



**Curriculum Vita  
Aug 2022**

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**Academic Department:** Biological & Environmental Sciences

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**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.

<b>RESEARCH GRANTS AND AWARDS</b>
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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