



Curriculum Vita
Aug 2022

Instructor: DongWon Choi, PhD

Academic Department: Biological & Environmental Sciences

University Address: Biological & Environmental Sciences
Keith D. McFarland Science Building (STC)
Texas A&M University-Commerce
PO Box 3011
Commerce, TX 75429-3011

Office Phone: 903-468-8153

University Email Address: DongWon.Choi@TAMUC.EDU

EDUCATION

Ph.D Microbiology
Iowa State University, 2007

M.S. Microbiology
Ball State University, 2000

B.E. Biotechnology
Taegu University, South Korea, 1997

ACADEMIC WORK EXPERIENCE

Sept. 2016 – present, Associate Professor, Department of Biological and Environmental Sciences, Texas A&M University-Commerce

Aug. 2010 – 2016, Assistant Professor, Department of Biological and Environmental Sciences, Texas A&M University-Commerce

Fall, 2007 – Aug. 2010, Post Doctoral Research Associate, Center for Sustainable Environmental Technologies (CSET), Iowa State University

2004 - 2007, Research Assistant, Department of Biochemistry, Biophysics, and Molecular Biology, Iowa State University

2000 –2004, Teaching Assistant, Department of Microbiology, Iowa State University
1999, Teaching Assistant, Department of Microbiology, Ball State University

PUBLICATIONS

Journal Publications

Choi, D.-W., R.C. Kunz, E.S. Boyd, J.D. Semrau, W.E. Antholine, J.-I. Han, J.A. Zahn, J.M. Boyd, A.M. de la Mora, and A.A. DiSpirito. 2003. The membrane-associated methane monooxygenase (pMMO) and pMMO-NADH:quinone oxidoreductase complex from *Methylococcus capsulatus* Bath. *J. Bacteriol.* 185: 5755 –5764.

Choi, D.-W., W. E. Antholine, Y.S. Do, Jeremy D. Semrau, C.J. Kisting, R.C. Kunz, D. Campbell, V. Rao, S.C. Hartsel, and A.A. DiSpirito. 2005. Effect of methanobactin on the activity and electron paramagnetic resonance spectra of the membrane associated methane monooxygenase on *Methylococcus capsulatus* Bath. *Microbiology* 151, 3417-3426.

Choi, D.-W., C.J. Zea, Y.S. Do, J.D. Semrau, W.E. Antholine, M.S. Hargrove, N.L. Pohl, E.S. Boyd, G. G. Geesey, S.C. Hartsel, P.H. Shafe, M.T. McEllistrem, C.J. Kisting, D. Campbell, V. Rao, A.M. de la Mora, and A.A. DiSpirito. 2006. Spectral, Kinetic, and thermodynamic properties of Cu(I) and Cu(II) binding by methanobactin from *Methylosinus trichosporium* OB3b. *Biochemistry* 45, 1442-1453.

Choi, D.-W., Y.S. Do, C.J. Zea, Marcus T. McEllistrem, S-W Lee, J.D. Semrau, N.L. Pohl, C.J. Kisting, L.L. Scardino, S.C. Hartsel, E.S. Boyd, G.G. Geesey, T.P. Riedel, P.H. Shafe, K.A. Karanski, J.R. Tritsch, W.E. Antholine, and A.A. DiSpirito. 2006. Spectral and thermodynamic properties of Ag(II), Au(III), Cd(II), Co(II), Fe(III), Hg(II), Mn(II), Ni(II), Pb(II), U(IV), and Zn(II) binding by methanobactin from *Methylosinus trichosporium* OB3b. *Journal of Inorganic Biochemistry* 100, 2150-2161.

Marlène Martinho, **Dong W. Choi**, Alan A. DiSpirito, William E. Antholine, Jeremy D. Semrau, and Eckard Münck. 2007. Mössbauer Studies of the Membrane-Associated Methane Monooxygenase from *Methylococcus capsulatus* Bath: Evidence for a Diiron Center. *J. Am. Chem. Soc.* 129, 15783-15785

Choi DW, Semrau JD, Antholine WE, Hartsel SC, Anderson RC, Carey JN, Dreis AM, Kenseth EM, Renstrom JM, Scardino LL, Van Gorden GS, Volkert AA, Wingad AD, Yanzer PJ, McEllistrem MT, de la Mora AM, Dispirito AA. 2008. Oxidase, superoxide dismutase, and hydrogen peroxide reductase activities of methanobactin from type I and II methanotrophs. *J. Inorgan. Biochem.* E-published.

Behling, L. A.; Hartsel, S. C.; Lewis, D. E.; DiSpirito, A. A.; **Choi, D. W.**; Masterson, L. R.; Veglia, G.; Gallagher, W. H. 2008. NMR, Mass Spectrometry and Chemical Evidence Reveal a Different Chemical Structure for Methanobactin That Contains Oxazolone Rings. *J. Am. Chem. Soc.* 130(38), 12604-12605.

Choi, D.W., Chipman, D., Bents, S. and Brown, R. 2010. A Techno-economic analysis of polyhydroxyalkanoate and hydrogen production from syngas fermentation of gasified biomass. *Appl. Biochem. Biotech.* 160(4), 1032-1046

Haiyang Zhu, Brent H. Shanks, **Dong W. Choi**, and Theodore J. Heindel. 2010. Effect of functionalized MCM41 nanoparticles on syngas fermentation. *Biomass & Bioenergy*. 34(11), 1624-1627

D.W. Choi, N. Bandow, M.T. McEllistrem, J.D. Semrau, W.E. Antholine, S.C. Hartsel, W. Gallagher, N.L. Pohl, C.J. Zea, J.A. Zahn, and DiSpirito, A.A. 2010. Spectral and Thermodynamic properties of methanobactin from gamma-proteobacterial methane oxidizing bacteria: A case for copper competition on a molecular level. *J. Inorgan. Biochem.* 104(12) 1240-1247

Karl H. Summer, Josef Lichtmannegger, Bernhard Michalke, Nathan Bandow, **Dong W. Choi**, Alan A. DiSpirito, 2011. The biogenic methanobactin is an effective chelator for copper in a rat model for Wilson disease. *J. Trace Elem. Med. Biol.* 25, 36-41 N. L. Bandow, W. H. Gallagher, L. Behling, D. W. Choi, J. D. Semrau, S. C. Hartsel, V. S. Gilles, A. A. DiSpirito, 2011, Isolation of methanobactin from the spent media of methane-oxidizing bacteria. *Methods Enzymol.* 495, 259-269

Layton DS, Ajjarapu A, **Choi D**, Jarboe LR, 2011. Engineering ethanologica *Escherichia coli* for levoglucosan utilization. *Biores Technol* 102, 8318-8322

Jarboe LR, Wen Z, **Choi D**, Brown RC, 2011, Hybrid thermochemical processing: fermentation of pyrolysis-derived bio-oil. *Appl. Microbiol Biotechnol.* 91, 1519-1523

9th out of 22 authors, 2012, Spectral and Copper Binding Properties of Methanobactin from the Facultative Methanotroph *Methylocystis* strain SB2. *J Inorg Chem.* 110, 72-82

DongWon Choi, Ramakrishna Sesham, Yuri Kim, Laurence A. Angel, 2013, Analysis of methanobactin from *Methylosinus trichosporium* OB3b via ion mobility mass spectrometry, *Eur J Mass Spectrom*, 18, 509-520.

Ramakrishna Sesham, **DongWon Choi**, Anupama Balaji, Sahithi Cheuku, Chiranjeevi Ravichetti, Aisha Alshahrani, Beheshbabu Nasani, and Laurence Angel, 2013, The pH dependent Cu(II) and Zn(II) binding behavior of an analog methanobactin peptide, *Eur J Mass Spectrom*, 19, 463-473

DongWon Choi, Aisha A. Alshahrani, Yshodharani Vytla, Manogna Deeconda, Victor Serna, Fobert Saenz and Laurence A. Angel, 2015, Redox activity and multiple copper (I) coordination of 2His-2Cys oligopeptides, *Mass Spectrom*, 50(2), 316-325

Book Chapters

DiSpirito, A.A., R.C. Kunz, **D.W. Choi**, and J.A. Zahn. 2004. Respiration in methanotrophs. In *Respiration in Archaea and Bacteria*. Vol. 16. Ch. 7. p. 141 - 169. D. Zannoni(ed.) Kluwer Scientific, The Netherlands.

D.W. Choi, A.A. DiSpirito, D. Chipman, and R.C. Brown. 2011. Hybrid Processing. In *Thermochemical Processing of Biomass into Fuels, Chemicals, and Power*. Ch 9. R.C.

Brown(ed.) John Wiley & Sons Ltd.

RESEARCH GRANTS AND AWARDS

Algae-cultivation and pyrolytic recovery. CoPI, Renewable Energy Project, Iowa Energy Center. FY11-13, \$272,320

Algae-cultivation and pyrolytic recovery, PI : Subcontract award, Renewable Energy Project, Iowa Energy Center, FY 11-13, \$75,000

Start-up fund, Biological and Environmental Sciences, Texas A&M University-Commerce, FY 11 – 2013, \$50,000

A road Towards Light Driven Bio-Hydrogen Production, PI, Faculty Research Enhancement Grant, TAMUC University Research & Creative Activities Advisory Committee, FY 11-12, \$18,000

Faculty Development Grant, TAMUC University Research & Creative Activities Advisory Committee, FY 2012, \$700

Acquisition of an inductively coupled plasma optical emission spectrophotometer to improve multi-disciplinary elemental research and education, CoPI, NSF equipment, FY 13-14

A novel photobioreactor for the elimination of dewatering process and enhanced biomass productivity, PI, Norman Hackerman Advanced Research Program, FY 13-15

Development of Improved Purification Method of Methanobactin from *Methylosinus trichosporium* OB3b, Faculty Research Enhancement Grant, TAMUC University Research & Creative Activities Advisory Committee, FY 13-14, \$10,348

MRI: Acquisition of a desktop scanning electron microscope (SEM) for research and education in STEM fields at a primarily undergraduate institution. Co-PI, National Science Foundation, 2022, \$144,300