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RESEARCH

PEER-REVIEWED PUBLICATIONS

66) Hondal RJ. (2023) What is the redox potential of ergothioneine? . Published Online:13 Jan 2023 <https://doi.org/10.1089/ars.2022.0192>

65) Hondal RJ. (2022) Flux versus poise: Measuring the dynamic cellular activity of the thioredoxin system with a redox probe. , 102376.

64) Ste.Marie EJ, Hondal RJ. (2022) Application of alpha-methyl selenocysteine as a tool for the study of selenoproteins. , 297-329. doi: 10.1016/bs.mie.2021.10.016

63) Jenny KA, Mose G, Haupt DJ, & Hondal RJ. (2022) Oxidized forms of ergothioneine are substrates for mammalian t

- 47)** Fredericks GJ, Hoffmann FW, **Hondal RJ**, Rozovsky S, Urschitz J, & Hoffmann PR. (2017) Selenoprotein K increases efficiency of DHHC6 catalyzed palmitoylation by stabilizing the acyl-DHHC6 intermediate. *J Biol Chem*, 292(12), 4473-4481. **PMCID:** PMC5789314
- 46)** Payne NC, Geissler A, Button A, Sasuclark AR, Schroll AL, Ruggles EL, Gladyshev VN & **Hondal RJ**. (2017) Comparison of the redox chemistry of sulfur and selenium-containing analogs of uracil. *J Biol Chem*, 292(12), 4473-4481. **PMCID:** PMC5328918
- 45)** Gladyshev VN, Arnér ES, Berry MJ, Brigelius-Flohé R, Bruford EA, Burk RF, Carlson BA, Castellano S, Chavatte L, Conrad M, Copeland PR, Diamond AM, Driscoll DM, Ferreira A, Flohé L, Green FR, Guigó R, Handy DE, Hatfield DL, Hesketh J, Hoffmann PR, Holmgren A, **Hondal RJ**, Howard MT, Huang K, Kim H-Y, Ick Young Köhrle KJ, Krol A, Kryukov GV, Lee BJ, Lee BC, Lei XG, Liu Q, Lescure A, Lobanov AL, Loscalzo J, Maiorino M, Mariotti M, K. Prabhu KS, Rayman MP, Rozovsky S, Salinas G, Schomburg L, Schweizer U, Simonovic M, Sunde RA, Tsuji PA, Tweedie S, Ursini F, & Zhang Y. (2016) Selenoprotein gene nomenclature. *Nucleic Acids Res*, 44(12), 24036-24040. **PMCID:** PMC5104929
- 44)** Ste.Marie E, Ruggles EL & **Hondal RJ**. (2016) Removal of the 5-nitro-2-pyridine-sulfonyl protecting group from selenocysteine and cysteine by ascorbolysis. *J Biol Chem*, 291(4), 1571-1578. **PMCID:** PMC4741111

28) Hondal RJ, & Ruggles EL (2011) Differing views of the role of selenium in thioredoxin reductase. , 73-89. PMID:

- 6) Hondal RJ , Zhao Z, Kravchuk AV, Liao H, Riddle SR, Bruzik KS, & Tsai M.-D. (1998) Mechanism of phosphatidylinositol-specific phospholipase C: A unified view of the mechanism of catalysis" *Biochemistry* 37, 4568-4580.
- 5) Hondal RJ, Riddle SR, Kravchuk AV, Zhao Z, Liao H, Bruzik KS, & Tsai M.-D. (1997) Phosphatidylinositol phospholipase C: Kinetic and stereochemical evidence for an interaction between arginine-69 and the phosphate group of phosphatidylinositol. *Biochemistry* 36, 6633-6642.
- 4) Hondal RJ, Bruzik KS, Zhao Z, & Tsai M.-D. (1997) Mechanism of Phosphatidylinositol-Phospholipase C. 2. Reversal of a Thio Effect by Site-Directed Mutagenesis. *J. Am. Chem. Soc.* 119, 5477-5478.
- 3) Hondal RJ , Zhao Z, Riddle SR, Kravchuk AV, Liao H, Bruzik KS, & Tsai. M.-D. (1997) Phosphatidylinositol-specific Phospholipase C. 3. Elucidation of the catalytic mechanism .*J. Am. Chem. Soc.* 119, 5477-5478.

INVITED LECTURES

- Hondal, R.J. . Cheating on Selenium. Gordon Research Conference: Thiol-Based Redox Regulation & Signaling. July 9-15, 2022, Barcelona, Spain.
- Hondal , R.J. The Chemical Advantage of Selenium in Enzymes and RNA. University of New Hampshire, Durham, NH. November 5th, 2019.
- Hondal, R.J. . Everything I learned about thiol/disulfide exchange, I learned from selenium (and Ron) Massachusetts Institute of Technology, Cambridge, MA. RTR-60 Symposium. July 27th, 2019.
- Hondal, R.J. . Selenium in enzymes and tRNA: Is there a common chemical connection? Yale University, New Haven, CT. November 16th, 2017.
- Hondal, R.J. . Why Nature uses Selenium in Enzymes and tRNA. Florida International University, Miami, Florida. October 20th, 2017.
- Hondal, R.J. . Selenium in enzymes and RNA: Is there a common chemical connection? SUNY Albany, Albany, NY. September 12th, 2017.
- Hondal , R.J. Selenium confers resistance to oxidative inactivation: Enzymes, model compounds, and molecular mechanisms. 10th International Peroxidase Meeting, August 29th – 31st, 2017. Breckenridge, Colorado.
- Hondal, R.J. . Selenium versus sulfur: reversibility of chemical reactions and resistance to permanent oxidation in proteins and nucleic acid. Se2017, The 11th International Symposium on Selenium in Biology and Medicine. Stockholm, Sweden. August 13-17, 2017.
- Hondal , R.J. d.ha,

•Hondal, RJ . Selenium in Thioredoxin Reductase: A Mechanistic Perspective. Department of Chemistry, University of Rochester, Rochester, NY. October 31st, 2008.

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- Joyce E, Wheeler M, Colon R, Rein KS, and Hondal RJ. *Karenia brevis* possesses a selenium-containing thioredoxin reductase capable of reducing oxidized glutathione and is inhibited by brevetoxin. The 12th International Symposium on Selenium in Biology and Medicine. Feb 2022, Honolulu, HI.
- Saunders LA, Ste.Marie E, and Hondal RJ. New Resin for Covalent Chromatography and Redox Proteomics: Selenosepharose. The 12th International Symposium on Selenium in Biology and Medicine. Feb 2022, Honolulu, HI.
- Jenny KA, Mose G, and Hondal RJ. A new substrate for mammalian thioredoxin reductase: oxidized forms of ergothioneine. The 12th International Symposium on Selenium in Biology and Medicine. Feb 2022, Honolulu, HI.
- Ste.Marie EJ, Wehrle R, Masterson DS, & Hondal RJ. Utilization of alpha-methyl selenocysteine as a glutathione peroxidase mimic. 26th American Peptide Society Symposium. Monterey, CA. June 22-27, 2019.
- Ste.Marie EJ & Hondal RJ. Pyridyl diselenide: A chemoselective tool for peptide synthesis. 26th American Peptide Society Symposium. Monterey, CA. June 22-27, 2019.
- Wehrle R, Hondal RJ, & Masterson, DS. Synthesis of enantioenriched (R)- Dmethylselenocysteine and its enantiomer. 2017 Southeast Regional Meeting of the American Chemical Society. Charlotte, NC. November 7-11, 2017.
- Payne NC, Barber DR, Ruggles EL, & Hondal RJ. The use of dimedone to study redox states of selenoproteins. Se2017, The 11th International Symposium on Selenium in Biology and Medicine. Stockholm, Sweden, August 13-17, 2017.
- St. Marie E, Ruggles EL, & Hondal RJ. Removal of benzyl groups from cysteine and selen R F \ V Q H V L Q • dithiobis-5-nitropyridine and ascorbolysis. 252nd American Chemical Society National Meeting & Exposition. August 21-25, 2016, Philadelphia, PA.
- Payne NC, Geissler A, Button A, Sasuclark AR, Schroll AL, Ruggles EL, & Hondal RJ. Why are sulfur and selenium in RNA? Investigations into the redox chemistry of 2-thiouracil and 2-selenouracil derivatives. Gordon Research Conference: Thiol-Based Redox Regulation & Signaling. August 7-12, 2016, Stowe, VT.
- Chandler JD, Hondal RJ, A

- Lothrop, AP, Hondal, RJ . Effect of D-Cysteine Insertion on the Catalysis of *Drosophila Melanogaster* Thioredoxin Reductase. 37th Northeast Regional Meeting of the American Chemical Society, Burlington, VT, United States, June 29-July 2 (2008), AN 2008:788407
- Flemer, S, Hondal, RJ. Native Chemical Ligation as An Important Tool in Protein Engineering. 37th Northeast Regional Meeting of the American Chemical Society, Burlington, VT, United States, June 29-July 2 (2008), AN 2008:788522
- Schroll, A, Hondal, RJ , Advances In 1) the Development of New Deprotection Chemistry for Cysteine and Selenocysteine Side Chain Protecting Groups and 2) the Synthesis of a New Selenocysteine Derivative That Have Applications In Peptide Synthesis. 37th Northeast Regional Meeting of the American Chemical Society, Burlington, VT, United States, June 29-July 2 (2008), AN 2008:788523
- Hondal, RJ , Fitzsimmons, CK, Comparison of Different Oxidation Methods for Forming Disulfide Bonds In Peptides. 37th Northeast Regional Meeting of the American Chemical Society, Burlington, VT, United States, June 29-July 2 (2008), AN 2008:788526
- Ruggles EL, & Hondal RJ . Viable con1 (ei)3.2 (ne S)F-8 (al511.277 0 Td (26)T)]TJ EM RJ Jul

- Abel, RL, Hondal, RJ , & Raines, RT. Active Site Variants of Ribonuclease A. ACS National Meeting, Chicago, IL. Aug. 26-30, (2001), AN2001:637192.
- Hondal, RJ , & Burk, R. F. Evidence for Thiol Redox States of Selenoprotein P. Annual Meeting of the American Society for Experimental Biology. San Francisco, CA. April 18-20, (1998), Abstract#3040, pg A523, FASEB Abstracts.
- Hondal, RJ , Kravchuk, AV, & Tsai, M.-D. Using Protein Engineering and Thio-PI Analogs to Probe the Mechanism of PI-PLC. ACS National Meeting, Las Vegas, Nevada. (1997), AN1997:485974.
- Liao, H., Hondal, RJ , & Tsai, M.-D. Site-directed mutagenesis studies of phosphatidylinositol-specific phospholipase C: the substrate binding residues. 17th International Congress of Biochemistry and Molecular Biology. Annual Meeting of the American Society for Biochemistry and Molecular Biology. San Francisco, CA. Aug. 24-29, (1997). Abstract #2628, pg A1307, FASEB Abstracts.

Ongoing Research Support

LCOM Internal Grant Program

Cunniff B and Hondal RJ, co-PIs

01/01/2023 – 12/31/2025

no salary

Improved version of Elamipretide with greatly enhanced antioxidant function

\$75,000

The goals of this p

BIOC 192 (3 credit)	Undergraduate research	Spring 2012
BIOC 205 (entire course)	Biochemistry for majors	Fall 2012
BIOC 191 (7 credits)	Undergraduate research	Fall 2012
CHEM 291 (1 credit)	Undergraduate research	Fall 2012
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BIOC 263 (43 hours)	Nutritional biochemistry	Spring 2021
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BIOC 263 (43 hours)	Nutritional biochemistry	Spring 2022
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