

List of Publications

Eric Meggers, updated December 5th, 2011

Peer Reviewed Research Papers

- 1) S. Dieckmann, R. Riedel, K. Harms, E. Meggers: Rhodium(III)-Pyridocarbazole Complexes as Protein Kinase Inhibitors, *Eur. J. Inorg. Chem.* **2012**, in press.
- 2) A. Kastl, A. Wilbuer, A. L. Merkel, L. Feng, P. Di Fazio, M. Ocker, E. Meggers: Dual Anticancer Activity in a Single Compound: Visible Light-Induced Apoptosis by an Antiangiogenic Iridium Complex, *Chem. Commun.* **2012**, DOI: 10.1039/C1CC15378A (backside cover picture).
- 3) Z. Lin, M. A. Celik, C. Fu, K. Harms, G. Frenking, E. Meggers: N-Sulfinylcarboximidates as a Novel Class of Chiral Bidentate Ligands: Application to Asymmetric Coordination Chemistry, *Chem. Eur. J.* **2011**, *17*, 12602-12605.
- 4) A. T. Johnson, M. K. Schlegel, E. Meggers, L.-O. Essen, O. Wiest: On the Structure and Dynamics of Duplex GNA, *J. Org. Chem.* **2011**, *76*, 7964-7974.
- 5) C. Streu, L. Feng, P. J. Carroll, J. Maksimoska, R. Marmorstein, E. Meggers: P-Donor Ligand Containing Ruthenium Half-Sandwich Complexes as Protein Kinase Inhibitors, *Inorg. Chim. Acta* **2011**, *377*, 34-41.
- 6) S. Blanck, T. Cruchter, A. Vultur, R. Riedel, K. Harms, M. Herlyn, E. Meggers: Organometallic Pyridyl-naphthalimide Complexes as Protein Kinase Inhibitors, *Organometallics* **2011**, *30*, 4598-4606 (cover picture).
- 7) J. Spencer, J. Amin, P. Coxhead, J. McGeehan, C. J. Richards, G. J. Tizzard, S. J. Coles, J. P. Bingham, J. A. Hartley, L. Feng, E. Meggers, M. Guille: Size Does Matter. Sterically Demanding Metallocene-Substituted 3-Methylidene-oxindoles Exhibit Poor Kinase Inhibitory Action, *Organometallics* **2011**, *30*, 3177-3181.
- 8) L. Feng, Y. Geisselbrecht, S. Blanck, A. Wilbuer, G. E. Atilla-Gokcumen, P. Filippakopoulos, K. Kräling, M. A. Celik, K. Harms, J. Maksimoska, R. Marmorstein, G. Frenking, S. Knapp, L.-O. Essen, E. Meggers: Structurally Sophisticated Octahedral Metal Complexes as Highly Selective Protein Kinase Inhibitors, *J. Am. Chem. Soc.* **2011**, *133*, 5976-5986.
- 9) L. Gong, C. Müller, M. A. Celik, G. Frenking, E. Meggers: 2-Diphenylphosphino-2'-hydroxy-1,1'-binaphthyl as a Chiral Auxiliary for Asymmetric Coordination Chemistry, *New. J. Chem.* **2011**, *35*, 788-793.
- 10) Z. Lin, L. Gong, M. A. Celik, K. Harms, G. Frenking, E. Meggers: Asymmetric Coordination Chemistry by Chiral-Auxiliary-Mediated Dynamic Resolution under Thermodynamic Control, *Chem. Asian J.* **2011**, *6*, 474-481.
- 11) G. E. Atilla-Gokcumen, L. Di Costanzo, E. Meggers: Structure of Anticancer Ruthenium Half-Sandwich Complex Bound to Glycogen Synthase Kinase 3 β , *J. Biol. Inorg. Chem.* **2011**, *16*, 45-50.
- 12) L. Gong, Z. Lin, K. Harms, E. Meggers: Isomerization-Induced Asymmetric Coordination Chemistry: From Auxiliary Control to Asymmetric Catalysis, *Angew. Chem. Int. Ed.* **2010**, *49*, 7955-7957 (cover picture).

- 13) A. Wilbuer, D. H. Vlecken, D. J. Schmitz, K. Kräling, K. Harms, C. P. Bagowski, E. Meggers: Iridium Complex with Antiangiogenic Properties, *Angew. Chem. Int. Ed.* **2010**, *49*, 3839-3842 (inside cover picture).
- 14) L. Gong, S. P. Mulcahy, D. Devarajan, K. Harms, G. Frenking, E. Meggers: Chiral Salicyloxazolines as Auxiliaries for the Asymmetric Synthesis of Ruthenium Polypyridyl Complexes, *Inorg. Chem.* **2010**, *49*, 7692-7699.
- 15) M. K. Schlegel, L.-O. Essen, E. Meggers: Atomic Resolution Duplex Structure of the Simplified Nucleic Acid GNA, *Chem. Commun.* **2010**, *46*, 1094-1096.
- 16) S. P. Mulcahy, K. Gründler, C. Frias, L. Wagner, A. Prokop, E. Meggers: Discovery of a Strongly Apoptotic Ruthenium Complex through Combinatorial Coordination Chemistry, *Dalton Trans.* **2010**, *39*, 8177-8182.
- 17) X. He, L. Gong, K. Kräling, K. Gründler, C. Frias, R. D. Webster, E. Meggers, A. Prokop, H. Xia: Unusual η^2 -Allene Osmacycle with Apoptotic Properties, *ChemBioChem* **2010**, *11*, 1607-1613.
- 18) L. Gong, S. P. Mulcahy, K. Harms, E. Meggers: Chiral Auxiliary-Mediated Asymmetric Synthesis of Tris-Heteroleptic Ruthenium Polypyridyl Complexes, *J. Am. Chem. Soc.* **2009**, *131*, 9602-9603.
- 19) N. Pagano, E. Y. Wong, T. Breiding, H. Liu, A. Wilbuer, H. Bregman, Q. Shen, S. L. Diamond, E. Meggers: From Imide to Lactam Metallo-pyridocarbazoles: Distinct Scaffolds for the Design of Selective Protein Kinase Inhibitors, *J. Org. Chem.* **2009**, *74*, 8997-9009.
- 20) P. Xie, C. Streu, J. Qin, H. Bregman, N. Pagano, E. Meggers, R. Marmorstein: The Crystal Structure of BRAF in Complex with an Organoruthenium Inhibitor Reveals a Mechanism for Inhibition of an Active Form of BRAF Kinase, *Biochemistry* **2009**, *48*, 5187-5198.
- 21) M. K. Schlegel, E. Meggers: Improved Phosphoramidite Building Blocks for the Synthesis of the Simplified Nucleic Acid GNA, *J. Org. Chem.* **2009**, *74*, 4615-4618.
- 22) R. Anand, J. Maksimoska, N. Pagano, E. Y. Wong, P. A. Gimotty, S. L. Diamond, E. Meggers, R. Marmorstein: Toward the Development of a Potent and Selective Organoruthenium Mammalian Sterile 20 Kinase Inhibitor, *J. Med. Chem.* **2009**, *52*, 1602-1611.
- 23) E. Meggers, G. E. Atilla-Gokcumen, K. Gründler, C. Frias, A. Prokop: Inert Ruthenium Half-Sandwich Complexes with Anticancer Activity, *Dalton. Trans.* **2009**, 10882–10888.
- 24) X. Xie, S. P. Mulcahy, E. Meggers: Strategy for the Stereochemical Assignment of Tris-Heteroleptic Ru(II) Complexes by NMR Spectroscopy, *Inorg. Chem.* **2009**, *48*, 1053-1061.
- 25) M. K. Schlegel, L. Zhang, N. Pagano, E. Meggers: Metal-Mediated Base Pairing within the Simplified Nucleic Acid GNA, *Org. Biomol. Chem.* **2009**, *7*, 476-482.
- 26) M. K. Schlegel, X. Xie, L. Zhang, E. Meggers: Insight into the High Duplex Stability of the Simplified Nucleic Acid GNA, *Angew. Chem. Int. Ed.* **2009**, *48*, 960-963.
- 27) A. N. Bullock, S. Russo, A. Amos, N. Pagano, H. Bregman, J. É. Debreczeni, W. H. Lee, F. von Delft, E. Meggers, S. Knapp: Crystal Structure of the PIM2 Kinase in Complex with an Organoruthenium Inhibitor, *PLoS One* **2009**, *4*, e7112.
- 28) J. Maksimoska, L. Feng, K. Harms, C. Yi, J. Kissil, R. Marmorstein, E. Meggers: Targeting Large Kinase Active Site with Rigid and Bulky Octahedral Ruthenium Complexes, *J. Am. Chem. Soc.* **2008**, *130*, 15764-15765.

- 29) G. E. Atilla-Gokcumen, N. Pagano, C. Streu, J. Maksimoska, P. Filippakopoulos, S. Knapp, E. Meggers: Extremely Tight Binding of Ruthenium Complex to Glycogen Synthase Kinase 3, *ChemBioChem* **2008**, *9*, 2933-2936 (cover picture).
- 30) M. Schlegel, L.-O. Essen, E. Meggers: Duplex Structure of a Minimal Nucleic Acid, *J. Am. Chem. Soc.* **2008**, *130*, 8158-8159.
- 31) P. Xie, D. S. Williams, G. E. Atilla-Gokcumen, L. Milk, M. Xiao, K. S. M. Smalley, M. Herlyn, E. Meggers, R. Marmorstein: Structure-Based Design of an Organoruthenium Phosphatidylinositol-3-kinase Inhibitor Reveals a Switch Governing Lipid Kinase Potency and Selectivity, *ACS Chem. Biol.* **2008**, *3*, 305-316.
- 32) J. Maksimoska, D. S. Williams, G. E. Atilla-Gokcumen, K. S. M. Smalley, P. J. Carroll, R. D. Webster, P. Filippakopoulos, S. Knapp, M. Herlyn, E. Meggers: Similar Biological Activities of Two Isostructural Ruthenium and Osmium Complexes, *Chem. Eur. J.* **2008**, *14*, 4816-4822.
- 33) S. P. Mulcahy, S. Li, R. Korn, X. Xie, E. Meggers: Solid Phase Synthesis of Tris-Heteroleptic Ru(II) Complexes and Application to Acetylcholinesterase Inhibition, *Inorg. Chem.* **2008**, *47*, 5030-5032 (cover picture).
- 34) C. Streu, P. J. Carroll, R. K. Kohli, E. Meggers: Synthesis of Cyclopentadienyl Ruthenium Complexes Bearing Pendant Chelating Picolines through an Electrophilic Precursor, *J. Organomet. Chem.* **2008**, *693*, 551-556.
- 35) M. K. Schlegel, A. E. Peritz, K. Kittigowittana, L. Zhang, E. Meggers: Duplex Formation of the Simplified Nucleic Acid GNA, *ChemBioChem* **2007**, *8*, 927-932.
- 36) D. S. Williams, P. J. Carroll, E. Meggers: Platinum Complex as Nanomolar Protein Kinase Inhibitor, *Inorg. Chem.* **2007**, *46*, 2944-2946.
- 37) N. Pagano, J. Maksimoska, H. Bregman, D. S. Williams, R. D. Webster, F. Xue, E. Meggers: Ruthenium Half-Sandwich Complexes as Protein Kinase Inhibitors: Derivatization of the Pyridocarbazole Pharmacophore Ligand, *Org. Biomol. Chem.* **2007**, *5*, 1218-1227.
- 38) K. S. M. Smalley, R. Contractor, N. K. Haass, A. N. Kulp, G. E. Atilla-Gokcumen, D. S. Williams, H. Bregman, K. T. Flaherty, M. S. Soengas, E. Meggers, M. Herlyn: An Organometallic Protein Kinase Inhibitor Pharmacologically Activates p53 and Induces Apoptosis in Human Melanoma Cells, *Cancer Res.* **2007**, *67*, 209-217.
- 39) S. P. Mulcahy, P. J. Carroll, E. Meggers: Synthesis and Cyclometalation of a Pyrido[3,2-e]-2,10b-diazacyclopenta[c]fluorene-1,3-dione Scaffold, *Tetrahedron Lett.* **2006**, *47*, 8877-8880.
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- 41) C. Streu, E. Meggers: Ruthenium-Induced Allylcarbamate Cleavage in Living Cells, *Angew. Chem. Int. Ed.* **2006**, *45*, 5645-5648.
- 42) G. E. Atilla, D. S. Williams, H. Bregman, N. Pagano, E. Meggers: Organometallic Compounds with Biological Activity: A Very Selective and Highly Potent Cellular Inhibitor for Glycogen Synthase Kinase 3, *ChemBioChem* **2006**, *7*, 1443-1450.
- 43) L. Zhang, A. E. Peritz, E. Meggers: Synthesis of Glycol Nucleic Acids, *Synthesis* **2006**, 645-653.

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- 45) H. Bregman, P. J. Carroll, E. Meggers: Rapid Access to Unexplored Chemical Space by Ligand Scanning Around a Ruthenium Center: Discovery of Potent and Selective Protein Kinase Inhibitors, *J. Am. Chem. Soc.* **2006**, *128*, 877-884.
- 46) L. Zhang, A. Peritz, E. Meggers: A Simple Glycol Nucleic Acid, *J. Am. Chem. Soc.* **2005**, *127*, 4174-4175.
- 47) L. Zhang, E. Meggers: An Extremely Stable and Orthogonal DNA-Base Pair with a Simplified Three-Carbon Backbone, *J. Am. Chem. Soc.* **2005**, *127*, 74-75.
- 48) D. S. Williams, G. Ekin Atilla, H. Bregman, A. Arzoumanian, P. S. Klein, E. Meggers: Switching On a Signaling Pathway with an Organometallic Ruthenium Complex, *Angew. Chem. Int. Ed.* **2005**, *44*, 1984-1987.
- 49) H. Bregman, D. S. Williams, E. Meggers: Pyrido[2,3-*a*]pyrrolo[3,4-*c*]carbazole-5,7(6*H*)-diones: Synthesis, Cyclometalation, and Protein Kinase Inhibition, *Synthesis* **2005**, 1521-1527.
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- 51) L. Zhang, P. J. Carroll, E. Meggers: Ruthenium Complexes as Protein Kinase Inhibitors, *Org. Lett.* **2004**, *6*, 521-523.
- 52) N. Zimmermann, E. Meggers, P. G. Schultz: A Second Generation Copper(II)-Mediated Metallo-DNA-Base Pair, *Bioorg. Chem.* **2004**, *32*, 13-25.
- 53) J. W. Chin, T. A. Cropp, S. Chu, E. Meggers, P. G. Schultz: Progress Toward an Expanded Eukaryotic Genetic Code, *Chemistry & Biology* **2003**, *10*, 511-519.
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- 55) S. Atwell, E. Meggers, G. Spraggon, P. G. Schultz: Structure of a Copper-Mediated Base Pair in DNA, *J. Am. Chem. Soc.* **2001**, *123*, 12364-12367.
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- 57) E. Meggers, A. Dussy, T. Schäfer, B. Giese: Electron Transfer in DNA from Guanine and 8-Oxoguanine to a Radical Cation of the Carbohydrate Backbone, *Chemistry Eur. J.* **2000**, *6*, 485-492.
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Reviews, Accounts, and Other Contributions

- 1) E. Meggers: Asymmetric Synthesis of Octahedral Coordination Complexes, *Eur. J. Inorg. Chem.* **2011**, 2911-2926 (microreview).
- 2) E. Meggers: From Conventional to Unusual Enzyme Inhibitor Scaffolds: The Quest for Target Specificity, *Angew. Chem. Int. Ed.* **2011**, *50*, 2442-2448 (minireview).
- 3) E. Meggers: Chiral Auxiliaries as Emerging Tools for the Asymmetric Synthesis of Octahedral Metal Complexes, *Chem. Eur. J.* **2010**, *16*, 752-758 (minireview).
- 4) S. P. Mulcahy, E. Meggers: Organometallics as Structural Scaffolds for Enzyme Inhibitor Design, *Topics Organomet. Chem.* **2010**, *32*, 141-153 (review).
- 5) E. Meggers, L. Zhang: Synthesis and Properties of the Simplified Nucleic Acid GNA, *Acc. Chem. Res.* **2010**, *43*, 1092-1102 (account).
- 6) E. Meggers: Targeting Proteins with Metal Complexes, *Chem. Commun.* **2009**, 1001-1010 (feature article).
- 7) E. Meggers, G. E. Atilla-Gokcumen, H. Bregman, J. Maksimoska, S. P. Mulcahy, N. Pagano, D. S. Williams: Exploring Chemical Space with Organometallics: Ruthenium Complexes as Protein Kinase Inhibitors, *Synlett* **2007**, *8*, 1177-1189 (account).
- 8) E. Meggers: Exploring Biologically Relevant Chemical Space with Metal Complexes, *Curr. Opin. Chem. Biol.* **2007**, *11*, 287-292 (review).
- 9) Book review of "Concepts and Models in Bioinorganic Chemistry", H.-B. Kraatz, N. Metzler-Nolte (Eds.), Wiley-VCH, published in *ChemBioChem*, **2007**, *8*, 145.
- 10) B. Giese, E. Meggers, S. Wessely, M. Spormann, A. Biland: DNA as a Supramolecule for Long-Distance Charge Transport, *Chimia* **2000**, *54*, 547-551.
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Patents

- 1) E. Meggers, H. Bregman, D. S. Williams: Metal complex glycogen synthase kinase 3 inhibitors. U.S. Pat. Appl. Publ. (2006), 30pp., Cont. of US Appl. 20050171076.
- 2) E. Meggers, L. Zhang: Metal complex protein kinase inhibitors as antitumor agents, U.S. Pat. Appl. (2005), 38 pp., US 2005171076.
- 3) P. G. Schultz, L. Wang, J. C. Anderson, J. W. Chin, D. R. Liu, T. J. Magliery, E. L. Meggers, R. A. Mehl, M. Pastrnak, S. W. Santoro, Z. Zhang: Engineering of mutant orthogonal tRNA -

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- 4) P. G. Schultz, L. Wang, J. C. Anderson, J. W. Chin, D. R. Liu, T. J. Magliery, E. L. Meggers, R. A. Mehl, M. Pastrnak, S. W. Santoro, Z. Zhang: Use of non-native tRNAs and amino acyl tRNA synthetases with relaxed substrate specificity in the in vivo incorporation of unnatural amino acids. PCT Int. Appl. (2002), 188 pp. WO 2002085923.