

List of Publications

July 2022

Publications in Scientific Journals

77. A. Alhayek, E. S. Khan, E. Schönauer, T. Däinghaus, R. Shafiei, K. Voos, M. K. L. Han, C. Ducho, G. Posselt, S. Wessler, H. Brandstetter, J. Hauptenthal, A. del Campo, A. K. H. Hirsch; Inhibition of Collagenase Q1 of *Bacillus cereus* as a Novel Antivirulence Strategy for the Treatment of Skin Wound Infections; *Adv. Therap.* **2022**, 2100222.
76. Z. Cui, H. Nguyen, M. Bhardwaj, X. Wang, M. Büschleb, A. Lemke, C. Schütz, C. Rohrbacher, P. Junghanns, S. Koppermann, C. Ducho, J. S. Thorson, S. G. Van Lanen; Enzymatic C_β-H Functionalization of L-Arg and L-Leu in Nonribosomally Derived Peptidyl Natural Products: A Tale of Two Oxidoreductases; *J. Am. Chem. Soc.* **2021**, 143, 19425-19437.
75. S. Yahiaoui, K. Voos, J. Hauptenthal, T. Wichelhaus, D. Frank, L. Weizel, M. Rotter, S. Brunst, J. S. Kramer, E. Proschak, C. Ducho, A. K. H. Hirsch; N-Aryl mercaptoacetamides as potential multi-target inhibitors of metallo-β-lactamases (MBLs) and the virulence factor LasB from *Pseudomonas aeruginosa*; *RSC Med. Chem.* **2021**, 12, 1698-1708.
74. P. D. Fischer, E. Papadopoulos, J. M. Dempersmier, Z.-F. Wang, R. P. Nowak, K. A. Donovan, J. Kalabathula, C. Gorgulla, P. P. M. Junghanns, E. Kabha, N. Dimitrakakis, O. I. Petrov, C. Mitsiades, C. Ducho, V. Gelev, E. S. Fischer, G. Wagner, H. Arthanari; A biphenyl inhibitor of eIF4E targeting an internal binding site enables the design of cell-permeable PROTAC-degraders; *Eur. J. Med. Chem.* **2021**, 219, 113435.
73. K. Voos, E. Schönauer, A. Alhayek, J. Hauptenthal, A. Andreas, R. Müller, R. W. Hartmann, H. Brandstetter, A. K. H. Hirsch, C. Ducho; Phosphonate as Stable Zinc-binding Group for Inhibitors of Clostridial Collagenase H (ColH) as Pathoblocker Agents; *ChemMedChem* **2021**, 16, 1257-1267. (selected as 'Very Important Paper (VIP)', Front Cover)

72. M. Hawner, C. Ducho; Cellular Targeting of Oligonucleotides by Conjugation with Small Molecules; *Molecules* **2020**, *25*, 5963. (Review)
71. G. Niro, S. C. Weck, C. Ducho; Merging Natural Products: Muraymycin-Sansanmycin Hybrid Structures as Novel Scaffold for Potential Antibacterial Agents; *Chem. Eur. J.* **2020**, *26*, 16875-16887.
70. M. Wojtyniak, B. Schmidtgal, P. Kirsch, C. Ducho; Towards Zwitterionic Oligonucleotides with Improved Properties: the NAA/LNA-Gapmer Approach; *ChemBioChem* **2020**, *21*, 3234-3243. (Cover Feature)
69. Z. Cui, J. Overbay, X. Wang, X. Liu, Y. Zhang, M. Bhardwaj, A. Lemke, D. Wiegmann, G. Niro, J. S. Thorson, C. Ducho, S. G. Van Lanen; Pyridoxal-5'-phosphate-dependent alkyl transfer in nucleoside antibiotic biosynthesis; *Nat. Chem. Biol.* **2020**, *16*, 904-911.
68. K. Leyerer, S. Koppermann, C. Ducho; Unexpected Seven-Membered Ring Formation for Muraymycin-Type Nucleoside-Peptide Antibiotics; *Molbank* **2020**, *2020*, M1122.
67. A. Saady, M. Wojtyniak, E. Varon, V. Böttner, N. Kinor, Y. Shav-Tal, C. Ducho, B. Fischer; Specific, Sensitive, and Quantitative Detection of HER-2 mRNA Breast Cancer Marker by Fluorescent Light-Up Hybridization Probes; *Bioconjugate Chem.* **2020**, *31*, 1188-1198.
66. A. Saady, N. Steinman, M. Wojtyniak, C. Ducho, B. Fischer; Synthesis of 2'-deoxyuridine modified with 3,5-difluoro-4-methoxybenzylidene imidazolinone (DFMBI) derivative for incorporation into oligonucleotide probes for detection of HER2 breast cancer marker; *Curr. Protoc. Nucleic Acid Chem.* **2020**, *80*, e104.
65. A. Heib, G. Niro, S. Weck, S. Koppermann, C. Ducho; Muraymycin Nucleoside Antibiotics: Structure-Activity Relationship for Variations in the Nucleoside Unit; *Molecules* **2020**, *25*, 22.
64. K. Leyerer, S. Koppermann, C. Ducho; Solid Phase-Supported Synthesis of Muraymycin Analogues; *Eur. J. Org. Chem.* **2019**, 7420-7431. (Front Cover)
63. A. Saady, V. Böttner, M. Meng, E. Varon, Y. Shav-Tal, C. Ducho, B. Fischer; An oligonucleotide probe incorporating the chromophore of green fluorescent protein is useful for the detection of HER-2 mRNA breast cancer marker; *Eur. J. Med. Chem.* **2019**, *173*, 99-106.

62. R. Linder, C. Ducho; Unified Synthesis of Densely Functionalized Amino Acid Building Blocks for the Preparation of Caprazamycin Nucleoside Antibiotics; *Eur. J. Org. Chem.* **2019**, 1523-1534.
61. D. Wiegmann, S. Koppermann, C. Ducho; Aminoribosylated Analogues of Muraymycin Nucleoside Antibiotics; *Molecules* **2018**, *23*, 3085.
60. M. Meng, B. Schmidtgal, C. Ducho; Enhanced Stability of DNA Oligonucleotides with Partially Zwitterionic Backbone Structures in Biological Media; *Molecules* **2018**, *23*, 2941.
59. A. P. Spork, S. Koppermann, S. Schier (née Wohnig), R. Linder, C. Ducho; Analogues of Muraymycin Nucleoside Antibiotics with Epimeric Uridine-Derived Core Structures; *Molecules* **2018**, *23*, 2868.
58. Z. Cui, X. Liu, J. Overbay, W. Cai, X. Wang, A. Lemke, D. Wiegmann, G. Niro, J. S. Thorson, C. Ducho, S. G. Van Lanen; Enzymatic Synthesis of the Ribosylated Glycyl-Uridine Disaccharide Core of Peptidyl Nucleoside Antibiotics; *J. Org. Chem.* **2018**, *83*, 7239-7249.
57. Z. Cui, X.-C. Wang, X. Liu, A. Lemke, S. Koppermann, C. Ducho, J. Rohr, J. S. Thorson, S. G. Van Lanen; Self-Resistance During Muraymycin Biosynthesis: A Complementary Nucleotidyltransferase and Phosphotransferase with Identical Modification Sites and Distinct Temporal Order; *Antimicrob. Agents Chemother.* **2018**, *62*, e00193-18.
56. M. Meng, C. Ducho; Oligonucleotide analogues with cationic backbone linkages; *Beilstein J. Org. Chem.* **2018**, *14*, 1293-1308. (Review)
55. Z. Cui, X. Wang, S. Koppermann, J. S. Thorson, C. Ducho, S. G. Van Lanen; Antibacterial Muraymycins from Mutant Strains of *Streptomyces* sp. NRRL 30471; *J. Nat. Prod.* **2018**, *81*, 942-948.
54. L. Elsharkawy, R. El-Sakhawy, M. Abdel-Halim, K. Lee, G. Piazza, C. Ducho, R. W. Hartmann, A. Abadi; Design and Synthesis of Novel Annulated Thienopyrimidines as Phosphodiesterase 5 (PDE5) Inhibitors; *Arch. Pharm. Chem. Life Sci.* **2018**, *351*, e1800018.
53. S. Koppermann, Z. Cui, P. D. Fischer, X. Wang, J. Ludwig, J. S. Thorson, S. G. Van Lanen, C. Ducho; Insights into the Target Interaction of Naturally Occurring Muraymycin Nucleoside Antibiotics; *ChemMedChem* **2018**, *13*, 779-784. (Cover Feature)

52. Y. Huang, X. Liu, Z. Cui, D. Wiegmann, G. Niro, C. Ducho, Y. Song, Z. Yang, S. G. Van Lanen; Pyridoxal-5'-phosphate as an oxygenase cofactor: Discovery of a carboxamide-forming, α -amino acid monooxygenase-decarboxylase; *Proc. Natl. Acad. Sci. USA* **2018**, *115*, 974-979.
51. D. Wiegmann, A. P. Spork, G. Niro, C. Ducho; Ribosylation of an Acid-Labile Glycosyl Acceptor as a Potential Key Step for the Synthesis of Nucleoside Antibiotics; *Synlett* **2018**, *29*, 440-446.
50. B. Schmidtgall, A. Kuepper, M. Meng, T. N. Grossmann, C. Ducho; Oligonucleotides with Cationic Backbone and Their Hybridization with DNA: Interplay of Base Pairing and Electrostatic Attraction; *Chem. Eur. J.* **2018**, *24*, 1544-1553. (selected as 'Hot Paper')
49. E. Schönauer, A. M. Kany, J. Hauptenthal, K. Hüsecken, I. J. Hoppe, K. Voos, S. Yahiaoui, B. Elsässer, C. Ducho, H. Brandstetter, R. W. Hartmann; Discovery of a Potent Inhibitor Class with High Selectivity toward Clostridial Collagenases; *J. Am. Chem. Soc.* **2017**, *139*, 12696-12703.
48. S. Wohnig, A. P. Spork, S. Koppermann, G. Mieskes, N. Gisch, R. Jahn, C. Ducho; Total Synthesis of Dansylated Park's Nucleotide for High-Throughput *MraY* Assays; *Chem. Eur. J.* **2016**, *22*, 17813-17819.
47. F. Gräf, B. Vukosavljevic, J.-P. Michel, M. Wirth, O. Ries, C. De Rossi, M. Windbergs, V. Rosilio, C. Ducho, S. Gordon, C.-M. Lehr; The bacterial cell envelope as delimiter of anti-infective bioavailability - An *in vitro* permeation model of the Gram-negative bacterial inner membrane; *J. Controlled Release* **2016**, *243*, 214-224.
46. S. Koppermann, C. Ducho; Naturstoffe bei der Arbeit: strukturelle Einblicke in die Inhibition des bakteriellen Membranproteins *MraY*; *Angew. Chem.* **2016**, *128*, 11896-11898; Natural Products at Work: Structural Insights into Inhibition of the Bacterial Membrane Protein *MraY*; *Angew. Chem. Int. Ed.* **2016**, *55*, 11722-11724. (Highlight article)
45. D. Wiegmann, S. Koppermann, M. Wirth, G. Niro, K. Leyerer, C. Ducho; Muraymycin nucleoside-peptide antibiotics: uridine-derived natural products as lead structures for the development of novel antibacterial agents; *Beilstein J. Org. Chem.* **2016**, *12*, 769-795. (Review)

44. A. Lemke, C. Ducho; Synthesis of Deuterium-Labelled 3-Hydroxy-L-arginine: Comparative Studies on Different Protecting-Group Strategies; *Eur. J. Org. Chem.* **2016**, 87-98.
43. C. Ducho; Enzymatically Cleavable siRNA Prodrugs: a New Paradigm for the Intracellular Delivery of RNA-Based Therapeutics; *ChemMedChem* **2015**, *10*, 1625-1627. (Highlight article)
42. W. Cai, A. Goswami, Z. Yang, X. Liu, K. D. Green, S. Barnard-Britson, S. Baba, M. Funabashi, K. Nonaka, M. Sunkara, A. J. Morris, A. P. Spork, C. Ducho, S. Garneau-Tsodikova, J. S. Thorson, S. G. Van Lanen; The Biosynthesis of Capuramycin-Type Antibiotics: Identification of the A-102395 Biosynthetic Gene Cluster, Mechanism of Self-Resistance, and Formation of Uridine-5'-Carboxamide; *J. Biol. Chem.* **2015**, *290*, 13710-13724.
41. O. Ries, C. Carnarius, C. Steinem, C. Ducho; Membrane-interacting properties of the functionalised fatty acid moiety of muraymycin antibiotics; *Med. Chem. Commun.* **2015**, *6*, 879-886.
40. B. Schmidtgall, C. Höbartner, C. Ducho; NAA-modified DNA oligonucleotides with zwitterionic backbones: stereoselective synthesis of A-T phosphoramidite building blocks; *Beilstein J. Org. Chem.* **2015**, *11*, 50-60.
39. B. Schmidtgall, A. P. Spork, F. Wachowius, C. Höbartner, C. Ducho; Synthesis and properties of DNA oligonucleotides with a zwitterionic backbone structure; *Chem. Commun.* **2014**, *50*, 13742-13745.
38. M. T. Rodolisa, A. Mihalyi, C. Ducho, K. Eitel, B. Gust, R. J. M. Goss, T. D. H. Bugg; Mechanism of action of the uridyl peptide antibiotics: an unexpected link to a protein-protein interaction site in translocase *MraY*; *Chem. Commun.* **2014**, *50*, 13023-13025.
37. A. P. Spork, M. Büschleb, O. Ries, D. Wiegmann, S. Boettcher, A. Mihalyi, T. D. H. Bugg, C. Ducho; Lead Structures for New Antibacterials: Stereocontrolled Synthesis of a Bioactive Muraymycin Analogue; *Chem. Eur. J.* **2014**, *20*, 15292-15297.
36. O. Ries, M. Büschleb, M. Granitzka, D. Stalke, C. Ducho; Amino acid motifs in natural products: synthesis of *O*-acylated derivatives of (2*S*,3*S*)-3-hydroxyleucine; *Beilstein J. Org. Chem.* **2014**, *10*, 1135-1142.
35. M. Funabashi, S. Baba, T. Takatsu, M. Kizuka, Y. Ohata, M. Tanaka, K. Nonaka, A. P. Spork, C. Ducho, W.-C. L. Chen, S. G. Van Lanen; Structure-

- Based Gene Targeting Discovery of Sphaerimicin, a Bacterial Translocase I Inhibitor; *Angew. Chem.* **2013**, *125*, 11821-11825; *Angew. Chem. Int. Ed.* **2013**, *52*, 11607-11611.
34. A. P. Spork, C. Ducho; Stereocontrolled Synthesis of 5'- and 6'-Epimeric Analogues of Muraymycin Nucleoside Antibiotics; *Synlett* **2013**, *24*, 343-346.
 33. W. Meiser, M. Buback, O. Ries, C. Ducho, A. Sidoruk; EPR-Study into cross-termination and fragmentation of the RAFT model system phenylethyl-phenylethyl dithiobenzoate; *Macromol. Chem. Phys.* **2013**, *214*, 924-933.
 32. O. Ries, M. Granitzka, D. Stalke, C. Ducho; Concise Synthesis and X-ray Crystal Structure of *N*-Benzyl-2-(pyrimidin-4'-ylamino)-thiazole-4-carboxamide ('Thiazovivin'), a Small-Molecule Tool for Stem Cell Research; *Synth. Commun.* **2013**, *43*, 2876-2882.
 31. R. B. Hamed, J. R. Gomez-Castellanos, L. Henry, C. Ducho, M. A. McDonough, C. J. Schofield; The enzymes of β -lactam biosynthesis; *Nat. Prod. Rep.* **2013**, *30*, 21-107. (Review, Front Cover)
 30. S. Barnard-Britson, X. Chi, K. Nonaka, A. P. Spork, N. Tibrewal, A. Goswami, P. Pahari, C. Ducho, J. Rohr, S. G. Van Lanen; Amalgamation of Nucleosides and Amino Acids in Antibiotic Biosynthesis: Discovery of an L-Threonine:Uridine-5'-Aldehyde Transaldolase; *J. Am. Chem. Soc.* **2012**, *134*, 18514-18517.
 29. M. Büschleb, M. Granitzka, D. Stalke, C. Ducho; A biomimetic domino reaction for the concise synthesis of capreomycin and epicapreomycin; *Amino Acids* **2012**, *43*, 2313-2328.
 28. R. B. Hamed, L. Henry, J. R. Gomez-Castellanos, J. Mecinović, C. Ducho, J. L. Sorensen, T. D. W. Claridge, C. J. Schofield; Crotonase Catalysis Enables Flexible Production of Functionalized Prolines and Carbapenams; *J. Am. Chem. Soc.* **2012**, *134*, 471-479.
 27. A. P. Spork, D. Wiegmann, M. Granitzka, D. Stalke, C. Ducho; Stereoselective Synthesis of Uridine-Derived Nucleosyl Amino Acids; *J. Org. Chem.* **2011**, *76*, 10083-10098.
 26. C. Ducho; Ein Kaleidoskop der zeitgenössischen Organischen Chemie: die 46ste Bürgenstock-Konferenz; *Angew. Chem.* **2011**, *123*, 6829-6832; A Kaleidoscope of Contemporary Organic Chemistry: the 46th Bürgenstock Conference; *Angew. Chem. Int. Ed.* **2011**, *50*, 6697-6700. (Meeting Review)

25. O. Ries, A. Ochmann, C. Ducho; Synthesis of *N*-Alkyl-*N*-hydroxy-guanidines: A Comparative Study Using Different Protecting Group Strategies; *Synthesis* **2011**, 2357-2368. (Feature Article)
24. R. B. Hamed, J. R. Gomez-Castellanos, A. Thalhammer, D. Harding, C. Ducho, T. D. W. Claridge, C. J. Schofield; Stereoselective C-C bond formation catalysed by engineered carboxymethylproline synthases; *Nat. Chem.* **2011**, 3, 365-371.
23. C. Ducho; Konvergenz führt zum Erfolg: Totalsynthese des komplexen nicht-ribosomalen Peptids Polytheonamid B; *Angew. Chem.* **2010**, 122, 5156-5158; Convergence Leads to Success: Total Synthesis of the Complex Nonribosomal Peptide Polytheonamide B; *Angew. Chem. Int. Ed.* **2010**, 49, 5034-5036. (Highlight article)
22. A. P. Spork, S. Koppermann, B. Dittrich, R. Herbst-Irmer, C. Ducho; Efficient synthesis of the core structure of muraymycin and caprazamycin nucleoside antibiotics based on a stereochemically revised sulfur ylide reaction; *Tetrahedron: Asymmetry* **2010**, 21, 763-766.
21. A. P. Spork, C. Ducho; Novel 5'-deoxy nucleosyl amino acid scaffolds for the synthesis of muraymycin analogues; *Org. Biomol. Chem.* **2010**, 8, 2323-2326.
20. R. B. Hamed, J. Mecinović, C. Ducho, T. D. W. Claridge, C. J. Schofield; Carboxymethylproline synthase catalysed syntheses of functionalised *N*-heterocycles; *Chem. Commun.* **2010**, 46, 1413-1415.
19. A. Lemke, M. Büschleb, C. Ducho; Concise synthesis of both diastereomers of 3-hydroxy-L-arginine; *Tetrahedron* **2010**, 66, 208-214. (Front Cover)
18. A. P. Spork, S. Koppermann, C. Ducho; Improved Convergent Synthesis of 5'-*epi*-Analogues of Muraymycin Nucleoside Antibiotics; *Synlett* **2009**, 2503-2507.
17. C. Ducho, R. B. Hamed, E. T. Batchelar, J. L. Sorensen, B. Odell, C. J. Schofield; Synthesis of regio- and stereoselectively deuterium-labelled derivatives of L-glutamate semialdehyde for studies on carbapenem biosynthesis; *Org. Biomol. Chem.* **2009**, 7, 2770-2779.
16. C. Meier, N. Gisch, C. Ducho, J. Balzarini; *CycloSal*igenyl-di-d4TMP: Highly Loaded *CycloSal*-pronucleotides that Release Two Equivalents of Nucleotides and Leaving One Masking Unit; *Antiviral Res.* **2009**, 82, A61.

15. E. T. Batchelar, R. B. Hamed, C. Ducho, T. D. W. Claridge, M. J. Edelmann, B. Kessler, C. J. Schofield; Thioester Hydrolysis and C-C Bond Formation by Carboxymethylproline Synthase from the Crotonase Superfamily; *Angew. Chem.* **2008**, *120*, 9462-9465; *Angew. Chem. Int. Ed.* **2008**, *47*, 9322-9325.
14. C. Ducho, U. Görbig, S. Jessel, N. Gisch, J. Balzarini, C. Meier; Bis-*cycloSal*-d4T-monophosphates: Drugs That Deliver Two Molecules of Bioactive Nucleotides; *J. Med. Chem.* **2007**, *50*, 1335-1346.
13. C. Meier, C. Ducho, H. Jessen, D. Vukadinovic-Tenter, J. Balzarini; Second generation *cycloSal*-d4TMP pronucleotides bearing esterase-cleavable sites - the "trapping"-concept; *Eur. J. Org. Chem.* **2006**, 197-206.
12. C. Ducho, S. Jessel, N. Gisch, J. Balzarini, C. Meier; Novel *cycloSal* Nucleotides with Reduced Inhibitory Potency towards Human Butyrylcholinesterase; *Nucleosides Nucleotides* **2005**, *24*, 519-522.
11. C. Meier, C. Ducho, H. Jessen, J. Balzarini; Esterase-cleavable *cycloSal*-pronucleotides - the trapping concept; *Coll. Symp. Series* **2005**, *7*, 105-113.
10. C. Meier, C. Ducho, H. J. Jessen, J. Balzarini; Novel "lock-in" modified *cycloSal* nucleotides (II): Application of the AM- and the POM-group; *Antiviral Res.* **2005**, *65*, A27.
9. C. Meier, C. Ducho, U. Görbig, R. Esnouf, J. Balzarini; Interaction of *cycloSal*-Pronucleotides with Cholinesterases from Different Origins. A Structure-Activity Relationship; *J. Med. Chem.* **2004**, *47*, 2839-2852.
8. C. Meier, C. Ducho, J. Balzarini; Are cholinesterases inhibited by *cycloSal* nucleotides?; *Antiviral Res.* **2004**, *62*, A85.
7. C. Ducho, S. Wendicke, U. Görbig, J. Balzarini, C. Meier; 3,5-Di-(*tert*-butyl)-6-fluoro-*cycloSal*-d4TMP - a pronucleotide with a considerably improved masking group; *Eur. J. Org. Chem.* **2003**, 4786-4791.
6. C. Ducho, J. Balzarini, C. Meier; Non-inhibition of Acetylcholinesterase by *cycloSal* Nucleotides; *Nucleosides Nucleotides* **2003**, *22*, 841-843.
5. C. Ducho, J. Balzarini, C. Meier; Interaction of Cholinesterases with *cycloSal* Nucleotides; *Antiviral Res.* **2003**, *57*, A54.
4. C. Meier, J. Renze, C. Ducho, J. Balzarini; *cycloSal*-d4TMP Pronucleotides - Structural Variations, Mechanistic Insights and Antiviral Activity; *Curr. Top. Med. Chem.* **2002**, *2*, 1111-1121. (Review)

3. C. Ducho, J. Balzarini, L. Naesens, E. De Clercq, C. Meier; Aryl-substituted and Benzo-annulated *cycloSal*-derivatives of 2',3'-Dideoxy-2',3'-didehydrothymidine Monophosphate - Correlation of Structure, Hydrolysis Properties and Anti-HIV Activity; *Antiviral Chem. Chemother.* **2002**, *13*, 129-141.
2. J. Renze, M. Plath, C. Ducho, J. Balzarini, E. De Clercq, C. Meier; Benzyl-functionalized *cycloSal*-d4T Monophosphates; *Nucleosides Nucleotides* **2001**, *20*, 931-934.
1. J. Renze, M. Plath, C. Ducho, J. Balzarini, E. De Clercq, C. Meier; Hydrolysis Behaviour of Benzyl-functionalized *cycloSal*-d4TMPs; *Antiviral Res.* **2001**, *50*, A47.

Patents

2. C. Ducho, R. W. Hartmann, J. Haupenthal, A. K. H. Hirsch, A. Kany, C. Kaya, J. Konstantinovic, K. Voos, I. Walter, S. Yahiaoui, A. S. Abdelsamine, C. Schütz, R. Jumde, A. Kiefer; Synthesis of α -substituted mercaptoacetamides inhibiting *Pseudomonas aeruginosa* virulence factor LasB treating bacterial infections; **2022**, WO 2022043322.
1. Isis Innovation, C. J. Schofield, R. B. Hamed, E. Batchelar, C. Ducho; Methods for preparing substituted *N*-heterocyclic rings, especially *trans*-carboxymethylproline derivatives and analogs, via enzymatically carbon-carbon bond formation reaction in the presence of a crotonase superfamily protein or a homolog or variant for use in the synthesis of antibiotics; **2010**, WO 2010046713.

Oral Presentations and Lectures

86. Auf dem Weg zu neuen antibakteriellen Wirkstoffen; Tag der Pharmazie, Hamburg, Germany, **2022**.
85. Medicinal Chemistry with Naturally Occurring Nucleoside Antibiotics; Colloquium of the GRK 2158, Düsseldorf, Germany, **2022**.
84. Medizinische Chemie mit natürlich vorkommenden Nucleosid-Antibiotika; Julius-Maximilians-University Würzburg, Würzburg, Germany, **2022**.
83. With or without Phosphate: New Linkage Motifs for Oligonucleotide Analogues; Colloquium of the University of Southern Denmark, Odense, Denmark, **2022**.

82. With or without Phosphate: New Linkage Motifs for Oligonucleotide Analogues; X. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Bad Herrenalb, Germany, **2021**.
81. Oligonucleotides with partially zwitterionic and cationic backbone structures; Advances in Chemical Biology, Online, **2021**.
80. With or without Phosphate: New Linkage Motifs for Oligonucleotide Analogues; Phosphorus Chemistry Seminar, Online, **2020**.
79. Towards nucleoside-derived antibiotics; Colloquium of the University of Lincoln, Lincoln, UK, **2019**.
78. Towards nucleoside-derived antibiotics; Emil-Fischer-Colloquium of the Friedrich-Alexander-University Erlangen, Erlangen, Germany, **2019**.
77. Towards nucleoside-derived antibiotics; Colloquium of the Dana-Farber Cancer Institute, Boston/MA, USA, **2019**.
76. Towards novel potential antibiotics; Colloquium of the Goethe-University Frankfurt, Frankfurt, Germany, **2019**.
75. Nucleosid-Derivate als antibiotische Wirkstoff-Kandidaten; DPhG-Colloquium of the Albert-Ludwigs-University Freiburg, Freiburg, Germany, **2018**.
74. Antibiotics and oligonucleotides; Workshop "Synthesis for Biology and Medicine", Kaiserslautern, Germany, **2018**.
73. Nucleoside antibiotics as antibacterial agents; DPhG Annual Meeting (DPhG-Jahrestagung), Hamburg, Germany, **2018**.
72. Nucleoside antibiotics targeting bacterial peptidoglycan biosynthesis; 23rd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, San Diego, USA, **2018**.
71. Nucleosid-Analoga als antibakterielle Wirkstoff-Kandidaten; GDCh-Colloquium of the Hochschule Aalen, Aalen, Germany, **2018**.
70. Targeting the bacterial translocase MraY; Meeting "Target Discovery using Chemical Probes", Oxford, UK, **2018**.
69. Towards nucleoside-derived antibiotics; Frontiers in Medicinal Chemistry, Jena, Germany, **2018**.
68. Towards nucleoside-derived antibiotics; Advances in Chemical Biology, Frankfurt, Germany, **2018**.
67. Towards nucleoside-derived antibiotics; VIII. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Mainz, Germany, **2017**.

66. Synthetic and biological studies on naturally occurring nucleoside antibiotics; 13th Conference on Iminium Salts (Tagung über Iminiumsalze, IMSAT-13), Goslar, Germany, **2017**.
65. Towards Nucleoside-Derived Antibiotics: Inhibitors of the Bacterial Translocase MraY; GDCh Scientific Forum (GDCh-Wissenschaftsforum), Berlin, Germany, **2017**. (Poster Short Talk)
64. Towards Nucleoside-Derived Antibiotics: Inhibitors of the Bacterial Translocase MraY; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2017**. (Poster Talk)
63. Towards nucleoside-derived antibiotics; Colloquium of the University of Münster, Münster, Germany, **2017**.
62. From nucleoside-derived antibiotics to novel oligonucleotide modifications; Colloquium of the University of Southern Denmark, Odense, Denmark, **2017**.
61. Inhibitors of the bacterial translocase MraY as potential novel antibiotics; DPhG Annual Meeting (DPhG-Jahrestagung), Munich, Germany, **2016**.
60. Hemmstoffe der Zellwand-Biosynthese als Antibiotika: neue Varianten eines etablierten Ansatzes; DPhG-Colloquium of the University of Hamburg, Hamburg, Germany, **2016**.
59. Nucleosid-Aminosäure-Hybride: von antibiotisch aktiven Naturstoffen zu modifizierten Oligonucleotiden; GDCh-Colloquium of the TU Bergakademie Freiberg, Freiberg, Germany, **2016**.
58. Nucleoside-amino acid hybrids: from antibioticly active natural products to modified oligonucleotides; Organic Chemistry Colloquium of the TU Berlin, Berlin, Germany, **2016**.
57. Muraymycin-derived nucleoside-peptide antibiotics: potential lead structures for novel antibacterial agents; Chemistry Colloquium of the University of Malaga, Malaga, Spain, **2015**.
56. Structure-activity relationship studies on muraymycin nucleoside-peptide antibiotics; 2nd European Conference on Natural Products, Frankfurt, Germany, **2015**.
55. Muraymycin Nucleoside Antibiotics as Lead Structures for Novel Antibacterial Agents; Chinese-German Frontiers of Science Symposium (SINOGFOS) of the Alexander-von-Humboldt-Stiftung, Potsdam, Germany, **2015**. (Poster Flash Talk)

54. Von antibiotischen Wirkstoffen zu modifizierten Nucleinsäuren; Inaugural Lecture at Saarland University, Saarbrücken, Germany, **2015**.
53. Bacterial translocase as a potential target for novel antibiotics; COST-Meeting "Mining the Chemical Proteome: Target Discovery Using Chemical Probes and their Application in Medicine and Biology", Oxford, UK, **2015**.
52. Von antibiotischen Wirkstoffen zu Rückgrat-modifizierten Oligonucleotiden; Organic Chemistry Colloquium of the University of Bonn, Bonn, Germany, **2015**.
51. Von antibiotischen Wirkstoffen zu Rückgrat-modifizierten Oligonucleotiden; GDCh-Colloquium of the University of Osnabrück, Osnabrück, Germany, **2015**.
50. Warum brauchen wir neue Antibiotika?; Evening Lecture at the Summer Academy of the Studienstiftung des deutschen Volkes, La Colle-sur-Loup, France, **2014**.
49. Keine Angst vor komplexen Leitstrukturen: Translocase-Inhibitoren als neue potenzielle Antibiotika; Tag der Pharmazie, Saarbrücken, Germany, **2014**.
48. Towards Novel Antibacterial Agents: Synthetic and Biological Studies on Muraymycin Nucleoside Antibiotics; Chinese-German Frontiers of Science Symposium (SINOGFOS) of the Alexander-von-Humboldt-Stiftung, Kunming, China, **2014**. (Poster Flash Talk)
47. Struktur-Aktivitäts-Untersuchungen zu Nucleosid-Peptid-Antibiotika vom Muraymycin-Typ; Organic Chemistry Colloquium of the TU Braunschweig, Braunschweig, Germany, **2013**.
46. Towards novel antibacterial agents; 2. Scientific Meeting Paderborn - Le Mans, Paderborn, Germany, **2013**.
45. Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone Structure; VI. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Greifswald, Germany, **2013**.
44. Synthetic and Structure-Activity Relationship Studies on Muraymycin Nucleoside-Peptide Antibiotics; GDCh Scientific Forum (GDCh-Wissenschaftsforum), Darmstadt, Germany, **2013**. (Poster Short Talk)
43. Towards Novel Antibacterial Agents: Synthetic and Functional Studies on Muraymycin Nucleoside Antibiotics; Chinese-German Frontiers of Science Symposium (SINOGFOS) of the Alexander-von-Humboldt-Stiftung, Merseburg, Germany, **2013**. (Poster Flash Talk)

42. Synthesis of muraymycin nucleoside-peptide antibiotics and their analogues; 11th German Peptide Symposium, Munich, Germany, **2013**.
41. Nucleosid-Peptid-Antibiotika vom Muraymycin-Typ - Leitstrukturen für neue antimikrobielle Wirkstoffe?; University of Hamburg, Hamburg, Germany, **2013**.
40. Targeting Bacterial Cell Wall Biosynthesis: Muraymycin Nucleoside Antibiotics as Inhibitors of MraY; Colloquium of the SFB 766, Tübingen, Germany, **2013**.
39. Auf dem Weg zu neuen antibiotischen Wirkstoffen; Meeting "Ergebnisse des Leopoldina-Förderprogramms VII" of the Deutsche Akademie der Naturforscher Leopoldina, Halle/Saale, Germany, **2012**.
38. Nucleosid-Aminosäure-Hybride als Struktur motive für Naturstoff-Analoga und modifizierte Oligonucleotide; Organic Chemistry Colloquium of the University of Stuttgart, Stuttgart, Germany, **2012**.
37. Raffiniert modifiziert - Von Naturstoff-Analoga und strukturell veränderten Nucleinsäuren; Inaugural Lecture at the University of Paderborn, Paderborn, Germany, **2012**.
36. Nucleosid-Antibiotika vom Muraymycin-Typ - Leitstrukturen für neue antimikrobielle Wirkstoffe?; Saarland University, Saarbrücken, Germany, **2012**.
35. Nucleoside-amino acid hybrids as structural motifs for natural product analogues and modified oligonucleotides; Chemistry Colloquium of the TU Dortmund, Dortmund, Germany, **2012**.
34. Nucleosid-Aminosäure-Hybride als Struktur motive für Naturstoff-Analoga und modifizierte Oligonucleotide; Organic Chemistry Colloquium of the Karlsruhe Institute of Technology, Karlsruhe, Germany, **2011**.
33. Structural insights into protein-ligand-membrane interactions for the bacterial membrane protein MraY: synthesis and application of chemical probes; 2nd Symposium of the SFB 803, Göttingen, Germany, **2011**.
32. Von der Natur inspirierte unnatürliche Modifikation der natürlichen Struktur von DNA-Oligonucleotiden; Young Scientists Conference on Bioorganic Chemistry (Nachwuchswissenschaftler-Tagung Bioorganische Chemie), Karlsruhe, Germany, **2011**.
31. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; Chemistry Colloquium of the Justus-Liebig-University Gießen, Gießen, Germany, **2011**.
30. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; University of Bayreuth, Bayreuth, Germany, **2011**.

29. From muraymycin nucleoside antibiotics to modified oligonucleotides; German-Austrian-French-Hungarian-Italian Conference in Organic and Biomolecular Chemistry (GAFHI) 2011, Goslar, Germany, **2011**.
28. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; Humboldt-University of Berlin, Berlin, Germany, **2011**.
27. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; German Chemistry Lecturers Conference (Chemiedozententagung), Mainz, Germany, **2011**.
26. Synthetic studies on muraymycin nucleoside lipopeptide antibiotics; 10th German Peptide Symposium, Berlin, Germany, **2011**.
25. From muraymycin nucleoside antibiotics to modified oligonucleotide structures; Imperial College, London, UK, **2011**.
24. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; Eberhard-Karls-University Tübingen, Tübingen, Germany, **2011**.
23. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; GDCh-Colloquium of the Georg-August-University Göttingen (Christmas colloquium), Göttingen, Germany, **2010**.
22. From muraymycin nucleoside antibiotics to modified oligonucleotide structures; Workshop Bioinspired Chemistry, Göttingen, Germany, **2010**.
21. Von Nucleosid-Antibiotika zu modifizierten Oligonucleotiden; GDCh-Colloquium of the University of Hamburg, Hamburg, Germany, **2010**.
20. Muraymycin-Type Nucleoside Antibiotics - Lead Structures for Future Antimicrobial Agents?; Japanese-German Frontiers of Science Symposium (JaGFOS) of the Alexander von Humboldt Foundation, Potsdam, Germany, **2010**. (Poster Flash Talk)
19. Structural insights into protein-ligand-membrane interactions for the bacterial membrane protein MraY: synthesis and application of chemical probes; 1st Symposium of the SFB 803, Göttingen, Germany, **2010**.
18. Nucleosid-Antibiotika vom Muraymycin-Typ - Leitstrukturen für künftige antimikrobielle Agentien?; University of Paderborn, Paderborn, Germany, **2010**.
17. Nucleosid-Antibiotika vom Muraymycin-Typ - Leitstrukturen für künftige antimikrobielle Agentien?; German Chemistry Lecturers Conference (Chemie-dozententagung), Gießen, Germany, **2010**.

16. Muraymycin-Type Nucleoside Antibiotics - Lead Structures for Future Antimicrobial Agents?; The 1st Joint Symposium for Chemistry Faculties of Göttingen University and Nanjing University; Nanjing, China, **2009**.
15. Nucleosid-Antibiotika vom Muraymycin-Typ - Arbeiten zur Synthese und Biosynthese; Young Scientists Conference on Bioorganic Chemistry (Nachwuchswissenschaftler-Tagung Bioorganische Chemie), Hannover, Germany, **2009**.
14. Muraymycin-Type Nucleoside Antibiotics - Lead Structures for Future Antimicrobial Agents?; 3rd Göttingen Chemistry Forum, Göttingen, Germany, **2009**.
13. Einblicke in die Wirkstofffabrik der Natur - Zur Biosynthese von Carbapenem-Antibiotika; Meeting "Ergebnisse des Leopoldina-Förderprogramms VI" of the Deutsche Akademie der Naturforscher Leopoldina, Halle/Saale, Germany, **2008**.
12. Nucleosid-Antibiotika vom Muraymycin-Typ - Leitstrukturen für künftige antimikrobielle Agentien?; Young Scientists Conference on Bioorganic Chemistry (Nachwuchswissenschaftler-Tagung Bioorganische Chemie), Konstanz, Germany, **2008**.
11. Einblicke in die Wirkstofffabrik der Natur - Zur Biosynthese von Carbapenem-Antibiotika; Young Scientists Conference on Bioorganic Chemistry (Nachwuchswissenschaftler-Tagung Bioorganische Chemie), Dortmund, Germany, **2007**.
10. Arbeiten zur Biosynthese von Carbapenem-Antibiotika; German Chemistry Lecturers Conference (Chemiedozententagung), Halle/Saale, Germany, **2007**. (upon invitation of the Deutsche Akademie der Naturforscher Leopoldina)
9. Arbeiten zur Biosynthese von Carbapenem-Antibiotika; Georg-August-University Göttingen, Göttingen, Germany, **2007**.
8. Arbeiten zur Biosynthese von Carbapenem-Antibiotika; University of Hamburg, Hamburg, Germany, **2006**.
7. *cycloSal* Pronucleotides - Chemical Trojan Horses with Antiviral Activity; Chemical Biology Meeting of the University of Oxford, Oxford, UK, **2006**.
6. *cycloSal*-Nucleotide - Ansätze zur Optimierung eines Wirkstoffsystems; Award Ceremony of the Department of Chemistry of the University of Hamburg,

- Hamburg, Germany, **2005**. (on the occasion of the award won for the doctoral thesis)
5. *cycloSal* Pronucleotides - Chemical Trojan Horses with Antiviral Activity; Roche Symposium for Leading Chemists of the Next Decade, Roche research site, Basel, Switzerland, **2004**.
 4. *cycloSal* Pronucleotides - Chemical Trojan Horses with Antiviral Activity; Northeastern Student Chemistry Research Conference (NSCRC) of the Young Chemists Committee of the Northeastern Section of the American Chemical Society (ACS), Boston/MA, USA, **2004**.
 3. *cycloSal* Pronucleotides - Chemical Trojan Horses with Antiviral Activity; Euregionale, International Conference of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Dresden, Germany, **2003**. (First prize for oral presentation in the section "life sciences")
 2. Aryl-substituierte und Benzo-anellierte *cycloSal*-Nucleotide; Award Ceremony of the Department of Chemistry of the University of Hamburg, Hamburg, Germany, **2002**. (on the occasion of the award won for the Diploma thesis)
 1. Synthesis of Novel Antivirally Active Pronucleotides Employing the *cycloSal* Concept; Young Scientists Conference on Organic Synthesis (YSCOS), St. Petersburg, Russia, **2002**.

Poster Presentations at Scientific Conferences

109. M. Hawner, C. Ducho; Estrogen Receptor Ligands for Active Cellular Targeting of Breast Cancer Therapeutics; Frontiers in Medicinal Chemistry, Online, **2022**.
108. T. Betzholz, M. Engel, S. Mathea, S. Knapp, C. Ducho; Synthesis of Potential Pseudokinase Modulators; Frontiers in Medicinal Chemistry, Online, **2022**.
107. S. Lauterbach, J. Hauptenthal, A. K. H. Hirsch, C. Ducho; Pseudouridimycin (PUM) and Its Derivatives as Potential New Antibiotics; X. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Bad Herrenalb, Germany, **2021**.
106. S. Lauterbach, J. Hauptenthal, A. K. H. Hirsch, C. Ducho; Pseudouridimycin (PUM) and Its Derivatives as Potential New Antibiotics; Frontiers in Medicinal Chemistry, Online, **2021**.

105. C. Rohrbacher, C. Ducho; Towards Novel Hybrid Nucleoside Antibiotics: Muraymycin-Streptomycin Conjugates; *Frontiers in Medicinal Chemistry*, Online, **2021**.
104. S. Weck, G. Niro, J. Meiers, C. Ducho; Studies on the Biological Properties of Nucleoside Antibiotics and their Analogues; *Frontiers in Medicinal Chemistry*, Online, **2021**.
103. J. Konstantinović, C. Kaya, K. Voos, I. Walter, S. Yahiaoui, A. Kany, A. Alhayek, A. Sikandar, J. Köhnke, J. Hauptenthal, C. Ducho, R. W. Hartmann, A. K. H. Hirsch; Discovery of Submicromolar Inhibitors of the Virulence Factor LasB from *Pseudomonas aeruginosa* using Rational Design; *Frontiers in Medicinal Chemistry*, Online, **2021**.
102. R. K. Fathalla, W. Fröhner, C. Ducho, M. Engel; Towards new inhibitors of the bacterial enzyme MurA; *Advances in Chemical Biology*, Online, **2021**.
101. S. C. Weck, G. Niro, J. Meiers, C. Ducho; Studies on the biological properties of nucleoside antibiotics and their analogues; *Advances in Chemical Biology*, Online, **2021**.
100. M. Meng, B. Schmidtgall, C. Ducho; Oligonucleotides with Partially Zwitterionic Backbone Structures; IX. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Saarbrücken, Germany, **2019**.
99. S. Lauterbach, J. Hauptenthal, A. K. H. Hirsch, C. Ducho; Pseudouridimycin (PUM) and its derivatives as potential new antibiotics; IX. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Saarbrücken, Germany, **2019**.
98. S. C. Weck, J. Meiers, D. Wiegmann, C. Ducho; Studies on the cellular uptake of nucleoside antibiotics; IX. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Saarbrücken, Germany, **2019**.
97. C. Rohrbacher, S. Weck, C. Ducho; Towards novel hybrid nucleoside antibiotics: muraymycin-streptomycin conjugates; IX. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Saarbrücken, Germany, **2019**.
96. A. Heib, G. Niro, K. Leyerer, C. Ducho; Synthesis of muraymycin analogues with variations in the nucleoside moiety; IX. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Saarbrücken, Germany, **2019**.
95. A. Saady, V. Böttner, M. Meng, E. Varon, Y. Shav-Tal, C. Ducho, B. Fischer; Oligonucleotide Probe Incorporating the Chromophore of Green Fluorescent

- Protein is Useful for the Detection of HER-2 Breast Cancer Marker; IX. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Saarbrücken, Germany, **2019**.
94. K. Voos, A. M. Kany, E. Schönauer, J. Hauptenthal, S. Yahiaoui, H. Brandstetter, R. W. Hartmann, A. K. H. Hirsch, C. Ducho; New pathoblockers: highly potent and selective inhibitors of Clostridial collagenases; DPhG Annual Meeting (DPhG-Jahrestagung), Heidelberg, Germany, **2019**.
 93. S. Lauterbach, J. Hauptenthal, A. K. H. Hirsch, C. Ducho; Pseudouridimycin (PUM) and its derivatives as potential new antibiotics; DPhG Annual Meeting (DPhG-Jahrestagung), Heidelberg, Germany, **2019**.
 92. S. C. Weck, G. Niro, J. Meiers, C. Ducho; Studies on the cellular uptake of nucleoside antibiotics; DPhG Annual Meeting (DPhG-Jahrestagung), Heidelberg, Germany, **2019**.
 91. C. Rohrbacher, C. Ducho; Towards novel hybrid nucleoside antibiotics: muraymycin-streptomycin conjugates; DPhG Annual Meeting (DPhG-Jahrestagung), Heidelberg, Germany, **2019**.
 90. A. Heib, G. Niro, K. Leyerer, C. Ducho; Synthesis of muraymycin analogues with variations in the nucleoside moiety; DPhG Annual Meeting (DPhG-Jahrestagung), Heidelberg, Germany, **2019**.
 89. C. Ducho, V. Böttner; Towards Oligonucleotide Prodrugs; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2019**.
 88. M. Meng, B. Schmidtgall, A. Kuepper, T. Grossmann, C. Ducho; Oligonucleotides with partially zwitterionic and cationic backbone structures; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2019**.
 87. P. D. Fischer, M. Wirth, S. G. Van Lanen, H. Arthanari, C. Ducho; Insights into protein-protein and protein-inhibitor interaction profiles of bacterial translocase I (MraY); Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2019**.
 86. V. Böttner, C. Ducho; Studies on backbone-modified oligonucleotides as prodrugs; IV. Graduate student seminar (Doktorandenseminar) of the DNG, Bad Herrenalb, Germany, **2018**.

85. V. Böttner, C. Ducho; Studies on backbone-modified oligonucleotides as prodrugs; 23rd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, San Diego, USA, **2018**.
84. M. Meng, B. Schmidtgall, A. Kuepper, T. Grossmann, C. Ducho; Oligonucleotides with partially zwitterionic and cationic backbone structures; 23rd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, San Diego, USA, **2018**.
83. G. Niro, C. Ducho; Studies on the selectivity of nucleoside antibiotics; 23rd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, San Diego, USA, **2018**. (Poster award)
82. K. Voos, A. M. Kany, E. Schönauer, J. Hauptenthal, H. Brandstetter, R. W. Hartmann, C. Ducho; Targeting clostridial virulence factors - towards selective inhibitors of collagenases; Meeting "Target Discovery using Chemical Probes", Oxford, UK, **2018**.
81. S. Koppermann, C. Ducho; Structure-Activity Relationship (SAR) Studies on Muraymycin Nucleoside-Peptide Antibiotics; Frontiers in Medicinal Chemistry, Jena, Germany, **2018**. (Poster award)
80. G. Niro, C. Ducho; Studies on the Selectivity of Nucleoside Antibiotics; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
79. M. Meng, B. Schmidtgall, C. Ducho; Properties of DNA Oligonucleotides with a Partially Zwitterionic Backbone Structure; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
78. R. Linder, C. Ducho; Synthetic Studies Towards Novel Analogues of Caprazamycin Nucleoside Antibiotics; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
77. K. Leyerer, C. Ducho; Synthesis of Muraymycin Analogues for Structure-Activity Relationship Studies: Influence of the Peptide Moiety; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
76. S. Koppermann, S. Wohnig, C. Ducho; Structure-Activity Relationship (SAR) Studies on Muraymycin Nucleoside-Peptide Antibiotics and their Analogues; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
75. A. M. Kany, E. Schönauer, A. Sikandar, J. Hauptenthal, C. Maurer, S. Yahiaoui, K. Hüsecken, I. J. Hoppe, K. Voos, C. Ducho, J. Köhnke, H. Brandstetter, R. W. Hartmann; Development of Inhibitors Targeting Elastase (LasB) from

- Pseudomonas aeruginosa* and Collagenase H (ColH) from *Clostridium histolyticum*; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
74. V. Böttner, C. Ducho; Studies on Backbone-Modified Oligonucleotides as Prodrugs; DPhG Annual Meeting (DPhG-Jahrestagung), Saarbrücken, Germany, **2017**.
73. V. Böttner, C. Ducho; Studies on Backbone-Modified Oligonucleotides as Prodrugs; VIII. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Mainz, Germany, **2017**.
72. M. Meng, B. Schmidtgal, C. Ducho; Properties of DNA Oligonucleotides with a Partially Zwitterionic Backbone Structure; VIII. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Mainz, Germany, **2017**.
71. V. Böttner, C. Ducho; Studies on Backbone-Modified Oligonucleotides as Prodrugs; GDCh Scientific Forum (GDCh-Wissenschaftsforum), Berlin, Germany, **2017**.
70. C. Ducho, D. Wiegmann, K. Leyerer, S. Koppermann, S. Wohnig, J. Meiers; Towards Nucleoside-Derived Antibiotics: Inhibitors of the Bacterial Translocase *MraY*; GDCh Scientific Forum (GDCh-Wissenschaftsforum), Berlin, Germany, **2017**.
69. C. Ducho, D. Wiegmann, K. Leyerer, S. Koppermann, S. Wohnig, J. Meiers; Towards Nucleoside-Derived Antibiotics: Inhibitors of the Bacterial Translocase *MraY*; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2017**.
68. T. Manz, C. Ducho; Nucleoside Antibiotics and Their Interaction with The Bacterial and Human Proteome; Meeting "Activity-based protein profiling and bio-orthogonal chemistry", Leiden, Netherlands, **2017**.
67. M. Meng, B. Schmidtgal, C. Ducho; Properties of DNA Oligonucleotides with a Partially Zwitterionic Backbone Structure; III. Graduate student seminar (Doktorandenseminar) of the DNG, Bad Herrenalb, Germany, **2016**.
66. D. Wiegmann, C. Ducho; Synthetic Studies on Aminoribosylated Muraymycin Nucleoside Antibiotics and their Analogues; 22nd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Paris, France, **2016**.
65. K. Leyerer, C. Schütz, C. Ducho; Synthetic Access to Muraymycin Nucleoside Antibiotics: Novel Analogues for Structure-Activity Relationship Studies; 22nd

- International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Paris, France, **2016**.
64. S. Koppermann, A. P. Spork, S. Wohnig, C. Ducho; Structure-Activity Relationship (SAR) Studies on Muraymycin Nucleoside Antibiotics; 22nd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Paris, France, **2016**.
 63. R. Linder, C. Ducho; Synthetic Studies Towards Novel Analogues of Caprazamycin Nucleoside Antibiotics; 22nd International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Paris, France, **2016**.
 62. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig, S. Koppermann; Synthetic and Biological Studies on Muraymycin Nucleoside Antibiotics; VII. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Berlin, Germany, **2015**.
 61. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig, S. Koppermann; Synthetic and Biological Studies on Muraymycin Nucleoside Antibiotics; COST-Meeting "Design of Synthetic Chemical Probes: Tools and Strategies in Medicine & Chemical Biology", Istanbul, Turkey, **2015**.
 60. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig, S. Koppermann; Synthetic and Biological Studies on Muraymycin Nucleoside Antibiotics; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2015**.
 59. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig, S. Koppermann; Muraymycin Nucleoside Antibiotics as Lead Structures for Novel Antibacterial Agents; Chinese-German Frontiers of Science Symposium (SINOGFOS) of the Alexander-von-Humboldt-Stiftung, Potsdam, Germany, **2015**.
 58. S. Koppermann, A. P. Spork, S. Wohnig, C. Ducho; Structure-Activity Relationship (SAR) Studies on Muraymycin Nucleoside-Peptide Antibiotics; 12th German Peptide Symposium, Darmstadt, Germany, **2015**.
 57. M. Wirth, O. Ries, C. Ducho; Synthesis of Derivatives and Analogues of (2S,3S)-3-Hydroxyleucine; 12th German Peptide Symposium, Darmstadt, Germany, **2015**.
 56. K. Leyerer, A. P. Spork, M. Büschleb, C. Ducho; Synthesis of Novel Analogues of Muraymycin Nucleoside-Peptide Antibiotics; 12th German Peptide Symposium, Darmstadt, Germany, **2015**.

55. D. Wiegmann, C. Ducho; Synthetic Studies on Muraymycin Nucleoside Antibiotics and Their Analogues; 21st International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Poznan, Poland, **2014**.
54. K. Leyerer, A. P. Spork, M. Büschleb, C. Ducho; Synthesis of Novel Analogues of Muraymycin Nucleoside Antibiotics for Structure-Activity Relationship Studies; 21st International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Poznan, Poland, **2014**.
53. A. Lemke, A. P. Spork, K. Taupitz, C. Ducho; 'Synthetic Tool Kit' for Biosynthetic Studies on Muraymycin Nucleoside Antibiotics; 21st International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Poznan, Poland, **2014**.
52. S. Wohnig, C. Ducho; Total Synthesis of Dansylated Park's Nucleotide for High Throughput MraY Assays; 21st International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Poznan, Poland, **2014**.
51. C. Ducho, B. Schmidtgal, C. Höbartner; Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone Structure; 21st International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Poznan, Poland, **2014**.
50. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig; Towards Novel Antibacterial Agents: Synthetic and Biological Studies on Muraymycin Nucleoside Antibiotics; Chinese-German Frontiers of Science Symposium (SINOFGOS) of the Alexander-von-Humboldt-Stiftung, Kunming, China, **2014**.
49. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig, G. Mieskes, R. Jahn; Synthetic and Structure-Activity Relationship Studies on Muraymycin Nucleoside-Peptide Antibiotics; 1st European Conference on Natural Products, Frankfurt, Germany, **2013**.
48. B. Schmidtgal, C. Höbartner, C. Ducho; The NAA Modification: Towards DNA Oligonucleotides with a Zwitterionic Backbone Structure; VI. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Greifswald, Germany, **2013**.
47. D. Wiegmann, C. Ducho; Synthesis of Novel Analogues of Muraymycin Nucleoside Antibiotics; VI. Nucleic Acid Chemistry Meeting (Nucleinsäurechemie-Treffen), Greifswald, Germany, **2013**.
46. C. Ducho, A. P. Spork, M. Büschleb, O. Ries, S. Wohnig, G. Mieskes, R. Jahn; Synthetic and Structure-Activity Relationship Studies on Muraymycin

- Nucleoside-Peptide Antibiotics; GDCh Scientific Forum (GDCh-Wissenschaftsforum), Darmstadt, Germany, **2013**.
45. C. Ducho, B. Schmidtgall, C. Höbartner; Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone Structure; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2013**.
 44. C. Ducho, A. P. Spork, M. Büschleb, O. Ries; Towards Novel Antibacterial Agents: Synthetic and Functional Studies on Muraymycin Nucleoside Antibiotics; Chinese-German Frontiers of Science Symposium (SINOGFOS) of the Alexander-von-Humboldt-Stiftung, Merseburg, Deutschland, **2013**.
 43. B. Schmidtgall, C. Höbartner, C. Ducho; Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone Structure; 18. Lecture Conference ORCHEM 2012, Weimar, Germany, **2012**.
 42. A. P. Spork, M. Büschleb, O. Ries, C. Ducho; Stereoselective Synthesis of Nucleosyl Amino Acids for the Preparation of Muraymycin Nucleoside Antibiotics; 18. Lecture Conference ORCHEM 2012, Weimar, Germany, **2012**.
 41. C. Ducho, A. P. Spork, M. Büschleb, O. Ries; Synthetic Studies on Muraymycin Nucleoside Antibiotics; 18. Lecture Conference ORCHEM 2012, Weimar, Germany, **2012**.
 40. S. Wohnig, C. Ducho; A chemical synthesis of dansylated UDP-MurNAc-pentapeptide for high throughput MraY assays; 4th EuCheMS Chemistry Congress, Prague, Czech Republic, **2012**.
 39. A. Lemke, A. P. Spork, C. Ducho; The biosynthesis of muraymycins: synthesis of potential intermediates for studies on the assembly of complex natural products; 4th EuCheMS Chemistry Congress, Prague, Czech Republic, **2012**.
 38. B. Schmidtgall, C. Höbartner, C. Ducho; Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone Structure; 20th International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Montreal, Canada, **2012**.
 37. A. P. Spork, M. Büschleb, O. Ries, C. Ducho; Stereoselective Synthesis of Nucleosyl Amino Acids for the Preparation of Muraymycin Nucleoside Antibiotics; 20th International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Montreal, Canada, **2012**.

36. C. Ducho, A. P. Spork, M. Büschleb, O. Ries; Synthetic Studies on Muraymycin Nucleoside Antibiotics; 20th International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Montreal, Canada, **2012**.
35. A. Lemke, A. P. Spork, C. Ducho; The Biosynthesis of Muraymycins: Synthesis of Potential Intermediates for Studies on the Assembly of Complex Natural Products; Workshop of the Ph. D. program "Catalysis for Sustainable Synthesis" (CaSuS), Braunschweig, Germany, **2012**.
34. A. Ochmann, M. Granitzka, C. Ducho, O. Ries; Synthesis of O-acylated 3-hydroxyleucine derivatives for the preparation of muraymycin nucleoside lipopeptide antibiotics; 2nd Symposium of the SFB 803, Göttingen, Germany, **2011**.
33. C. Ducho, S. Koppermann, D. Wiegmann, A. P. Spork; Synthesis of nucleosyl amino acids and muraymycin analogues for the investigation of the bacterial membrane protein MraY; 2nd Symposium of the SFB 803, Göttingen, Germany, **2011**.
32. B. Schmidtgall, F. Wachowius, C. Höbartner, C. Ducho; Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone; Hochschule trifft Industrie, Schlangenbad, Germany, **2011**.
31. C. Ducho, B. Schmidtgall, A. Ochmann, F. Wachowius, C. Höbartner; Synthesis and Properties of Modified DNA Oligonucleotides with a Zwitterionic Backbone; Sixth Cambridge Symposium on Nucleic Acids Chemistry and Biology, Cambridge, UK, **2011**. (Poster award)
30. C. Ducho, A. P. Spork, M. Büschleb, O. Ries; Synthetic Studies on Muraymycin Nucleoside Antibiotics; Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport/RI, USA, **2011**.
29. C. Ducho, A. P. Spork, M. Büschleb, O. Ries; Synthetic Studies on Muraymycin Nucleoside Antibiotics; 46th EUCHEM Conference on Stereochemistry ("Bürgenstock Conference"), Brunnen, Switzerland, **2011**.
28. B. Schmidtgall, C. Höbartner, C. Ducho; Nucleosyl amino acids as building blocks for the synthesis of modified oligonucleotides; 10th German Peptide Symposium, Berlin, Germany, **2011**.
27. M. Büschleb, F. Ting, C. Ducho; Novel approaches for the synthesis of the non-proteinogenic amino acid epicapreomycin; 10th German Peptide Symposium, Berlin, Germany, **2011**.

26. A. P. Spork, S. Koppermann, D. Wiegmann, C. Ducho; Stereoselective synthesis of nucleosyl amino acids as building blocks for analogues of muraymycin nucleoside lipopeptide antibiotics; 10th German Peptide Symposium, Berlin, Germany, **2011**.
25. A. Lemke, K. Taupitz, C. Ducho; The biosynthesis of muraymycins: towards first insights into the assembly of complex nucleoside lipopeptide antibiotics; 10th German Peptide Symposium, Berlin, Germany, **2011**.
24. O. Ries, A. Ochmann, M. Granitzka, C. Ducho; Synthesis of O-acylated 3-hydroxyleucine derivatives for the preparation of muraymycin nucleoside lipopeptide antibiotics; 10th German Peptide Symposium, Berlin, Germany, **2011**.
23. S. Wahnig, C. Ducho; Chemical synthesis of fluorescently labelled UDP-MurNAc-pentapeptide for high throughput MraY assays; 10th German Peptide Symposium, Berlin, Germany, **2011**.
22. C. Ducho; Muraymycin-Type Nucleoside Antibiotics - Lead Structures for Future Antimicrobial Agents?; Japanese-German Frontiers of Science Symposium (JaGFOS) of the Alexander von Humboldt Foundation, Potsdam, Germany, **2010**.
21. A. Lemke, C. Ducho; The Biosynthesis of Muraymycin Antibiotics: Towards First Insights into the Assembly of Complex Natural Products; Lower Saxon Catalysis Symposium (Niedersächsisches Katalyse-Symposium, NiKaS), Göttingen, Germany, **2010**.
20. A. P. Spork, D. Wiegmann, C. Ducho; Asymmetric Hydrogenation for the Synthesis of 5'-Deoxy Analogues of Muraymycin Nucleoside Antibiotics; Lower Saxon Catalysis Symposium (Niedersächsisches Katalyse-Symposium, NiKaS), Göttingen, Germany, **2010**.
19. A. Lemke, C. Ducho; The Biosynthesis of Muraymycin Antibiotics: Towards First Insights into the Assembly of Complex Natural Products; 17th Lecture Conference ORCHEM 2010, Weimar, Germany, **2010**.
18. O. Ries, A. Ochmann, C. Ducho; Synthesis of O-Acylated 3-Hydroxyleucine Derivatives for the Preparation of Muraymycin Nucleoside Antibiotics; 17th Lecture Conference ORCHEM 2010, Weimar, Germany, **2010**.

17. C. Ducho, A. P. Spork, M. Büschleb, O. Ries; Synthetic Studies on Muraymycin Nucleoside Antibiotics; 17th Lecture Conference ORCHEM 2010, Weimar, Germany, **2010**.
16. O. Ries, A. Ochmann, C. Ducho; Synthesis of *O*-Acylated 3-Hydroxyleucine Derivatives for the Preparation of Muraymycins as *MraY* Inhibitors; 1st Symposium of the SFB 803, Göttingen, Germany, **2010**.
15. A. P. Spork, C. Ducho; Synthesis of the muraymycin core structure and analogues for the investigation of the bacterial membrane protein *MraY*; 1st Symposium of the SFB 803, Göttingen, Germany, **2010**.
14. A. P. Spork, D. Wiegmann, C. Ducho; Asymmetric Hydrogenation for the Synthesis of 5'-Deoxy Analogues of Muraymycin Nucleoside Antibiotics; 19th International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Lyon, France, **2010**. (Poster award)
13. C. Ducho, A. P. Spork, S. Koppermann, B. Dittrich, R. Herbst-Irmer; Diastereoselective Reaction of Uridine Aldehydes with Sulfur Ylides for the Synthesis of Muraymycin and Caprazamycin Antibiotics; 19th International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Lyon, France, **2010**.
12. M. Büschleb, C. Ducho; Novel Approaches for the Synthesis of the Non-Proteinogenic Amino Acid Epicapreomycin; Spring Symposium of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Göttingen, Germany, **2010**.
11. A. Lemke, C. Ducho; Concise Synthesis of Both Diastereomers of 3-Hydroxy-L-arginine for Biosynthetic Studies; Spring Symposium of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Göttingen, Germany, **2010**.
10. O. Ries, A. Ochmann, C. Ducho; Towards the Synthesis of *O*-Lipidated 3-Hydroxyleucine Derivatives for the Preparation of Muraymycin Nucleoside Antibiotics; Spring Symposium of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Göttingen, Germany, **2010**.
9. A. P. Spork, S. Koppermann, C. Ducho; Novel potential antibacterial agents derived from muraymycin nucleoside antibiotics; Spring Symposium of the

- Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Göttingen, Germany, **2010**.
8. S. Wohnig, C. Ducho; A Chemical Approach for the Synthesis of Fluorescently Labelled UDP-MurNAc-pentapeptide for High Throughput *MraY* Assays; Spring Symposium of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Göttingen, Germany, **2010**.
 7. E. T. Batchelar, C. Ducho, J. L. Sorensen, C. J. Schofield; Recent studies on the biosynthesis of carbapenem antibiotics; RSC Conference on Chemical Biology: Directing Biosynthesis, Cambridge, UK, **2006**.
 6. C. Ducho, S. Jessel, N. Gisch, J. Balzarini, C. Meier; Novel *cycloSal* Nucleotides with Reduced Inhibitory Potency towards Human Butyrylcholinesterase; International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Minneapolis/MN, USA, **2004**.
 5. C. Ducho, U. Görbig, J. Balzarini, C. Meier; "Four in one" - How to optimize an anti-HIV-active compound; Spring Symposium of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Heidelberg, Germany, **2004**.
 4. C. Ducho, U. Görbig, J. Balzarini, C. Meier; Interaction of Cholinesterases with *cycloSal* Nucleotides; International Conference on Antiviral Research, Savannah/GA, USA, **2003**.
 3. C. Ducho, J. Balzarini, C. Meier; *cycloSal* Pronucleotides - Chemical Trojan Horses with Antiviral Activity; Euregionale, International Conference of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Dresden, Germany, **2003**. (Third prize for poster presentation in the section "life sciences")
 2. C. Ducho, J. Balzarini, C. Meier; Interaction of Cholinesterases with *cycloSal* Nucleotides; International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Leuven, Belgium, **2002**.
 1. C. Ducho, J. Balzarini, C. Meier; Raffiniert maskiert - neue potentielle Wirkstoffe gegen HIV und Herpes; Euregionale, International Conference of the Young Chemists Committee (Jungchemikerforum, JCF) of the German Chemical Society (GDCh), Aachen, Germany, **2002**.