

CURRICULUM VITAE

NAME: ZHANG, WEIWEN

POSITION: Principle Investigator - Senior Research Scientist II (Level 4)

AFFILIATION: Microbiology Department
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TECHNICAL EXPERTISES

Systems biology
Microbial physiology, genetics and molecular biology
Genomics, proteomics and metabolomics of microorganisms
Secondary metabolism of Actinomycetes and filamentous fungi

EDUCATION and RESEARCH BACKGROUND

Oct. 2002 – Present	Principle Investigator (Senior Research Scientist II) of Microbial Genomics Pacific Northwest National Laboratory U.S. Department of Energy, Washington (U.S.A.)
Jan. 2001- Oct. 2002	Staff Research Scientist of Microbial Genomics Paradigm Genetics, Inc., North Carolina (U.S.A.)
Jan. 1999- Dec. 2000	Postdoctoral research fellow of Molecular Microbiology Institute of Structural Biology and Drug Discovery School of Pharmacy, Medical College of Virginia (U.S.A.)
May 1996-Dec. 1998	Postdoctoral research fellow of Molecular Microbiology Institute of Organic Chemistry University of Zurich-IRCHEL, Zurich (Switzerland)
Aug. 1991-Jan. 1996	Ph.D. of Molecular Microbiology and Biochemistry Chinese Academy of Sciences, Shanghai (P.R.China)
Aug. 1988-July 1991	M.S. of Microbiology, Yunnan University, Kunming (P.R.China)
Aug. 1984-July 1988	B.S. of Microbiology, Yunnan University, Kunming (P.R.China)

RESEARCH EXPERIENCES

Oct. 2002- Present **Principal Investigator and Senior Research Scientist II**
affiliated with the Biomolecular Network Initiative (BSI) and
the Pathogen Biology Initiative (PBI) in
Pacific Northwest National Laboratory of US Department of Energy

Research Activities:

- 1) Whole genome proteomics and transcriptional profiling of microbial syntrophic systems of *Desulfovibrio vulgaris* and *Methanosarcina barkeri*

- 2) *In Situ* spatial analysis of expression in bioreactor granule microbial communities
- 3) Development of codon-based computational approach to predict gene expression level in various microorganisms
- 4) Comparative genomic analysis of signal transduction systems in various microorganisms
- 5) Development of statistical methods for integration and analysis of transcriptomic and proteomic data (Collaborated with Prof. Lei Nie of Department of Biostatistics, Biomathematics, and Bioinformatics at Georgetown University)
- 6) Analysis of protein Interactomes of mice-*Salmonella* interaction

Jan. 2001- Oct. 2002 **Staff Research Scientist**, Project leader,
Principal Investigator of NIH grant, Paradigm Genetics, Inc. (Name changed to Icoria Inc. in 2004)

Research Activities:

- 1) Engineering biosynthesis of anti-tumor polyketide brefeldin A from *Eupenicillium brefeldianum* (Principal Investigator, grant supported by National Cancer Institute of NIH)
- 2) Genomic and metabolomic analyses to understand the metabolic pathways in yeast
- 3) Metabolomic analysis of lysine biosynthesis in *Corynebacterium glutamicum*
- 4) Metabolic pathway analyses for target selection for human antifungal drug and fungicide programs

Jan.1999- Dec. 2000: **Postdoctoral Research Fellow** in Molecular Microbiology
Supervisor: Professor Ph.D. Kevin A.Reynolds (Medical College of Virginia)

Research Activities:

- 1) Cloning, sequencing and gene disruption of *meaA* gene, a novel CoB₁₂ dependent mutase involving in the polyketide methylmalonyl-CoA precursor formation in *Streptomyces cinnamomensis*
- 2) Cloning and characterization of a novel transcriptional repressor gene *butR* that controls the expression of crontonyl-CoA reductase activity in *Streptomyces cinnamomensis*

May 1996-Dec. 1998: **Postdoctoral Research Fellow** in Molecular Microbiology
Supervisor: Professor Ph.D. John A.Robinson (University of Zurich-IRCHEL)

Research Activities:

- 1) Molecular cloning, sequencing and functional analysing of four cytochrome P450 genes in vancomycin biosynthetic cluster from *Amycolatopsis orientalis*
- 2) Cloning a cDNA encoding glonthamin synthase, a novel C-C coupling cytochrome P450 gene from plant *Narcissus* spp.

Aug. 1991-Jan. 1996: **Ph.D. candidate** in Molecular Microbiology and Biochemistry
Shanghai Institute of Plant Physiology and Ecology, Chinese Academy of Sciences

Supervisor: Professors Ph.D. Weihong Jiang and Juishen Chiao (Retired)

Ph.D. Thesis: Biochemical and Molecular Genetic Studies of the Methylmalonyl-CoA Biosynthesis and Aspartate Pathways in Rifamycin SV-producing *Amycolatopsis mediterranei*

Research Activities:

- 1) Localization, purification and characterisation of methylmalonyl-CoA mutase, racemase and transcarboxylase from *A.mediterranei* U32
- 2) Metabolic analysis of methylmalonyl-CoA formation pathways in *A. mediterranei* U32
- 3) Cloning, sequencing and over-expression of methylmalonyl-CoA mutase gene
- 4) Sequencing, characterisation and expression of a novel serine/threonine protein kinase from *A. mediterranei* U32
- 5) Sequencing and expression of aspartokinase and aspartate semialdehyde dehydrogenase operon located upstream of methylmalonyl-CoA mutase
- 6) Expression, purification and kinetic analysing of aspartokinase and aspartate semialdehyde dehydrogenase of *A. mediterranei* in *E. coli*
- 7) Molecular and biochemical characterization of a few two-component signal transduction systems from *A. mediterranei* U32

Aug. 1988-July, 1991: **M.S. candidate** in Microbiology, Yunnan University
Supervisor: Professor Zhang Shuo (Retired)

M.S. Thesis: Microbial Degradation of Detergent Linear Alkylbenzene Sulfonate (LAS)

Research Activities:

- 1) Isolation of bacteria and fungi biodegrading LAS from natural environments
- 2) Identification and classification of bacteria and fungi
- 3) Immobilised cell and enzyme for bioremediation of LAS

RECENT GRANT FUNDING

4) **Principal Investigator:** “*Secretion systems and their roles in bacterial virulence process in Salmonella*”. Awarded (October 2005-September 2008) **\$480,000** for three years, Grant supported by National Laboratory Directed Research and Development (LDRD) Program of U.S. Department of Energy (DOE).

3) **Principal Investigator:** “*Deciphering Two-Component Signal Network in Desulfovibrio vulgaris*”. Awarded (October 2005-September 2008) **\$600,000** for three years, Grant supported by National Laboratory Directed Research and Development (LDRD) Program of U.S. Department of Energy (DOE).

2) **Principal Investigator:** “*Transcriptional Profiling of Microbial Syntrophic Systems*”, Awarded (October 2003-September 2005) **\$630,000** for two years, Grant supported by National Laboratory Directed Research and Development (LDRD) Program of U.S. Department of Energy (DOE).

1) **Principal Investigator:** “*Engineering Biosynthesis of Brefeldin A and Its Analogs*”. Awarded in September 2002 (Grant Number: 1R43CA097822-01), **\$850,000** for three and half years, Grant supported by Small Business Innovation Research Program (SBIR) of National Cancer Institute (NCI) of National Institute of Health (NIH). Grant terminated because I (as PI) changed job from industry to government research lab.

PEER-REVIEWED PUBLICATIONS

(* As corresponding author)

Manuscripts in preparation:

45) Johannes C. Scholten, David E. Culley, **Weiwen Zhang**, and Fred J. Brockman. 2006. Integrated transcriptomic and proteomic analysis of syntrophic system of *Desulfovibrio vulgaris* and *Methanosarcina barkeri*. In preparation

44) S. W. Li, N. Kapadia, A. Rao, D. W. Kennedy, A. E. Plymale, J. K. Fredrickson, **Weiwen Zhang**, M. F. Romine, P. M. Richardson, and F. J. Brockman. 2006, Identification of microbes in enrichments from an highly radioactive and contaminated subsurface environment, *Applied and Environmental Microbiology*, In preparation

43) William P. Kovacik Jr., Johannes C. Scholten, **Weiwen Zhang**, David E. Culley, Robert Hickey, and Fred J. Brockman. 2006, Changes in 16S rRNA and functional gene diversity in USAB bioreactor granules in response to a shift from complex to simple substrate feed, *Applied and Environmental Microbiology*, In preparation

Manuscripts submitted:

42) Jeffrey R. Shuster, David L. Needham, Marie Coffin, Mary Trounstone, and **Weiwen Zhang**. 2006. A Comparison of Cy3-Cy5 Dye-swap and single channel analysis in DNA microarrays. *BMC Genomics*, Submitted

- 41) **Weiwen Zhang ***, Fred J. Brockman. 2006. Hypothetical proteins responsive to oxidative stress and heat shock in *Desulfovibrio vulgaris*: functional inference by phylogenomic profiling and structural analysis. *Current Microbiology*, Submitted (PNNL Information Release Number: [PNNL-SA-45667](#))
- 40) Gang Wu, Lei Nie, **Weiwen Zhang**. 2006. Codon adaptation index (CAI) indicative of gene expression in *Desulfovibrio vulgaris*: top expressed genes from different growth conditions as references. *Antonie van Leeuwenhoek*, Submitted (PNNL Information Release Number: [PNNL-SA-46204](#))
- 39) Lei Nie, Gang Wu, Fred J Brockman and **Weiwen Zhang ***, 2006. A Zero-inflated Poisson regression model to integrate and interpret microarray and proteomic data. *Bioinformatics*, Submitted. (PNNL Information Release Number: [PNNL-SA-45108](#))
- 38) **Weiwen Zhang ***, Marina A. Gritsenko, Ronald J. Moore, David E. Culley, Lei Nie, Konstantinos Petritis, Eric F. Strittmatter, David G. Camp II, Richard D. Smith, Fred J. Brockman, 2006, Proteomic view of the cellular metabolism in *Desulfovibrio vulgaris* determined by liquid chromatography coupled with tandem mass spectrometry. *Microbiology*, Submitted (PNNL Information Release Number: [PNNL-SA-45506](#))
- 37) **Weiwen Zhang ***, DE Culley, FJ Brockman. 2005. Global Transcriptomic Analysis of *Methanosarcina barkeri* in Response to Oxidative Stress and Heat Shock Treatments. *Archives of Microbiology*, In press (PNNL Information Release Number: [PNNL-SA-45291](#))
- Papers published or in press:
- 36) Gang Wu, Lei Nie, **Weiwen Zhang ***. 2006, Relation between mRNA expression and sequence information in *Desulfovibrio vulgaris*: Combinatorial contributions of upstream motifs and coding sequences to the variation in mRNA abundance. *BMC Genomics*, In press (PNNL Information Release Number: [PNNL-SA-46106](#))
- 35) Gang Wu, Lei Nie, **Weiwen Zhang ***. 2006, Predicted highly expressed genes in *Nocardia farcinica* and the implication to its primary metabolism and nocardial virulence. *Antonie van Leeuwenhoek*, In press (PNNL Information Release Number: [PNNL-SA-46296](#))
- 34) **Weiwen Zhang ***, David E. Culley, Mike Hogan, Luigi Vitiritti, Fred J. Brockman. 2005. Global transcriptomic analysis of *Desulfovibrio vulgaris* (II): responses to oxidative stress and heat-shock. *Microbiology*, In press (PNNL Information Release Number: [PNNL-SA-45443](#))
- 33) **Weiwen Zhang ***, David E. Culley, Johannes C. Scholten, Mike Hogan, Luigi Vitiritti, Fred J. Brockman. 2005. Global transcriptomic analysis of *Desulfovibrio vulgaris* (I): metabolism on different electron donors, *Microbiology*, In press (PNNL Information Release Number: [PNNL-SA-45424](#))
- 32) David E. Culley, William P. Kovacic, Fred J. Brockman, and **Weiwen Zhang**, 2005. Evaluation and optimization of RNA isolation from *Methanosarcina barkeri* for oligonucleotide microarray analysis, *Journal of Microbiological Methods*, In press (PNNL Information Release Number: [PNNL-SA-46167](#))
- 31) **Weiwen Zhang ***, David E. Culley, Fred J. Brockman. 2005. Two-component signal transduction systems of *Desulfovibrio vulgaris*: structural and phylogenetic analysis and deduction of cognate pairs. *Journal of Molecular Evolution*, In press (PNNL Information Release Number: [PNNL-SA-43367](#))
- 30) Gang Wu, David E. Culley, **Weiwen Zhang ***. 2005. Predicted highly expressed genes in two *Streptomyces* genomes and the implications for primary and secondary metabolisms. *Microbiology*, 151(7): 2175-2187

- 29) **Weiwen Zhang** * and Liang Shi. 2005. Distribution and evolution of multiple-step phosphorelay in prokaryotes: lateral domain recruitment involved in the formation of hybrid-type histidine kinases. *Microbiology*, 151(7): 2159-2173
- 28) **Weiwen Zhang** * and Liang Shi, 2004, Evolution of Mg (II) or Mn (II)-dependent protein phosphatases in *Streptomyces*: early diverge of the catalytic domains and lateral recruitment of additional sensory domains, *Microbiology*, 150(12): 4189-4197
- 27) Liang Shi and **Weiwen Zhang**. 2004. Comparative analysis of eukaryotic-type protein phosphatases in two *Streptomyces* genomes, *Microbiology*, 150(7): 2247-2256
- 26) **Weiwen Zhang** *#, David L. Needham, Marie Coffin, April Rooker, Patrick Hurban, Matt M. Tanzer, Jeffrey R. Shuster, 2003. Microarray analyses of the metabolic responses of *Saccharomyces cerevisiae* to organic solvent dimethyl sulphoxide (DMSO), *Journal of Industrial Microbiology and Biotechnology*, 30(1): 57-69
The results of this paper were highlighted under the title "Yeast of burden" by R.C. Willis, published as News in Brief in *Modern Drug Discovery* 4:11 (2003)
- 25) **Weiwen Zhang**. (2003) Molecular regulation of secondary metabolism in *Actinomycetes*, in: Z.H. Liu and C.L. Jiang (Ed.), "Modern Molecular Biology and Biotechnology of Actinomycetes", Science Press of China, Beijing, pp118-160 (Invited Book Chapter)
- 24) Katja Zerbe, Olena Pylypenko, Francesca Vitali, **Weiwen Zhang**, Severine Rousett, Marcus Heck, Jan W. Vrijbloed, Daniel Bischoff, Roderich D. Süssmuth, Wolfgang Wohlleben, John A. Robinson, Ilme Schlichting. 2002. Crystal structure of OxyB, a cytochrome P450 implicated in an oxidative phenol coupling reaction during vancomycin biosynthesis, *Journal of Biological Chemistry*, 277(49): 47476-47485
- 23) Weiwu Wang, **Weiwen Zhang**, Hui Chen, Juishen Chiao, Guoping Zhao, Weihong Jiang, 2002, Molecular and biochemical characterization of a novel two-component signal transduction system *amrA-amkA* involved in the secondary metabolism in rifamycin SV-producing *Amycolatopsis mediterranei* U32, *Archives of Microbiology*, 178(5): 376-386
- 22) Weiwu Wang, **Weiwen Zhang**, Jin Gao, Juishen Chiao, Guoping Zhao, Weihong Jiang, 2002, MoeA, an enzyme in molybdopterin synthesis pathway, is required for the rifamycin SV production in *Amycolatopsis mediterranei* U32, *Applied Microbiology and Biotechnology*, 60(1-2): 139-146
- 21) Yufeng Yao, **Weiwen Zhang**, Juishen Chiao, Weihong Jiang and Guoping Zhao, 2002, Efficient isolation of total RNA from antibiotic-producing bacterium *Amycolatopsis mediterranei*, *Journal of Microbiological Methods*, 51(2): 191-195
- 20) T.A.Cropp, Shuo Chen, Haibin Liu, **Weiwen Zhang**, Kevin A.Reynolds, 2001, Genetic approaches for controlling ratios of related polyketide products in fermentation processes. *Journal of Industrial Microbiology & Biotechnology*, 27(6): 368-377
- 19) Ling Yang #, **Weiwen Zhang** #, Juishen Chiao, Guoping Zhao, Weihong Jiang, 2001, An eukaryotic-like serine/threonine protein kinase involved in the carbon-dependent pigment formation in rifamycin SV producing *Amycolatopsis mediterranei* U32. *Biochemical Biophysical Research Communications*, 284(2): 357-362 (# Two authors contributed equally to the paper)
- 18) **Weiwen Zhang** and Kevin A.Reynolds, 2001, MeaA, a putative B₁₂ dependent mutase, provides methylmalonyl-CoA for monensin A production in *Streptomyces cinnamonensis*, *Journal of Bacteriology*, 183(6): 2071-2080

- 17) **Weiwen Zhang**, Lei Li, Weihong Jiang, Guoping Zhao, Yunliu Yang, Juishen Chiao, 2000, A novel transmembrane serine/threonine protein kinase from a rifamycin SV-producing *Amycolatopsis mediterranei* U32, *European Journal of Biochemistry*, 267(12): 3744-3752
- 16) **Weiwen Zhang**, Weihong Jiang, Guoping Zhao, Yunliu Yang, Juishen Chiao, 2000, Expression, purification and kinetic analysing of aspartokinase and asparate semialdehyde dehydrogenase of *Amycolatopsis mediterranei* in *Escherichia coli*, *Applied Microbiology and Biotechnology*, 54(1): 52-58
- 15) **Weiwen Zhang**, Weihong Jiang, Guoping Zhao, Yunliu Yang, Juishen Chiao, 1999, Sequence analysis and expression of aspartokinase and asparate semialdehyde dehydrogenase operon from rifamycin SV-producing *Amycolatopsis mediterranei* U32, *Gene*, 237: 413-419
- 14) **Weiwen Zhang**, Ling Yang, Weihong Jiang, Guoping Zhao, Yunliu Yang, Juishen Chiao, 1999, Molecular analysis and heterologous expression of the gene encoding methylmalonyl-CoA mutase from a rifamycin SV-producing *Amycolatopsis mediterranei* U32, *Applied Biochemistry and Biotechnology*, 82: 209-225
- 13) **Weiwen Zhang**, 1997, Molecular genetics of secondary metabolite biosynthesis in Actinomycetes, *Chinese Journal of Antibiotics*, 18 (3):161-170 (Review)
- 12) **Weiwen Zhang** and Juishen Chiao, 1996, Purification, localisation and characterisation of methylmalonyl-CoA mutase and racemase from rifamycin-producing *Amycolatopsis mediterranei* U32, *Chinese Journal of Microbiology*, 36(3): 199-206
- 11) **Weiwen Zhang** and Juishen Chiao, 1996, The regulation of methylmalonyl-CoA formation pathways in an rifamycin-SV producing *Amycolatopsis mediterranei* U32, *Chinese Journal of Microbiology*, 36(4): 276-284
- 10) **Weiwen Zhang** and Juishen Chiao, 1996, Purification, localisation and characterisation of methylmalonyl-CoA transcarboxylase from rifamycin SV-producing *Amycolatopsis mediterranei* U32, *Chinese Journal of Biochemistry*, 12(2): 176-181
- 9) **Weiwen Zhang** and Juishen Chiao, 1996, The regulation of rifamycin SV biosynthesis by propionate in *Amycolatopsis mediterranei* U32, *Chinese Journal of Antibiotics*, 20(4): 268-274
- 8) **Weiwen Zhang** and Zhang Shuo, 1996, Ecological study on the flora of the filamentous fungi in the hot-dry river valley of Yunnan, China, *Journal of Yunnan University Natural Sciences*, 18(2):180-188
- 7) **Weiwen Zhang**, 1995, Calmodulin-like proteins in prokaryotic cell. *Progress in Biochemistry and Biophysics*, 22(2):98-102 (Review)
- 6) **Weiwen Zhang** and Zhang Shuo, 1994, Induced formation of LAS degrading enzymes in *Plesiomonas* sp., *Chinese Journal of Industrial Microbiology*, 9(6): 6-12
- 5) **Weiwen Zhang** and Zhang Shuo, 1993, *Lux* gene and its application in monitoring environmental contamination, *Chinese Environmental Sciences Research*, 6(3): 42-47
- 4) **Weiwen Zhang** and Zhang Shuo, 1993, Degradation of high concentration of LAS by immobilised *Plesiomonas* sp. *Journal of Yunnan University Natural Sciences*, 15(2): 157-163
- 3) **Weiwen Zhang** and Zhang Shuo, 1992, Isolation, identification and characterization of LAS-degrading fungi, *Chinese Journal of Microbiology*, 19(3): 146-152
- 2) **Weiwen Zhang** and Zhang Shuo, 1992, Ecological study of bacteria and fungi in the soil contaminated by detergent LAS, *Environmental Pollution & Control*, 14(3): 2-8

1) **Weiwen Zhang** and Zhang Shuo, 1991, Isolation of bacteria biodegrading LAS and the study on their catabolic plasmids, *Environmental Sciences & technology*, 8(3): 2-6

PATENTS

Eight U.S. patent applications pending:

8) Inventors: **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Woessner, Jeffrey; Hurban, Patrick; Hamilton, Carol; Coffin, Marie; Allen, Keith; Lawrence, Matthew; Hoffman, Neil; Liddell, Craig; Beecher, Chris; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (I), U.S. Patent Application Publication Serial No. 20040024543. Online published on Feb 5-2004.

7) Inventors: Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Woessner, Jeffrey; Hurban, Patrick; Hamilton, Carol; Coffin, Marie; Allen, Keith; Beecher, Chris; Hoffman, Neil; Liddell, Craig; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (II), U.S. Patent Application Publication Serial No. 20040024293. Online published on Feb 5-2004.

6) Inventors: Allen, Keith; Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Woessner, Jeffrey; Hurban, Patrick; Hamilton, Carol; Coffin, Marie; Liddell, Craig; Beecher, Chris; Hoffman, Neil; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (III), U.S. Patent Application Publication Serial No. 20040023295. Online published on Feb 5-2004.

5) Inventors: Coffin, Marie; Allen, Keith; Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Woessner, Jeffrey; Hurban, Patrick; Hamilton, Carol; Hoffman, Neil; Liddell, Craig; Beecher, Chris; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (IV), U.S. Patent Application Publication Serial No. 20040019430. Online published on Feb 5-2004.

4) Inventors: Hamilton, Carol; Coffin, Marie; Allen, Keith; Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Woessner, Jeffrey; Hurban, Patrick; Hoffman, Neil; Liddell, Craig; Beecher, Chris; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (V), U.S. Patent Application Publication Serial No. 20040019429. Online published on Feb 5-2004.

3) Inventors: Hurban, Patrick; Hamilton, Carol; Coffin, Marie; Allen, Keith; Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Woessner, Jeffrey; Beecher, Chris; Hoffman, Neil; Liddell, Craig; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (VI), U.S. Patent Application Publication Serial No. 20040018501. Online published on Feb 5-2004.

2) Inventors: Woessner, Jeffrey; Hurban, Patrick; Hamilton, Carol; Coffin, Marie; Allen, Keith; Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Hoffman, Neil; Liddell, Craig; Beecher, Chris; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (VII), U.S. Patent Application Publication Serial No. 20040002842. Online published on Feb 5-2004.

1) Inventors: Hamilton, Carol; Woessner, Jeffrey; Hurban, Patrick; Coffin, Marie; Allen, Keith; Lawrence, Matthew; **Zhang, Weiwen**; Shuster, Jeffrey; Davis, Keith; Boyes, Douglas; Hoffman, Neil; Liddell, Craig; Beecher, Chris; (Paradigm Genetics, Inc., Research Triangle Park, North Carolina 27502), "Methods and Systems for Analyzing Complex Biological Systems" (VIII), U.S. Patent Application Publication Serial No. 20030229451. Online published on Feb 5-2004.

SCIENTIFIC CONFERENCE POSTER PRESENTATION

- 14) Maltsev NN, T Bompada, B Gopalan, SW Li, **Weiwen Zhang**, CJ Detter, P Richardson, MF Romine, and FJ Brockman. 2005. "Metagenome Analysis of Contaminated Sediments at the DOE Hanford Site." **Genomes To Life (GTL) Principal Investigators (PI) Annual Meeting**, Washington DC, February 7-9, 2005
- 13) **Weiwen Zhang**, David E. Culley, Konstantinos Petritis, Marina A. Gritsenko, David G. Camp, Richard D. Smith, Fred J. Brockman. 2005. "Comparative proteome analysis of *Desulfovibrio vulgaris* grown under different carbon sources". **ASM 105th General Meeting**, Atlanta, GA, June 5-10, 2005
- 12) David Culley, **Weiwen Zhang**, William Kovacik and Fred Brockman. 2005. "The Effect of RNA Isolation Procedures on the Reproducibility of *Methanosarcina barkeri* Microarray Data". **ASM 105th General Meeting**, Atlanta, GA, June 5-10, 2005
- 11) **Weiwen Zhang**, David E. Culley, Johannes C. M. Scholten, Mike Hogan, Luigi Vitiritti, Fred J. Brockman. 2005. "Global Transcript Expression in *Desulfovibrio vulgaris* Grown on Different Carbon Sources". **ASM 105th General Meeting**, Atlanta, GA, June 5-10, 2005
- 10) Kovacik WP, Jr, DE Culley, **W Zhang**, H Scholten, R Bogden, K Stormo, Q Tao, and FJ Brockman. 2005. "Total Community Sequencing of BAC clones generated from methanogenic UASB Reactor Biogranules." **ASM 105th General Meeting**, Atlanta, GA, June 5-10, 2005
- 9) Scholten H, **Weiwen Zhang**, D.E. Culley, R. Hickey, F.J. Brockman, and B.P. Kovacik. "Changes in the Structure and Diversity of the Microbial Community in UASB Bioreactor Granules in Response to Shifts in reactor Feed." **ASM 104th General Meeting**, New Orleans, Louisiana, May 23-27, 2004
- 8) **Weiwen Zhang**, D.E. Culley, C. Workman, T. Ideker, D. Camp, R.D. Smith, F. J. Brockman. "Whole Genome Transcriptomic and Proteomics Analysis of *Desulfovibrio vulgaris* and *Methanosarcina barkeri* and their Syntrophic Relationship". **ASM 104th General Meeting**, New Orleans, Louisiana, May 23-27, 2004
- 7) S. W. Li, N. Kapadia, A. Rao, D. W. Kennedy, A. E. Plymale, J. K. Fredrickson, **Weiwen Zhang**, M. F. Romine, P. M. Richardson, and F. J. Brockman. "Identification of Microbes in Enrichments From an Highly Radioactive and Contaminated Subsurface Environment". **ASM 104th General Meeting**, New Orleans, Louisiana, May 23-27, 2004
- 6) William P. Kovacik Jr., **Weiwen Zhang**, David E. Culley, Robert Hickey, and Fred J. Brockman. "Genetic diversity in UASB Bioreactor Granules in Response to Substrate Shifts". **ASM Conference on Biofilms 2003**, Victoria, British Columbia, Canada, November 1-6, 2003
- 5) William P. Kovacik Jr., **Weiwen Zhang**, David E. Culley, Robert Hickey, and Fred J. Brockman. "Changes in 16S rRNA and functional gene diversity in USAB bioreactor granules in response to a shift from complex to simple substrate feed". **ASM Northwest Branch 2003 Annual Meeting**, Vancouver, British Columbia, Canada, August 8-10, 2003
- 4) Liddell, C., Chilvers, D., Arnold, D., Beecher, C., Croft, D., Johnson, J., McBride-Simonds, M., Minch, E., Shuster, J., Slater, T. and **Weiwen Zhang**. "A Software system for modeling the metabolic effects of *in vivo* genetic manipulations". **Cambridge Healthtech Institute's Premier Conference on Metabolic Profiling**, Chapel Hill, NC, December 3-4, 2001
- 3) **Weiwen Zhang**, Haibin Liu, and K.A.Reynolds, "Regulation of Crotonyl-CoA reductase and monensin A/B ratio in *Streptomyces cinnamomensis*". **Genetics & Molecular Biology of Industrial Microorganisms by Society of Industrial microbiology of American (GMBIM 2000)**, Indiana University, Bloomington, IN, October 15-19, 2000

2) **Weiwen Zhang** and K.A.Reynolds, "MeaA, a putative B₁₂ dependent mutase, provides methylmalonyl-CoA for monensin A production in *Streptomyces cinnamonensis*". 2001 *Annual Meeting of Society of Industrial Microbiology of American*, San Diego, California, July 23-27, 2000

1) **Weiwen Zhang** and Juishen Chiao, "Purification, localisation and characterisation of methylmalonyl-CoA mutase and racemase from rifamycin-producing *Amycolatopsis mediterranei* U32". *9th International Symposium on the Biology of the Actinomycetes*, Moscow, July, 1994

ACADEMIC AND SCIENTIFIC MEMBERSHIP

Member of American Society of Microbiology (ASM)
Member of Society of Industrial Microbiology of American (SIM)
Member of American Chemical Society (ACS)

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Dr. Liang Shi, Microbiology Department, Pacific Northwest National Laboratory, US Department of Energy, P. O. Box 999, Mail Stop P7-50, Richland, WA 99352, USA

REFERENCES

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