

RESEARCH PUBLICATIONS

1. D.C.BILLINGTON, and B.T.GOLDING, " ^{13}C Labelling study of the reaction between 2-(methylthio)ethanol and carbon tetrachloride-phosphines", *J.CHEM.SOC.CHEM.COMM.*, 1978, 208-209.
2. D.C.BILLINGTON, and B.T.GOLDING, "Proton exchange in dehydromethionine; synthesis of $[\text{C}^2\text{H}_3]\text{-L-methionine}$," *TETRAHEDRON LETT.*, 1979, 2937-2938.
3. D.C.BILLINGTON, B.T.GOLDING, and S.B.PRIMROSE, "Biosynthesis of ethylene from methionine ", *BIOCHEM. J.*, 1979, **182**, 827.
4. D.C.BILLINGTON, B.T.GOLDING, and I.K.NASSEREDDIN, "Biosynthesis of N-(3-amino-propyl)-1,4-diaminobutane [spermidine] from methionine in *E. Coli*; an investigation by ^{13}C labelling", *J.CHEM.SOC.CHEM.COMM.*, 1980, 90.
5. D.C.BILLINGTON, B.T.GOLDING, M.J.KEBBLE, I.K.NASSEREDDIN, and I.M.LOCKHART, "Synthesis of methionines specifically labelled with ^{13}C and ^2H ", *J.LABELLED COMP. RADIOPHARM.*, 1981, **18**, 1773-1774.
6. R.BAKER, D.C.BILLINGTON, and N.EKANAYAKE, "Stereoselective synthesis of (3R,4S/3S,4R)-(6E,10Z)-3,4,7,11-tetramethyltrideca-6,10-dienal (Faranal); the trail pheromone of the Pharaoh's ant", *J.CHEM.SOC.CHEM.COMMUN.*, 1981, 1234-1235.
7. D.C.BILLINGTON, and B.T.GOLDING, "Aspects of the chemistry of dehydromethionine ", *J.CHEM.SOC.PERKIN TRANS.I*, 1982, 1283-1290.
8. D.C.BILLINGTON and B.T.GOLDING, "The conversion of 2-(methylthio)ethanol into 1-chloro-2-(methylthio)ethane; a ^{13}C labelling study with the aid of ^{13}C NMR," *J.CHEM.SOC.PERKIN TRANS.II*, 1982, 341-347.
9. D.C.BILLINGTON, and P.L.PAUSON, " Methylenomycin B ; an efficient synthesis from (2-butyne)hexacarbonyldicobalt," *ORGANOMETALLICS*, 1982, **1**, 1560-1561.
10. R.BAKER, D.C.BILLINGTON, and N.EKANAYAKE, "Stereoselective total synthesis of (3R,4S/3S,4R) and a diastereomeric mixture of (6E,10Z)-3,4,7,11-tetramethyltrideca-6,10-dienal (Faranal); the trail pheromone of the Pharaoh's ant," *J.CHEM.SOC.PERKIN TRANS.I*, 1983 , 1387-1393.

11. D.C.BILLINGTON,"Polar additions", Chapter 13 in *Organic Reaction Mechanisms 1982* , A.C.Knipe and W.E.Watts eds, John Wiley and sons, 1983 .
12. D.C.BILLINGTON,"A direct organocobalt mediated synthesis of substituted 3-oxabicyclo[3.3.0]oct-7-ene-6-ones," *TETRAHEDRON LETT.*, 1983, **24**, 2905-2908.
13. D.C.BILLINGTON,"Polar additions," Chapter 13 in *Organic Reaction Mechanisms 1983* , A.C.Knipe and W.E.Watts eds, John Wiley and sons 1984.
14. D.C.BILLINGTON and D.WILLISON,"A simple organocobalt mediated synthesis of substituted 3-oxabicyclo [3.3.0] oct-6-ene-7-ones," *TETRAHEDRON LETT.*, 1984, **25**, 4041-4044.
15. D.C.BILLINGTON, "Polar additions," Chapter 13 in *Organic Reaction Mechanisms 1984* , A.C.Knipe and W.E.Watts eds, John Wiley and sons 1985.
16. D.C.BILLINGTON,"*Pi*-allyl nickel halides as selective reagents in organic synthesis," *CHEM.SOC. REVIEWS*, 1985, **14**, 93-120.
17. B.T.GOLDING, I.K.NASSEREDDIN and D.C.BILLINGTON,"The biosynthesis of spermidine from L-[3,4-¹³C]methionine and L-[2,3,3-²H]methionine," *J.CHEM.SOC.PERKIN TRANS.I*, 1985, 2007-2010.
18. D.C.BILLINGTON, R.BAKER, J.J.KULAGOWSKI, and I.M.MAWER, "Synthesis of *myo*-inositol 1-phosphate and *myo*-inositol 4-phosphate, and of their individual enantiomers", *J.CHEM.SOC. CHEM. COMM.*, 1987, 314-316.
19. D.C.BILLINGTON AND R.BAKER, "Synthesis of *myo*-inositol 1,3,4,5-tetrakisphosphate and *myo*-inositol 1,3-bisphosphate", *J.CHEM.SOC.CHEM.COMM.*, 1987, 1011-1013.
20. D.C.BILLINGTON, W.J.KERR, and P.L.PAUSON, "A synthesis of Japanese hop ether", *J.ORGANOMETALLIC CHEM.*, 1987, **328**, 223-227.
21. C.I.RAGAN, K.J. WATLING, N.S.GEE, S.ASPLEY, R.S.JACKSON, G.G.REID, R.BAKER, D.C.BILLINGTON, R.J.BARNABY, and P.D.LEESON, " The dephosphorylation of inositol 1,4-bisphosphate to inositol in liver and brain involves two distinct Li sensitive enzymes, and proceeds *via* inositol 4-phosphate", *BIOCHEM. J.*, 1988, **249**, 143-148.
22. D.C.BILLINGTON, W J KERR, and P.L.PAUSON,"Formation and reactivity of trimethylsilyl - methylcyclopentenones,"*J.ORGANOMETALLIC CHEM.*, 1988, **341**, 181-185.
23. J.K.SHUTE, R.BAKER, D.C.BILLINGTON and D.GANI, "Mechanism of the *myo*-inositol phosphatase reaction ", *J.CHEM.SOC. CHEM.COMM.*, 1988, 626-628.

24. D.C.BILLINGTON, I.M.HELPS, P.L.PAUSON, W.THOMPSON, and D.WILLISON, "The effect of ultrasound and of phosphines and phosphine oxides on the Khand reaction", *J.ORGANOMETALLIC CHEM.*, 1988, **354**, 233-242.
25. D.C.BILLINGTON, P.BLADON, I.M.HELPS, P.L.PAUSON, W.THOMPSON, and D.WILLISON, "Syntheses of jasmone, jasmonic acid, and analogues from alkyne-cobalt complexex via the Khand reaction", *J.CHEM.RESEARCH* : (s)1988, 326 ; (m)1988, 2601.
26. D.C.BILLINGTON, W.J.KERR, P.L.PAUSON, and C.F.FARNOCCHI, " The Khand reaction of some trisubstituted olefins : use of the catalytic version of the reaction ", *J.ORGANOMETALLIC CHEM.*, 1988, **356**, 213-219.
27. D.C.BILLINGTON, "Recent developments in the synthesis of *myo*-inositol phosphates", *CHEM. SOC.REVIEWS*, 1989, **18**, 83-122.
28. D.C.BILLINGTON, R.BAKER I.M.MAWER, J J.KULAGOWSKI. J.P.VACCA, S.J.deSOLMS, and J.R.HUFF, "The total synthesis of *myo*-inositol phosphates via *myo*-inositol orthoformate ", *J.CHEM. SOC.PERKIN TRANS I*, 1989, 1423-1429.
29. D.C.BILLINGTON, R.BAKER, I.M.MAWER, J.J.KULAGOWSKI, J.P.VACCA, S.J.deSOLMS, and J.R.HUFF , "The total synthesis of *myo*-inositol polyphosphates ", *TETRAHEDRON*, 1989, **45**, 5679-5702.
30. R.BAKER, J.J.KULAGOWSKI, D.C.BILLINGTON, P.D.LEESON, I.C.LENNON, and N.LIVERTON, "Synthesis of 2- and 6-deoxyinositol 1-phosphate, and the role of the adjacent hydroxyl groups in the mechanism of inositol monophosphatase", *J.CHEM.SOC.CHEM.COMM.*, 1989, 1383-1385.
31. D.C.BILLINGTON, "Chemical synthesis and enzymic recycling of the inositol phosphates," chapter 10 in *Molecular Mechanisms in Bioorganic Processes* , RSC Publications, 1990.
32. D.C.BILLINGTON, "Coupling reactions between sp^3 carbon centres ", Chapter 7, p 413-435 in Vol 3 of *Comprehensive Organic Synthesis*, Pergamon Press, 1991.
33. G.R.BAKER, D.C.BILLINGTON and D.GANI,"Chemical and enzymic synthesis of D- and L-*myo*-inositol 1-phosphorothioate, substrates for inositol monophosphatase: D-glucose 6-phosphorothioate is not a substrate for inositol synthase," *BIOORGANIC & MEDICINAL CHEM. LETT.* , 1991, **1**, 17-20.
34. G.R.BAKER, D.C.BILLINGTON and D.GANI, "Synthesis of D-and L-*myo*-inositol 1-phosphorothioate, substrates for inositol monophosphatase," *TETRAHEDRON*, 1991, **47**, 3895-3908.

35. D.C.BILLINGTON, "Angiogenesis and its inhibition : potential new therapies in oncology and non-neoplastic diseases", *DRUG DESIGN and DISCOVERY*, 1991, 8, 3.
36. J.P.VACCA, S.J.DeSOLMS, S.D.YOUNG, J.R.HUFF, D.C.BILLINGTON, R.BAKER, J.J.KULAGOWSKI, and I.M.MAWER, "Synthesis of *myo*-Inositol Polyphosphates", *ACS SYMPOSIUM SERIES*, 1991, 463, 66-85.
37. M.N.G.RUSSELL, R.BAKER, D.C.BILLINGTON, A.K.KNIGHT, D.N.MIDDLEMISS and A.J.NOBLE, "Benz[f]isoquinoline analogues as high-affinity sigma ligands", *J.MED.CHEM.*, 1992, 35, 2025-2033.
38. M.S.CHAMBERS, R.BAKER, D.C.BILLINGTON, A.K.KNIGHT, D.N.MIDDLEMISS and E.F.WONG, "Spiropiperidines as high-affinity, selective sigma ligands", *J.MED.CHEM.*, 1992, 35, 2033-2039.
39. M.N.G.RUSSELL, R.BAKER and D.C.BILLINGTON, "The synthesis of 2-O-alkyl-*myo*-inositol-1-phosphates as competitive inhibitors of inositol monophosphatase", *CARBOHYDRATE RESEARCH*, 1992, 234, 263-268.
40. D.C.BILLINGTON, "The Inositol Phosphates : Chemical Synthesis and Biological significance," Single Author Book, Published by VCH Weinheim, 1993.
41. S.BARTH, D.C.BILLINGTON, S.D.GERO, B.QUICLET-SIRE and M.SAMADI, "Total synthesis of (-)-Ovalicine from L-Quebrachitol", *J.CHEM.SOC.CHEM.COMM.*, 1994, 1495-1496.
42. D.C.BILLINGTON, F. PERRON-SIERRA, I.PICARD, S.BEAUBRAS, J.DUHAULT, J.ESPINAL and S.CHALLAL, " Total synthesis of novel conduritol related compounds capable of modulation insulin release ", *BIOORGANIC & MEDICINAL CHEM. LETT.*, 1994, 4, 2307-2312.
43. T. Le DIGUARHER, D.C.BILLINGTON and G.DOREY , " A convenient synthesis of isopropyl ethers from secondary alcohols ", *SYNTH. COMM.* , 1995, 25, 1633-1639.
44. D.H.R.BARTON, S.BARTH, D.C.BILLINGTON, S.D.GERO, B.QUICLET-SIRE and M.SAMADI, "Total synthesis of (-)-Ovalicine and analogues from L-Quebrachitol", *J.CHEM.SOC.PERKIN TRANS I*, 1995, 1551-1558.
45. T. Le DIGUARHER, A.BOUDON, C.ELWELL, D.E.PATERSON and D.C.BILLINGTON, " Synthesis of potential peptidomimetics based on highly substituted glucose and allose scaffolds " *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*, 1996, 6, 1983-1988.
46. D.C.BILLINGTON, "Inhibition of Angiogenesis as a Potential Therapeutic Strategy", *DRUG DISCOVERY TODAY*, 1996, 1, 492-493.

47. G.DOREY, P.LEON, S.SCIBERRAS, S.LEONCE, N.GUILBAUD, A.PIERRE, G.ATASSI and D.C.BILLINGTON " Synthesis and anti-angiogenic activity of new carbohydrate derivatives", *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*, 1996, **6**, 3045-3050.
48. D.C.BILLINGTON, F.PERRON-SIERRA, I.PICARD, S.BEAUBRAS, J.DUHAULT, J.ESPINAL and S.CHALLAL " Conduritols and analogues as insulin modulators", Chapter 2 in *Carbohydrate Mimics - Concepts and Methods* , Editor Y.Chapleur , VCH-Wiley, 1997.
49. D.C.BILLINGTON, M.D.COLEMAN, J.IBIABUO ,P.A.LAMBERT, D.L.RATHBONE and K.TIMS "Synthesis and antimycobacterial activity of some heteroarylcarboxamidrazone derivatives" *DRUG DESIGN AND DISCOVERY* , 1998, **15**, 269-275.
50. M.D.COLEMAN, D.L.RATHBONE, L.ABBERLEY, P.A.LAMBERT and D.C.BILLINGTON, " Preliminary in-vitro toxicological evaluation of a series of 2-pyridylcarboxamidrazones, candidate anti-Tuberculosis compounds ", *ENVIRONMENTAL TOXICOLOGY AND PHARMACOLOGY*, 1999, **7**(1), 59-65.
51. S.AUGY-DOREY, D.C.BILLINGTON, J.CAMARA, S.D.GERO, I.SAGNARD, B.QUICLET-SIRE and D.GHEZZI " Synthesis and biological evaluation of carbocyclic analogues of Lipid X ", *DRUG DESIGN AND DISCOVERY* , 1999, **16**, 41-48.
52. J.SIMPSON, D.L.RATHBONE AND D.C.BILLINGTON, "New Solid Phase Knoevenagel Catalyst " *TETRAHEDRON LETT.*,1999, **40**, 7031-7033.
- 53 . E. LATTMANN, D.C. BILLINGTON AND C. A. LANGLEY, "Synthesis of Combinatorial Libraries of 3,4,5-substitutes 2(5H)-furanones. Part one : Construction of a Sub-Library of Halogenated 5-Alkoxy-2(5H)-furanones ", *DRUG DESIGN AND DISCOVERY*,1999, **16**, 237-242.
54. E. LATTMANN, D.C. BILLINGTON AND C. A. LANGLEY, "Synthesis of Combinatorial Libraries of 3,4,5-substitutes 2(5H)-furanones. Part two : Construction of a Library of 4-Amino-5-Alkoxy-2(5H)-furanones", *DRUG DESIGN AND DISCOVERY*, 1999, **16**, 243-250.
55. E. LATTMANN, D.C. BILLINGTON , P. ARAYARAT, H. SINGH AND M. OFFEL , " Preparation of a Novel Resin Derived from an Ion-exchange Resin and its Evaluation in Peptide and Benzodiazepine Synthesis ", *SCIENCE (Asia)* , 1999, **25**, 107-112.
56. M.A. COLLINS, I. SHAW AND D.C. BILLINGTON, " Driving Drug Discovery and Patient Therapy via the Encapsulation and Fusion of Knowledge ", *DRUG DESIGN AND DISCOVERY*, 1999, **16**, 181-194.
57. M.D.COLEMAN, D.L.RATHBONE, B.ENDERSBY, M.C.HOVEY, K.J.TIMS, P.A.LAMBERT and D.C.BILLINGTON, " Preliminary *in-vitro* toxicological evaluation of a series of 2-pyridyl-carboxamidrazone, candidate anti-Tuberculosis compounds ; Part II ", *ENVIRONMENTAL TOXICOLOGY AND PHARMACOLOGY*, 2000, **8** (3), 167 -172.

58. D.L.RATHBONE, D. SU, Y.F. WANG AND D.C.BILLINGTON , "Molecular Recognition by Fluorescent Imprinted Polymers" , *TETRAHEDRON LETT.*, 2000, **41**, 123-126.
59. D.C.BILLINGTON, P.R.LOWE, D.L.RATHBONE, and C.H.SCHWALBE, " A new amidrazone derivative with anti-mycobacterial activity," *ACTA.CRYST Sect.C*, 2000, C56(5), e211-212.
60. M.D.COLEMAN, D.L.RATHBONE, R.CHIMA, K.J.TIMS, P.A.LAMBERT and D.C.BILLINGTON, " Preliminary *in-vitro* toxicological evaluation of a series of 2-pyridyl-carboxamidrazones, candidate anti-tuberculosis compounds ; Part III ", *ENVIRONMENTAL TOXICOLOGY AND PHARMACOLOGY*, 2001, **9**(3), 99-102.
61. D.C.BILLINGTON, " Drug Discovery in the New Millennium ", *EDUCATION IN CHEMISTRY*, 2001, **38**, 66-80.
62. N.GAKHALE, S.PADHYE, D.L.RATHBONE, D.C.BILLINGTON, C.H.SCHWALBE, C.NEWTON and P.R.LOWE, " The first well characterised antitumour copper (II) complex of a pyridine-2-carboxamidrazone derivative, a potential anti-tumor agent " *INORG.CHEM. COMMUN.*, 2001, **4** , 26-9.
63. K.ZHAO, Y.F.WANG, and D.C.BILLINGTON, " Studies of stereocontrolled epoxidation of bis-allylic alcohols in steroidal skeletons : Preparation of eight diastereomerically pure epoxides from cholest-4-en-3 β ,6 β -; -3 β ,6 α -; -3 α ,6 β -; and -3 α ,6 α -diols ", *TETRAHEDRON ASSYMETRY*, 2001, **12**, 1211 -1217.
64. E.LATTMANN, D.C.BILLINGTON, D.R.POYNER, S.B.HOWITT and M.OFFELL, " Synthesis and biological evaluation of asperlicin analogues as non-peptide Cholecystokinin antagonists", *DRUG DESIGN AND DISCOVERY*, 2001, **17**, 219-230.
65. E.LATTMANN, D.C.BILLINGTON, D.R.POYNER, S.B.HOWITT and M.OFFELL" Solid phase synthesis of 3-alkylated-1,4-benzodiazepines as non-peptoidal Cholecystokinin antagonists", *PHARM. PHARM. LETT.*, 2001, **11**, 5-8.
66. K.ZHAO, Y.F.WANG, and D.C.BILLINGTON, " A preparative synthesis of 3-alpha-6-beta and 3-alpha-6-alpha-dihydroxycholest-4-ene ", *SYNTH. COMM.* , 2001, **31** (17), 2619-2624.
67. E.LATTMANN, D.C.BILLINGTON, D.R.POYNER, P.ARAYARAT, S.B.HOWITT, S. LAWRENCE and M.OFFELL, " Combinatorial synthesis of multiply substituted 1,4-benzodiazepines and affinity studies at the CCK2 receptor(part1) " *DRUG DESIGN AND DISCOVERY*, 2002, **18**, 9-21.
68. E.LATTMANN, J.SATTAYASAI, D.C.BILLINGTON, D.R.POYNER, P.PUAPAIROJ, S. TIAMAKO, W.AIARAT, H.SINGH and M.OFFELL, " Synthesis and evaluation of N₁-substituted -3-propyl-1,4- benzodiazepine-2-ones as CCK₂ receptor ligands " *J. PHARM.PHARM.*, 2002, **54**, 827-834.

69. U.S.SANDBHOR, S.PADHYE, D.C.BILLINGTON, D.L.RATHBONE, S.FRANZBLAU, C.E.ANSON and A.K.POWELL, " Metal complexes of carboxamidrazone analogues as anti-tubercular agents (part1) ; Synthesis, X-ray crystal structures, spectroscopic properties and antimycobacterial activity against *Mycobacterium tuberculosis H Rv*" *J. INORG. BIOCHEM.* , 2002, 90, 127-136.
70. N.T.K THANH, D.L.RATHBONE, D.C.BILLINGTON and N.HARTELL, " Selective recognition of cyclic GMP using a fluorescent based molecularly imprinted polymer" *ANALYTICAL LETT.*, 2002, 35, 2499-2509.
71. N.GOKHALE, S.PADHYE, D.C.BILLINGTON, D.L.RATHBONE, S.L.CROFT, H.D.KENDRICK , C.E.ANSON and A.K.POWELL, " Synthesis and characterisation of copper(II) complexes of pyridine-2-carboxamidrazones as potent antimalarial agents", *INORGANICA CHIMICA ACTA* , 2003, 349, 23-29.
72. J.SIMPSON , R.FORRESTER, M.J.TISDALE, D.L.RATHBONE and D.C.BILLINGTON, "Effect of catechol derivatives on cell growth and lipoxygenase activity ", *BIOORGANIC MED. CHEM. LETT.* , 2003, 13, 2435-2439.

PATENTS

1. D.C.BILLINGTON, " Synthesis of inositol phosphates ", British Patent; GB 8715635, 1987. Subsequent 1990 US 5055597. D.C.BILLINGTON "Myo-inositol orthoformates" 1988 US 4906761
2. D.C.BILLINGTON and M.CHAMBERS, " Spirocyclic antipsychotic agents ", British Patent ; GB 8917069, and GB 9025385 1990. Subsequent US patent 1993 US 5324733.
3. D.C.BILLINGTON and M.RUSSELL, " Octahydrobenz[f]isoquinoline derivatives as antipsychotic agents ", British Patent; GB 8917333, 1989. Subsequent US patent 1993 US 5294618.
4. D.C.BILLINGTON and M.CHAMBERS, " New Spirocyclic antipsychotic agents ", British Patent; GB 9004900 1990. Subsequent US patent 1991 US 5219860.
5. D.C.BILLINGTON and M.RUSSELL, " New Octahydrobenzisoquinoline derivatives as antipsychotic agents ", British Patent; GB 9014061, 1990. Subsequent US patent " Tricyclic antipsychotic agents" 1991 US 5254561.
6. D.C.BILLINGTON, J.ESPINAL, F. SIERRA-PERRON and I.PICARD, " New naphthalene derivatives (as antidiabetic agents) ", Brevet Français (French Patent) ; FR 93.10069, 1993. Subsequent US patent 1994 US 5422365.

7. D.C.BILLINGTON, G.ATASSI, P.LEON, G.DOREY, and A.PIERRE, " New inhibitors of angiogenesis for the treatment of cancer ", Brevet Français (French Patent) " ; FR 94.10462, 1994. Subsequent US patent 1995 US 5595976.
8. D.C.BILLINGTON, P.LEON, S.BEAUBRAS, E.CANET, and M.LONGCHAMP, "New tetrahydronaphthalene compounds (as 5-lipoxygenase inhibitors) ", Brevet Français (French Patent) FR 95.3036, 1995.
9. D.C.BILLINGTON, F.SIERRA-PERRON , G.ATASSI, A.PIERRE, M.BURBRIDGE and N.GUILBAUD, " New Subsitiuted Tetrahydropyrano[3,2-d]oxazolones (as angiogenesis inhibitors and anti-cancer agents)" Brevet Français (French Patent) ; FR 95.5051, 1995. Subsequent US patent 1995 US 5595976.
10. D.C.BILLINGTON, I.PICARD, G.ATASSI, A.PIERRE, M.BURBRIDGE and N.GUILBAUD, " New Cyclohexyl compounds (as angiogenesis inhibitors and anti-cancer agents) "Brevet Français (French Patent) ; FR 95.5052, 1995. Subsequent US patent 1996 US 5684382.
11. J.G.WILLIAMS, D.R.HOUCK, D.E.SMITH, D.L.RATHBONE , D. C. BILLINGTON , B.T.GOLDING, E.W.COLLINGTON, J.KITCHEN and N.RICH " Tetracyclic compounds for enhancing the biosynthesis of Erythropoietin, composition containing same and methods of use thereof.", US Patent 1998 US 5985913
12. D. C. BILLINGTON , D.L.RATHBONE , S. RYLEY, P. FINN, " Barbituric acids as Therapeutic agents " British Patent ; GB 0013655.6 filed 05 June 2000, US application in progress.
