

My Twenty Years in Microwave Chemistry: From Kitchen Ovens to Microwaves that aren't Microwaves

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Supporting Information

List of Microwave Chemistry Publications from the Kappe Laboratory (1999-2017)

All publications involving microwave experiments are listed. Publications that focus on the investigations of microwave effects and/or involve detailed comparison experiments between conventional and microwave heating experiments are marked with an asterisk*

1) Original Research Articles (Science Citation Index):

a) Early Publications Using Domestic Microwave Ovens (1999-2001)

1. Microwave-Assisted High-Speed Parallel Synthesis of 4-Aryl-3,4-dihydropyrimidin-2(1H)-ones using a Solventless Biginelli Condensation Protocol.
C. O. Kappe, D. Kumar, R. S. Varma,
Synthesis, **1999**, 1799-1803.
2. X-Ray Structure, Conformational Analysis, Enantioseparation, and Determination of Absolute Configuration of the Mitotic Kinesin Eg5 Inhibitor Monastrol.
C. O. Kappe, O. V. Shishkin, G. Uray, P. Verdino,
Tetrahedron **2000**, 56, 1859-1862.
3. Design and Synthesis of a Conformationally Rigid Mimic of the Dihydropyrimidine Calcium Channel Modulator SQ 32,926.
B. Jauk, T. Pernat, C. O. Kappe,
Molecules **2000**, 5, 227-239.
4. Microwave-Mediated Regioselective Synthesis of Novel Pyrimido[1,2-a]pyrimidines under Solvent-free Conditions.
J. J. Vanden Eynde, N. Hecq, O. Kataeva, C. O. Kappe,
Tetrahedron **2001**, 57, 1785-1791.

b) Early Publications Using Multimode Technology (MLS /Milestone ETHOS, 2000-2003)

- 5.* Microwave-Mediated Biginelli Reactions Revisited. On the Nature of Rate and Yield Enhancements.
A. Stadler, C. O. Kappe,
J. Chem. Soc., Perkin Trans. 2 **2000**, 1363-1368.
- 6.* High-Speed Couplings and Cleavages in Microwave-Heated, Solid-Phase Reactions at High Temperatures.
A. Stadler, C. O. Kappe,
Eur. J. Org. Chem. **2001**, 919-925.
7. The Effect of Microwave Irradiation on Carbodiimide-Mediated Esterifications on Solid-Support.
A. Stadler, C. O. Kappe,
Tetrahedron **2001**, 57, 3915-3920.
8. Rapid Parallel Synthesis of Polymer-Bound Enones Utilizing Microwave-Assisted Solid-Phase Chemistry.
G. A. Strohmeier, C. O. Kappe,
J. Comb. Chem. **2002**, 4, 154-161.
9. Microwave-Assisted Reactions under Open and Closed Vessel Conditions. A Case Study.
A. Stadler, S. Pichler, G. Horeis, C. O. Kappe,
Tetrahedron **2002**, 58, 3177-3183.

c) Early Publications Using Single-Mode Technology (Personal Chemistry Smith/Emrys Synthesizer, 2001-2005)

10. Automated Library Generation Using Sequential Microwave-Assisted Chemistry. Application Toward the Biginelli Multicomponent Condensation.
A. Stadler, C. O. Kappe,
J. Comb. Chem. **2001**, *3*, 624-630.
11. High-Speed Microwave-Promoted Mitsunobu Inversions. Application to the Deracemization of Sulcatol.
A. Steinreiber, A. Stadler, S. F. Mayer, K. Faber, C. O. Kappe,
Tetrahedron Lett. **2001**, *42*, 6283-6286.
12. Traceless Solid Phase Synthesis of Bicyclic Dihydropyrimidones Using Multidirectional Cyclization Cleavage.
R. Pérez, T. Beryozkina, O. I. Zbruyev, W. Haas, C. O. Kappe,
J. Comb. Chem. **2002**, *4*, 501-510.
13. A Tandem Intramolecular Michael-Addition/Elimination Sequence in Dihydropyrimidone to Quinoline Rearrangements
N. Stiasni, C. O. Kappe,
ARKIVOC **2002**, (8), 71-79.
14. Rapid Formation of Triarylphosphines by Microwave-Assisted Transition Metal-Catalyzed C-P Cross-Coupling Reactions.
A. Stadler, C. O. Kappe,
Org. Lett. **2002**, *4*, 3541-3543.
15. High-Speed Microwave-Promoted Hetero-Diels-Alder Reactions of 2(1H)-Pyrazinones in Ionic Liquid Doped Solvents.
E. Van der Eycken, P. Appukkuttan, W. De Borggraeve, W. Dehaen, D. Dallinger, C. O. Kappe,
J. Org. Chem. **2002**, *67*, 7904-7907.
- 16.* Microwave-Assisted Ring-Closing Metathesis Revisited. On the Question of the Non-Thermal Microwave Effect.
S. Garbacia, B. Desai, O. Lavastre, C. O. Kappe,
J. Org. Chem. **2003**, *68*, 9136-9139.
17. Rapid Preparation of Thioamide Building Blocks via Microwave-Promoted Three-Component Kindler Reactions.
O. I. Zbruyev, N. Stiasni, C. O. Kappe,
J. Comb. Chem. **2003**, *5*, 145-148.
18. High-Throughput Synthesis of N3-Acylated Dihydropyrimidines Combining Microwave-Assisted Synthesis and Scavenging Techniques.
D. Dallinger, N. Yu. Gorobets, C. O. Kappe,
Org. Lett. **2003**, *5*, 1205-1208.
19. A Three-Component Synthesis of Pyrido[2,3-d]pyrimidines.
N. Mont, J. Teixidó, J. I. Borrell, C. O. Kappe,
Tetrahedron Lett. **2003**, *44*, 5385-5387.
20. An Exploratory Study on Microwave-Assisted Solid-Phase Diels-Alder Reactions of 2(1H)-Pyrazinones: The Elaboration of a New Tailor-Made Acid-Labile Linker.
N. Kaval, J. Van der Eycken, J. Caroen, W. Dehaen, G. A. Strohmeier, C. O. Kappe, E. Van der Eycken,
J. Comb. Chem. **2003**, *5*, 560-568.
21. Microwave-Enhanced Transition Metal-Catalyzed Decoration of 2(1H)-Pyrazinone Scaffolds.
N. Kaval, K. Bisztray, W. Dehaen, C.O. Kappe, E. Van der Eycken,
Mol. Diversity **2003**, *7*, 125-133.

22. A One-Pot Microwave-Assisted Synthesis of Pyrido[2,3-d]pyrimidines.
N. Mont, J. Teixidó, C. O. Kappe, J. I. Borrell,
Mol. Diversity **2003**, *7*, 153-159.
23. Microwave-Assisted Scavenging of Electrophiles Utilizing Polymer-Supported Sequestration Reagents. Application to the Synthesis of N3-Acylated Dihydropyrimidine Libraries.
D. Dallinger, N. Yu. Gorobets, C. O. Kappe,
Mol. Diversity **2003**, *7*, 229-245.
24. Microwave-Assisted Negishi and Kumada Cross-Coupling Reactions of Aryl Chlorides.
P. Walla, C. O. Kappe,
Chem. Commun. **2004**, 564-565.
25. Tunable Carbon-Carbon and Carbon-Sulfur Cross-Coupling of Boronic Acids with 3,4-Dihydropyrimidine-2-thiones.
A. Lengar, C. O. Kappe,
Org. Lett. **2004**, *6*, 771-774.
26. Rapid Microwave-Assisted Solution Phase Synthesis of Substituted 2-Pyridone Libraries.
N. Yu. Gorobets, B. H. Yousefi, F. Belaj, C. O. Kappe,
Tetrahedron **2004**, *60*, 8633-8644.
27. Stereoconservative Negishi Arylation and Alkynylation as an Efficient Approach to Enantiopure 2,2'-Diarylated 1,1'-Binaphthyls.
K. Krascensicsovaa, P. Walla, P. Kasáka, G. Uray, C. O. Kappe, M. Putala,
Chem. Commun. **2004**, 2606-2607.
28. Combining Biginelli Multicomponent and Click Chemistry: Generation of 6-(1,2,3-Triazol-1-yl)-Dihydropyrimidone Libraries.
B. Khanetskyy, D. Dallinger, C. O. Kappe,
J. Comb. Chem. **2004**, *6*, 884-892.
29. Microwave-Assisted Multistep Synthesis of Functionalized 4-Arylquinolin-2(1H)-ones using Palladium-Catalyzed Cross-Coupling Chemistry.
T. N. Glasnov, W. Stadlbauer, C. O. Kappe,
J. Org. Chem. **2005**, *70*, 3864-3870.
30. The Application of "Click Chemistry" for the Decoration of the 2(1H)-Pyrazinone Scaffold: Generation of New Interesting Templates.
N. Kaval, D. Ermolat'ev, P. Appukkuttan, W. Dehaen, C. O. Kappe, E. Van der Eycken,
J. Comb. Chem. **2005**, *7*, 490-502.
31. Novel Microwave-Enhanced and Metal-Catalyzed Functionalizations of the 4-Aryl-Dihydropyrimidone Template.
J. Wannberg, D. Dallinger, C. O. Kappe, M. Larhed,
J. Comb. Chem. **2005**, *7*, 574-583.
32. Porphyrins in Diels-Alder Reactions. Improvements on the Synthesis of a Barrelene-Fused Chlorin using Controlled Microwave Irradiation.
A. M. G. Silva, A. C. Tomé, M. G. P. M. S. Neves, J. A. S. Cavaleiro, C. O. Kappe,
Tetrahedron Lett. **2005**, *46*, 4723-4726.
33. Heterogeneous Hydrogenation Reactions Using a Continuous Flow High Pressure Device.
B. Desai, C. O. Kappe,
J. Comb. Chem. **2005**, *7*, 641-643.

d) Publications Using Multimode Technology (Anton Paar Synthos 3000, 2003-2005)

34. Scalability of Microwave-Assisted Organic Synthesis. From Single-Mode to Multimode Parallel Batch Reactors.
A. Stadler, B. H. Yousefi, D. Dallinger, P. Walla, E. Van der Eycken, N. Kaval, C. O. Kappe,
Org. Process Res. Dev. **2003**, 7, 707-716.
35. The Effect of Pressure on Microwave-Enhanced Diels–Alder Reactions. A Case Study.
N. Kaval, W. Dehaen, C. O. Kappe, E. Van der Eycken,
Org. Biomol. Chem. **2004**, 2, 154-156.
36. Microwave-Assisted Organic Synthesis in Near-Critical Water at 300 °C. A Proof-of-Concept Study.
J. M. Kremsner, C. O. Kappe,
Eur. J. Org. Chem. **2005**, 3672-3679.

e) Publications Using Single- and Multimode Technology (Biotage, CEM, Anton Paar, Milestone, 2006-2017)

i) Organic Synthesis and Catalysis

37. Symmetrical Bisquinolones via Metal-Catalyzed Cross-Coupling and Homocoupling Reactions.
J. Hashim, T. N. Glasnov, J. M. Kremsner, C. O. Kappe,
J. Org. Chem. **2006**, 71, 1707-1710.
38. Microwave-assisted Solution Phase Synthesis of Dihydropyrimidine C5 Amides and Esters.
B. Desai, D. Dallinger, C. O. Kappe,
Tetrahedron **2006**, 62, 4651-4664.
39. Microwave-assisted Dimroth Rearrangement of Thiazines to Dihydropyrimidinethiones: Synthetic and Mechanistic Aspects.
T. N. Glasnov, D. J. Vugts, M. M. Koningstein, B. Desai, W. M. F. Fabian, R. V. A. Orru, C. O. Kappe,
QSAR Comb. Sci. **2006**, 25, 509-518.
40. Microwave-Assisted Three-Component Synthesis of 7-Aryl-2-alkylthio-4,7-dihydro-1,2,4-triazolo[1,5-a]-pyrimidine-6-carboxamides and Their Selective Reduction.
V. A. Chebanov, E. A. Muravyova, S. M. Desenko, V. I. Musatov, I. V. Knyazeva, S. V. Shishkina, O. V. Shishkin, C. O. Kappe,
J. Comb. Chem. **2006**, 8, 427-434.
41. Synthesis of 5-Aroyl-dihydropyrimidinones via Liebeskind-Srogl Thiol Ester-Boronic Acid Cross Couplings.
H. Prokopcova, L. Pisani, C. O. Kappe,
Synlett **2007**, 43-46.
42. Cyclocondensation Reactions of 5-Aminopyrazoles, Pyruvic Acids and Aldehydes. Multicomponent Approaches to Pyrazolopyridines and Related Products.
V. A. Chebanov, Y. I. Sakhno, S. M. Desenko, V. N. Chernenko, V. I. Musatov, S. V. Shishkina, O. V. Shishkin, C. O. Kappe,
Tetrahedron **2007**, 63, 1229-1242.
43. Desulfitative Carbon–Carbon Cross-Coupling of Thioamide Fragments with Boronic Acids.
H. Prokopcova, C. O. Kappe,
Adv. Synth. Catal. **2007**, 349, 448-452.
44. Rapid Preparation of the Mitotic Kinesin Eg5 Inhibitor Monastrol Using Controlled Microwave-Assisted Synthesis.
D. Dallinger, C. O. Kappe,
Nature Protocols **2007**, 2, 317-321.

45. Rapid Preparation of Pyranoquinolines using Microwave Dielectric Heating in Combination with Fractional Product Distillation.
T. Razzaq, C. O. Kappe,
Tetrahedron Lett. **2007**, 48, 2513-2517.
46. One-Pot, Multicomponent Route to Pyrazoloquinolizines.
V. A. Chebanov, V. E. Saraev, S. M. Desenko, V. N. Chernenko, S. V. Shishkina, O. V. Shishkin, K. M. Kobzar, C. O. Kappe,
Org. Lett. **2007**, 10, 1691-1694.
47. 5-Aroyl-3,4-dihydropyrimidin-2-one Library Generation via Automated Sequential and Parallel Microwave-assisted Synthesis Techniques.
L. Pisani, H. Prokopcova, J. M. Kremsner, C. O. Kappe,
J. Comb. Chem. **2007**, 9, 415-421.
48. Parallel Synthesis of an Amide Library Based on the 6,8-Dioxa-3-azabicyclo[3.2.1]octane Scaffold by Direct Aminolysis of Methyl Esters.
F. Machetti, I. Bucelli, G. Indiani, C. O. Kappe, A. Guarna,
J. Comb. Chem. **2007**, 9, 454-461.
49. Palladium(0)-Catalyzed, Copper(I)-Mediated Coupling of Boronic Acids with Cyclic Thioamides. Selective Carbon-Carbon Bond Formation for the Functionalization of Heterocycles.
H. Prokopcova, C. O. Kappe,
J. Org. Chem. **2007**, 72, 4440-4448.
50. Automated Generation of a Dihydropyrimidine Compound Library Using Microwave-Assisted Processing
D. Dallinger, C. O. Kappe,
Nat. Protoc. **2007**, 2, 1713-1721.
51. Microwave-Assisted Selective 5'-O-Trityl Protection of Inosine Derivatives.
E. Casanova, M.-J. Pérez-Pérez, C. O. Kappe,
Synlett **2007**, 1733-1735.
52. An Algorithm for the Deconvolution of Mass Spectroscopic Patterns in Isotope Labeling Studies. Evaluation for the Hydrogen-Deuterium Exchange Reaction in Ketones.
C. C. Gruber, G. Oberdorfer, C. V. Voss, J. M. Kremsner, C. O. Kappe, W. Kroutil,
J. Org. Chem. **2007**, 72, 5778-5783.
53. Microwave-Assisted Arylation of rac-(E)-3-Acetoxy-1,3-diphenylprop-1-ene with Arylboronic acids.
V. Poláčková, Š. Toma, C. O. Kappe,
Tetrahedron **2007**, 63, 8742-8745.
54. Microwave Accelerated Aza-Claisen Rearrangements.
J. Gonda, M. Martinková, A. Zadrošová, M. Šoteková, J. Raschmanová, P. Čonka, E. Gajdošíková, C. O. Kappe,
Tetrahedron Lett. **2007**, 48, 6912-6915.
55. Synthesis of Symmetrical Bisquinolones via Nickel(0)-Catalyzed Homocoupling of 4-Chloroquinolones .
J. Hashim, C. O. Kappe,
Adv. Synth. Catal. **2007**, 349, 2353-2360.
56. Multicomponent Cyclocondensations of β -Ketosulfones with Aldehydes and Aminoazole Building Blocks.
E. S. Gladkov, V. A. Chebanov, S. M. Desenko, O. V. Shishkin, S. V. Shishkina, D. Dallinger, C. O. Kappe,
Heterocycles **2007**, 73, 469-480.
57. Microwave-Assisted Click Chemistry for the Preparation of 3- and 4-Triazolyl-2(1H)-quinolones as Potential Fluorescent Probes.
T. N. Glasnov, C. O. Kappe,
QSAR Comb. Sci. **2007**, 26, 1261-1265.

58. Microwave-Assisted Catalyst-Free Transesterification of Triglycerides with 1-Butanol under Supercritical Conditions.
J. Geuens, J. M. Kremsner, B. A. Nebel, S. Schober, R. A. Dommissie, M. Mittelbach, S. Tavernier, C. O. Kappe, B. U. W. Maes,
Energy Fuels **2008**, *22*, 643-645.
59. Integration of High Speed Microwave Chemistry and a Statistical “Design of Experiment” Approach for the Synthesis of the Mitotic Kinesin Eg5 Inhibitor Monastrol.
T. N. Glasnov, H. Tye, C. O. Kappe,
Tetrahedron **2008**, *64*, 2035-2041.
60. Synthesis of Bisquinolone-Based Mono- and Diphosphine Ligands of the Aza-BINAP Type.
N. Arshad, J. Hashim. C. O. Kappe,
J. Org. Chem. **2008**, *73*, 4755-4758.
61. Tuning of Chemo- and Regioselectivities in Multicomponent Condensations of 5-Aminopyrazoles, Dimedone and Aldehydes.
V. Chebanov, V. Saraev, S. Desenko, V. Chernenko, I. Knyazeva, U. Groth, T. Glasnov, C. O. Kappe
J. Org. Chem. **2008**, *73*, 5110-5118.
62. Microwave-Assisted One-Pot Diboration/Suzuki Cross-Couplings. A Rapid Route to Tetrasubstituted Alkenes.
H. Prokopcova, J. Ramírez, E. Fernández, C. O. Kappe,
Tetrahedron Lett. **2008**, *49*, 4831-4835.
63. Multicomponent Cyclocondensation Reactions of Aminoazoles, Arylpyruvic Acids and Aldehydes with Controlled Chemoselectivity.
Y. I. Sakhno, S. M. Desenko, S. V. Shishkina, O. V. Shishkin, D. O. Sysoyev, U. Groth, C. O. Kappe, V. A. Chebanov
Tetrahedron **2008**, *64*, 11041-11049
- 64.* Heterogeneous Versus Homogeneous Palladium Catalysts for Ligandless Mizoroki-Heck Reactions. A Comparison of Batch/Microwave and Continuous Flow Processing.
T. N. Glasnov, S. Findenig, C. O. Kappe
Chem. Eur. J. **2009**, *15*, 1001-1015.
65. Microwave-Assisted Aliphatic Fluorine–Chlorine Exchange Using Triethylamine Trihydrofluoride (TREAT–HF).
J. M. Kremsner, M. Rack, C. Pilger, C. O. Kappe,
Tetrahedron Lett. **2009**, *50*, 3665-3668.
66. Bisquinolones as Chiral Fluorophores – A Combined Experimental and Computational Study of Absorption and Emission Characteristics
G. Uray, A.-M. Kelterer, J. Hashim, T. N. Glasnov, C. O. Kappe, W. M. F. Fabian,
J. Mol. Struct. **2009**, *929*, 85-96.
67. One-Pot Multicomponent Preparation of Tetrahydropyrazoloquinolinones and Tetrahydropyrazoloquinazolinones.
T. N. Glasnov, C. O. Kappe,
Org. Synth. **2009**, *86*, 252-261.
- 68.* Microwave-Assisted Cross-Coupling and Hydrogenation Chemistry Using Heterogeneous Transition-Metal Catalysts: An Evaluation of the Role of Selective Catalyst Heating.
M. Irfan, M. Fuchs, T. N. Glasnov, C. O. Kappe
Chem. Eur. J. **2009**, *15*, 11608-11618.
69. High-Speed Microwave-Assisted Synthesis of the Trifluoromethylpyrazol-derived Canonical Transient Receptor Potential Channel (TRPC3) Inhibitor Pyr3.
T. N. Glasnov, K. Groschner, C. O. Kappe
ChemMedChem **2009**, *4*, 1816-1818.

70. Palladium(0)-Catalyzed, Copper(I)-Mediated Coupling of Cyclic Thioamides with Alkenylboronic Acids, Organostannanes and Siloxanes.
N. Arshad, J. Hashim, C. O. Kappe,
J. Org. Chem. **2009**, *74*, 5118-5121.
71. Microwave-Assisted Synthesis of 5-Aryloxy-4,6-disubstituted-3-cyano-2-pyridone Dyes.
D. Z. Mijin, M. Baghbanzadeh, C. Reidlinger, C. O. Kappe
Dyes Pigments **2010**, *85*, 73-78.
72. Diversity-Oriented Synthesis of Dibenzazocines and Dibenzazepines via a Microwave-Assisted Intramolecular A³-Coupling Reaction.
J. B. Bariwal, D. S. Ermolat'ev, T. N. Glasnov, K. Van Hecke, V. P. Mehta, L. Van Meervelt, C. O. Kappe, E. Van der Eycken,
Org. Lett. **2010**, *13*, 2774-2777.
73. Structure-Activity Relationships and Molecular Docking of Novel Dihydropyrimidine-Based Mitotic Eg5 Inhibitors.
H. Prokopcová, D. Dallinger, G. Uray, H. Y. K. Kaan, V. Ulaganathan, F. Kozielski, C. Laggner, C. O. Kappe,
ChemMedChem **2010**, *5*, 1760-1769.
- 74.* A Unified Mechanistic View on the Morita-Baylis-Hillman Reaction: Computational and Experimental Investigations.
D. Cantillo, C. O. Kappe,
J. Org. Chem. **2010**, *75*, 8615-8626.
- 75.* Rapid Nickel-Catalyzed Suzuki- Miyaura Cross-Couplings of Aryl Carbamates and Sulfamates Utilizing Microwave Heating.
M. Baghbanzadeh, C. Pilger, C. O. Kappe,
J. Org. Chem. **2011**, *76*, 1507-1510.
76. Microwave-Assisted Nickel(II) Acetylacetonate-Catalyzed Arylation of Aldehydes with Arylboronic Acids.
W. Chen, M. Baghbanzadeh, C. O. Kappe,
Tetrahedron Lett. **2011**, *52*, 1677-1679.
77. Mechanistic Insights on Azide-Nitrile Cycloadditions: On the Dialkyltin Oxide-Trimethylsilyl Azide Route and a New Vilsmeier-Haack-Type Organocatalyst.
D. Cantillo, B. Gutmann, C. O. Kappe,
J. Am. Chem. Soc. **2011**, *133*, 4465-4475.
78. Pentafluorophenyl-bis(diethylamino)phosphane - A Push-Pull Phosphane Available for Coordination.
A. Orthaber, M. Fuchs, F. Belaj, G. N. Rechberger, C. O. Kappe, R. Pietschnig,
Eur. J. Inorg. Chem. **2011**, 2588-2596.
79. Palladium-Catalyzed Direct Arylation of Heteroaromatic Compounds: Improved Conditions Utilizing Controlled Microwave Heating.
M. Baghbanzadeh, C. Pilger, C. O. Kappe,
J. Org. Chem. **2011**, *76*, 8138-8142.
80. Direct Arylation of Benzene with Aryl Bromides Using High-Temperature/High-Pressure Process Windows – Expanding the Scope of C-H Activation Chemistry
B. Pieber, D. Cantillo, C. O. Kappe,
Chem. Eur. J. **2012**, *18*, 5047-5055.
81. Copper-Catalyzed C-O Bond Formation by Direct α -C-H Bond Activation of Ethers Using Stoichiometric Amounts of Peroxide in Batch and Continuous Flow Formats.
G. S. Kumar, B. Pieber, K. R. Reddy, C. O. Kappe,
Chem. Eur. J. **2012**, *18*, 6124-6128.

82. High-Speed Microwave-assisted Synthesis of SEA0400 – a Selective Inhibitor of the Na⁺/Ca²⁺ Exchanger.
G. Guedes de la Cruz, K. Groschner, C. O. Kappe, T. N. Glasnov
Tetrahedron Lett. **2012**, *53*, 3731-3734.
83. Novel Pyrazole Compounds for Pharmacological Discrimination Between Receptor-operated and Store-operated Ca²⁺ Entry Pathways.
H. Schleifer, B. Doleschal, M. Lichtenegger, R. Oppenrieder, I. Derler, I. Frischauf, T. N. Glasnov, C. O. Kappe, C. Romanin, K. Groschner
Br. J. Pharmacol. **2012**, *167*, 1712–1722.
84. An Experimental and Computational Assessment of Acid-Catalyzed Azide-Nitrile Cycloadditions.
D. Cantillo, B. Gutmann, C. O. Kappe,
J. Org. Chem. **2012**, *77*, 10882–10890.
85. A Microwave Approach to the Synthesis of certain 4-Substituted Phenyl-6-phenyl-3-cyano-2-pyridones.
A. Marinković, D. Mijin, J. Mirković, V. Maslak, C. O. Kappe,
J. Serb. Chem. Soc. **2014**, *79*, 759-765.
86. A Detailed Investigation of the Multicomponent Reaction of Salicylaldehyde, Ethyl acetoacetate and Isocyanides under Microwave Heating
T. Amanpour, K. Zangger, F. Belaj, A. Bazgir, D. Dallinger, C. O. Kappe
Tetrahedron **2015**, *71*, 7159-7169.
87. Copper/Nafion-Catalyzed Hydroarylation Process Involving Ketenimine Intermediates: A Novel and Synthetic Approach to 4-Sulfonamidoquinoline-2-ones and Derivatives Thereof
B. Reichart, G. Guedes de la Cruz, K. Zangger, C. O. Kappe, T. Glasnov,
Adv. Synth. Catal. **2016**, *358*, 50–55.

ii) Solid-Phase Organic and Peptide Synthesis

88. Rapid Solid-Phase Peptide Synthesis Using Controlled Microwave Irradiation.
B. Basca, B. Desai, G. Dibo, C. O. Kappe,
J. Pept. Sci. **2006**, *12*, 633-638.
89. Microwave-Assisted Solution- and Solid-Phase Synthesis of 2-Amino-4-arylpyrimidine Derivatives.
M. Matloobi, C. O. Kappe,
J. Comb. Chem. **2007**, *9*, 275-284.
90. Rapid Solid-Phase Synthesis of a Calmodulin-Binding Peptide Using Controlled Microwave Irradiation
B. Bacsá, C. O. Kappe,
Nat. Protoc. **2007**, *2*, 2222-2227.
- 91.* Solid-Phase Synthesis of Difficult Peptide Sequences at Elevated Temperatures – A Critical Comparison of Microwave and Conventional Heating Technologies.
B. Bacsá, K. Horváti, S. Bősze, F. Andreae, C. O. Kappe
J. Org. Chem. **2008**, *73*, 7532-7542.
- 92.* Direct Solid-Phase Synthesis of the β -Amyloid (1-42) Peptide Using Controlled Microwave Heating.
B. Bacsá, S. Bősze, C. O. Kappe
J. Org. Chem. **2010**, *75*, 2103-2106.

iii) Polymer and Starch Chemistry

93. Selectivity of EO-PO Diblock Copolymers in the Microwave-assisted Anionic Ring-Opening Polymerization of Propylene Oxide with PEG as Initiator.
M. I. Malik, B. Trathnigg, C. O. Kappe,
Macromol. Chem. Phys. **2007**, *208*, 2510-2524.
94. Microwave-Assisted Synthesis and Characterization of End-Functionalized Poly(propylene oxide) as Model Compounds.
M. I. Malik, B. Trathnigg, C. O. Kappe,
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