

# Roman Manetsch

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Associate Professor

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## Education

- October 2002      Ph.D., Chemistry  
Jointly at the Institute of Organic Chemistry at the University of Basel (Switzerland) and at the Department of Chemistry and Biochemistry at the University of Berne (Switzerland); Advisor Professor Wolf-Dietrich Woggon and Co-Advisor Professor Jean-Louis Reymond  
Thesis: *Transition State Analogues for the Identification of the Enzyme Tocopherol Cyclase and for the Preparation of Catalytic Monoclonal Antibodies*
- June 1998        Diploma in Chemistry  
University of Basel (Switzerland), Studies in Chemistry (main subject) and Biology (minor subject); Advisor: Professor Wolf-Dietrich Woggon  
Thesis: *Synthesis of Potential Inhibitors of the Enzyme Carotene Oxygenase*

## Positions and Employment

- 2002 – 2005      Postdoctoral Fellow with K. Barry Sharpless, The Scripps Research Institute, La Jolla, CA  
2005 – 2011      Assistant Professor, Department of Chemistry, University of South Florida, Tampa, FL  
2011 – Present   Associate Professor, Department of Chemistry, University of South Florida, Tampa, FL  
12/2012 - 08/2013   Sabbatical Visitor, Center for Proteomic Research, Novartis Pharma AG, Basel, Switzerland

## Research Interests

The research interests of the Manetsch laboratory focuses on organic and bioorganic chemistry addressing fundamental aspects of medicinal chemistry, drug discovery strategies, lead optimization, and development of chemical probes for the study of specific proteins in complex biological matrices. Using synthetic chemistry in close conjunction with liquid chromatography with mass spectrometry detection (LC-MS), the Manetsch laboratory developed a fragment-based lead discovery strategy targeting protein-protein interactions associated with apoptosis. This LC/MS-based method is currently applied for the discovery of therapeutic agents targeting cancer and infectious diseases. Furthermore, the Manetsch laboratory is interested in establishing reliable synthetic routes for the preparation of highly functionalized analogues with biological activity. The synthetic capability enables the preparation of focused compound libraries required for detailed structure-activity and structure-property relationship studies (SAR and SPR). The Manetsch laboratory implemented LC/MS-based SPR assays to routinely determine key physicochemical properties of small molecules. Using this hit-to-lead progression strategy, in vivo efficacious anti-malarial and anti-leishmanial agents have been developed. As a third research field, the Manetsch laboratory developed chemical tools to identify and/or covalently label specific proteins in complex mixtures or entire proteomes. The Manetsch laboratory is currently investigating various photoactivatable probes to study proteins related to cell-cell communication and energy metabolism. Furthermore, artemisinin-, primaquine- and chloroquine-based probes are currently under development to elucidate mechanisms of antimalarial drug resistance.

## Honors and Awards

- 2002 Ph.D. Summa Cum Laude  
2003 Swiss National Science Foundation, Postdoctoral Fellowship  
2003 Novartis Foundation (formerly the Ciba-Geigy Jubilee Foundation), Postdoctoral Fellowship  
2004 Swiss National Science Foundation, Postdoctoral Fellowship  
2012 Excellence in Innovation Award, University of South Florida

## Teaching and Research Activities

### Classes:

- *Laboratory classes for students in Biochemistry*: October 1998 to October 1999. Teaching assistant in the practical laboratory classes for students in Biochemistry, Biology and Pharmacy at the Institute of Organic Chemistry at the University of Basel (Switzerland).
- *CHM2210 Organic Chemistry I*: Spring 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, Spring 2010, Spring 2011. Teaching of the undergraduate level course CHM2210 Organic Chemistry I at the Department of Chemistry at the University of South Florida. Course with 180-210 students.
- *CHM2211 Organic Chemistry II*: Spring 2012. Teaching of the undergraduate level course CHM2211 Organic Chemistry II at the Department of Chemistry at the University of South Florida. Course with 180 students.
- *CHM6250/5225 Advanced Organic Chemistry I*: Fall 2005, Fall 2006, Fall 2007. Teaching of the dual listed (graduate and undergraduate level) course CHM6250/5225 Advanced Organic Chemistry I at the Department of Chemistry at the University of South Florida. Course with approximately 15 students.
- *CHM6935 Graduate Seminar*: Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012. Coordinating CHM6935 Graduate Seminar program of the Department of Chemistry. Course with 70 students.
- *CHM6938/4932 Spectroscopy*: Fall 2010, Fall 2011. Teaching of the dual listed (graduate and undergraduate level) course CHM6938/4932 at the Department of Chemistry at the University of South Florida. Course with approximately 40 students.
- *CHM6938/PHC7931 Drug Discovery for Tropical Diseases*: Spring 2010, Spring 2012. Team teaching of the graduate level course. Course with approximately 20 students.

### Postdoctoral Associates:

- Dr. Yana Sakhno, 06/2012 to present
- Dr. Raghupathi Neelarapu, 05/2012 to present
- Dr. Niranjana Namelikonda, 05/2009 to present
- Dr. David Flanigan, 04/2009 to present
- Dr. Yijun Yang, 09/2009 to 12/2010
- Dr. Xiangdong Hu, 09/2006 to 04/2009

### Thesis and Dissertation Research Supervision:

- Megan Barber, 2012 – present
- Iredia D. Iyamu, 2010 – present
- Cynthia Lichorowic, 2010 – present, Ph.D. candidate
- Jordany R. Maignan, 2008 – present, Ph.D. candidate
- Andrii Monastyrskiy, 2008 – present, Ph.D. candidate
- Kurt Van Horn, 2007 – present, Ph.D. candidate, graduation expected summer 2013
- Katya Nacheva, 2007 – 2012, *Design and Synthesis of a Molecular Fluorescent Probe and its Role of Kinetic Target-Guided Synthesis to Identify Inhibitors of Enzymatic and Protein-Protein Interaction Targets*, Ph.D.
- Sameer S. Kulkarni, 2006 – 2012, *Development and Optimization of Kinetic Target-Guided Synthesis Approaches Targeting Protein-Protein Interactions of the Bcl-2 Family*, Ph.D.
- Arun B. Kumar, 2006 – 2012, *Design, Synthesis and Evaluation of Novel Diazirine Photolabels with Improved Ambient Light Stability and Fluorous-Based Enrichment Capacity*, Ph.D.
- Shikha Mahajan, 2006 – 2012, *Protein Profiling of Adenine Nucleoside and Nucleotide Analogs Binding Proteins Using N<sup>6</sup>-Biotinylated-8-azidoadenosine Analogs as Affinity Based Protein Profiling Probes*, Ph.D. (primary advisor David Merkler, Co-advisor Roman Manetsch)
- R. Matthew Cross, 2005 – 2011, *Lead Discovery and Optimization Strategies Towards the Development of 4(1H)-Quinolone and 1,2,3,4-Tetrahydroacridone Analogs with Antimalarial Activity*, Ph.D.
- Lisa Malmgren, 2005 – 2007, *Using in Situ Click Chemistry to Modulate Protein-Protein Interactions: Bcl-xL as a Case Study*, MS

#### Honors Undergraduate Thesis:

- Alexandra Griffin, 2010 – 2011, BS in Biomedical Sciences in 2011
- Lisa Luong, 2010 – 2011, BS in Biomedical Sciences in 2011
- Jordan Anderson, 2010 – 2011, BS in Chemistry in 2011
- Mario Martinez, 2008 – 2009, BS in Chemistry in 2009

#### Undergraduate Research:

- James Giarrusso, 2011 – present
- Prethiraj Kharg, 2010 - present
- Niles Gunsalus, 2010 – 2012, BS in Chemistry in 2012, currently Ph.D. student at the Scripps Research Institute, Jupiter, FL.
- Lisa Luong, 2009 – 2011, BS in Biomedical Sciences in 2011, currently Pharm.D. student at the College of Pharmacy, University of South Florida, Tampa, FL.
- Jordan Anderson, 2008 – 2011, BS in Chemistry in 2011, currently Ph.D. student at the Department of Chemistry, University of Washington, Seattle, WA.
- Mario Martinez, 2007 – 2009, BS in Chemistry in 2009, currently Ph.D. student at the Department of Chemistry, University of Wisconsin-Madison, Madison, WI.

#### Peer Reviewed Publications

- 1) Saenz F, LaCrue A, Cross R M, Maignan J M, **Manetsch R**, Kyle D K\*. 4-(1*H*)-Quinolones and 1,2,3,4-tetrahydroacridin-9(10*H*)-ones prevent the transmission of *Plasmodium falciparum* to *Anopheles freeborni*. *Submitted*
- 2) Arun B Kumar, **Manetsch R**\*. Regioselective, Mild and Robust O2',O3'-Deacetylations of Peracetylated Ribonucleosides Using Tetra-*n*-butylammonium Fluoride. *Submitted*.
- 3) Van Horn K, Zhu X, Pandharkar T, Yang S, Vesely B, Kyle D E, Wang M Z, Werbovetz Karl, **Manetsch R**\*. Antileishmanial activity of a series of *N*<sup>2</sup>,*N*<sup>2</sup>-disubstituted quinazoline-2,4-diamines. *Submitted*.
- 4) Nilsen A, LaCrue A, White K. L , Forquer I P, Cross R M, Marfurt J, Mather M W, Delves M J, Shackelford D M, Saenz F E, Morrissey J M, Steuten J, Mutka T, Li Y, Wirjanata G, Ryan E, Duffy S, Kelly J X, Sebayang B F, Zeeman A-M, Noviyanti R, Sinden R E, Kocken C H M, Price R N, Avery V M, Angulo-Barturen I, Jiménez-Díaz M B, Ferrer S, Herreros E, Sanz L M, Benito F J G, Bathurst I, Burrows J, Siegl P, Guy R K, Winter R W, Vaidya A B, Charman S A, Kyle D E, **Manetsch R**\*, Riscoe M K\*. Quinolone-3-diarylethers: A new class of drugs for a new era of malaria eradication. *Sci Transl Med*, *accepted*.
- 5) Kulkarni S S, Hu X, **Manetsch R**\*. A simple base-mediated amidation of aldehydes with azides. *Chem Commun* 2013; 49, 1193-1195.
- 6) LaCrue A N, Sáenz F, Cross R M, Udenze K O, Monastyrskiy A, Stein S, Mutka T S, **Manetsch R**, Kyle D E\*. 4(1*H*)-Quinolones with liver stage activity against *Plasmodium berghei*. *Antimicrob Agents Chemother* 2013; 57, 417-424.
- 7) Nacheva K P, Maza W, Myers D Z, Fronczek F, Larsen R W, **Manetsch R**\*. Fluorescent properties and resonance energy transfer of 3,4-bis(2,4-difluorophenyl)-maleimide. *Org Biomol Chem* 2012; 10, 7840-7846.
- 8) Kumar A B, Anderson J M, Melendez A L, **Manetsch R**\*. Synthesis and structure-activity relationship studies of 1,3-disubstituted 2-propanols as BACE-1 inhibitors. *Bioorg Med Chem Lett* 2012; 22, 4740-4744.
- 9) Namelikonda N K, **Manetsch R**\*. Sulfo-click reaction *via in situ* generated thioacids and its application in kinetic target-guided synthesis. *Chem Commun* 2012; 48, 1526-1528.  
*Article has been published in the "Emerging Investigators 2012" issue.*
- 10) Cross R M, Namelikonda N K, Mutka T S, Luong L, Kyle D E, **Manetsch R**\*. Synthesis, antimalarial activity, and structure-activity relationship of 7-(2-phenoxyethoxy)-4(1*H*)-quinolones. *J Med Chem* 2011; 54, 8321-8327.
- 11) Kumar A B, Anderson J, **Manetsch, R**\*. Design, synthesis and photoactivation studies of fluorine photolabels. *Org Biomol Chem* 2011; 9, 6284-6292.
- 12) Kulkarni S S, Hu X-D, Doi K, Wang H-G, **Manetsch R**\*. Screening of protein-protein interaction modulators via sulfo-click kinetic target-guided synthesis. *ACS Chemical Biology* 2011; 6, 724-732.  
*Appeared in the list of 20 "most read" ACS Chemical Biology articles in 2011.*

- 13) Cross M R, Maignan J R, Mutka T S, Luong L, Sargent J, Kyle D K, **Manetsch R\***. Optimization of 1,2,3,4-tetrahydroacridin-9(10*H*)-ones as antimalarials utilizing structure-activity and structure-property relationships. *J Med Chem* 2011; 54, 4399-4426.
- 14) Cross R M, **Manetsch R\***. Divergent route to access structurally diverse 4-quinolones via mono or sequential cross-couplings. *J Org Chem* 2010; 75, 8654-8657.
- 15) Cross M R, Monastyrskiy A, Mutka T S, Burrows J, Kyle D K, **Manetsch R\***. Endochin optimization: Structure-activity and structure-property relationship studies of 3-substituted 2-methyl-3(1*H*)-quinolones with antimalarial activity. *J Med Chem* 2010; 53, 7076-7094.
- 16) Hu X, **Manetsch R\***, Kinetic target-guided synthesis. *Chem Soc Rev* 2010, 39, 1316-1324.
- 17) Radic Z, **Manetsch R**, Fournier D, Sharpless KB, Taylor P\*. Probing gorge dimensions of cholinesterases by freeze-frame click chemistry. *Chem-Biol Interact* 2008; 175: 161-165.
- 18) Hu X, Sun J, Wang H-G, **Manetsch R\***. Bcl-X<sub>L</sub>-templated assembly of its own protein-protein interaction modulator from fragments decorated with thio acids and sulfonyl azides. *J Am Chem Soc* 2008; 130: 13820-13821.
- 19) Sharpless KB, **Manetsch R\***. In situ click chemistry: A powerful means for lead discovery (Review). *Expert Opinion on Drug Discovery* 2006; 1: 525-538.
- 20) Radic Z, **Manetsch R**, Krasinski A, Raushel J, Yamauchi J, Garcia C, Kolb HC, Sharpless KB, Taylor P\*. Molecular basis of interactions of cholinesterases with tight binding inhibitors. *Chem-Biol Interact* 2005; 157: 133-141.
- 21) Zheng L, **Manetsch R**, Woggon WD, Baumann U, Reymond JL\*. Mechanistic study of proton transfer in catalytic antibody 16E7 by site-directed mutagenesis and homology modeling. *Bioorg Med Chem* 2005; 13: 1021-1029.
- 22) Krasinski A, Radic Z, **Manetsch R**, Raushel J, Taylor P, Sharpless KB, Kolb HC\*. Click chemistry screening in situ: Target-guided optimization of acetylcholinesterase inhibitors. *J Am Chem Soc* 2005; 127: 6686-6692.
- 23) **Manetsch R**, Zheng L, Reymond MT, Woggon WD, Reymond JL\*. A Catalytic antibody against a tocopherol cyclase inhibitor. *Chem Eur J* 2004; 10: 2487-2506.
- 24) **Manetsch R**, Krasinski A, Radic Z, Raushel J, Taylor P, Sharpless KB, Kolb HC\*. In situ click chemistry: Enzyme inhibitors made to their own specifications. *J Am Chem Soc* 2004; 126: 12809-12818.

### Book Chapters

- 1) Book chapter on "In Situ Click Chemistry" by Roman Manetsch, Mario Martinez; Editor Valery V. Fokin. Book on "Click Chemistry". Wiley, publication expected in Spring 2013.
- 2) Book chapter on "3',5'-Dimethoxybenzoin" by R. Matthew Cross and Roman Manetsch. *e-EROS Encycl. Reagents Org. Synth.* 2009.

### Patents

- 1) Manetsch, Roman; Wang, Hong-Gang; Hu, Xiandong; Kulkami, Sameer; Sun, Jiazhi G. Process for preparation of acylsulfonamides from thioacids and sulfonyl azides in the presence of a Bcl-2 family protein. PCT Int. Appl. (2009), 129pp. WO 2009105751.
- 2) Manetsch, Roman; Wang, Hong-Gang; Hu, Xiandong; Kulkami, Sameer; Sun, Jiazhi G. Target-guided synthesis of triazoles in the presence of Bcl-2 family protein. PCT Int. Appl. (2009), 89pp. WO 2009105746.

### Invited Lectures and Conferences

- 1) Kinetic Target-guided Synthesis: A Mass Spectrometry-based Fragment Evolution Strategy for "Undruggable" Targets. 30<sup>th</sup> Winterschool on Proteinases and Their Inhibitors, Tiers am Rosengarten, February 27 to March 3, 2013
- 2) Kinetic Target-Guided Synthesis: A Fragment-Based Discovery Strategy for "Undruggable" Targets Based on Bioorthogonal Reactions. Department of Chemistry, University of Basel, February 7, 2013.
- 3) Mass Spectrometry Guided Medicinal Chemistry of Antimalarial and Anticancer Agents. Department of Chemistry and Biochemistry, University of Bern, November 27, 2012.

- 4) Bringing 4(1*H*)-Quinolones and 3-Aryldiazirines Out of the "Dark" Ages. 6th International Conference, Chemistry of Nitrogen Containing Heterocycles, Kharkiv, Ukraine, November 12 to 16, 2012.
- 5) Kinetic Target-Guided Synthesis: A Fragment-Based Discovery Strategy for "Undruggable" Targets Based on Bioorthogonal Reactions. Drug Discovery Symposium, Novartis, Basel and Cambridge, October 22, 2012.
- 6) Kinetic Target-Guided Synthesis: Fragment-Based Discovery Strategies Based on Bioorthogonal Reactions. Glaxo Smith Kline, Research Triangle Park, NC, June 26, 2012.
- 7) Kinetic Target-Guided Synthesis: Fragment-Based Discovery Strategies Based on Bioorthogonal Reactions. Novartis, Basel, Switzerland, April 27, 2012.
- 8) Kinetic Target-Guided Synthesis: Fragment-Based Discovery Strategies Based on Bioorthogonal Reactions. Addex Pharmaceuticals, Geneva, Switzerland, April 23, 2012.
- 9) Mass Spectrometry Based Decisions Facilitating Synthetic and Medicinal Chemistry. Department of Chemistry, Clemson University, Clemson, SC, March 15, 2012.
- 10) Mass Spectrometry Based Decisions Facilitating Synthetic and Medicinal Chemistry. Department of Chemistry, Mississippi State University, MS, March 2, 2012.
- 11) Quinazolines with Anti-Leishmania Activity. Consortium for Parasitic Drug Development Meeting 2011. Clearwater, FL, November 1 to 3, 2011.
- 12) LC-MS-Guided Identification and Optimization of Anti-Cancer and Anti-Malarial Agents. Albert Einstein College of Medicine, Bronx, NY. June 21, 2011.
- 13) The Bioorthogonal Sulfo-click Reaction and its Use in Kinetic Target-Guided Synthesis Screening of Bcl-2 Proteins. Amgen, Thousand Oaks, CA, May 18, 2011.
- 14) LC-MS-Guided Identification and Optimization of Anti-Cancer and Anti-Malarial Agents. Department of Chemistry, Rice University, Houston, TX, April 27, 2011.
- 15) Bioorthogonality of the sulfo-click reaction and its use in kinetic target-guided synthesis. 241st ACS National Meeting and Exposition, Anaheim, CA, March 27 to 31, 2011.
- 16) Discovery and Optimization of Protein-Protein Interaction Modulators via Kinetic Target-Guided Synthesis. 18th International Molecular Medicine Tri-Conference, Mastering Medicinal Chemistry Summit. San Francisco, CA, February 23 to 25, 2011.
- 17) Targeting Protein-Protein Interactions via Kinetic Target-Guided Synthesis. The Fragment-Based Lead Discovery Conference 2010. Philadelphia, PA, October 10 to 13, 2010.
- 18) Two Case Studies of LC/MS-driven Drug Discovery: Targeting Bcl-2-Protein Interactions for Anti-Cancer and bc<sub>1</sub> for Anti-Malarial Agents. Department of Chemistry, University of Washington. Seattle, WA, October 20, 2010.
- 19) Targeting Protein-Protein Interactions and Malaria: Two Case Studies of LC/MS-driven Screening and Hit-to-Lead Optimization. The Scripps Florida Research Institute. Jupiter, FL, August 10, 2010.
- 20) Kinetic Target-Guided Synthesis Targeting Protein-Protein Interactions. "Short talk" and poster at the Gordon Research Conference on Chemistry and Biology of Peptides. Ventura, CA, February 28 to March 5, 2010.
- 21) LC-MS-based Drug Discovery Targeting Malaria and Cancer. Department of Chemistry, University of Tampa. Tampa, FL, November 17, 2009.
- 22) Kinetic Target-Guided Synthesis: A Fragment-based Lead Discovery Method Targeting Protein-Protein Interactions. Department of Chemistry, Florida State University, Tallahassee, FL, November 20, 2008.
- 23) Target-Guided Synthesis: A New Approach for Drug Discovery. Florida Annual Meeting and Exposition 2008 (American Chemical Society Regional Meeting). Orlando, FL, May 8 to 10, 2008.
- 24) Target-Guided Synthesis: A New Approach for Drug Discovery. BioStat International / Molecular Medicine Seminar Series, College of Medicine, University of South Florida, Tampa, FL, March 31, 2006.

#### Current Grants and Contracts Funded

- 1) National Institutes of Health, National Institute of General Medical Sciences (1R01GM097118-01): Drugs Targeting Erythrocytic and Exoerythrocytic Stages of Malaria. \$1,361,229 (\$952,861 Manetsch budget) 09/15/2011 – 05/31/2016. PI **Roman Manetsch**; CI Dennis Kyle (USF Department of Global Health).
- 2) National Institutes of Health, National Institute of Allergy and Infectious Diseases Partnerships with Product Development Public-Private Partnerships (1R01AI090662-01): Drug Validation of New

Antimalarial Leads. \$5,721,270 (\$1,111,636 Manetsch budget), 06/01/2011 – 05/31/2016. PIs Kip Guy (St. Jude Children's Research Hospital, Chemical Biology and Therapeutics), Dennis Kyle (USF Department of Global Health), David Floyd (Rutgers, Department of Chemistry); CI **Roman Manetsch**.

- 3) National Institutes of Health, National Institute of Allergy and Infectious Diseases (R21): Antileishmanial Lead Optimization of Quinazolines. \$432,963 (\$115,274 Manetsch budget), 07/01/2012 – 06/30/2014. PI Karl Werbovetz (The Ohio State University, Department of Medicinal Chemistry); CIs **Roman Manetsch** and Zhuo (Michael) Wang (University of Kansas, Pharmaceutical Chemistry).

### Pending Grant Applications

- 1) National Institutes of Health, National Institute of General Medical Sciences (R01): Natural Product-Inspired Synthetic Compounds as Malaria Therapeutics. \$1,828,844 (\$962,500 Manetsch budget), 02/01/2013 – 01/31/2018. PI Debopam Chakrabarti (University of Central Florida, Burnett School of Biomedical Sciences); CIs **Roman Manetsch** and Dennis Kyle (USF Department of Global Health).
- 2) National Institutes of Health, National Institute of Allergy and Infectious Diseases (R21): Target-Specific Screening of Potent and Selective Bidentate Antivirals. \$399,305 (\$179,750 Manetsch budget), 07/01/2013 – 06/30/2015. PI Alberto van Olphen (USF Department of Global Health); CIs **Roman Manetsch**.

### Grants Expired

- 1) Medicines for Malaria Venture (11/0022): Quinolones for Single Exposure Radical Cure, \$182,108 (direct costs only) (\$83,724 Manetsch budget; direct costs), 03/01/2012 – 12/31/2012 (continuation upon meeting milestones). PI Dennis Kyle (USF Department of Global Health); CI **Roman Manetsch**.
- 2) Medicines for Malaria Venture (08/0068): Quinolone and 1,2,3,4-Tetrahydroacridone Chemotypes for Malaria Drug Discovery. \$859,086 (direct costs only) (\$449,127 Manetsch budget; direct costs), 11/01/2008 – 12/31/2012 (annually renewed; notified on 05/22/2012 that project will be terminated due to successful delivery of a preclinical candidate, which will be taken forward by MMV's translational team). PI **Roman Manetsch**; CI Dennis Kyle (USF Department of Global Health).
- 3) Bankhead-Coley Biomedical Research Program, Florida Department of Health (08BN-04): Chemical Tools for Proteomic Profiling. \$375,000 (\$173,610 Manetsch budget), 07/01/2008 – 12/31/2011. PI **Roman Manetsch**; CI David Merkler (USF Department of Chemistry), Mentor Mark McLaughlin (USF Department of Chemistry)
- 4) Florida Center of Excellence - BITT Seed Grant: Evaluation of a Phosphotyrosin Phosphatase as an Antimalarial Drug Target. \$75,000 (\$33,000 Manetsch budget), 07/01/09 – 12/31/11. PI John Adams (USF Department of Global Health); CI **Roman Manetsch**.
- 5) Florida Center of Excellence - BITT Seed Grant: Characterization of Candida Cytochrome b5 Reductase as Pharmacological Target, \$75,000 (\$33,000 Manetsch budget), 07/01/09 – 12/31/11. PI Andreas Seyfang (USF Molecular Medicine); CI **Roman Manetsch**.
- 6) James and Esther King Biomedical Research Program, Florida Department of Health (07KN-08): Bcl-X<sub>L</sub>-templated Assembly of Compounds Modulating Bcl-X<sub>L</sub>-Protein Interactions. \$375,000 (\$337,612 Manetsch budget), 07/01/2007 – 12/31/2010. PI **Roman Manetsch**; Mentor Wayne Guida (USF Department of Chemistry).
- 7) Johnnie B. Byrd, Sr. Alzheimer's Center and Research Institute, Seed Grant: Adenylomics and Caffeinyloomics. \$40,793 (\$21,443 Manetsch budget), 09/01/2008 – 08/31/2009. PI **Roman Manetsch**; CI David Merkler (USF Department of Chemistry).
- 8) Florida Center of Excellence - BITT Seed Grant, GAL5007: Adenylomics. \$75,000 (\$37,000 Manetsch budget), 05/01/2008 – 04/30/2009. PI David Merkler (USF Department of Chemistry); CI **Roman Manetsch**.
- 9) Florida Center of Excellence - BITT Seed Grant, GAL5008: SAR Study of Quinolones and 1,2,3,4-Tetrahydroacridones for the Development of Novel Chemotypes Targeting Atovaquone Resistant Malaria Parasites. \$75,000 (\$38,000 Manetsch budget), 05/01/2008 – 04/30/2009. PI **Roman Manetsch**; CI Dennis Kyle (USF Department of Global Health).

- 10) Florida Center of Excellence - BITT Thrust Graduate Scholar, Ph.D. scholarship for graduate student Richard M. Cross: Discovery of Lead Compounds Targeting the Enzyme 5-Aminolevulinate Synthase. \$40,000, 09/01/2007 – 08/31/2009. PI **Roman Manetsch**.
- 11) University of South Florida, Interdisciplinary Research Development Grant: Development of Novel Antiviral Compounds Targeting Non-structural Protein 1. \$49,872 (\$16,624 Manetsch budget), 03/01/2006 – 02/29/2008. PI **Roman Manetsch**; CIs Alberto van Olphen (USF Center for Biological Defense) and Edwin Rivera (USF Department of Chemistry).
- 12) University of South Florida, Interdisciplinary Research Development Grant: Development of Novel Antiviral Compounds against Influenza. \$19,994 (\$6,372 Manetsch budget), 02/01/2006 – 01/31/2007. PI Alberto van Olphen (USF Center for Biological Defense); CIs **Roman Manetsch** and Edwin Rivera (USF Department of Chemistry).
- 13) American Cancer Society Institutional Grant Program, Cycle 20, Fall 2005: Bcl-xL-templated Assembly of Compounds Modulating Bcl-xL. \$20,000, 04/01/2006 – 03/31/2007. PI **Roman Manetsch**.