Armijo P, Krause C, Hosein S, Xu T, Shostrom V, Oleynikov D. (2020) Surgical and clinical outcomes comparison of mesh usage in laparoscopic hiatal hernia repair. *Surgical Endoscopy*. In Press.
- 3) Flores L, Krause C, Pokala B, Hosein S, Rodrigues Armijo P, Mishra T, Kothari S, Oleynikov D. (2019) Novel Therapies for gastroesophageal reflux disease. *Current Problems in Surgery*. 56(12): 100692. <https://doi.org/10.1016/j.cpsurg.2019.100692>.
- 4) Baxter J, Armijo P, Flores L, Krause C, Samreen S, Tanner T. (2019) Updates on Monogenic Obesity in a Multifactorial Disease. *Obesity Surgery*. In Press. MS#OBSU-D-19-00630R1
- 5) Hosein S, Krause C, Oleynikov D. (2019) Robotic Recurrent Hiatal Hernia Repair, Collis Gastroplasty, and Nissen Fundoplication. Video. *Videoscopy*. Accepted.
- 6) Chen R, Armijo PR, Krause C, Force SRT, Siu KC, Oleynikov D. (2019). A comprehensive review of robotic surgery curriculum and training for residents, fellows, and postgraduate surgical education. *Surgical Endoscopy*, 1-7.
- 7) Pokala B, Hennings D, Krause C, Oleynikov D. (2019) Robotic Re-do Adrenalectomy. *Videoscopy*. Published online 27 Mar 2019.
- 8) Pokala B, Pagkratis S, Armijo PR, Krause C, Crawford C, Simorov A, Oleynikov D. (2018). Laparoscopic Ladd's Procedure for Midgut Malrotation. *Videoscopy*. Published online 14 Dec.
- 9) Kindel TL, Krause C, Helm MC, McBride C, Oleynikov D, Thackeray, R, Alamoudi J, Kothari V, Alnouti Y, Kohli R. (2018) Increased glycine-amidated hyocholic acid correlates to improved early weight loss after sleeve gastrectomy. *Surgical Endoscopy*. 32(2):805-812.

- 10) Hall BR, Armijo PR, Krause C, Burnett T, Oleynikov D. (2018) Emergent cholecystectomy is superior to percutaneous cholecystostomy tube placement in critically ill patients with emergent calculous cholecystitis. *American Journal of Surgery*. 216(1):116-119.
- 11) Peters BS, Armijo PR, Krause C, Choudhury SA, Oleynikov D. (2018) Review of emerging surgical robotic technology. *Surgical Endoscopy*. 32(4):1636-1655.
- 12) Armijo PR, Pagkratis S, Krause C, Oleynikov D. (2017). Secrets for successful laparoscopic antireflux surgery: preoperative workup. *Annals of Laparoscopic and Endoscopic Surgery*, 2(4).
- 13) Lomelin D, Smith A, Bills N, Chiruvella A, Crawford C, Krause C, Bayer R, Oleynikov D. (2017) Long-term effectiveness of strattice in the laparoscopic closure of paraesophageal hernias. *Surgical Innovation*. 24(3):259-263.
- 14) Crawford C, Gibbens K, Lomelin D, Krause C, Simorov A, Oleynikov D. (2017) Sleeve gastrectomy and anti-reflux procedures. *Surgical Endoscopy*. 31(3):1012-1021.
- 15) Klingensmith M, Jolley J, Lomelin D, Krause C, Heiden J, Oleynikov D. (2016) Paraesophageal hernia repair in the emergency setting: Is laparoscopy with the addition of a fundoplication the new gold standard?. *Surgical Endoscopy*. 30(5):1790-1795.
- 16) Treinen C, Lomelin D, Krause C, Goede M, Oleynikov D. (2015) Acute acalculous cholecystitis in the critically ill: Risk factors and surgical strategies. *Langenbeck's Archives of Surgery*. 400(4):421-427.
- 17) Carlson MA, Calcaterra J, Johanning JM, Pipinos II, Cordes CM, Velander WH. (2014) A totally recombinant human fibrin sealant. *Journal of Surgical Research*. 187(1):334-342.
- 18) Carlson MA, Smith LM, Cordes CM, Chao J, Eudy JD. (2013) Attachment-regulated signaling networks in the fibroblast-populated 3D collagen matrix. *Scientific Reports*.
- 19) Wang C, Lv X, Jiang C, Cordes C, Fu L, Lele S, Davis J. (2012) Transforming growth factor alpha (TGF $\alpha$ ) regulates granulosa cell tumor (GCT) cell proliferation and migration through activation of multiple pathways. *PLoS ONE*. 7(11).
- 20) Cordes CM, Bennett RG, Siford GL, Hamel FG. (2011) Redox regulation of insulin degradation by insulin-degrading enzyme. *PLoS ONE*. 6(3).
- 21) Cordes CM, Bennett RG, Siford GL, Hamel FG. (2009) Nitric oxide inhibits insulin-degrading enzyme activity and function through S-nitrosylation. *Biochemical Pharmacology*. 77(6):1064-1073.

## **BOOK CHAPTERS**

- 1) Dolph E, Krause C, Oleynikov D. (2019). Future Robotic Systems: Microrobotics and Autonomous Robots. In *Robotic-Assisted Minimally Invasive Surgery* (pp. 329-335). Springer, Cham.
- 2) Rana G, Rodrigues Armijo P, Krause C, Oleynikov D. (2018) Paraesophageal Hernia. In D. Oleynikov and P.M. Fisichella (Eds.) *A Mastery Approach to Complex Esophageal Diseases* (pp. 89-101). Cham, Switzerland: Springer.
- 3) Chiruvella A, Crawford C, Krause C, Oleynikov D. (2017) Robotic heller myotomy. In *The SAGES Manual of Robotic Surgery*. Eds Patel A, Oleynikov D. Springer International Publishing, Cham, Switzerland. DOI: 10.1007/978-3-319-51362-1.
- 4) Krause C, Oleynikov D. (2016). Evolving Responsibility for SAGES-TAVAC. Stain, S. C., Pryor, A. D., & Shaddock, P. P. (Eds.). *The SAGES Manual Ethics of Surgical Innovation*. (pp. 229-238) Springer, Cham.

## **ABSTRACTS**

- 1) Rodrigues Armijo P, Krause C, Flores L, Tanner T, Keiser K, Cheng X, Williams T. (2020) University research experience in the medical curriculum: does it really matter? Presentation. Association of American Medical Colleges Annual Meeting. Washington, D.C.
- 2) Samreen S, Krause C, Oleynikov D. (2019) Robotic Heller Myotomy with Dor and Toupet Fundoplication. Video Abstract. Society of American Gastroenterology and Endoscopic Surgeons.
- 3) Flores L, Armijo PR, Xu T, Samreen S, Krause C, Tanner T. (2018) Maternal weight loss and trends in child BMI before and after maternal bariatric surgery. Digestive Disease Week. San Diego, CA.
- 4) Hennings D, Krause C, Oleynikov D. (2018) Robotic recurrent hiatal hernia repair, collis gastroplasty, and Nissen Fundoplication. ACS. Video Abstract. Boston, MA.
- 5) Buesing K, Krause C, Weber H, Terry B, Borden M. (2018) Oxygen Microbubbles Correct Acute Hypoxia in Rat Model of Inhalation Injury. Military Health Systems Research Symposium. Kissimmee, FL
- 6) Palmowski J, Krause C, Oleynikov D, Farritor S (2018) Prototype single-arm surgical robot with a compact, dexterous wrist. Poster. Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Emerging Technology Session, Seattle WA.
- 7) Otten M, Hennings D, Armijo P, Krause C, Oleynikov D. (2018) Esophageal length in patients with HH. Poster. Digestive Disease Week (DDW), Washington DC.
- 8) Armijo P, Krause C, Oleynikov D, Siu KC (2018) A national survey of disabilities of the Arm, Shoulder, and Hand between open, laparoscopic and robotic surgical approaches. Poster. Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), Seattle WA. .
- 9) Kindel T, Krause C, Helm M, Oleynikov D, Kothari D, Kohli R, Alnouti Y. (2017) Early weight loss after sleeve gastrectomy is significantly correlated to increased hydrochloric acid. Poster. Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), Houston TX.
- 10) Garay-Romero R, Pratap A, Krause C, Oleynikov D, Nelson C. (2017) Tool exchanger for modular robotic surgical tools. Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), Houston TX. Poster
- 11) Kindel T, Krause C, Helm M, Oleynikov D, Kothari D, Kohli R, Alnouti Y. (2017) Early weight loss after sleeve gastrectomy is significantly correlated to increased hydrochloric acid. Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), Houston TX. Poster
- 12) Lomelin D, Chiruvella A, Crawford C, Krause C, Oleynikov D. (2016) Collis Gastroplasty is over-used: prospective data base analysis and surgical outcomes review. Digestive Disease Week (DDW/SSAT), San Diego CA. Poster.
- 13) Talbot H, Krause C, Hou X, Zhang P, Rizzo W, Lagundzin D, Woods N, Davis J. (2016) Composition and regulation of lipid droplets in bovine corpora lutea. Gilbert S. Greenwald Symposium on Reproduction and Regenerative Medicine. Kansas City, MO. Poster.
- 14) Talbot H, Hou X, Krause C, Davis J. (2016) Composition and regulation of lipid droplets in bovine corpora lutea. Society for the Study of Reproduction. July 16-20, San Diego, CA
- 15) Lomelin D, Chiruvella A, Crawford C, Krause C, Oleynikov D. (2016) Collis Gastroplasty is over-used: prospective data base analysis and surgical outcomes review. Digestive Disease Week. May 21-24, San Diego CA.
- 16) Crawford C, Gibbens K, Krause C, Lomelin D, Oleynikov D (2016) Gastroesophageal reflux following sleeve gastrectomy: a meta-analysis. Poster; Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), Boston, MA
- 17) Morien M, Krause C, Hinrichs S, Zhu Q, Musick M. (2015) Early indicator model for pandemic influenza. National Chemical and Biological Defense Science and Technology Meeting. St Louis, MO

- 18) Hamel FG, Pipinos II, Swanson SA, Cordes CM, Siford GL, Bennett RG. Electron transport chain dysfunction in mitochondria from insulin-degrading enzyme knockout mice. The Endocrine Society's 91<sup>st</sup> Annual Meeting. Abstract. June 2009.
- 19) Cordes CM, Siford GL, Bennett RG, Hamel FG. The effect of glutathione on insulin-degrading enzyme activity. 68<sup>th</sup> Annual Meeting and Scientific Session of the American Diabetes Association, San Francisco, CA. Abstract. June 2008.
- 20) Cordes CM, Hamel FG. Amyloid- $\beta$  degradation by insulin-degrading enzyme is inhibited by nitric oxide. American Society for Biochemistry and Molecular Biology 2008 Annual Meeting. Abstract. April 2008.
- 21) Hamel FG, Siford GL, Cordes CM, Kharbanda KK. Effect of betaine administration on body composition and glucose metabolism in Goto-Kakizaki (GK) rats. The Endocrine Society's 90<sup>th</sup> Annual Meeting. Abstract. June 2008.
- 22) Cordes CM, Bennett RG, Hamel FG. Nitric oxide alters IDE-mediated regulation of proteasome activity, without affecting insulin degradation products. Midwest Student Biomedical Research Forum. Abstract. March 2007.
- 23) Cordes CM, Bennett RG, Hamel FG. Nitric oxide inhibits insulin-degrading enzyme (IDE) activity and alters IDE-mediated regulation of proteasome activity. The Endocrine Society's 88<sup>th</sup> Annual Meeting. Abstract. June 2006
- 24) Cordes CM, Bennett RG, Hamel FG. Nitric oxide inhibits insulin-degrading enzyme. 66<sup>th</sup> Annual Meeting and Scientific Session of the American Diabetes Association. Abstract. June 2006:(55) Supplement 1, A:561.
- 25) Cordes CM, Hamel FG. Nitric oxide as a molecular regulator of insulin-degrading enzyme. Midwest Student Biomedical Research Forum. Abstract. February 2006.
- 26) Hamel FG, Conner H, Cordes CM. Bradykinin is a substrate for insulin-degrading enzyme (IDE) and alters proteasome activity through IDE. Diabetes Abstract Book, 65<sup>th</sup> Scientific Sessions. Abstract. June 2005:(54) Supplement 1, 1983-P.

### **RESEARCH PRESENTATIONS**

- Military Health Systems Research Symposium. Kissimmee, FL. August 20-23. Invited Presentation.
- Rocky Mountain Reproductive Sciences Symposium. Fort Collins, CO. April 21, 2012. Invited Presentation
- Lipid Droplets: Metabolic Consequences of the Storage of Neutral Lipids. Snowmass, CO. July 22-27, 2012. Invited Presentation.
- Midwest Student Biomedical Research Forum — March 1, 2008. Presentation
- Veterans Affairs Medical Center Seminar Series — April 14, 2006. Presentation

### **COMMITTEE MEMBERSHIP**

- Subcommittee of Animal Studies Institutional Animal Care and Use Committee (IACUC), Veteran Affairs Medical Center — January 2005 to December 2007; January 2011 to December 2016.
- UNMC Graduate Student Association Member — August 2005 to December 2008
- American Diabetes Association Student Member — June 2006 to December 2008
- Endocrine Society Student Member — June 2006 to December 2008
- UNMC Student Senate, Student Representative—January 2004 to December 2005

### **COMMUNITY SERVICE**

- Bellevue University (Bellevue, NE) “Expanding Your Horizons in Math and Science” Conference for Young Women in grades 7 – 9. Workshop Coordinator/Presenter (2005-2008, 2010, 2013).
- University of Nebraska Peter Kiewit Institute Academy of Excellence, Workshop Coordinator/Presenter (2004).

### **HONORS and AWARDS**

- Outstanding Performance Stipend Recipient, University of Nebraska Medical Center (2018)
- ASBMB Graduate Travel Award Recipient (2008)
- Dana College Morton Scholar Graduate (2003)
- Dana College Cum Laude Graduate (2003)
- Dana College Outstanding First Year Biology Student (2000)
- Dean’s List, Dana College (Fall 1999 to Spring 2003)

### **MEETINGS**

- Military Health Systems Research Symposium. Kissimmee, FL. August 20-23, 2018.
- Lipid Droplets: Metabolic Consequences of the Storage of Neutral Lipids. Snowmass, CO. July 22-27, 2012.
- Rocky Mountain Reproductive Sciences Symposium. Fort Collins, CO. April 21, 2012.
- Gordon Research Conference, Signal Transduction in Engineered Extracellular Matrices. Biddeford, ME. June 27-July 2, 2010.
- Experimental Biology 2008. San Diego, CA. April 5-9, 2008
- American Diabetes Association 68<sup>th</sup> Scientific Sessions. San Francisco, CA. June 6-10, 2008.
- The Endocrine Society’s 88<sup>th</sup> Annual Meeting. Boston, MA. June 24-27, 2006.
- American Diabetes Association 66<sup>th</sup> Scientific Sessions. Washington, D.C. June 9-13, 2006.
- Minisymposium on Redox Biology. Lincoln, NE. September 30, 2005.
- PRIM&R ARENA Annual IACUC Conference. San Diego, CA. March 13-15, 2005.