Supporting Information

Copper-Mediated Domino Synthesis of Synthesis of Pyrimido[4,5-b]carbazolones via Ullmann N-Arylation and Aerobic Oxidative C-H Amidation

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$^1$H NMR of 9-benzyl-2-bromo-9H-carbazole-3-carboxamide (3c)
$^{13}$C NMR of 9-benzyl-2-bromo-9H-carbazole-3-carboxamide (3c)
DEPT of 9-benzyl-2-bromo-9H-carbazole-3-carboxamide (3c)
LCMS of 9-benzyl-2-bromo-9H-carbazole-3-carboxamide (3c)
Elemental Analysis of 9-benzyl-2-bromo-9H-carbazole-3-carboxamide (3c)
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Carbon | 63.25 | 1.13
Hydrogen | 3.91 | 3.74

1H NMR of 2-bromo-9-butyl-6-methyl-9H-carbazole-3-carboxamide (3d)
\(^{13}\text{C}\) NMR of 2-bromo-9-butyl-6-methyl-9\textit{H}-carbazole-3-carboxamide (3d)
DEPT of 2-bromo-9-butyl-6-methyl-9H-carbazole-3-carboxamide (3d)
LCMS of 2-bromo-9-butyl-6-methyl-9H-carbazole-3-carboxamide (3d)
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DEPT of 6-\textit{tert}-butyl-2-bromo-9-ethyl-1,4-dimethyl-9\textit{H}-carbazole-3-carboxamide (3e)
LCMS of 6-tert-butyl-2-bromo-9-ethyl-1,4-dimethyl-9H-carbazole-3-carboxamide (3e)
Elemental Analysis of 6-tert-butyl-2-bromo-9-ethyl-1,4-dimethyl-9H-carbazole-3-carboxamide (3e)

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Nitrogen     | 6.88      | 0.77      
Carbon       | 62.75     | 3.69      
Hydrogen     | 6.32      | 1.77      

Electronic Supplementary Material (ESI) for Organic & Biomolecular Chemistry
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$^1$H NMR of 10-ethyl-7-methyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5a)
$^{13}$C NMR of 10-ethyl-7-methyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5a)
DEPT of 10-ethyl-7-methyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5a)
LCMS of 10-ethyl-7-methyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5a)
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Electronic Supplementary Material (ESI) for Organic & Biomolecular Chemistry
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LCMS of 10-ethyl-2-(4-methoxyphenyl)-7-methyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5b)
Elemental Analysis of 10-ethyl-2-(4-methoxyphenyl)-7-methyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5b)
$^1$H NMR of 10-ethyl-7-methyl-2-p-tolyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5c)
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$^1$H NMR of 2-(4-chlorophenyl)-10-ethyl-7-methyl-3$H$-pyrimido[4,5-b]carbazol-4(10$H$)-one (5d)
$^{13}$C NMR of 2-(4-chlorophenyl)-10-ethyl-7-methyl-3$H$-pyrimido[4,5-b]carbazol-4(10$H$)-one (5d)
DEPT of 2-(4-chlorophenyl)-10-ethyl-7-methyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5d)
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$^{13}$C NMR of 10-ethyl-2-(furan-2-yl)-7-methyl-3$H$-pyrimido[4,5-$b$]carbazol-4(10$H$)-one (5f)
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LCMS of 10-ethyl-2-(furan-2-yl)-7-methyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5f)
Elemental Analysis of 10-ethyl-2-(furan-2-yl)-7-methyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5f)

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$^1$H NMR of 2-(4-Chlorophenyl)-10-ethyl-3$H$-pyrimido[4,5-$b$]carbazol-4(10$H$)-one (5g)
$^{13}$C NMR of 2-(4-Chlorophenyl)-10-ethyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5g)
DEPT of 2-(4-Chlorophenyl)-10-ethyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5g)
LCMS of 2-(4-Chlorophenyl)-10-ethyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5g)
Elemental Analysis of 2-(4-Chlorophenyl)-10-ethyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5g)

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$^1$H NMR of 10-benzyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5h)
$^{13}$C NMR of 10-benzyl-2-phenyl-3$H$-pyrimido[4,5-$b$]carbazol-4(10$H$)-one (5h)
DEPT of 10-benzyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5h)
LCMS of 10-benzyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5h)
Elemental Analysis of 10-benzyl-2-phenyl-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5h)
$^1$H NMR of 10-butyl-7-methyl-2-(thiophen-2-yl)-3$H$-pyrimido[4,5-$b$]carbazol-4(10$H$)-one (5i)
$^{13}$C NMR of 10-butyl-7-methyl-2-(thiophen-2-yl)-3$H$-pyrimido[4,5-\textit{b}]carbazol-4(10$H$)-one (5i)
DEPT of 10-butyl-7-methyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5i)
LCMS of 10-butyl-7-methyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5i)
Elemental Analysis of 10-butyl-7-methyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5i)
$^1$H NMR of 7-tert-butyl-10-ethyl-5,11-dimethyl-2-(thiophen-2-yl)-3$H$-pyrimido[4,5-b]carbazol-4(10$H$)-one (5j)
$^{13}$C NMR of 7-tert-butyl-10-ethyl-5,11-dimethyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5j)
DEPT of 7-tert-butyl-10-ethyl-5,11-dimethyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5j)
LCMS of 7-tert-butyl-10-ethyl-5,11-dimethyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5j)
Elemental Analysis of 7-tert-butyl-10-ethyl-5,11-dimethyl-2-(thiophen-2-yl)-3H-pyrimido[4,5-b]carbazol-4(10H)-one (5j)

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Carbon | 72.56 | 1.13
Hydrogen | 6.31 | 3.74
$^1$H NMR of 12-ethyl-9-methyl pyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8a)
$^{13}$C NMR of 12-ethyl-9-methyl pyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12$H$)-one (8a)
DEPT of 12-ethyl-9-methyl pyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8a)
LCMS of 12-ethyl-9-methyl pyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8a)
Elemental Analysis of 12-ethyl-9-methyl pyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8a)
$^1$H NMR for 12-benzylpyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8b)
$^{13}$C NMR of 12-benzylpyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8b):
DEPT of 12-benzylpyrido[2',1',2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8b):
LCMS of 12-benzylpyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8b)
Elemental Analysis of 12-benzylpyrido[2',1':2,3]pyrimido[4,5-b]carbazol-6(12H)-one (8b)