Supplementary Information

Synthesis, Characterization and Biological Activity of Bromido[3-ethyl-4-aryl-5-(2-methoxypyridin-5-yl)-1-propyl-1,3-dihydro-2*H*-imidazol-2-ylidene]-gold(I) Complexes

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Contents of Supplementary Information

1. ^{1}H-NMR spectra

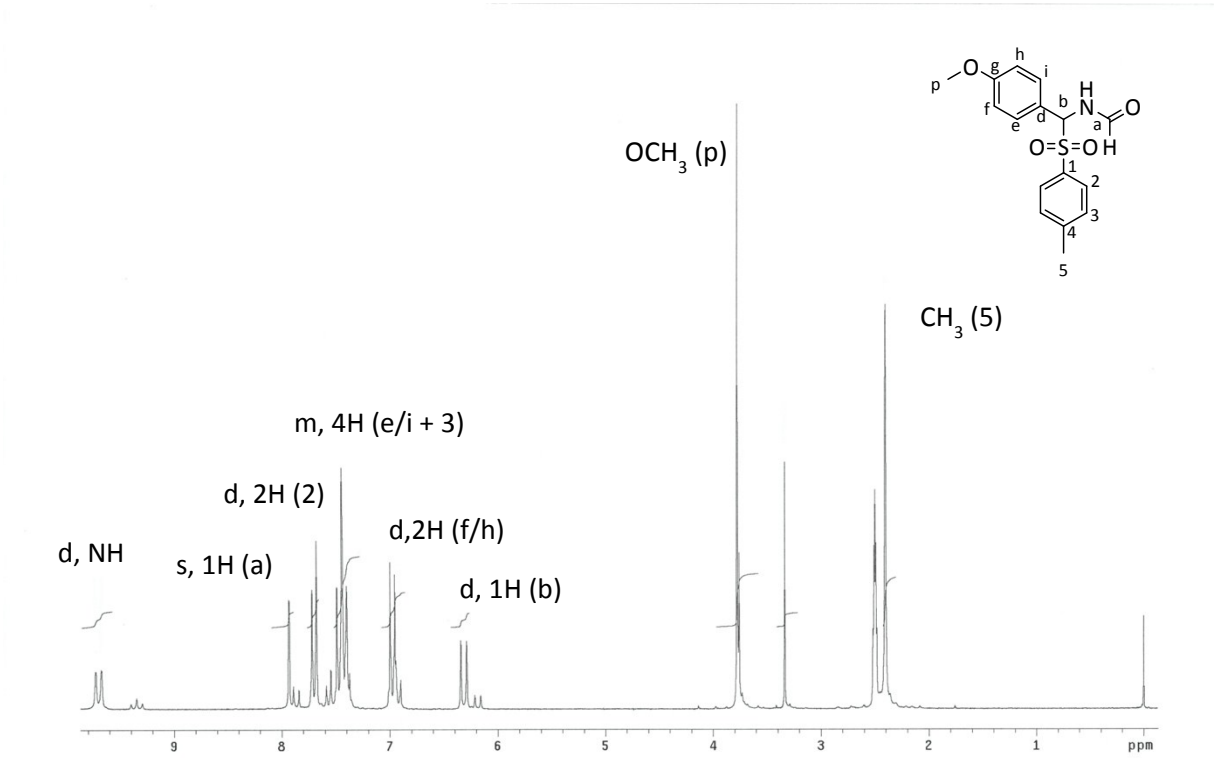

Figure S1. ^{1}H-NMR spectrum of **3c** in DMSO-d_6. For *N*-(aryl(tosyl)methyl)formamides two isomers in solution are observed. In secondary amides the *trans*-isomer is much more stable than the *cis*-configurated one.

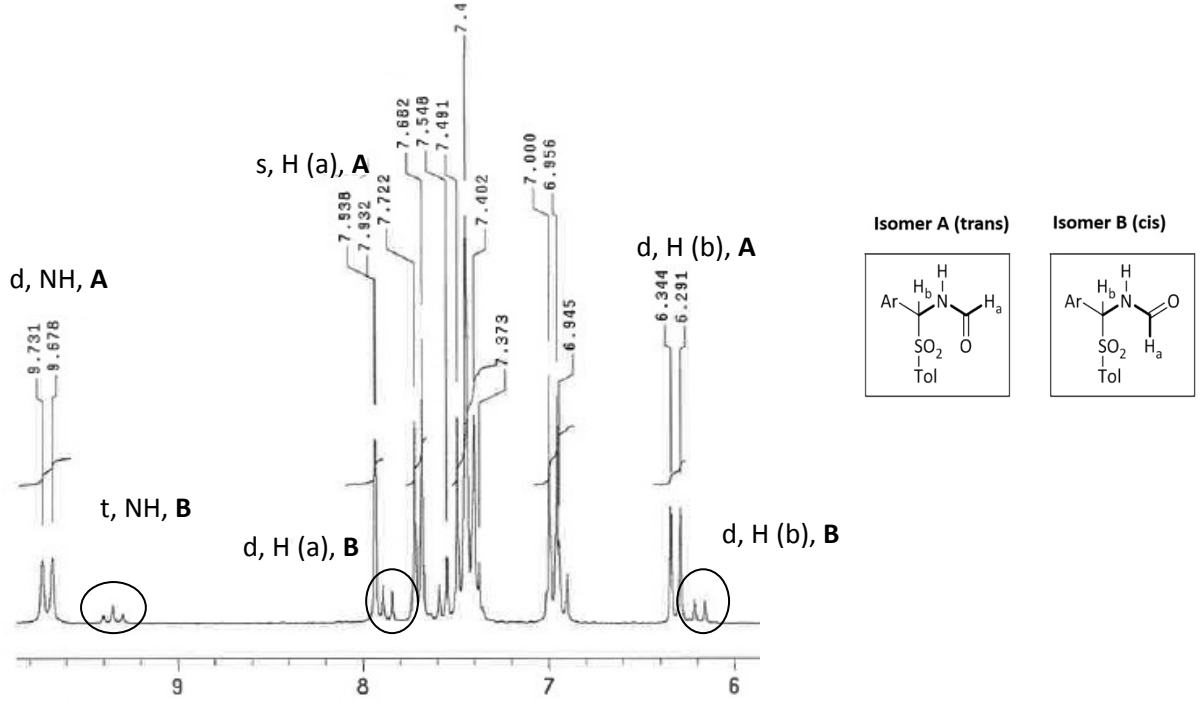

Figure S2. Enlargement of the aromatic area of **3c** to identify the *trans*- and *cis*-isomer.

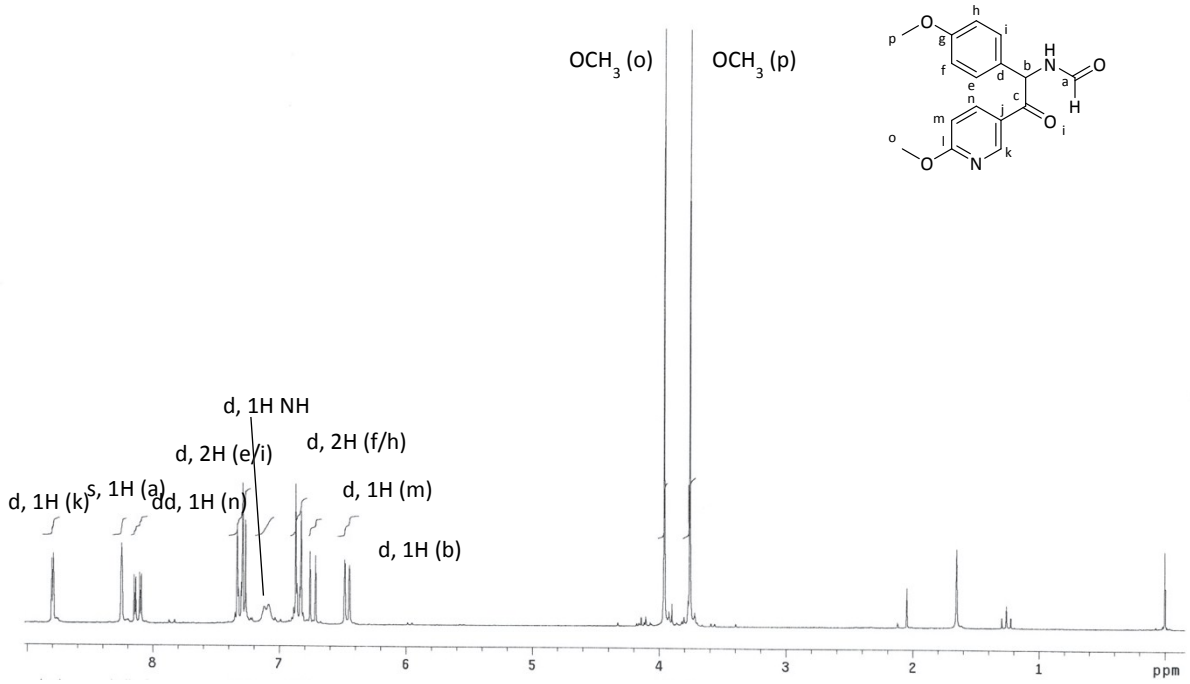

Figure S3. ^{1}H-NMR spectrum of compound **4c** in $CDCl_3$.

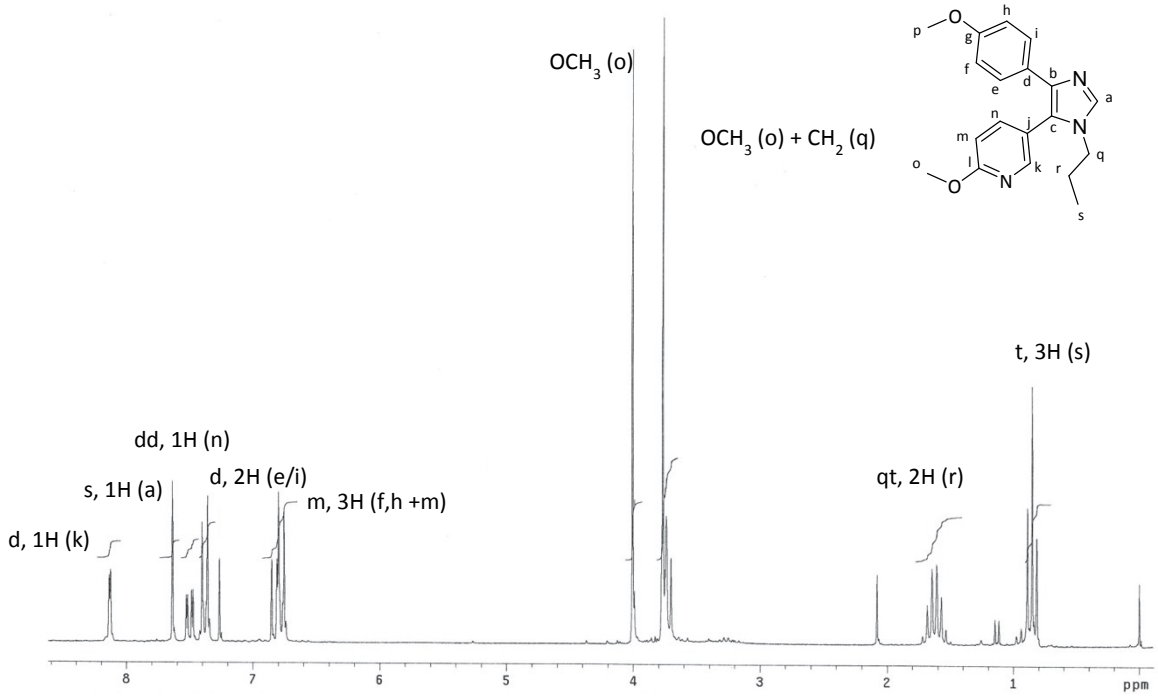

Figure S4. ^{1}H-NMR spectrum of compound **5c** in $CDCl_3$.

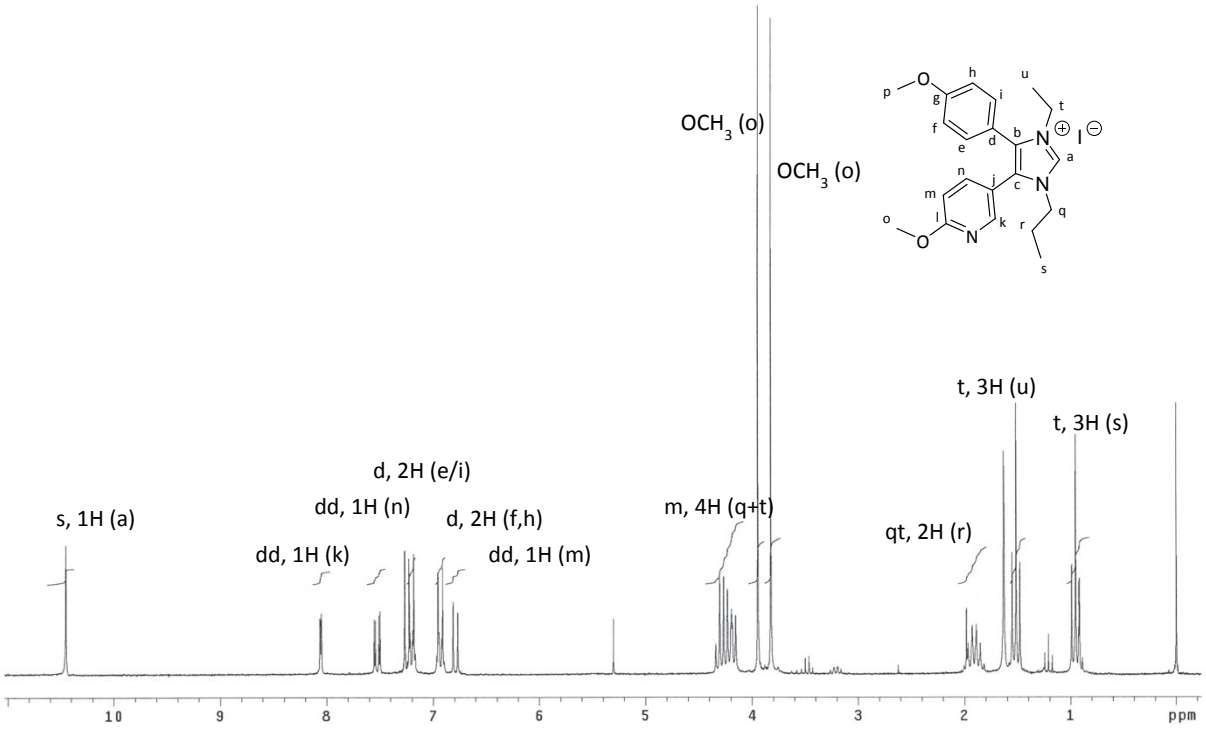

Figure S5. ^{1}H-NMR spectrum of compound **6c** in $CDCl_3$. The signal of the H(a) at 10.45 ppm and the resonance of the triplet at 1.55 ppm as well as the rising of the multiplett at 4.10 ppm evidenced the formation of the carbene.

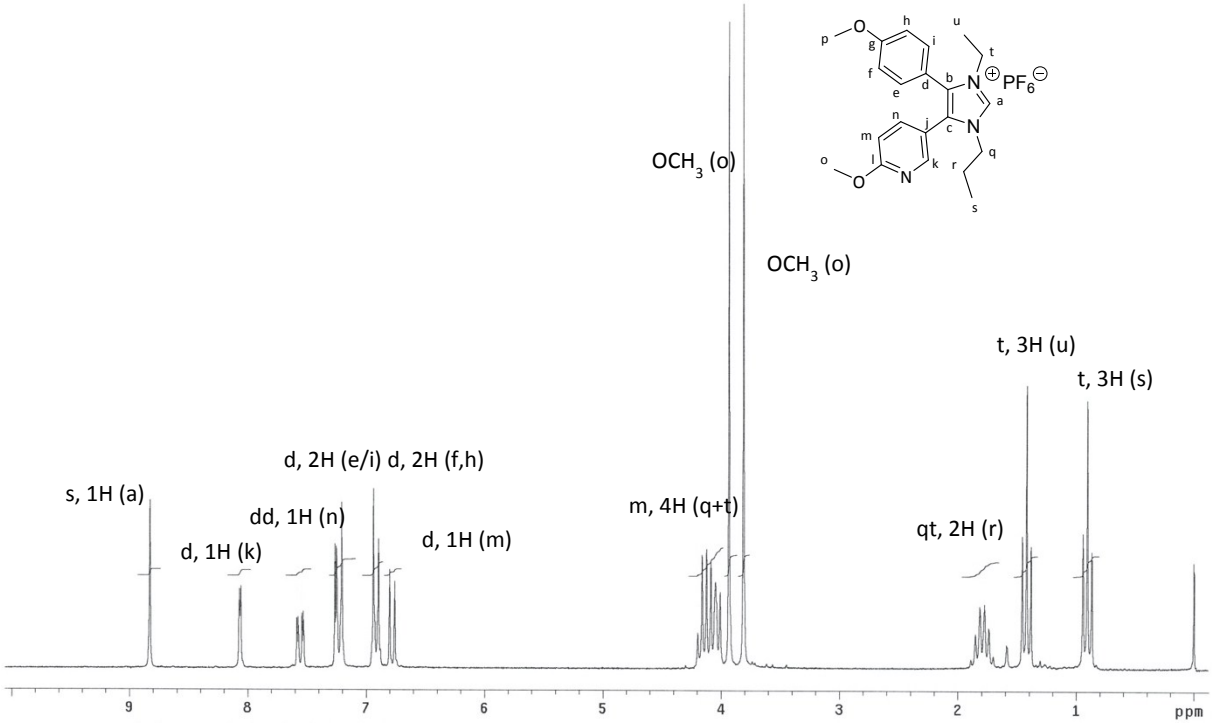

Figure S6. ^{1}H-NMR spectrum of compound **7c** in $CDCl_3$. The signal of H(a) is shifted to 8.84 ppm upon the change to PF_6^- as counter ions.

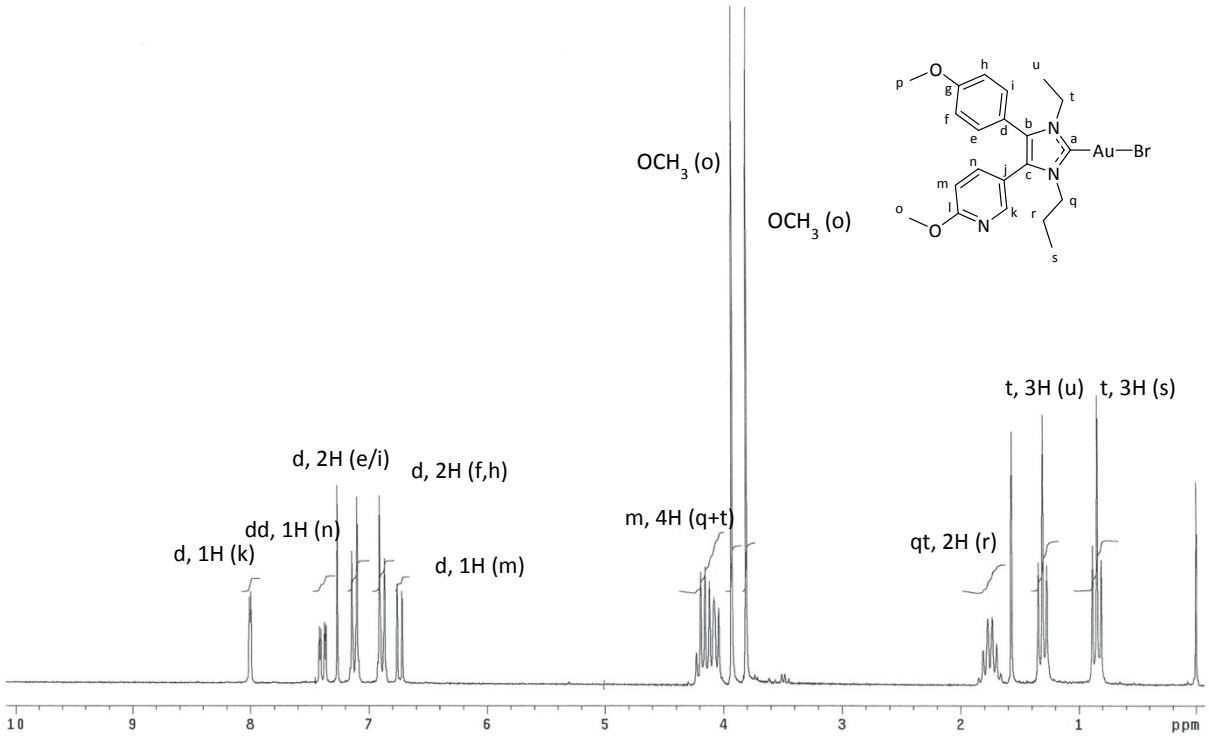

Figure S7. ^{1}H-NMR spectrum of compound **8c** in $CDCl_3$. The formation of the gold complex was confirmed by the disappearance of H (a).

2. ^{13}C-NMR spectra

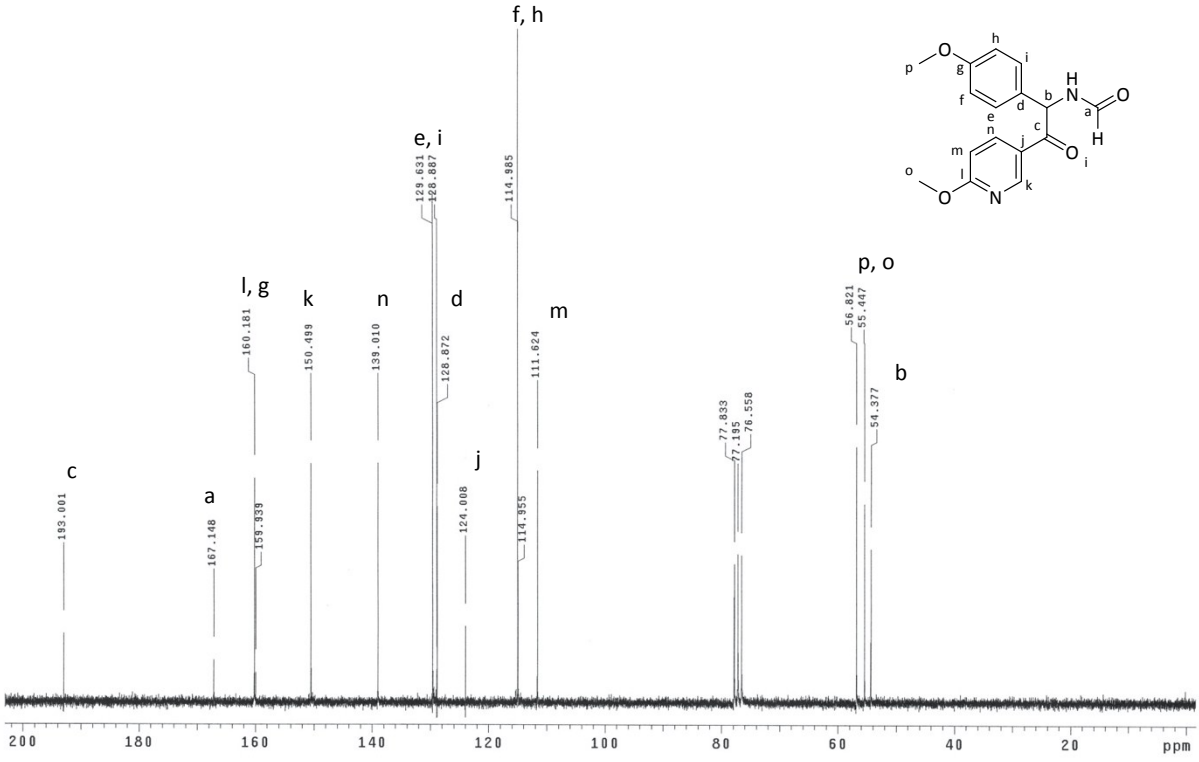

Figure S8. ^{13}C-NMR spectrum of compound **4c** in $CDCl_3$.

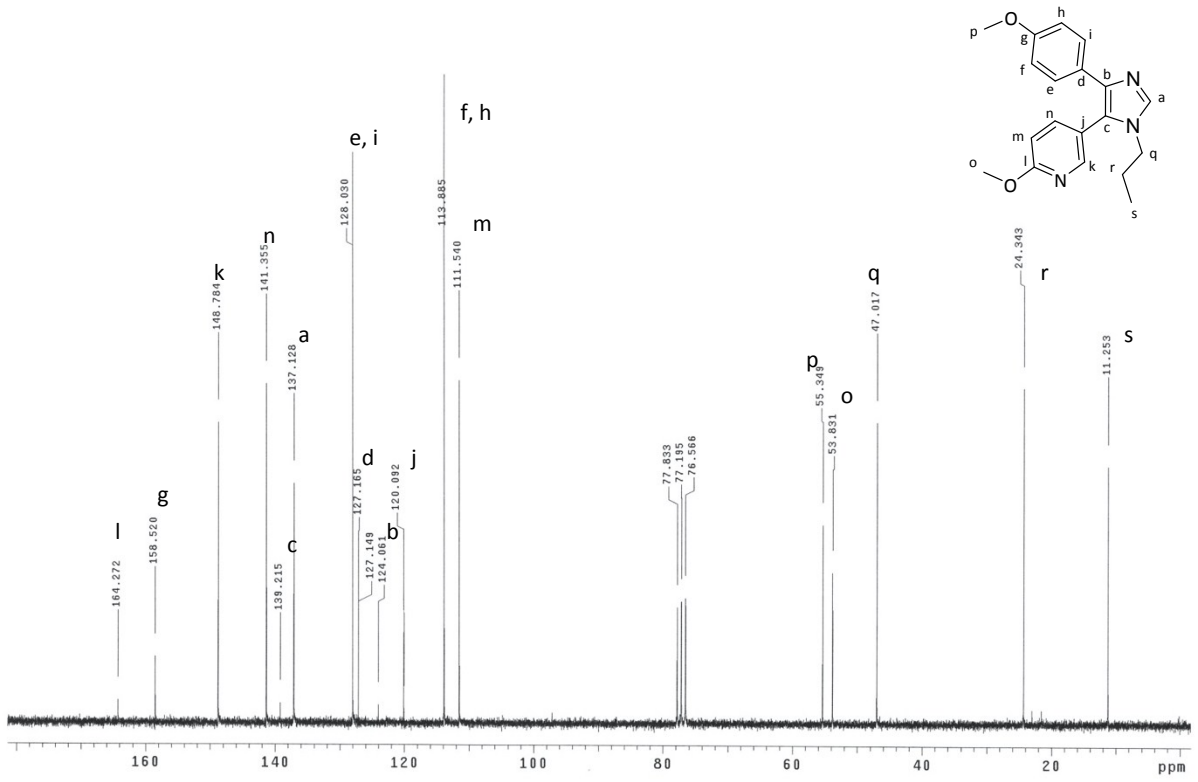

Figure S9. ^{13}C-NMR spectrum of compound **5c** in $CDCl_3$.

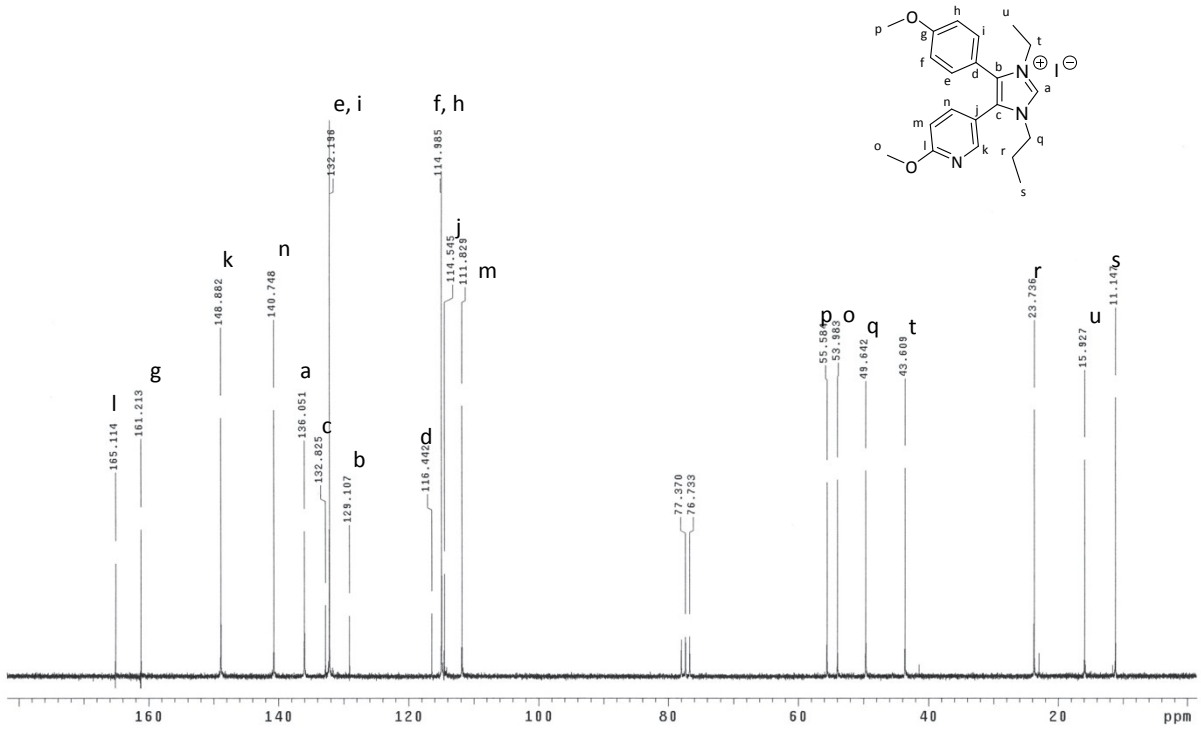

Figure S10. ^{13}C-NMR spectrum of compound **6c** in $CDCl_3$.

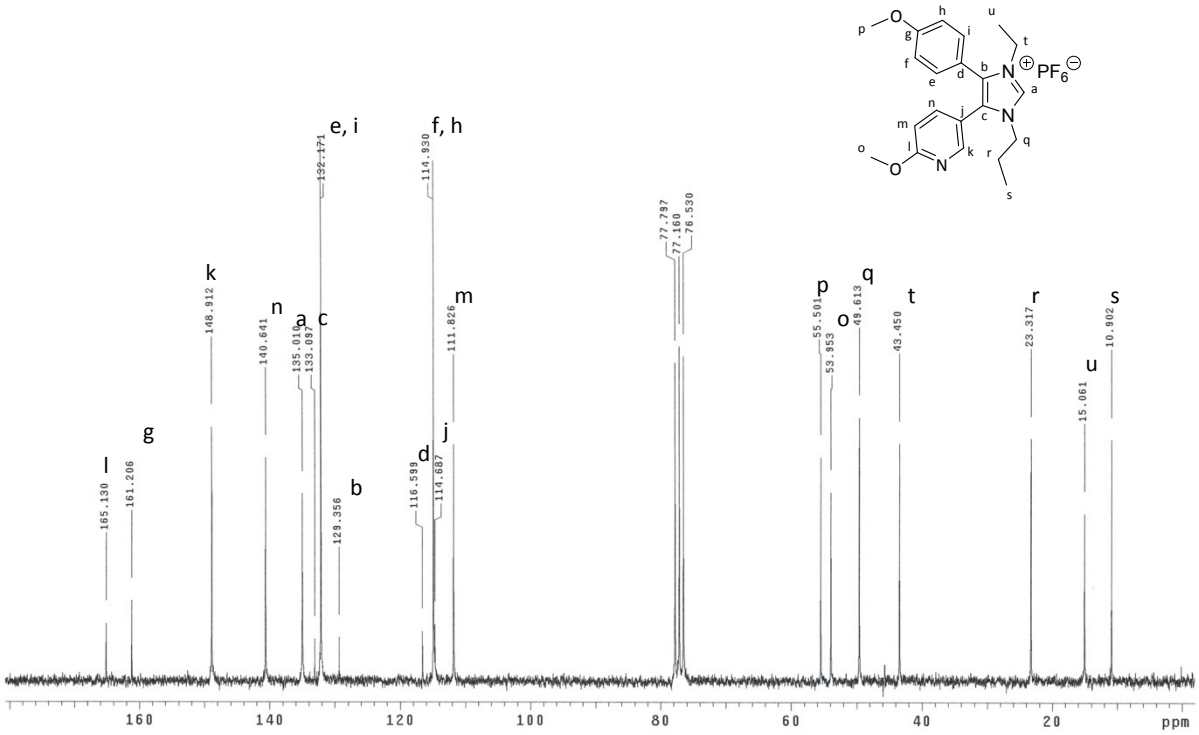

Figure S11. ^{13}C-NMR spectrum of compound **7c** in $CDCl_3$.

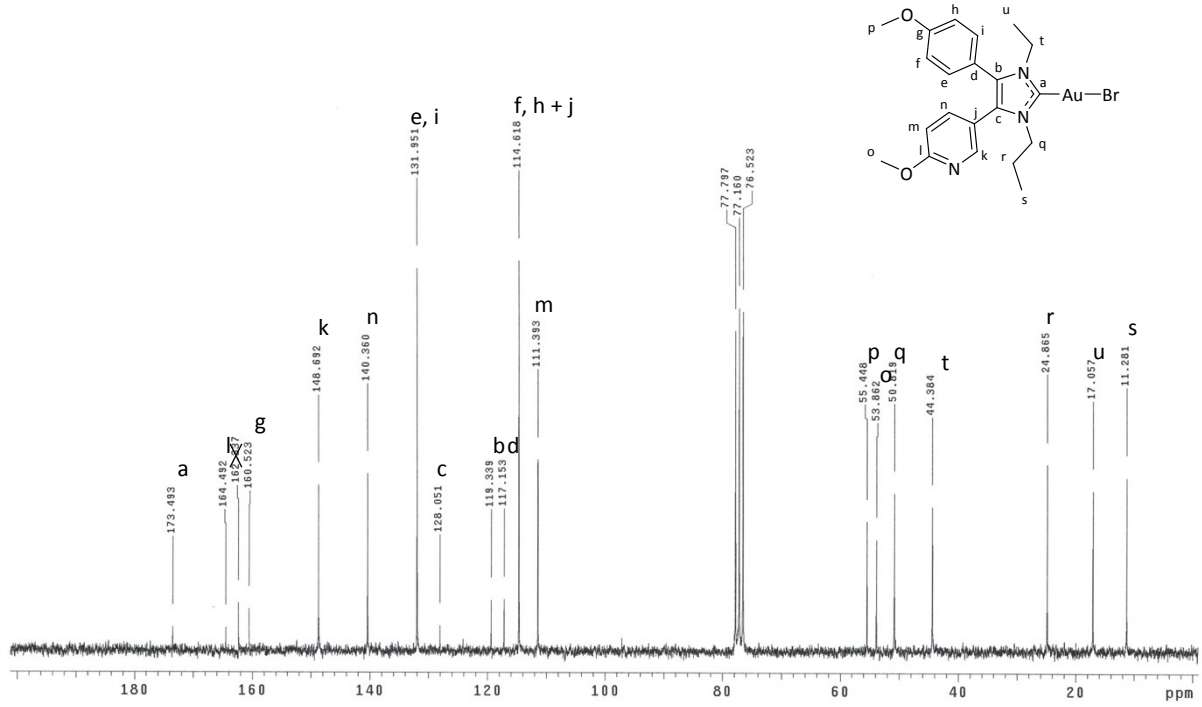

Figure S12. ^{13}C-NMR spectrum of compound **8c** in $CDCl_3$. The signal of the imidazolium carbon C(a) is shifted from 135 ppm to 173 ppm.

3. Mass spectra

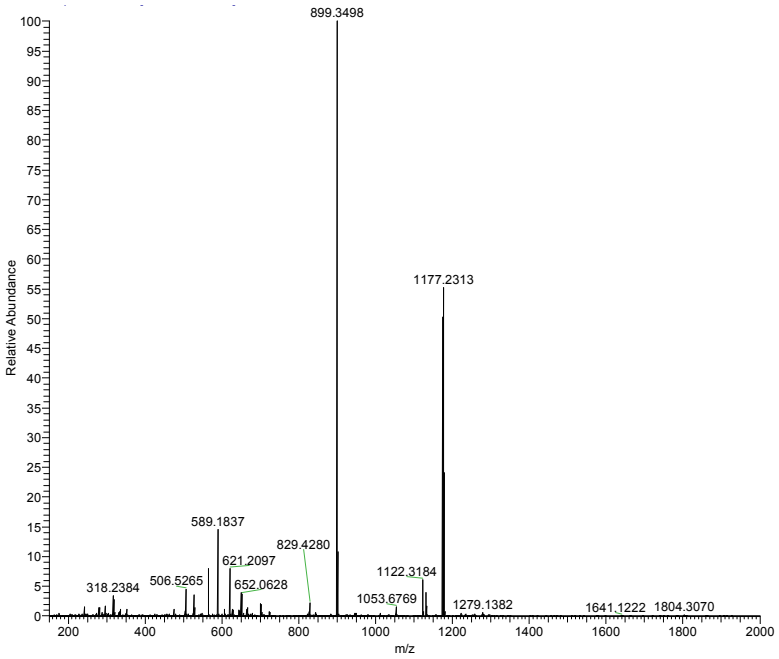

Figure S13. Mass spectrum of **8a**: Bis-NHC gold(I) complex (m/z 899) and cationic Au_2L_2Br intermediate (m/z 1177).

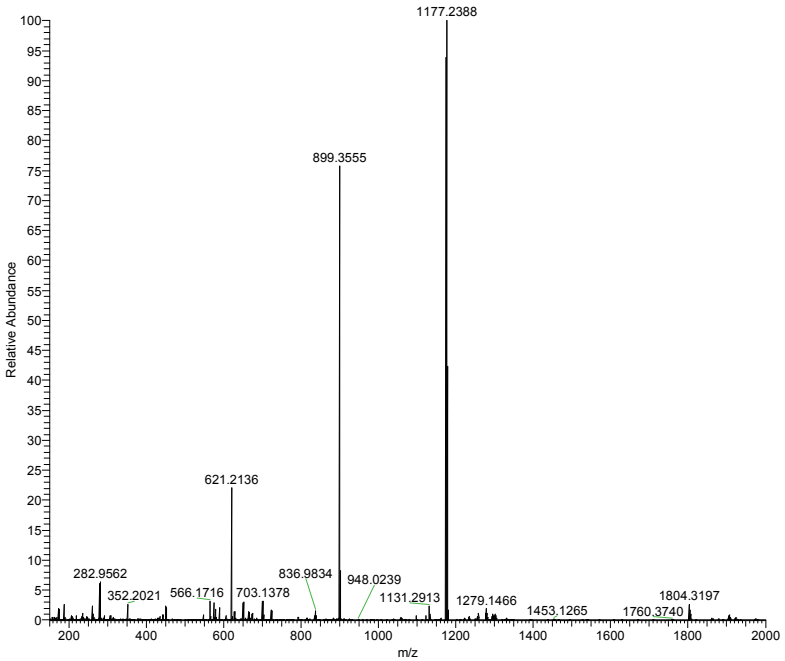

Figure S14. Mass spectrum of **8b**: Bis-NHC gold(I) complex (m/z 899) and cationic Au_2L_2Br intermediate (m/z 1177).

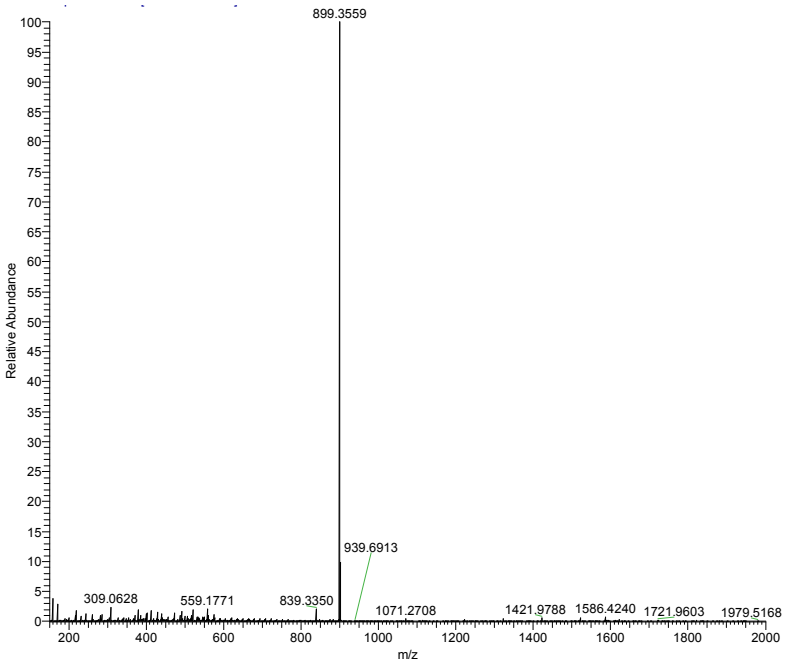

Figure S15. Mass spectrum of **8c**: Bis-NHC gold(I) complex (m/z 899).

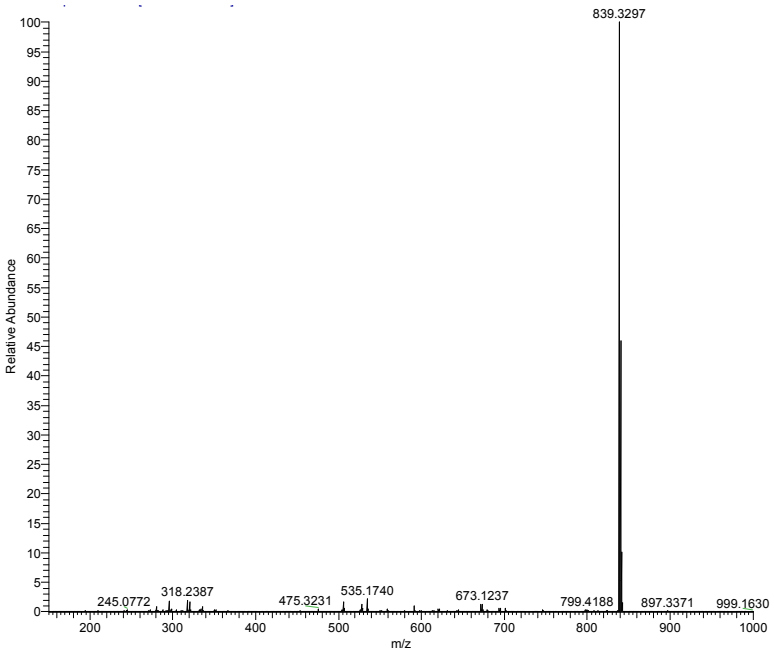

Figure S16. Mass spectrum of **8d**: Bis-NHC gold(I) complex (m/z 839).

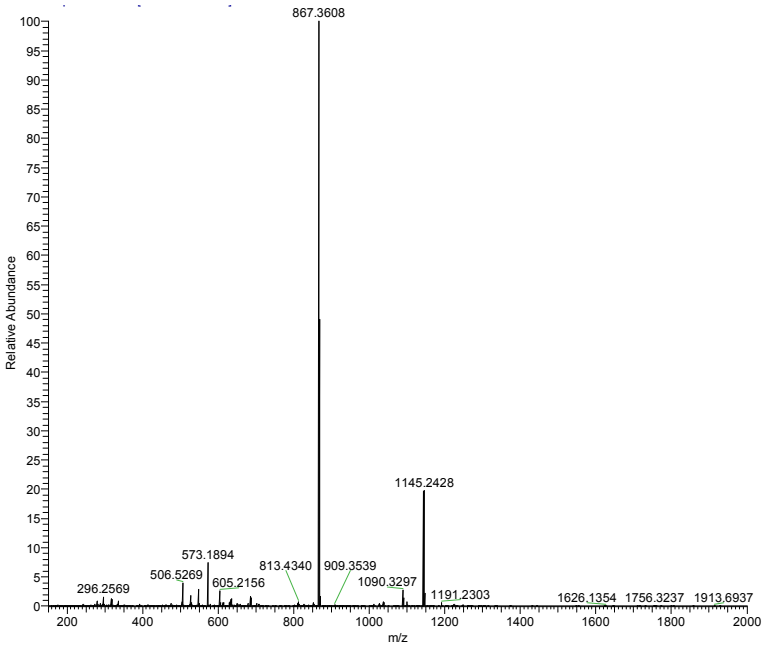

Figure S17. Mass spectrum of **8e**: Bis-NHC gold(I) complex (m/z 867).

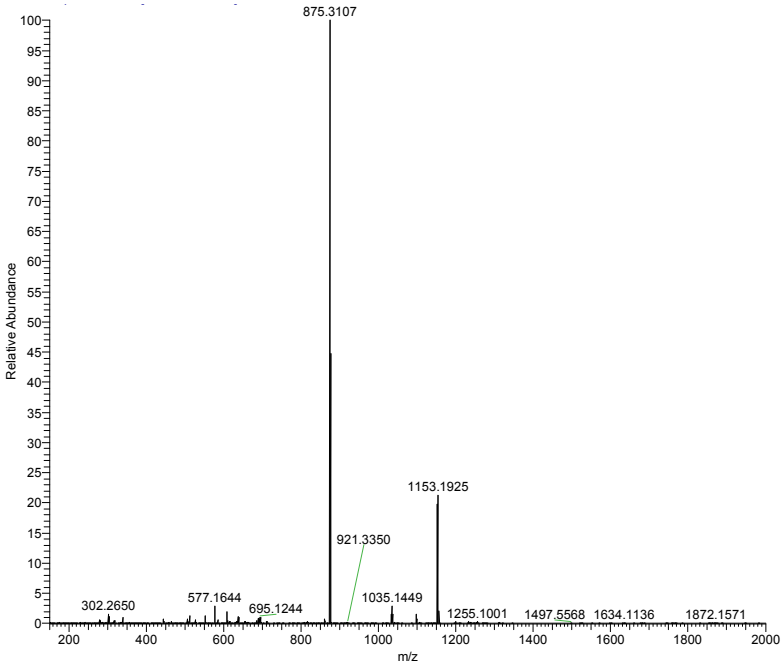

Figure S18. Mass spectrum of **8f**: Bis-NHC gold(I) complex (m/z 875).

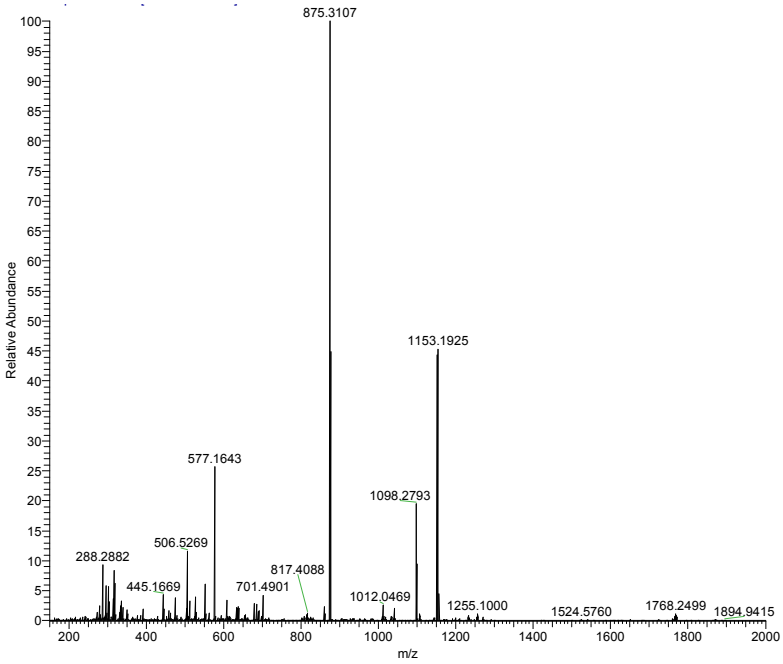

Figure S19. Mass spectrum of **8g**: Bis-NHC gold(I) complex (m/z 875).

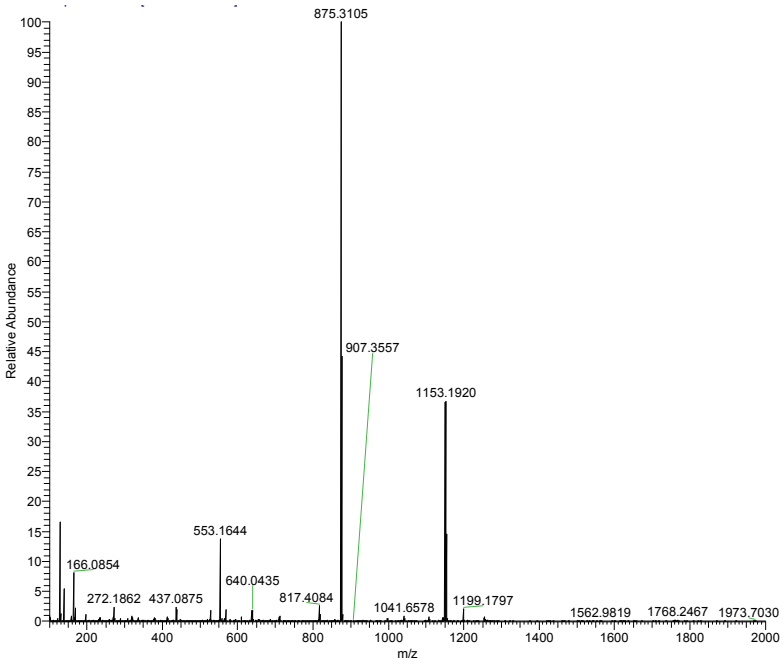

Figure S20. Mass spectrum of **8h**: Bis-NHC gold(I) complex (m/z 875).

4. Biology activity

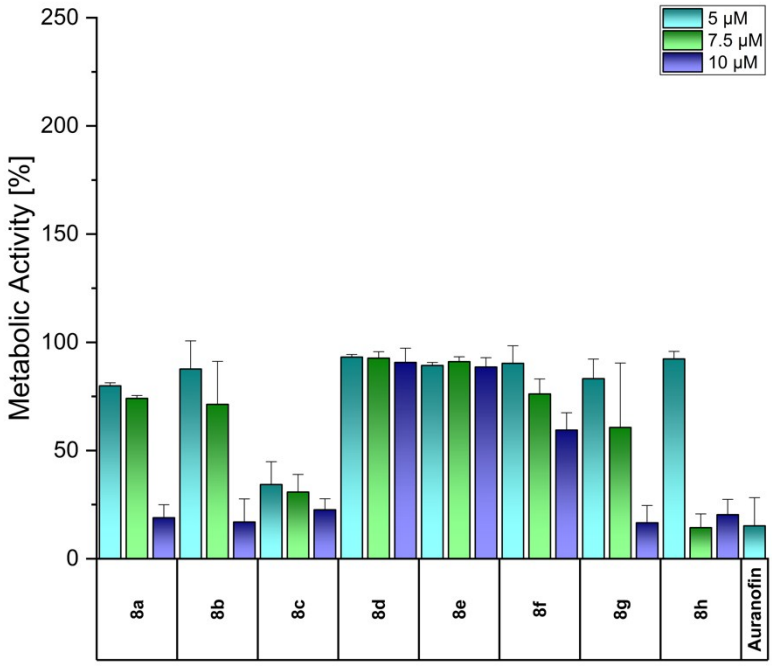

Figure S21. Metabolic activity of HL-60 cells after 72 h of incubation with complexes **8a-h** at different concentrations: 5 µM (blue), 7.5 µM (green) and 10 µM (dark blue). The mean was calculated from three independent experiments. Auranofin served as reference.

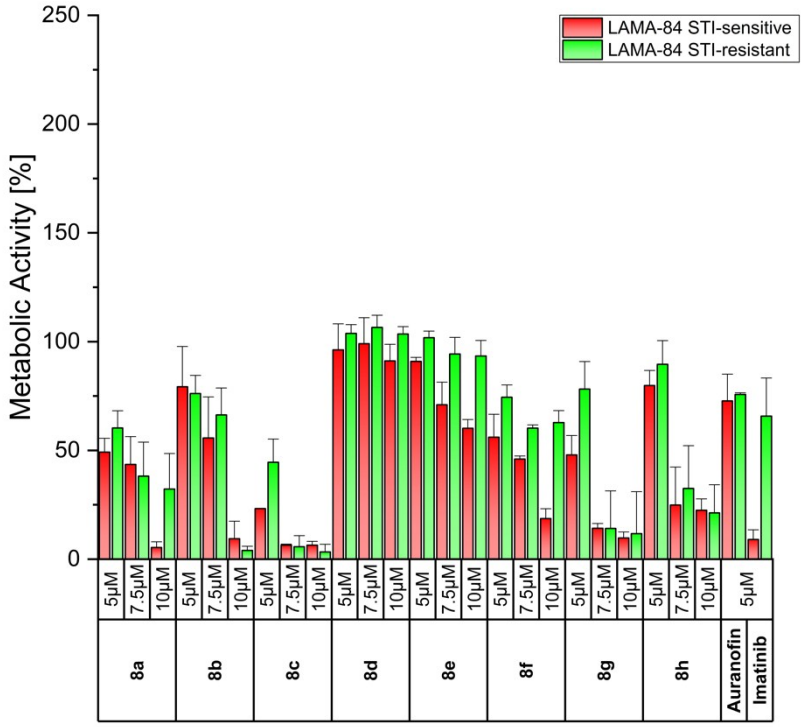

Figure S22. Metabolic activity of LAMA-84 STI-sensitive (red) and LAMA-84 STI-resistant (green) cells after 72 h of incubation with the complexes **8a-h** (5, 7.5 and 10 µM). The mean was calculated from three independent experiments. Auranofin and Imantinib served as reference.

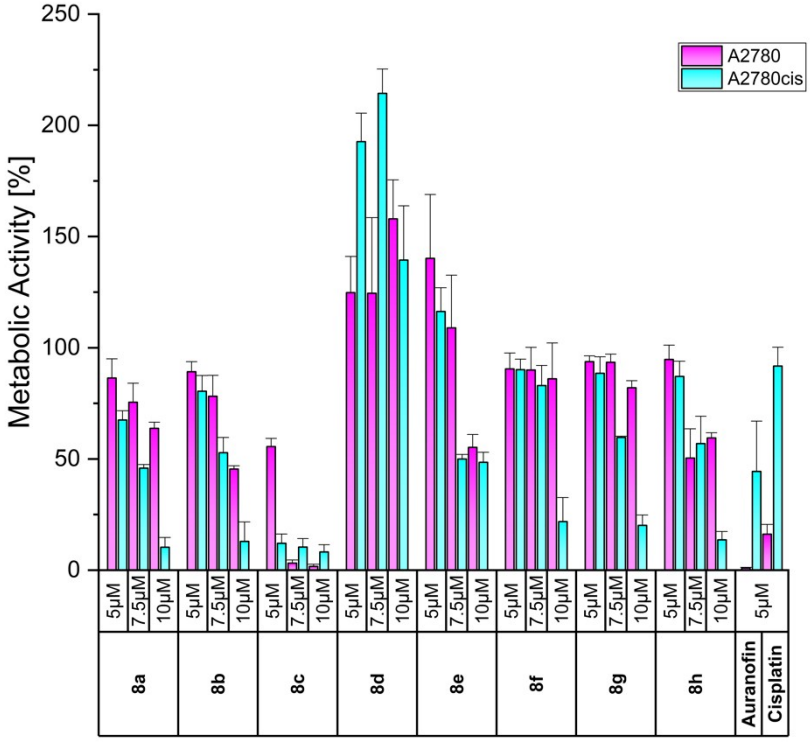

Figure S23. Antimetabolic effects of complexes **8a-h** (5 µM) in A2780 (purple) and A2780cis (blue) cells after 72 h of incubation. The mean was calculated from three independent experiments. Auranofin and Cisplatin served as reference.

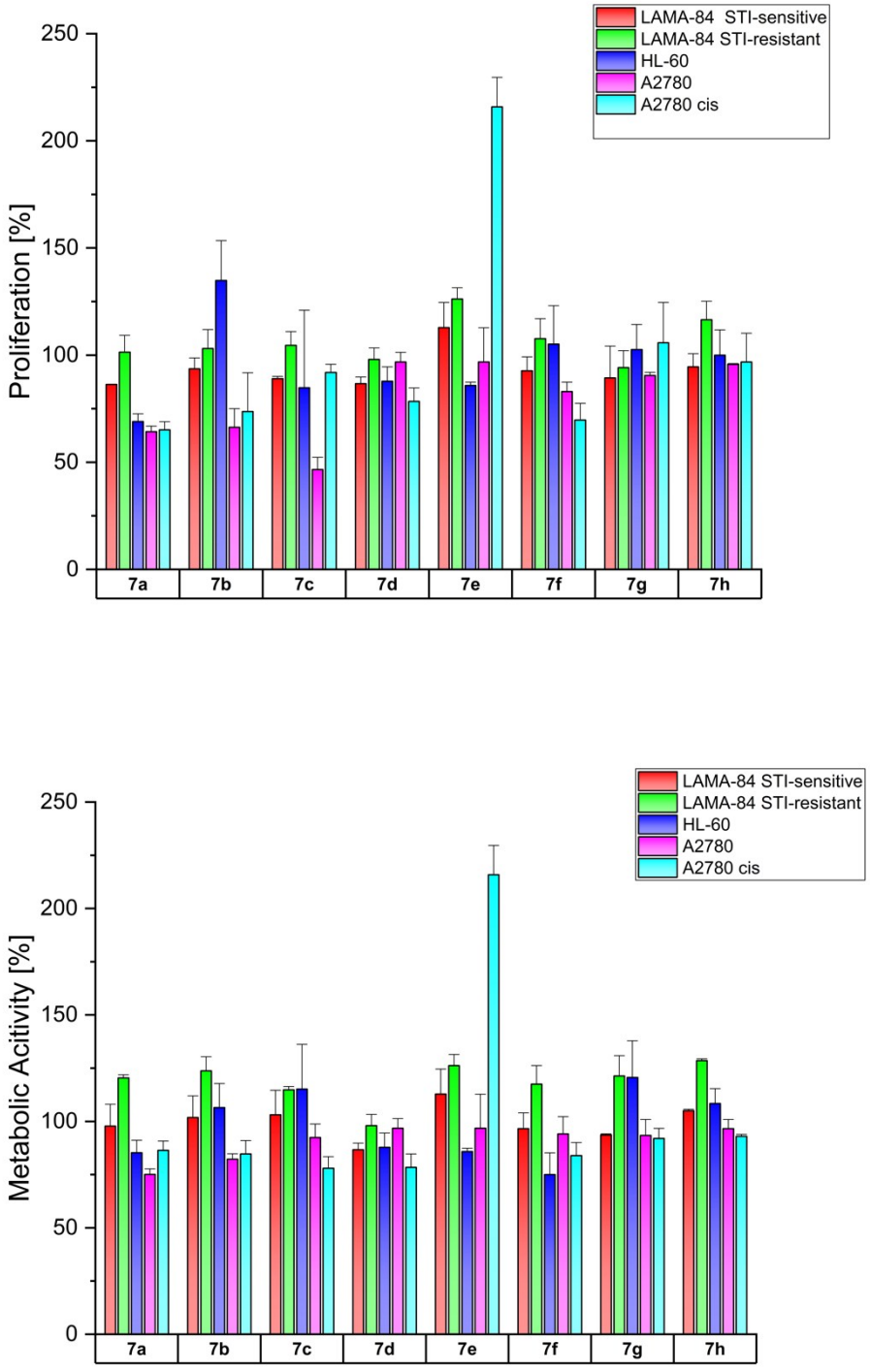

Figure S24. Proliferative (top) and metabolic activity (bottom) of LAMA-84 STI-sensitive (red), LAMA-84 STI-resistant (green), HL-60 (dark blue), A2780 (purple) and A2780cis (blue) cells after 72 h of incubation with the ligands **7a-h** (10 µM). The mean was calculated from three independent experiments.

Table S1. Cellular Uptake of **8c**, **8h** and Auranofin in MCF-7 cells after 1 h, 4 h, 6 h and 24 h in ng of Au per mg protein. The mean was calculated from three independent experiments.

Cellular Uptake

	8c	**8h**	**Auranofin**
	Mean	Mean	Mean
1 h	82,72 ± 73,48	178,39 ± 18,17	1773,10 ± 1032,74
4 h	81,96 ± 71,02	183,73 ± 3,00	1576,10 ± 1499,39
6 h	173,21 ± 46,78	222,68 ± 39,67	3273,19 ± 1097,01
24 h	139,53 ± 23,07	226,77 ± 3,79	464383,12 ± 738658,75

Table S2. Oven program for determination of intracellular gold content [55,56].

	TEMPERATURE [°C]	HEATING RATE [°C/S]	RETENTION TIME [S]	GAS
DRYING	90	5	20	Max.
DRYING	105	7	5	Max.
PYROLYSE	800	200	15	Max.
ATOMISATION	1900	1500	10	Stopp
HEATING	2200	1000	5	Max.

5. Synthesis of ligands 7a-h

General synthesis of *N*-(aryl(tosyl)methyl)formamides 3a-h

Method A

Benzaldehyde (**2a-h**) (1.0 eq.), formamide (2.5 eq.), chlorotrimethylsilane (1.1 eq.) and freshly prepared *p*-toluene sulfonic acid (1.5 eq.) were dissolved in a 1:1 mixture of anhydrous toluene and anhydrous acetonitrile. The mixture was heated to 50°C for 5 h. After the reaction finished, the mixture was cooled to 0°C. Water was added and a white solid precipitates, which was collected by filtration. The crude product was washed with toluene and water.

Method B

A mixture of the benzaldehyde (**2a-h**) (1.0 eq.), formamide (2.5 eq.) and chlorotrimethylsilane (1.1 eq.) was heated to 50°C in a 1:1 mixture of anhydrous toluene and acetonitrile for 4 h. Afterwards, freshly prepared *p*-toluene sulfonic acid (1.1 eq.) were added and the mixture stirred additional 4 h at 50°C. The suspension was poured into water, the flask was washed with toluene and the mixture was cooled until the precipitation completed. The crude product was filtered and washed with water.

***N*-(2-Methoxyphenyl(tosyl)methyl)formamides (3a)**

Method B: white solid, 3677 mg from 3000 mg 2-methoxybenzaldehyde (**2a**) (57% yield). ^{1}H-NMR (DMSO-d$_6$): δ = 2.40 (s, 3 H), 3.57 (s, 3 H), 6.76 (d, 1 H, *J* = 11.2 Hz), 6.92-7.08 (m, 2 H), 7.36-7.58 (m, 6 H), 8.05 (s, 1 H), 9.73 (d, 1 H, *J* = 10.6 Hz).

***N*-(3-Methoxyphenyl(tosyl)methyl)formamides (3b)**

Method B: white solid, 6135 mg from 3000 mg 3-methoxybenzaldehyde (**2b**) (87% yield). ^{1}H-NMR (DMSO-d$_6$): δ = 2.41 (s, 3 H), 3.74 (s, 3 H), 6.37 (d, 1 H, *J* = 10.6 Hz), 6.98-7.13 (m, 3 H), 7.30 (d, 1 H), 8.43 (d, 2 H, *J* = 8.2 Hz), 7.71 (d, 2 H, *J* = 8.2 Hz), 7.97 (s,1 H) 9.76 (d, 1 H, *J* = 10.6 Hz).

***N*-(4-Methoxyphenyl(tosyl)methyl)formamides (3c)**

Method B: white solid, 5928 mg from 3000 mg 4-methoxybenzaldehyde (**2c**) (85% yield). ^{1}H-NMR (DMSO-d$_6$): δ = 2.4 (s, 3 H), 3.78 (s, 3 H), 6.32 (d, 1 H, *J* = 10.6 Hz), 6.98 (d, 2 H, *J* = 8.8 Hz), 7.49-7.37 (m, 4 H), 7.63 (d, 2 H, *J* = 8.0 Hz), 7.93 (s, 1 H), 9.76 (d, 1 H, *J* = 10.6 Hz).

***N*-(Phenyl(tosyl)methyl)formamides (3d)**

Method B: white solid, 6638 mg from 3000 mg benzaldehyde (**2d**) (81% yield). ^{1}H-NMR: (DMSO-d$_6$): δ = 2.41 (s, 3 H), 6.40 (d, 1 H, *J* = 8.2 Hz), 7.97 (s, 1 H), 9.78 (d, 1 H, *J* = 10.4

***N*-(4-Methylphenyl(tosyl)methyl)formamides (3e)**

Method B: white solid, 6767 mg from 3000 mg 4-methylbenzaldehyde (**2e**) (89% yield). ^{1}H-NMR (DMSO-d$_6$): δ = 2.32 (s, 3 H), 2.41 (s, 3 H), 6.33 (d, 1 H, *J* = 10.6 Hz), 7.22 (d, 2 H, *J* = 7.8 Hz), 7.40.7.46 (m, 4 H), 7.72 (d, 2 H, *J* = 8.4 Hz), 7.94 (s, 1 H), 9.76 (d, 1 H, *J* = 10.6).

***N*-(2-Fluorophenyl(tosyl)methyl)formamides (3f)**

Method A: white solid, 5778 mg from 3000 mg of 2-fluorobenzaldehyde (**2f**) (78 % yield). ^{1}H-NMR (DMSO-d$_6$): δ = 2.41 (s, 3 H), 6.55 (d, 1 H, *J* = 10.4 Hz), 7.22-7.70 (m, 8 H), 8.02 (s, 1 H), 9.91 (d, 1 H, *J* = 10.4 Hz).

***N*-(3-Fluorophenyl(tosyl)methyl)formamides (3g)**

Method A, white solid, 6234 mg from 3000 mg of 3-fluorobenzaldehyde (**2g**) (84% yield).^{1}H-NMR (DMSO-d$_6$): δ = 2.41 (s, 3 H), 6.51 (d, 1 H, *J* = 10.6 Hz), 7.50-7.26 (m, 6 H), 7.73 (d, 2 H, *J* = 8.4 Hz), 7.97 (s, 1 H), 9.79 (d, 1 H, *J* = 10.6 Hz).

***N*-(4-Fluorophenyl(tosyl)methyl)formamides (3h)**

Method B, white solid 6159 mg from 3000 mg of 4-fluorobenzaldehyde (83% yield) (**2h**). ^{1}H-NMR (DMSO-d$_6$): δ = 2.41 (s, 3 H), 6.46 (d, 1 H, *J* = 10.6 Hz), 7.28 (t, 2 H, *J* = 8.8 Hz), 7.43 (d, 2 H, *J* = 8.2 Hz), 7.66-7.56 (m, 2 H), 7.72 (d, 2 H, *J* = 8.2 Hz), 7.97 (s, 1 H), 9.78 (d, 1 H, *J* = 10.6 Hz).

General Synthesis of *N*-(1-aryl-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide 4a-h

N-(Aryl(tosyl)methyl)formamides (**3a-h**) and 5-(2-hydroxyethyl)-3,4-dimethylthiazolium iodide (0.2 eq.) were mixed and flushed with argon for 10 min. Afterwards, 6-methoxynicotinaldehyde (0.7 eq.), triethylamine (2.5 eq.) and anhydrous dichloromethane were added. The mixture was heated at 35°C for 24 h. Then the mixture was neutralized with diluted hydrochloride and extracted three times with dichloromethane. The combined organic layers were dried over potassium sulfate, filtered and the solvent was evaporated under reduced pressure. The crude product was purified over silica gel with DCM/EtOAc = 7:3.

***N*-(1-(2-Methoxyphenyl)-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide (4a)**
Colorless oil, 712 mg from 925 mg of 6-methoxynicotinaldehyde (35% yield).^{1}H-NMR ($CDCl_3$): δ = 3.87 (s, 3 H), 3.95 (s, 3 H), 6.68-6.74 (m, 2 H), 6.85-7.02 (m, 3 H), 7.22-7.35 (m, 2 H), 8.13 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.25 (s, 1 H), 8.80 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 53.0, 54.3, 55.9, 111.2, 111.9, 121.6, 124.3, 125.2, 129.6, 130.3, 138.9, 149.9, 156.7, 160.2, 167.0, 193.4.

***N*-(1-(3-Methoxyphenyl)-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide (4b)**
Colorless oil, 697 mg from 875 mg of 6-methoxynicotinaldehyde (36% yield). ^{1}H-NMR ($CDCl_3$): δ = 3.77 (s, 3 H), 3.96 (s, 3 H), 6.48 (d, 1 H, *J* = 7.2 Hz), 6.74 (d, 1 H, *J* = 9.0 Hz), 6.79-6.99 (m, 3 H), 7.09 (bd, 1 H, *J* = 7.0 Hz), 7.21-7.29 (m, 1 H), 8.13 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.26 (s, 1 H), 8.81 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 54.4, 55.4, 57.2, 111.6, 113.9, 114.3, 120.6, 124.0, 130.7, 138.1, 138.9, 150.4, 160.1, 160.4, 167.2, 192.8.

***N*-(1-(4-Methoxyphenyl)-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide (4c)**
Yellow oil, 284 mg from 326 mg of 6-methoxynicotinaldehyde (40% yield). ^{1}H-NMR ($CDCl_3$): δ = 3.76 (s, 3 H), 3.96 (s, 3 H), 6.47 (d, 1 H, *J* = 7.0 Hz), 6.74 (d, 1 H, *J* = 8.8 Hz), 6.85 (d, 2H, *J* = 8.8 Hz), 7,10 (d, 1 H, *J* = 7.0 Hz), 7,31 (d, 2 H, *J* = 8.8 Hz), 8,12 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8,25 (s, 1 H), 8,80 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 54.4, 55.5, 56.8, 111.6, 115.0, 124.0, 128.9, 129.6, 139.0, 150.5, 160.2 (two signals overlapping), 167.1, 193.0.

***N*-(2-(6-Methoxypyridin-3-yl)-2-*oxo*-1-phenylethyl)formamide (4d)**
Colorless oil, 1400 mg from 1320 mg of 6-methoxynicotinaldehyde (54% yield). ^{1}H-NMR ($CDCl_3$): δ = 3.95 (s, 3 H), 6.54 (d, 1 H, *J* = 7.2 Hz), 6.73 (d, 1 H, *J* = 8.6 Hz), 7.42-7.24 (m, 6 H), 8.13 (dd, 1 H, *J* = 8.6, 2.4 Hz), 8.25 (s, 1 H), 8.82 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 54.4, 57.4, 111.6, 124.0, 128.3, 128.9, 129.6, 136.8, 139.0, 150.5, 160.3, 167.2, 192.9.

***N*-(2-(6-Methoxypyridin-3-yl)-2-oxo-1-(*p*-tolyl)ethyl)formamide (4e)**
Yellow oil, 1020 mg from 1000 mg of 6-methoxynicotinaldehyde (49% yield). ^{1}H-NMR ($CDCl_3$): δ = 2.29 (s, 3 H), 3.96 (s, 3 H), 6.48 (d, 1 H, *J* = 7.4 Hz), 6.73 (d, 1 H, *J* = 8.6 Hz), 7.11-7.16 (m, 3 H), 7.28 (d, 2 H, *J* = 8.4 Hz), 8.12 (dd, 1 H, *J* = 8.8, 2.6 Hz), 8.25 (s, 1 H), 8.81 (d, 1 H, *J* = 2.6 Hz). ^{13}C-NMR ($CDCl_3$): δ = 21.3, 54.4, 57.1, 111.6, 124.0, 128.2, 130.3, 133.8, 138.9, 139.0, 150.5, 160.2, 167.2, 193.0.

***N*-(1-(2-Fluorophenyl)-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide (4f)**
Colorless oil, 880 mg from 1370 mg of 6-methoxynicotinaldehyde (31% yield). ^{1}H-NMR ($CDCl_3$): δ = 3.96 (s, 3 H), 6.68-6.77 (m, 2 H), 7.01-7.41 (m, 4 H), 8.15 (ddd, 1 H, *J* = 8.8, 2.4, 0.8 Hz), 8.28 (s, 1 H), 8.83 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 51.7 (d, *J* = 2.3 Hz), 54.4, 111.7, 116.5 (d, *J* = 21.7 Hz), 123.9 (d, *J* = 12.6 Hz), 124.3, 125.2 (d, *J* = 3.4 Hz), 129.7 (d, *J* = 3.4 Hz), 130.8 (d, *J* = 8.4 Hz), 138.8 (d, *J* = 1.9 Hz), 150.2 (d, *J* = 1.2 Hz), 160.2 (d, *J* = 248.7 Hz), 160.3, 167.4, 192.1 (d, *J* = 1.5 Hz).

***N*-(1-(3-Fluorophenyl)-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide (4g)**
Colorless oil, 1770 mg from 1660 mg of 6-methoxynicotinaldehyde (51% yield). ^{1}H-NMR ($CDCl_3$): δ = 3.97 (s, 3 H), 6.52 (d, 1 H, *J* = 7.4 Hz), 6.76 (d, 1 H, *J* = 8.8 Hz), 7.36-6.93 (m, 5 H), 8.13 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.26 (s, 1 H), 8.81 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 54.4, 56.7, 111.8, 115.3 (d, *J* = 22.5 Hz), 116.0 (d, *J* = 20.9 Hz), 123.8, 124.1 (d, *J* = 3.0 Hz), 131.2 (d, *J* = 8.4 Hz), 139.0, 139.1 (d, *J* = 9.1 Hz), 150.5, 160.3, 163.2 (d, *J* = 248.3 Hz), 167.4, 192.5.

***N*-(1-(4-Fluorophenyl)-2-(6-methoxypyridin-3-yl)-2-*oxo*-ethyl)formamide (4h)**
Yellow oil, 397 mg from 480 mg of 6-methoxynicotinaldehyde, (49% yield). ^{1}H-NMR ($CDCl_3$): δ = 3.97(s, 3 H), 6.55 (d, 1 H, *J* = 7.4 Hz), 6.75 (d, 1 H, *J* = 8.8 Hz), 7.01 (t ,2 H, *J* = 8.8 Hz), 7.48-7.35 (m, 3 H), 8.12 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.26 (s, 1 H), 8.81 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 54.4, 56.6, 111.7, 116.6 (d, *J* = 21.7 Hz), 123.8, 130.2 (d, *J* = 8.4 Hz), 132.8 (d, *J* = 3.4 Hz), 138.9, 150.5, 160.4, 162.8 (d, *J* = 248.7 Hz), 167.3, 192.8.

General Synthesis of 2-methoxy-5-(4-aryl-1-propyl-1*H*-imidazol-5-yl)pyridine (5a-h)

In a microwave vessel, **4a-h** were dissolved in anhydrous ethanol. Propylamine (10.0 eq.) and glacial acetic acid (10.0 eq.) were added to the solution. The reaction was performed in a CEM Microwave using the close-vessel configuration, heating at 75°C, 3 times for 30 min. Then dichloromethane was added to the mixture and the organic phase was washed with water and brine three times. The organic layer was dried over anhydrous potassium sulfate, filtered and the solvent was evaporated under reduced pressure. The crude product was purified over silica gel PE/EtOAc = 1:1.

2-Methoxy-5-(4-(2-methoxyphenyl)-1-propyl-1*H*-imidazol-5-yl)pyridine (5a)
Off-white solid, 271 mg from 672 mg of intermediate **4a** (38% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.88 (t, 3 H, *J* = 7.4 Hz), 1.69 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.44 (s, 3 H), 3.83 (t, 2 H, *J* = 7.4 Hz), 3.94 (s, 3 H), 6.70-6.79 (m, 2 H), 6.92 (dt, 1 H, *J* = 7.4, 1.2 Hz), 7.17-7.26 (m, 1 H), 7.39-7.47 (m, 2 H), 7.66 (s, 1 H), 8.04 (dd, 1 H, *J* = 2.4, 0.6 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.3, 24.3, 47.3, 53.6, 54.9, 110.6, 110.9, 120.6, 120.9, 123.8, 126.6, 128.6, 131.7, 137.1, 137.2, 140.2, 147.6, 156.4, 163.6.

2-Methoxy-5-(4-(3-methoxyphenyl)-1-propyl-1*H*-imidazol-5-yl)pyridine (5b)
Off-white solid, 350 mg from 690 mg of intermediate **4b** (47% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.86 (t, 3 H, *J* = 7.2 Hz), 1.63 (qt, 2 H, *J* = 7.2, 7.2 Hz), 3.71-3.78 (m, 5 H), 4.01 (s, 3 H), 6.72 (dd, 1 H, *J* = 8.0, 2.8 Hz), 6.85 (d, 1 H, *J* = 8.6 Hz), 6.95-6.99 (m, 1 H), 7.07-7.15 (m, 2 H), 7.53 (dd, 1 H, *J* = 8.6, 2.4 Hz), 7.63 (s, 1 H), 8.15 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.2, 24.3, 46.9, 53.8, 55.1, 111.3, 111.4, 113.1, 119.1, 119.9, 125.1, 129.3, 135.8, 137.1, 139.2, 141.2, 148.7, 159.6, 164.3.

2-Methoxy-5-(4-(4-methoxyphenyl)-1-propyl-1*H*-imidazol-5-yl)pyridine (5c)
Yellow oil, 270 mg from 500 mg of intermediate **4c** (50% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.85 (t, 3 H, *J* = 7,4 Hz), 1.63 (sext, 2 H, *J* = 7,4 Hz), 3.76-3.70 (m, 5 H), 4.00 (s, 3 H), 6.85-6.74 (m, 3 H), 7.38 (d, 2 H, *J* = 8.8 Hz), 7.50 (dd, 1 H, *J* = 8.6, 2.4 Hz), 7.64 (s, 1 H), 8.13 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.2, 24.3, 47.0, 53.8, 55.3, 111.6, 113.9, 120.1, 124.1, 127.2, 128.0, 137.1, 139.2, 141.4, 148.8, 158.5, 164.3.

2-Methoxy-5-(4-phenyl-1-propyl-1*H*-imidazol-5-yl)pyridine (5d)
Yellow oil, 832 mg from 1.401 mg of intermediate **4d** (53% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.86 (t, 3 H, *J* = 7.4 Hz), 1.64 (sext, 2 H, *J* = 7.4 Hz), 3.75 (t, 2 H, *J* = 7.4 Hz), 4.01 (s, 3 H), 6.84 (d, 1 H, *J* = 8.2 Hz), 7.27-7.15 (m, 3 H), 7.54-7.45 (m, 3 H), 7.63 (s, 1 H), 8.15 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.3, 24.4, 47.0, 53.8, 111.6, 120.0, 125.0, 126.6, 126.8, 128.4, 134.5, 137.3, 141.3, 148.7, 164.3.

2-Methoxy-5-(4-(4-methylphenyl)-1-propyl-1*H*-imidazol-5-yl)pyridine (5e)
Colorless oil, 580 mg from 1.092 g of intermediate **4e** (49% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.85 (t, 3 H, *J* = 7.6 Hz), 1.63 (qt, 2 H, *J* = 7.6, 7.6 Hz), 2.29 (s, 3 H), 3.74 (t, 2 H, *J* = 7.6 Hz), 4.01 (s, 3 H), 6.83 (d, 1 H, *J* = 8.4 Hz), 7.04 (d, 2 H, *J* = 8.4 Hz), 7.36 (d, 2 H, *J* = 8.2 Hz), 7.51 (dd, 1 H, *J* = 8.4, 2.2 Hz), 7.63 (s, 1 H), 8.14 (d, 1 H, *J* = 2.2 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.3, 21.3, 24.4, 47.0, 53.8, 111.5, 120.2, 124.6, 126.7, 129.1, 131.7, 136.3, 137.2, 139.5, 141.3, 148.8, 164.3.

5-(4-(2-Fluorophenyl)-1-propyl-1*H*-imidazol-5-yl)-2-methoxypyridine (5f)
Colorless oil, 403 mg from 840 mg of intermediate **4f** (45% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.88 (t, 3 H, *J* = 7.4), 1.68 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.83 (t, 2 H, *J* = 7.4 Hz), 3.96 (s, 3 H), 6.77 (d, 1 H, *J* = 8.0 Hz), 6.88-6.98 (m, 1 H), 7.05-7.25 (m, 2 H), 7.45 (dd, 1 H, *J* = 8.8, 2.6 Hz), 7.55 (dd, 1 H, *J* = 8.0, 2.2 Hz), 7.68 (s, 1 H), 8.05 (d, 1 H, *J* = 2.4 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.3, 24.3, 47.3, 53.7, 111.1, 116.0 (d, *J* = 22.1 Hz), 119.8 (d, *J* = 2.6 Hz), 122.5, 124.1 (d, *J* = 3.4 Hz), 127.2, 128.9 (d, *J* = 8.0 Hz), 131.5 (d, *J* = 3.8 Hz), 134.9, 137.6, 140.4 (d, *J* = 1.5 Hz), 148.0 (d, *J* = 1.1 Hz), 159.6 (d, *J* = 248.7 Hz), 164.0.

5-(4-(3-Fluorophenyl)-1-propyl-1*H*-imidazol-5-yl)-2-methoxypyridine (5g)
Colorless oil, 840 mg from 1.350 g of intermediate **4g** (57% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.86 (t, 3 H, *J* = 7.6 Hz), 1.64 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.74 (t, 2 H, *J* = 7.4 Hz), 4.02 (s, 3 H), 6.84-6.88 (m, 2 H), 7.10-7.25 (m, 3 H), 7.51 (dd, 1 H, *J* = 8.8, 2.6 Hz), 7.63 (s, 1 H), 8.14 (d, 1 H, *J* = 2.6 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.2, 24.3, 47.0, 53.9, 111.7, 113.4 (d, *J* = 20.9 Hz), 113.5 (d, *J* = 22.8 Hz), 119.6, 122.2 (d, *J* = 3.0 Hz), 125.6, 129.8 (d, *J* = 8.4 Hz), 136.8 (d, *J* = 8.4 Hz), 137.4, 138.2, 141.1, 148.7, 163.0 (d, *J* = 244.9 Hz), 164.5.

5-(4-(4-Fluorophenyl)-1-propyl-1H-imidazol-5-yl)-2-methoxypyridine (5h)
Yellow oil, 275 mg from 500 mg of intermediate **4h** (51% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.86 (t, 3 H, *J* = 7.4 Hz), 1.63 (sext, 2 H, *J* = 7.4 Hz), 3.75 (t, 2 H, *J* = 7.4 Hz), 4.01 (s, 3 H), 6.96-6.83 (m, 3 H), 7.53-7.39 (m, 3 H), 7.62 (s, 1 H), 8.13 (d, 1 H, *J* = 2.0 Hz). ^{13}C-NMR ($CDCl_3$): δ = 11.2, 24.4, 47.0, 53.8, 111.7, 115.3 (d, *J* = 21.4 Hz), 119.8, 124.8, 128.3 (d, *J* = 8.3 Hz), 130.7 (d, *J* = 3.4 Hz), 137.3, 138.6, 141.2, 148.8, 161.8 (d, *J* = 245.7 Hz), 164.4.

General Synthesis of 3-ethyl-4-aryl-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide(6a-h)

In a microwave vessel 1.0 eq. of imidazole **5a-h** was dissolved in 1 mL of anhydrous acetonitrile. 10.0 eq. of ethyl iodide were added and the reaction was performed in a CEM microwave in close-vessel configuration, heating at 90 °C, 2 times for 45 min. The solvent was evaporated and the crude product was purified via column chromatography with a gradient starting DCM 100% to DCM/MeOH = 95.5: 4.5 to yield the pure product.

3-Ethyl-4-(2-methoxyphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6a)
Colorless oil, 302 mg from 350 mg of imidazole **5a** (56% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.96 (t, 3 H, *J* = 7.4 Hz), 1.54 (t, 3 H, *J* = 7.4 Hz), 1.93 (qt, 2 H, *J* = 7.6, 7.6 Hz), 3.78 (s, 3 H), 3.94 (s, 3 H), 4,17-4,37 (m, 4 H), 6,80 (dd, 1 H, *J* = 8.6, 0.6 Hz), 6,85-7,02 (m, 3H), 3,31-7,39 (m, 1 H), 7,61 (dd, 1 H, *J* = 8.6, 2.4 Hz), 8,08 (dd, 1 H, *J* = 2.4, 0.8 Hz), 10,48 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11,0, 15,9, 23,7, 43,7, 49,6, 54,0, 55,6, 111,8, 114,2, 116,1, 116,3, 122,8, 125,8, 129,2, 130,7, 132,6, 136,4, 140,5, 148,8, 160,0, 165,2.

3-Ethyl-4-(3-methoxyphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6b)
Colorless oil, 346 mg from 270 mg of imidazole **5b** (86% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.95 (t, 3 H, *J* = 7.4 Hz), 1.49 (t, 3 H, *J* = 7.4 Hz), 1.92 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.82 (s, 3 H), 3.93 (s, 3 H), 4.01-4.26 (m, 4 H), 6.78 (d, 1 H, *J* =8.8 Hz), 6.94-7.01 (m, 2 H), 7.09-7.13 (m, 1 H), 7.43-7.51 (m, 2 H), 8.02 (d, 1 H, *J* = 2.4 Hz), 10.67 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11.0, 15.7, 23.9, 43.6, 49.4, 53.9, 55.7, 111.4, 111.7, 113.2, 114.5, 121.4, 129.6, 129.8, 132.7, 133.0, 136.5, 140.0, 148.5, 158.0, 165.1.

3-Ethyl-4-(4-methoxyphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6c)
Colorless oil, 374 mg from 350 mg of imidazole **5c** (72% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.95 (t, 3 H, *J* = 7.4 Hz), 1.52 (t, 3 H, *J* = 7.4 Hz), 1.98-1.85 (m, 2 H), 3.82 (s, 3 H), 3.94 (s, 3 H), 4.30-4.15 (m, 4 H), 6.79 (d, 1 H, *J* = 8.6 Hz), 6.93 (d, 2 H, *J* = 8.8 Hz), 7.20 (d, 2 H, *J* = 8.8 Hz), 7.52 (dd, 1 H, *J* = 8.6, 2,4 Hz), 8.05 (d, 1 H, *J* = 2.4 Hz), 10.45 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11.15, 15.9, 23.7, 43.6, 49.6, 54.0, 55.6, 111.8, 114.5, 115.0, 116.4, 129.1, 132.2, 132.8, 136.0, 140.7, 148.9, 161.2, 165.1.

3-Ethyl-4-phenyl-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6d)
Yellow solid, 912 mg from 829 mg of imidazole **5d** (72% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.96 (t, 3 H, *J* = 7.4 Hz), 1.53 (t, 3 H, *J* = 7.4), 1.38 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.93 (s, 3 H), 4.37-4.18 (m, 4 H), 6.79 (d, 1 H, *J* = 8.6 Hz), 7.47-7.31 (m, 5 H), 7.65 (dd, 1 H, *J* = 8.6, 2.4 Hz), 8.08 (d, 1 H, *J* = 2.4 Hz), 10.46 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11.2, 15.9, 23.8, 43.8, 49.7, 54.0, 111.9, 114.4, 124.8, 129.3, 129.5, 130.8, 132.8, 136.5, 140.7, 148.9, 165.2.

3-Ethyl-4-(4-methylphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6e)
Colorless oil, 578 mg from 486 mg of imidazole **5e** (79% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.96 (t, 3 H, *J* = 7.4 Hz), 1.52 (t, 3 H, *J* = 7.4 Hz), 1.92 (qt, 2 H, *J*=7.4, 7.4 Hz), 2.38 (s, 3 H), 3.94 (s, 3 H), 4.17-4.35 (m, 4 H), 6.79 (d, 1 H, *J* = 8.4 Hz), 7.15-7.26 (m, 4 H), 7.55 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.06 (d, 1 H, *J* = 2.4 Hz), 10.48 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11.1, 16.0, 21.6, 23.8, 43.7, 49.6, 54.1, 111.9, 114.4, 121.6, 129.1, 130.3, 130.5, 133.0, 136.4, 140.6, 141.2, 148.9, 165.2.

3-Ethyl-4-(2-fluorophenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6f)
Off-white solid, 271 mg from 326 mg of imidazole **5f** (56% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.96 (t, 3 H, *J* = 7.4 Hz), 1.55 (t, 3 H, *J* = 7.4 Hz), 1.94 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.94 (s, 3 H), 4.19-4.30 (m, 4 H), 6.80 (d, 1 H, *J* = 8.8 Hz), 7.15-7.28 (m, 2 H), 7.36-7.58 (m, 2 H), 7.65 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.08 (d, 1 H, *J* = 2.4 Hz), 10.56 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11.1, 15.7, 23.8, 44.0 (d, *J* = 1.5 Hz), 49.8, 54.1, 111.9, 112.8 (d, *J* = 15.2 Hz), 114.0, 116.6 (d, *J* = 20.9 Hz), 125,5 (d, *J* = 3.8 Hz), 126.9, 130.9, 133.3 (d, *J* = 1.2 Hz), 133.6 (d, *J* = 8.4 Hz), 137.1, 140.4, 148.7, 160.6 (d, *J* = 249.9 Hz), 165.4.

3-Ethyl-4-(3-fluorophenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6g)
Off-white solid, 554 mg from 717 mg of imidazole **5g** (51% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.96 (t, 3 H, *J* = 7.4 Hz), 1.55 (t, 3 H, *J* = 7.4 Hz), 1.94 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.94 (s, 3 H), 4.16-4.38 (m, 4 H), 6.81 (d, 1 H, *J* = 8.8 Hz), 7.06-7.22 (m, 3 H), 7.39-7.49 (m, 1 H), 7.68 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.09 (d, 1 H, *J* = 2.4 Hz), 10.46 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 11.2, 15.9, 23.7, 43.9, 49.8, 54.1, 112.0, 114.0, 117.9 (d, *J* = 22.8 Hz), 118.1(d, *J* = 21.0 Hz), 126.7, 126.9 (d, *J* = 3.4 Hz), 129.8, 131.4 (d, *J* = 8.3 Hz), 131.5 (d, *J* = 5.7 Hz), 136.7, 140.7, 148.9, 162.7 (d, *J* = 249.9 Hz), 165.4.

3-Ethyl-4-(4-fluorophenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium iodide (6h)
Yellow oil, 310 mg from 257 mg of imidazole **5h** (80% yield). ^{1}H NMR ($CDCl_3$): δ = 0.96 (t, 3 H, *J* = 7.4 Hz), 1.53 (t, 3 H, *J* = 7.2 Hz), 1.94 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.94 (s, 3 H), 4.35-4.16 (m, 4 H), 6.79 (d, 1 H, *J* = 8.6 Hz), 7.13(t, 2 H, *J* = 8.2 Hz), 7.45-7.38 (m, 2 H), 7.69 (dd, 1 H, *J* = 8.6, 2.4 Hz), 8.09 (d, 1 H, *J* = 2.4 Hz), 10.36 (s, 1 H). ^{13}C NMR ($CDCl_3$): δ 11.2, 15.8, 23.7, 43.8, 49.7, 54.0, 111.9; 114.3, 116.9 (d, *J* = 22.1 Hz), 120.9 (d, *J* = 3.4 Hz), 129.6, 131.9, 133.1 (d, *J* = 8.8 Hz), 136.3, 140.8, 149.0, 163.9 (*J* = 252.6 Hz), 165.3.

General Synthesis of 1-ethyl-5-aryl-4-(2-methoxypyridin-5-yl)-3-propyl-3*H*-imidazolium hexafluorophosphate (7a-h)
To a solution of **6a-h** in a 1:1 mixture of water and methanol (5+5 mL) 5.0 eq. potassium hexafluorophosphate were added and the mixture is stirred for 20 min at room temperature. The product precipitates as a white solid and is collected by filtration and washed with water.

3-Ethyl-4-(2-methoxyphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7a)
Off-white solid, 252 mg from 267 mg of imidazolium iodide 6a (91% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.40 (t, 3 H, *J* = 7.4 Hz), 1.81 (qt, 2 H, *J* = 7.6, 7.6 Hz), 3.82 (s, 3 H), 3.92 (s, 3 H), 3.99-4.11 (m, 4 H), 6.78 (d, 1 H, *J* = 8.4 Hz), 6.93-7.00 (m, 2 H), 7.12-7.17 (m, 1 H), 7.41-7.56 (m, 2 H), 8.02 (d, 1 H, *J* = 2.4 Hz), 8.89 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.8, 14.9, 23.3, 43.6, 49.6, 53.9, 55.6, 111.2, 111.7, 113.3, 114.6, 121.4, 129.9, 130.2, 132.9 (two signals overlapping), 135.2, 140.1, 148.5, 158.0, 165.1.

3-Ethyl-4-(3-methoxyphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7b)
Off-white solid 70 mg from 98 mg of imidazolium iodide 6b (70% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.43 (t, 3 H, *J* = 7.4 Hz), 1.80 (qt, 2 H, *J* = 7.4 Hz), 3.77 (s, 3 H), 3.94 (s, 3 H), 4.01-4.22 (m, 4 H), 6.79 (d, 1 H, *J* = 8.6 Hz), 6.85-6.88 (m, 2 H), 6.95-7.01 (m, 1 H), 7.28-7.36 (m, 1 H), 7.57 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.08 (d, 1 H, *J* = 2.4 Hz), 8.83 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.8, 15.0, 23.2, 43.6, 49.5, 53.9, 55.5, 111.8, 114.4, 115.9, 116.5, 122.8, 126.0, 129.4, 130.5, 133.0, 135.1, 140.6, 148.8, 160.0, 165.1.

3-Ethyl-4-(4-methoxyphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7c)
Off-white solid, 260 mg from 289 mg of imidazolium iodide 6c (87% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.42 (t, 3 H, *J* = 7.4 Hz), 1.80 (qt, 2 H, *J* = 7.6, 7.6 Hz), 2.37 (s, 3 H), 3.94 (s, 3 H), 4.02-4.20 (m, 4 H), 6.78 (d, 1 H, *J* = 8.8 Hz), 7.19-7.25 (m, 4 H), 7.54 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.06 (d, 1 H, *J* = 2.6 Hz), 8.84 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.9, 15.1, 21.5, 23.3, 43.5, 49.6, 54.0, 111.9, 114.5, 121.7, 129.4, 130.2, 130.5, 133.3, 135.2, 140.6, 141.0, 148.9, 165.2.

3-Ethyl-4-phenyl-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7d)
Off-white solid, 100 mg from 105 mg of imidazolium iodide 6d (91% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.92 (t, 3 H, *J* = 7.4 Hz), 1.42 (t, 3 H, *J* = 7.4 Hz), 1.80 (qt, 2 H, *J* = 7.4, 7.4 Hz), 3.93 (s, 3 H), 4.02-4.21 (m, 4 H), 6.78 (d, 1 H, *J* = 8.8 Hz), 7.29-7.46 (m, 5 H), 7.56 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.07 (d, 1 H, *J* = 2.4 Hz), 8.85 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.9, 15.0, 23.3, 43.6, 49.6, 54.0, 111.9, 114.4, 124.8, 129.5, 130.7, 130.8, 133.3, 135.3, 140.6, 148.9, 165.2.

3-Ethyl-4-(4-methylphenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7e)
Off-white solid, 260 mg from 289 mg of imidazolium iodide 6e (87% yield).^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.42 (t, 3 H, *J* = 7.4 Hz), 1.80 (qt, 2 H, *J* = 7.6, 7.6 Hz), 2.37 (s, 3 H), 3.94 (s, 3 H), 4.02-4.20 (m, 4 H), 6.78 (d, 1 H, *J* = 8.8 Hz), 7.19-7.25 (m, 4 H), 7.54 (dd, 1 H, *J* = 8.8, 2.4 Hz), 8.06 (d, 1 H, *J* = 2.6 Hz), 8.84 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.9, 15.1, 21.5, 23.3, 43.5, 49.6, 54.0, 111.9, 114.5, 121.7, 129.4, 130.2, 130.5, 133.3, 135.2, 140.6, 141.0, 148.9, 165.2.

3-Ethyl-4-(2-fluorophenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7f)
Off-white solid, 85 mg from 100 mg of imidazolium iodide 6f (82% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.44 (t, 3 H, *J* = 7.4 Hz), 1.81 (qt, 2 H, *J* = 7.6, 7.6 Hz), 3.93 (s, 3 H), 4.03-4.16 (m, 4 H), 6.79 (dd, 1 H, *J* = 8.6, 0.8 Hz), 7.12-7.55 (m, 4 H), 7.61 (dd, 1 H, *J* = 8.6, 2.4 Hz), 8.07 (d, 1 H, *J* = 2.2 Hz), 8.91 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.8, 14.7, 23.2, 43.8, 49.7, 54.0, 111.9, 112.9 (d, *J* = 15.2 Hz), 114.2, 116.4 (d, *J* = 20.9 Hz), 125.5 (d, *J* = 3.5 Hz), 127.2, 131.0, 133.4 (d, *J* = 9.6 Hz two signals overlapping), 135.9, 140.4, 148.7, 160.6 (d, *J* = 249.5 Hz), 165.3.

3-Ethyl-4-(3-fluorophenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7g)
Off-white solid, 125 mg from 135 mg of imidazolium iodide 6g (89% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.44 (t, 3 H, *J* = 7.4 Hz), 1.80 (qt, 2 H, *J* = 7.6, 7.6 Hz), 3.94 (s, 3 H), 4.01-4.21 (m, 4 H), 6.80 (d, 1 H, *J* = 8.4 Hz), 7,01-7,21 (m, 3 H), 7.37-7.44 (m, 1 H), 7.57 (dd, 1 H, *J* = 8.4, 2.2 Hz), 8.07 (d, 1 H, *J* = 2.0 Hz), 8.85 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.9, 14.9, 23.2, 43.7, 49.7, 54.0, 111.9, 114.2, 117.9 (d, *J* = 22.5 Hz), 118.0 (d, *J* = 20.9 Hz), 126.8 (d, *J* = 3.1 Hz), 126.9, 129.9, 131.3 (d, *J* = 8.4 Hz), 131.7, 135.5, 140.6, 148.9, 162.7 (d, *J* = 250.0 Hz), 165.3.

3-Ethyl-4-(4-fluorophenyl)-5-(2-methoxypyridin-5-yl)-1-propyl-3*H*-imidazolium hexafluorophosphate (7h)
White solid, 98 mg from 120 mg of imidazolium iodide 6h (79% yield). ^{1}H-NMR ($CDCl_3$): δ = 0.91 (t, 3 H, *J* = 7.4 Hz), 1.43 (t, 3 H, *J* = 7.4 Hz), 1.80 (qt, 2 H, *J* = 7.6, 7.6 Hz), 3.94 (s, 3 H), 4.00-4.19 (m, 4 H), 6.79 (d, 1 H, *J* = 8.6 Hz), 7.13 (t, 2 H, *J* = 8.6 Hz), 7.30-7.37 (m, 2 H), 7.56 (dd, 1 H, *J* = 8.6, 2.4 Hz), 8.06 (d, 1 H, *J* = 2.2 Hz), 8.83 (s, 1 H). ^{13}C-NMR ($CDCl_3$): δ = 10.9, 14.9, 23.3, 43.6, 49.7, 54.0, 111.9, 114.3, 116.9 (d, *J* = 21.7 Hz), 120.9, 129.9, 132.2, 133.0 (d, *J* = 8.7 Hz), 135.3, 140.6, 148.9, 163.9 (d, *J* = 252.2 Hz), 165.3.