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a. Education and Training

B.S. Tunghai University, Taiwan, 1988
M.A., Washington University, St. Louis, MO, USA, 1994
Ph.D., Washington University, St. Louis, MO, USA, 1997
Postdoctoral, University of Minnesota, Minneapolis, MN, USA, 1999

b. Positions and Honors

Positions and Employment:

2006-present Associate Professor, Department of Chemistry and Biochemistry, Utah State University, UT
2000-2006 Assistant Professor, Department of Chemistry and Biochemistry, Utah State University, UT
1997-2000 Postdoctoral Associate, Department of Chemistry, University of Minnesota, MN
1992-1997 Graduate Assistant, Chemistry Department, Washington University, MO
1990-1992 Teaching Assistant, Chemistry Department, Tunghai University, Taiwan
1988-1990 Military Service, Taiwan
1986-1988 Undergraduate Assistant, Chemistry Department, Tunghai University, Taiwan

Honors:

- (1) Accounts of Chemical Research Graduate Prize, **1994**
- (2) Natural Science Scholarship **1987** and **1988**
- (3) National Foundation of Infectious Disease, New Investigator Matching Grants, **2003**
- (4) Gardner Junior Faculty Travel Award, **2006**

c. Publications

Peer Reviewed Publications as Principal Investigator:

- (1) Chang, C.-W. T.; Clark, T.; Ngaara, M. "Novel and Convenient Method for the Synthesis of 2,6-Dideoxypyranoses, 3,6-Dideoxypyranoses, and Azido (amino) Analogs of 3,6-Dideoxypyranoses" *Tetrahedron Lett.* **2001**, *42*, 6797-6801.
- (2) Chang, C.-W. T.; Hui, Y.; Elchert, B. "Studies of the Stereoselective Reduction of Ketosugar (Hexosulose)." *Tetrahedron Lett.* **2001**, *42*, 7019-7023.
- (3) Hui, Y.; Chang, C.-W. T. "A Convenient Divergent Synthesis of A library of Trehalosamine Analogs." *Org. Lett.* **2002**, *4*, 2245-2248.

- (4) Wang, J.; Li, J.; Tuttle, D.; Takemoto, J.; Chang, C.-W. T. "The synthesis of L-aminosugar and the studies of L-pyranoses on the ring III of pyranmycins." *Org. Lett.* **2002**, *4*, 3997-4000.
- (5) Hui, Y.; Ptake, P.; Paulman, R.; Pallansch, M.; Chang, C.-W. T. "Synthesis of Novel Guanidine Incorporated Aminoglycosides, Guanidinopyranmycins." *Tetrahedron Lett.* **2002**, *43*, 9255-9257.
- (6) Chang, C.-W. T.; Hui, Y.; Elchert, B.; Wang, J.; Li, J.; Rai, R. "Pyranmycins, a novel class of aminoglycosides with improved acid stability: the SAR of D-pyranoses on ring III of pyranmycin." *Org. Lett.* **2002**, *4*, 4603-4606.
- (7) Li, J.; Wang, J.; Hui, Y.; Chang, C.-W. T. "Exploring the Optimal Site for Modification of Pyranmycin with the Extended Arm Approach." *Org. Lett.* **2003**, *5*, 431-434.
- (8) Elchert, B.; Li, J.; Wang, J.; Hui, Y.; Rai, R.; Ptak, R.; Ward, P.; Takemoto, J. Y.; Bensaci, M.; Chang, C.-W. T. "Application of the Synthetic Aminosugars for Glycodiversification: Synthesis and Antimicrobial Studies of Pyranmycin." *J. Org. Chem.* **2004**, *69*, 1513-1523.
- (9) Li, J.; Wang, J.; Czyryca, P. G.; Chang, H.; Orsak, T. W.; Evanson, R.; Chang, C.-W. T. "Application of Glycodiversification: Expedient Synthesis and Antibacterial Evaluation of a Library of Kanamycin B Analogs." *Org. Lett.* **2004**, *6*, 1381-1384.
- (10) Wang, J.; Li, J.; Czyryca, P. G.; Chang, H.; Kao, J.; Chang, C.-W. T. "Synthesis of an Unusual Branched-chain Sugar, 5-C-methyl-L-idopyranose for SAR Studies of Pyranmycins: Implications for the Future Design of Aminoglycoside Antibiotics." *Bioorg. Med. Chem. Lett.* **2004**, *14*, 4389-4393.
- (11) Wang, J.; Elchert, B.; Hui, Y.; Takemoto, J. Y.; Bensaci, M.; Wennergren, J.; Chang, H.; Rai, R.; Chang, C.-W. T. "Synthesis of Trehalose-based Compounds and Study of Their Antibacterial Activity against *Mycobacterium smegmatis*." *Bioorg. Med. Chem.* **2004**, *12*, 6397-6413.
- (12) Rai, R.; Chang, H.; Chen, H.-N.; Chang, C.-W. T. "Novel Method for the Synthesis of 3',4'-Dideoxygenated Pyranmycin and Kanamycin Compounds, and Studies of Their Antibacterial Activity against Aminoglycoside Resistant Bacteria." *J. Carbohydr. Chem.* **2005**, *24*, 131-143.
- (13) Li, J.; Chen, H.-N.; Chang, H.; Wang, J.; Chang, C.-W. T. "Tuning the Regioselectivity of Staudinger Reaction for the Facile Synthesis of Kanamycin and Neomycin Class Antibiotics with N-1 Modification." *Org. Lett.* **2005**, *7*, 3061-3064.
- (14) Rai, R.; McAlexander, I.; Chang, C.-W. T. "Synthetic Glycodiversification: from Aminosugars to Aminoglycoside Antibiotics." *Organic Preparations and Procedures International* **2005**, *37*, 337-375.
- (15) Wang, J.; Chang, C.-W. T. "Systematic Synthesis of Aminosugars and Their Stereoselective Glycosylation." in *Carbohydrate Drug Design*, Klyosov, A. A.; Witczak, Z. J.; Platt, D. Eds., ACS Symposium Series, volume 932, **2005**.
- (16) Wang, J.; Li, J.; Chen, H.-N.; Chang, H.; Tanifum, C. T.; Liu, H.-H.; Czyryca, P. G.; Chang, C.-W. T. "Glycodiversification for Optimization of the Kanamycin Class Aminoglycosides." *J. Med. Chem.* **2005**, *48*, 6271-6285.
- (17) Deng, S.; Chang, C.-W. T. "Acyl Migration for the Construction of Disaccharides." *Synlett.* **2006**, 756-760.
- (18) Wang, J.; Chang, C.-W. T. "Glycodiversification for the Synthesis of Kanamycin and Neomycin Class Aminoglycoside Antibiotics." in *Frontiers in Carbohydrate Chemistry*, Demchenko, A. Ed. ACS Symposium Series, volume 960, **2007**, p307-327.
- (19) Li, J.; Chang, C.-W. T. "Recent Development in the Synthesis of Novel Aminoglycoside Antibiotics" *Anti-Infective Agents in Medicinal Chemistry* **2006**, *5*, 255-271.

- (20) Wang, J.; Chang, C.-W. T. "Design, Chemical Synthesis, and Antibacterial Activity of Kanamycin and Neomycin Class Aminoglycoside Antibiotics." in *Aminoglycoside Antibiotics* Arya, D. P. ed., John Wiley & Sons, Inc. **2007**, p141-180.
- (21) Rai, R.; Chen, H.; Czyryca, P. G.; Li, J.; Chang, C.-W. T. "Design and Synthesis of Pyrankacin: A Pyranmycin Class Broad Spectrum Aminoglycoside Antibiotic." *Org. Lett.* **2006**, *8*, 887-889.
- (22) Deng, S.; Gangadharmath, U.; Chang, C.-W. T. "Sonochemistry: A Powerful Way of Enhancing the Efficiency of Carbohydrate Synthesis." *J. Org. Chem.* **2006**, *71*, 5179-5185.
- (23) Zhang, J.; Chen, H.-N.; Chiang, F.-I.; Takemoto, J. Y.; Bensaci, M.; Chang, C.-W. T. "Sonication-Assisted Library Synthesis of Oxazolidinone-Carbohydrate Conjugates." *J. Comb. Chem.* **2007**, *9*, 17-19.
- (24) Li, J.; Chiang, F.-I.; Chen, H.-N.; Chang, C.-W. T. "Investigation of the Regioselectivity for Staudinger Reaction and Its Application for the Synthesis of Aminoglycosides with N-1 Modification." *J. Org. Chem.* **2007**, *72*, 4055-4066.
- (25) Li, J.; Wang, J.; Chiang, F.-I.; Chen, H.-N.; Chang, C.-W. T. "Synthesis of Pyranmycin Derivatives with N-1 and O-6 Modifications." *Bioorg. Med. Chem.* **2007**, *15*, 7711-7719.
- (26) Zhang, J.; Garrossian, M.; Gardner, D.; Garrossian, A.; Chang, Y.-T.; Kim, Y. K.; Chang, C.-W. T. "Synthesis and Anticancer Activity Studies of Cycloamine Derivatives." *Bioorg. Med. Chem. Lett.* **2008**, *18*, 1359-1363.

Peer Reviewed Publications from Work as Co-worker:

- (1) Cheng-Tung Lin, Cheng-Wei Chang and Tung-Sheng Liu "Prediction of Regioselectivity in Diels-Alder reaction by MO Calculation. The reaction of 2-substituted 1,3-Butadiene's with conjugated Carbonyl Compounds, Thioaldehyde, and Trichloronitrosomethane" *Tunghai Journal*, **1988**, *29*, 587.
- (2) Scott R. Gilbertson and Cheng-Wei T. Chang, "Synthesis of New Disugar Phosphine Ligands and Their Use in Asymmetric Hydrogenation." *J. Org. Chem.*, **1995**, *60*, 6226-6228.
- (3) Scott R. Gilbertson and Cheng-Wei T. Chang, "A Modular Approach to Ligands for Asymmetric π -Allyl Palladium Catalyzed Additions." *J. Chem. Soc. Chem. Commun.* **1997**, 975.
- (4) Scott R. Gilbertson and Cheng-Wei T. Chang, " Asymmetric π -Allyl Palladium Catalyzed Additions; A Modular Approach to Phosphine-Oxazoline Ligands." *J. Org. Chem.*, **1998**, *63*, 8424.
- (5) Cheng-Wei T. Chang, Xuemei H. Chen, and Hung-wen Liu, "CDP-6-deoxy-6',6'-difluoro- α -D-glucose : A mechanism-Based Inhibitor for CDP-D-glucose 4,6-Dehydratase." *J. Am. Chem. Soc.* **1998**, *120*, 9698-9699.
- (6) Chang, C.-W. T.; Johnson, D. A.; Bandarian, V.; Zhou, H.; LoBrutto, R.; Reed, G. H.; Liu, H.-w. "Characterization of A Unique Coenzyme B6 Radical in the Ascarylose Biosynthetic Pathway." *J. Am. Chem. Soc.* **2000**, *122*, 4239-4240.
- (7) Chang, C.-W.; Zhao, L.; Yamase, H.; Liu, H.-w., "Des VI: A New Member of the Sugar N,N-Dimethyltransferase Family Involved in the Biosynthesis of Desosamine." *Angew. Chem. Int. Ed.* **2000**, *39*, 2160-2163.
- (8) Cheng-Wei T. Chang and Hung-wen Liu, "Synthesis of TDP-3-amino-3,4,6-trideoxy-a-D-xyllo-hexopyranose-The immediate precursor of TDP-a-D-desosamine" *Bioorg. Med. Chem. Lett.* **2002**, *12*, 1493-1496.

- (9) Chen, H.; Yamase, H.; Zhao, L.; Chang, Cheng-Wei T.; Zhao, K.; Murakami, K.; Liu, H.-w. "N, N-Dimethyltransferases, TylM1 and DesVI, Involved in the Biosynthesis of Mycaminose and Desosamine: Expression, Purification and Characterization" *Biochemistry* **2002**, *29*, 9165-9183.
- (10) Leriche, C.; He, X.; Chang, C.-W. T.; Liu, H.-w. "Reversal of the Apparent Regiospecificity of NAD(P)H-Dependent Hydride Transfer: The Properties of the Difluoromethylene Group, A Carbonyl Mimic." *J. Am. Chem. Soc.*, **2003**; *125*, 6348-6349.
- (11) Lee, S. T.; Molyneux, R. J.; Panter, K. E.; Chang, C.-W. T.; Gardner, D. R.; Pfister, J. A.; Garrossian, M. "Ammodendrine and N-Methylammodendrine Enantiomers: Isolation, Optical Rotation, and Toxicity." *J. Nat. Prod.* **2005**, *68*, 681-685.
- (12) Lee, S. T.; Wildeboer, K.; Panter, K. E.; Kem, W. R.; Gardner, D. R.; Molyneux, R. J.; Chang, C.-W. T.; Soti, F.; Pfister, J. A. "Relative toxicities and neuromuscular nicotinic receptor agonistic potencies of anabasine enantiomers and anabaseine." *Neurotoxicology and Teratology* **2006**, *28*, 220-228.
- (13) Mattis, V.; Wang, J.; Rai, R.; Chang, C.-W. T.; Lorson, C. L. "Novel Aminoglycosides Increase SMN Levels in Spinal Muscular Atrophy fibroblasts." *Human Genetics* **2006**, *120*, 589-601.
- (14) Lee, S. T.; Gardner, D. R.; Chang, C.-W. T.; Panter, K. E.; Molyneux, R. J. "Separation of Measurement of Plant Alkaloid Enantiomers by RF-HPLC Analysis of Their Fmoc-Alanine Analogs." *Phytochem. Anal.* **2008**, *19*, 0000.

d. Presentations

Invited Talks:

- (1) "Unusual Sugars, Gold Mine for Drug Development" C.-W. T. Chang, Brigham Young University, Department of Chemistry and Biochemistry, November 14, **2002**.
- (2) "Unusual Sugar for Glyco-diversification and new drug development" C.-W. T. Chang, San Francisco State University, August 4, **2003**, San Francisco, California.
- (3) "Synthetic Glycodiversification and New Drug Development" C.-W. T. Chang, Department of Chemistry, New York University, September 8, **2003**, New York, New York.
- (4) "Development of general antibiotics against known and unknown pathogens." DARPA Pathogen Countermeasures meetings, December 3 - 4, **2003**, Lansdowne, VA.
- (5) "Glycodiversification for the development of novel aminoglycoside antibiotics." Cheng-Wei Tom Chang, Department of Chemistry, University of Montana, February 23, **2004**, Missoula, Montana.
- (6) "Glycodiversification for the development of novel aminoglycoside antibiotics." Cheng-Wei Tom Chang, Department of Chemistry, The University of Toledo, February 22, **2004**, Toledo, Ohio.
- (7) "Glycodiversification for the development of novel aminoglycoside antibiotics." Cheng-Wei Tom Chang, Department of Chemistry, Case Western Reserve University, March 23, **2004**, Cleveland, Ohio.
- (8) "Glycodiversification for the development of novel aminoglycoside antibiotics." Cheng-Wei Tom Chang, Department of Chemistry, West Virginia University, March 24, **2004**, Morgantown, West Virginia.

- (9) "Glycodiversification for the development of novel aminoglycoside antibiotics." Cheng-Wei Tom Chang, Department of Chemistry and Biochemistry, The University of Texas, Austin, April 8, **2004**, Austin, Texas.
- (10) "Development of general antibiotics against known and unknown pathogens." Cheng-Wei Tom Chang, DARPA Pathogen Countermeasures/Accelerated Anthrax meeting, May 11 - 13, **2004**, Napa, California.
- (11) "Glycodiversification and New Drug Development" Cheng-Wei Tom Chang, Jinhua Wang, Jie, Li, Ravi Rai, John Wennergren, Huiwen Chang, Przemyslaw Greg Czyryca, Joint ACS 59th Northwest and 18th Rocky Mountain Regional Meeting, June 6-9, **2004**, Logan, Utah.
- (12) "Glycodiversification for New Drug Development" Cheng-Wei Tom Chang, the 228th ACS National Meeting, August 22 - 26, **2004**, Philadelphia, Pennsylvania.
- (13) "Glycodiversification for the Development of Aminoglycoside Antibiotic." Cheng-Wei Tom Chang, Department of Chemistry, University of Missouri, October 25, **2004**, St. Louis, Missouri.
- (14) "Glycodiversification for the Development of Aminoglycoside Antibiotic." Cheng-Wei Tom Chang, Department of Chemistry, Washington University, October 26, **2004**, St. Louis, Missouri.
- (15) "Development of general antibiotics against known and unknown pathogens." Cheng-Wei Tom Chang, DARPA Pathogen Countermeasures/Accelerated Anthrax meeting, March 8 - 10, **2005**, Fort Lauderdale, Florida.
- (16) "Glycodiversification: Venture beyond the Sugar-coated Story." Cheng-Wei Tom Chang, Department of Chemistry and Biochemistry, Utah State University, September 7, **2005**, Logan, Utah.
- (17) "Carbohydrate Synthesis and Its Application in Drug Development." Cheng-Wei Tom Chang, The National Health Research Institutes (NHRI), May 10, **2006**, Chunan, Taiwan.
- (18) "Drug Development and Synthetic Carbohydrate Chemistry." Cheng-Wei Tom Chang, The National Tsing Hua University, May 11, **2006**, Hsinchu, Taiwan.
- (19) "Drug Development and Synthetic Carbohydrate Chemistry." Cheng-Wei Tom Chang, Tunghai University, May 15, **2006**, Taichung, Taiwan.
- (20) "Drug Development and Synthetic Carbohydrate Chemistry." Cheng-Wei Tom Chang, Academia Sinica, May 17, **2006**, Taipei, Taiwan.
- (21) "Carbohydrate Synthesis and Its Application in Drug Development." Cheng-Wei Tom Chang, AbGenomics Corp, May 18, **2006**, Taipei, Taiwan.
- (22) "Carbohydrate Synthesis and Its Application in Drug Development." Cheng-Wei Tom Chang, Department of Medicinal Chemistry, University of Utah, September 28, **2006**, Salt Lake City, Utah.
- (23) "Methodology in Carbohydrate Synthesis and Its Application in Drug Development." Cheng-Wei Tom Chang, Department of Chemistry, Sam Houston State University, April 19, **2007**, Huntsville, Texas.
- (24) "Methodology in Carbohydrate Synthesis and Its Application in Drug Development." Cheng-Wei Tom Chang, University of Texas Medical Branch, April 20, **2007**, Galveston, Texas.
- (25) "Synthesis and Application of Aminoglycosides: Old Drugs with New Tricks." Cheng-Wei Tom Chang, Idaho State University, February 8, **2008**, Pocatello, Idaho.
- (26) "Carbohydrates: Versatile Building Blocks for Diversity-Oriented Synthesis of Bioactive Compounds." Cheng-Wei Tom Chang, Joint 63rd Northwest/21st Rocky Mountain (NORM/RMRM), June 17, **2008**, Park City, Utah.

Oral Presentations:

- (1) "Synthesis of New Phosphino-Oxazoline Type Ligands and Their Use in π -Allylic Alkylation" C.-W. T. Chang, S. R. Gilbertson; 212th ACS National Meeting, 1996, Orlando, Florida.
- (2) "Synthesis of CDP- α -D-6-deoxy-6,6'-difluoroglucose and Study of Its Inhibitory Effect on CDP-D-glucose 4,6-dehydratase" C.-W. T. Chang, X. H. Chen, and H.-w. Liu; 216th ACS National Meeting, 1998, Boston, Massachusetts.
- (3) Synthetic Glycorandomization of Ring III Pyranose of Pyranmycin." Cheng-Wei Tom Chang, Bryan Elchert, Yu Hui, Jinhua Wang, Jie Li, Ravi Rai, Jon Takemoto, 226th ACS National Meeting, September 10, 2003, New York, New York.
- (4) "Novel trehalose-based compounds against Mycobacterium, synthesis and antibacterial studies." Cheng-Wei Tom Chang, Bryan Elchert, Yu Hui, Jinhua Wang, John Wennergren, Ravi Rai, Jon Takemoto, and Mekki Bensaci, 226th ACS National Meeting, September 10, 2003, New York, New York.

Poster Presentations:

- (1) "Synthesis of New Disugar Phosphine Ligands and Their Use in Asymmetric Hydrogenation" C.-W. T. Chang, S. R. Gilbertson; 210th ACS National Meeting, 1994, Chicago, Illinois.
- (2) "Synthesis and antimicrobial SAR study of amino-substituted trehaloses." Y. Hui, Jon Takemoto, C.-W. T. Chang, 222th ACS National Meeting, 2001, Chicago, Illinois.
- (3) "Synthesis of novel aminoglycosides and study of structure-activity relationships." Bryan Elchert, C.-W. T. Chang, 222th ACS National Meeting, 2001, Chicago, Illinois.
- (4) "Novel and convenient method for the synthesis of L-aminosugar" David Tuttle, Cheng-Wei Tom Chang, Student Showcase, 2001, Utah State University.
- (5) "Novel and Convenient Method for the Synthesis of 2,6-Dideoxypyranoses, 3,6-Dideoxypyranoses, and Azido (amino) Analogs of 3,6-Dideoxypyranoses" Terri Clark, Mumbi Ngaara, Cheng-Wei Tom Chang, Student Showcase, 2001, Utah State University.
- (6) "Unusual Sugars and Drug Development" C.-W. T. Chang, Gordon Conference, Bioorganic Division, 2002, Andover, New Hampshire.
- (7) "Development of Novel Antitubercular Agents" J. Wennergren, B. Elchert, J. Wang, C.-W. T. Chang, Poster on the Hill, State Capital of Utah, January 23, 2003.
- (8) "Unusual Sugars and Drug Development" C.-W. T. Chang, Gordon Conference, Carbohydrate Division, June, 19-20, 2003, Tilton, New Hampshire.
- (9) "Expedient synthesis and antibacterial evaluation of a library of Kanamycin B analogs." Jie Li, Jinhua Wang, Przemyslaw.G Czyryca, Huiwen Chang, and Cheng Wei T. Chang, Joint ACS 59th Northwest and 18th Rocky Mountain Regional Meeting, June 6-9, 2004, Logan, Utah.
- (10) Drug Information Association (DIA), Huiwen Chang, Cheng-Wei Tom Chang, DIA 40th Annual Meeting, June 12-16, 2004, Washington D.C.
- (11) "Glycodiversification for New Drug Development" Cheng-Wei Tom Chang, Gordon Conference, Natural Product Division, July 25 - 30, 2004, Tilton, New Hampshire.
- (12) "Glycodiversification for New Drug Development" Cheng-Wei Tom Chang, Gordon Conference, Medicinal Chemistry Division, August 1 - 6, 2004, New London, New Hampshire.

- (13) "Expedient synthesis and antibacterial evaluation of a library of Kanamycin B analogs." Jie Li, Jinhua Wang, Przemyslaw.G Czyryca, Huiwen Chang, and Cheng Wei T. Chang, the 228th ACS National Meeting, August 22 - 26, **2004**, Philadelphia, Pennsylvania.
- (14) "Studies of L-pyranoses on ring III of pyranmycins." Jinhua Wang, Jie Li, and Cheng Wei T. Chang, the 228th ACS National Meeting, August 22 - 26, **2004**, Philadelphia, Pennsylvania.
- (15) "A Non-sequence Specific Requirement for SMN Protein Activity: The Role of Aminoglycosides in Inducing Elevated SMN Protein Levels." Virginia Mattis, Elizabeth C. Wolstencroft, Anna Bajer, Tom Chang, and Christian L. Lorson, Life Science week, April **2005**, University of Missouri, Columbia, Missouri.
- (16) "Design and Synthesis of novel Pyranmycins with Activity against Modifying Enzymes" Ravi Rai, Cheng Wei T. Chang, the 230th ACS National Meeting, August **2005**, Washington, DC.
- (17) "Reviving the Clinical Efficacy of Kanamycin-B: Design and Synthesis of Novel Kanamycin Analogs and Studies of Their Antibacterial Activity against Aminoglycoside Resistant Bacteria" Ravi Rai, Cheng Wei T. Chang, the 230th ACS National Meeting, August **2005**, Washington, DC.
- (18) "Regioselective Staudinger Reaction for the Synthesis of N-1 Modified Aminoglycosides" Ravi Rai, Cheng Wei T. Chang. the 231st ACS National Meeting, March 26-30, **2006**, Atlanta, Georgia.
- (19) "Design and Synthesis of Pyrankacin: A Novel Broad Spectrum Aminoglycoside Antibiotic" Ravi Rai, Cheng Wei T. Chang. the 231st ACS National Meeting, March 26-30, **2006**, Atlanta, Georgia.
- (20) "Diversity-oriented Synthesis of Carbohydrate Conjugates Using Sonication" Cheng-Wei Tom Chang, Gordon Conference, Natural Product Division, July 20 - 25, **2008**, Tilton, New Hampshire.

e. Research Support:

Ongoing Research Support:

NIH (R01 AI053138): "Novel Ribostamycins and SAR Study of Their Ring III Aminosugar", 03/2004 to 02/2009
Role: P.I.

Baicor, L.C. "Development of novel antifungal agents" 2007 - 2010
Role: Co. P.I.

Completed Research Support:

New Faculty Research Grant, Utah State University, 2000-2001
Community University Research Initiative Grant, Utah State University, 2002-2003
Community University Research Initiative Grant, Utah State University, 2003-2004
Department of Defense Award, 2003-2005
National Foundation of Infectious Disease, New Investigator Matching Grants, 2003-2004
Research grant from Fight SMA, 2005-2006

f. Patent:

- (1) Pyranmycin, Novel aminoglycoside antibiotics against drug-resistant bacteria (US patent No. 7,371,733).
- (2) New Aminoglycosides: Synthesis and Use as Antifungals, Utah State University
Inventors: Tom Chang, Kent Evans and Jon Takemoto (provisional patent filed)