Supporting information

for

A N-Heterocyclic Carbene Gold Hydroxide Complex: A Golden Synthon

Sylvain Gaillard,[a] Alexandra M. Z. Slawin,[a] and Steven P. Nolan*[a]

[a] University of St Andrews, School of Chemistry, St Andrews, KY16 9ST, United Kingdom.

Fax: +44 (0)1334 463763; Tel: +44(0)1334 463808; E-mail: snolan@st-andrews.ac.uk

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**Part 1: Preparation of complexes 1-9 and 10a-10b.**

**General Considerations.** All reactions were carried out in air unless otherwise stated. In such exceptions, manipulations were performed using standard Schlenk techniques using inert atmosphere of dry Argon or in a MBraun glovebox containing dry Argon and less than 1 ppm oxygen. Anhydrous solvents were either distilled from appropriate drying agents or purchased from Aldrich and degassed prior to use by purging with dry Argon and kept over molecular sieves. Solvents for NMR spectroscopy were degassed with Argon and dried over molecular sieves. NMR spectra were recorded on a 400 MHz Varian Gemini spectrometer. Elemental analyses were performed by St Andrews analytical services.

![Diagram](image)

\[ \text{[Au(Cl)(IPr)] (1): } [\text{Au(OH)(IPr)}] \]

**General procedure for the synthesis of [Au(OH)(IPr)] (2):** A scintillation vial was charged with [AuCl(IPr)] (100 mg, 0.161 mmol) and the alkali metal salt (0.322 mmol). To the vial was then added a mixture of toluene and THF 1:1 (3.2 mL). The reaction mixture was stirred at 60°C for 24h. The resulting mixture was filtered through a pad of Celite®, the cake washed with THF (2 x 2 mL) and the filtrate reduced in volume under vacuum with the resulting precipitate isolated by decantation. This solid was washed with toluene (2 x 2 mL) and pentane (3 x 2 mL) and dried under vacuum to yield 2 as a microcrystalline white solid.\(^1\)

\( ^1H \) NMR (400 MHz, CDCl\(_3\)): \( \delta \) 7.49 (t, \( J = 7.8 \) Hz, 2H, CH aromatic), 7.35 (d, \( J = 7.8 \) Hz, 4H, CH aromatic), 7.12 (s, 2H, CH imidazole), 2.57 (sept, \( J = 6.9 \) Hz, 4H, \( CH(CH_3)_2 \)), 1.35 (d, \( J = 6.9 \) Hz, 12H, \( CH(CH_3)_2 \)), 1.21 (d, \( J = 6.9 \) Hz, 12H, \( CH(CH_3)_2 \)) ppm. \(^{13}C \) NMR (125 MHz, CDCl\(_3\)): \( \delta \) 171.9 (s, C carbene), 146.2 (s, C aromatic), 134.8 (s, C aromatic), 130.7 (s, CH imidazole), 124.5 (s, CH aromatic), 123.4 (s, CH aromatic), 29.1 (s, \( CH(CH_3)_2 \)), 24.4 (s, \( CH(CH_3)_2 \)), 24.1 (s, \( CH(CH_3)_2 \)) ppm. IR (KBr) 3678, 3627, 3392 (br), 3158, 3133, 3075, 2961, 2928, 2868, 1469, 1417, 1362, 1330, 806, 806, 806.


\(^2\) The deuterated solvents used in the preparation of NMR samples were passed through basic alumina to remove any traces of acid that could partially reconvert 2 into 1.
763 cm\(^{-1}\); Anal. Calcd for C\(_{27}\)H\(_{38}\)AuN\(_2\)O: C, 53.82; H, 6.19; N, 4.65. Found: C, 53.78; H, 6.13; N, 4.60.

\[
\text{[Au(CN)(IPr)] (3): [Au(OH)(IPr)] 2 (50 mg, 0.083 mmol) and trimethylsilyl cyanide}\(^3\) (22 μL, 0.166 mmol) were charged in a vial containing toluene (0.8 mL). The reaction was stirred at room temperature for 7h. Solvent was reduced under vacuum and the residue triturated with pentane (3 mL). The resulting suspension was filtered using a collection frit, the solid was washed with pentane (3 x 3 mL) and dried under vacuum to afford 3 as a white microcrystalline solid (47.7 mg, 94 %).
\]

\[\text{^1H NMR (400 MHz, CDCl}_3\): } \delta 7.52 (t, J = 7.8 Hz, 2H, CH aromatic), 7.29 (d, J = 7.8 Hz, 4H, CH aromatic), 7.19 (s, 2H, CH imidazole), 2.48 (sept, J = 6.9 Hz, 4H, CH(CH\(_3\))\(_2\)), 1.30 (d, J = 6.9 Hz, 12H, CH(CH\(_3\))\(_2\)), 1.21 (d, J = 6.9 Hz, 12H, CH(CH\(_3\))\(_2\)) ppm. \text{^13C NMR (100 MHz, CDCl}_3\): } \delta 186.2 (s, C carbene), 152.3 (s, CN), 145.5 (s, C aromatic), 133.5 (s, C aromatic), 130.8 (s, CH imidazole), 124.2 (s, CH aromatic), 123.5 (s, CH aromatic), 28.8 (s, CH(CH\(_3\))\(_2\)), 24.5 (s, CH(CH\(_3\))\(_2\)), 24.0 (s, CH(CH\(_3\))\(_2\)) ppm. Anal. Calcd for C\(_{28}\)H\(_{36}\)AuN\(_2\): C, 54.99; H, 5.93; N, 6.87. Found: C, 54.61; H, 5.98; N, 6.57.

\[
\text{[Au(OAc)(IPr)] (4): [Au(OH)(IPr)] 2 (30 mg, 0.050 mmol) and acetic acid (6.0 mg, 0.10 mmol) were charged into a vial containing toluene (0.5 mL). The reaction was stirred at room temperature for 6h. Pentane (3 mL) was added and the resulting precipitate was collected on a frit. The solid was washed with pentane (3 x 2 mL) and dried under vacuum to afford 4 as a white microcrystalline solid (30.1 mg, 94%).}
\]

\[\text{^1H NMR (400 MHz, CD}_2\text{Cl}_2\): } \delta 7.56 (t, J = 7.8 Hz, 2H, CH aromatic), 7.35 (d, J = 7.8 Hz, 4H, CH aromatic), 7.24 (s, 2H, CH imidazole), 2.56 (sept, J = 6.9 Hz, 4H, CH(CH\(_3\))\(_2\)), 1.65 (s, 3H, CH\(_3\)C(O)O), 1.35 (d, J = 6.9 Hz, 12H, CH(CH\(_3\))\(_2\)), 1.23 (d, J = 6.9 Hz, 12H, CH(CH\(_3\))\(_2\)) ppm. \text{^13C NMR (100 MHz, CD}_2\text{Cl}_2\): } \delta 175.9 (s, C carbene), 168.6 (s, C=O acetate), 146.2 (s, C aromatic), 134.5 (s, C aromatic), 131.0 (s, CH imidazole), 124.6 (s, CH aromatic), 123.8 (s, CH aromatic), 29.2 (s, CH(CH\(_3\))\(_2\)), 24.4 (s, CH(CH\(_3\))\(_2\)), 24.1 (s, CH(CH\(_3\))\(_2\)), 23.9 (s, CH acetate) ppm. Anal. Calcd for C\(_{29}\)H\(_{39}\)AuN\(_2\)O\(_2\): C, 54.04; H, 6.10; N, 4.35. Found: C, 54.07; H, 5.97; N, 4.01.

\[\text{^3 CAUTION: The use of trimethylsilyl cyanide should be conducted in a well-ventilated hood.}\]
[Au(CH(CO₂Me)₂)(IPr)] (5): [Au(OH)(IPr)] 2 (50 mg, 0.083 mmol) and dimethyl malonate (11.5 mg, 0.083 mmol) were charged into a vial containing benzene (0.5 mL). The reaction was stirred at room temperature for 6 h. Pentane (3 mL) was added and the resulting precipitate was collected on a frit. The solid was washed with pentane (3 x 3 mL) and dried under vacuum to afford 5 as a white microcrystalline solid (54.2 mg, 91%).

1H NMR (400 MHz, CDCl₃): δ 7.50 (t, J = 7.8 Hz, 2H, CH aromatic), 7.28 (d, J = 7.8 Hz, 4H, CH aromatic), 7.15 (s, 2H, CH imidazole), 3.29 (s, 6H, OCH₃ malonate), 3.18 (s, 1H, CH malonate), 2.50 (sept, J = 6.9 Hz, 4H, CH(CH₃)₂), 1.30 (d, J = 6.9 Hz, 12H, CH(CH₃)₂), 1.21 (d, J = 6.9 Hz, 12H, CH(CH₃)₂) ppm.

13C NMR (100 MHz, CDCl₃): δ 186.8 (s, C carbene), 172.6 (s, C=O malonate), 145.7 (s, C aromatic), 133.9 (s, C aromatic), 130.4 (s, C H imidazole), 124.0 (s, C H aromatic), 122.9 (s, C H aromatic), 50.0 (s, OCH₃ malonate), 43.0 (s, C H malonate), 28.7 (s, CH(CH₃)₂), 24.3 (s, CH(CH₃)₂), 23.9 (s, CH(CH₃)₂) ppm. Anal. Calcd for C₃₂H₄₃AuN₂O₄: C, 53.63; H, 6.05; N, 3.91. Found: C, 53.80; H, 5.78; N, 4.14.

Synthesis from boronic acid: [Au(Ph)(IPr)] (6): [Au(OH)(IPr)] 2 (30 mg, 0.050 mmol) and phenyl boronic acid (6.7 mg, 0.055 mmol) were charged in a vial containing benzene (0.5 mL). The reaction was stirred at room temperature for 7 h. The solution was filtered through Celite®, the solvent was removed from the filtrate under vacuum and pentane (6 mL) was added. The resulting precipitate was collected on a frit, washed with pentane (3 x 3 mL) and dried under vacuum to afford 6 as a microcrystalline white solid (32.9 mg, 100%).

Synthesis from trifluoroborate salt: [Au(Ph)(IPr)] (6): [Au(OH)(IPr)] 2 (50 mg, 0.083 mmol) and potassium phenyl trifluoroborate (16.0 mg, 0.087 mmol) were charged in a vial containing benzene (0.8 mL). The reaction was stirred at room temperature for 7 h. After this time, the solution was filtered through Celite®, the solvent was removed from the filtrate under vacuum and pentane (6 mL) was added. The resulting precipitate was collected on a frit, washed with pentane (3 x 3 mL) and dried under vacuum to afford 6 as a white microcrystalline solid (50.0 mg, 91%).

1H NMR (400 MHz, C₆D₆): δ 7.52 (dd, J = 7.8, 1.4 Hz, 2H, CH aromatic phenyl), 7.21 (m, 4H, 2 CH aromatic phenyl and 2 CH aromatic NHC), 7.07 (d, J = 7.8 Hz, 4H, CH aromatic NHC), 6.99 (tt, J = 7.5, 1.5 Hz, 1H, CH aromatic phenyl), 6.30 (s, 2H, CH imidazole), 2.66 (sept, J = 6.9 Hz, 4H, CH(CH₃)₂), 1.48 (d, J = 6.9 Hz, 12H, CH(CH₃)₂), 1.09 (d, J = 6.9 Hz, 12H, CH(CH₃)₂) ppm. 13C NMR (100 MHz, CDCl₃): δ 196.9 (s, C carbene), 169.7 (s, C phenyl), 145.7 (s, C aromatic), 130.4 (s, C phenyl), 134.6 (s, C aromatic), 130.1 (s, C imidazole), 126.6 (s, C phenyl), 124.2 (s, C phenyl), 123.9 (s, CH aromatic), 122.7 (s, CH aromatic), 28.8 (s, CH(CH₃)₂), 24.5 (s, CH(CH₃)₂), 23.9 (s, CH(CH₃)₂) ppm. Anal. Calcd for C₃₃H₄₃AuN₂O₂: C, 53.63; H, 6.05; N, 3.91. Found: C, 59.92; H, 6.59; N, 4.52.
[Au(CCPh)(IPr)] (7): [Au(OH)(IPr)] 2 (50 mg, 0.083 mmol) and phenylacetylene (17 mg, 0.166 mmol) were charged in a vial containing toluene (0.8 mL). The reaction was stirred at room temperature for 6h. Solvent was removed under vacuum and pentane (6 mL) was added. The resulting precipitate was collected on a frit, washed with pentane (3 x 3 mL) and dried under vacuum to afford 7 as a white microcrystalline solid (51.5 mg, 90%).

$^1$H NMR (400 MHz, C$_6$D$_6$): $\delta$ 7.38 (t, $J = 7.8$ Hz, 2H, CH aromatic), 7.21-7.17 (m, 2H, CH phenylacetylide), 7.18 (d, $J = 7.8$ Hz, 4H, CH aromatic), 7.01 (s, 2H, CH imidazole), 7.01-6.91 (m, 3H CH phenylacetylide), 2.50 (sept, $J = 6.9$ Hz, 4H, CH$(CH_3)_2$), 1.27 (d, $J = 6.9$ Hz, 12H, CH$(CH_3)_2$), 1.10 (d, $J = 6.9$ Hz, 12H, CH$(CH_3)_2$) ppm.

$^{13}$C NMR (100 MHz, CDCl$_3$): $\delta$ 190.9 (s, C carbene), 145.6 (s, C aromatic NHC), 134.3 (s, C aromatic acetylide), 132.2 (s, CH aromatic), 130.4 (s, CH imidazole), 129.2 (s, C acetylide), 127.4 (s, CH aromatic acetylide), 125.9 (s, C acetylide), 125.7 (s, CH acetylide), 124.1 (s, CH aromatic), 123.2 (s, CH aromatic), 103.7 (s, C acetylide), 28.8 (s, CH$(CH_3)_2$), 24.6 (s, CH$(CH_3)_2$), 24.0 (s, CH$(CH_3)_2$) ppm. Anal. Calcd for C$_{33}$H$_{41}$AuN$_2$: C, 61.22; H, 6.02; N, 4.08. Found: C, 61.50; H, 6.10; N, 4.28.

[Au(Ph)(IPr)] (8): In a glovebox, under an inert atmosphere of Argon, [Au(OH)(IPr)] 2 (30 mg, 0.050 mmol) and triethoxysilane (58 µL, 0.050 mmol) were charged in a Schlenk flask containing benzene (0.5 mL). The reaction was stirred at room temperature for 14h. The solvent was then removed under vacuum to afford 8 as a white microcrystalline solid (28.3 mg, 97%).

$^1$H NMR (400 MHz, CD$_2$Cl$_2$): $\delta$ 7.53 (t, $J = 7.8$ Hz, 2H, CH aromatic), 7.33 (d, $J = 7.8$ Hz, 4H, CH aromatic), 7.16 (s, 2H, CH imidazole), 3.39 (s, 1H, hydride), 2.61 (sept, $J = 6.9$ Hz, 4H, CH$(CH_3)_2$), 1.34 (d, $J = 6.9$ Hz, 12H, CH$(CH_3)_2$), 1.22 (d, $J = 6.9$ Hz, 12H, CH$(CH_3)_2$) ppm.

[Au(Ph)(IPr)] (9): [Au(OH)(IPr)] 2 (20 mg, 0.033 mmol) and HNTf$_2$ (10.3 mg, 0.365 mmol) were charged into a vial containing benzene (0.5 mL). The reaction was stirred at room temperature for 6h. Solvent was removed under vacuum and pentane (3 mL) was added. The resulting precipitate was...

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collected on a frit and washed with pentane (3 x 3 mL). The solid was dried under vacuum to afford 9 as a microcrystalline white solid (26 mg, 91%).

\(^1\)H NMR (400 MHz, CDCl\(_3\)): \(\delta\) 7.53 (t, \(J = 7.8\) Hz, 2H, CH aromatic), 7.31 (d, \(J = 7.8\) Hz, 4H, CH aromatic), 7.28 (s, 2H, CH imidazole), 2.48 (sept, \(J = 6.9\) Hz, 4H, CH(CH\(_3\))\(_2\)), 1.31 (d, \(J = 6.9\) Hz, 12H, CH(CH\(_3\))\(_2\)) ppm.

[\(\text{Au(C}_6\text{F}_{5})(\text{IPr})\)] (11a): [\(\text{Au(OH)}(\text{IPr})\)]\(_2\) (50 mg, 0.083 mmol) and pentafluorobenzene 10a (27.9 mg, 0.166 mmol) were charged into a vial containing toluene (0.8 mL). The reaction was stirred at 60°C for 14h. The reaction mixture was allowed to cool to RT and solvent volume was reduced by half, under vacuum. Pentane (6 mL) was added and the resulting precipitate was collected on a frit and washed with pentane (3 x 3 mL). The solid was dried under vacuum to afford 11b as a white microcrystalline solid (58.2 mg, 93%).

\(^1\)H NMR (400 MHz, C\(_6\)D\(_6\)): \(\delta\) 7.18 (t, \(J = 7.8\) Hz, 2H, CH aromatic), 7.05 (d, \(J = 7.8\) Hz, 4H, CH aromatic), 6.29 (s, 2H, CH imidazole), 2.59 (sept, \(J = 6.9\) Hz, 4H, CH(CH\(_3\))\(_2\)), 1.49 (d, \(J = 6.9\) Hz, 12H, CH(CH\(_3\))\(_2\)), 1.08 (d, \(J = 6.9\) Hz, 12H, CH(CH\(_3\))\(_2\)) ppm. \(^{19}\)F (376.5 MHz, C\(_6\)D\(_6\)): \(\delta\) -116.5 - -116.7 (m, 2F), -161.4 - -161.6 (m, 1F), -164.0 - -164.2 (m, 2F) ppm. \(^{13}\)C NMR (100 MHz, C\(_6\)D\(_6\)): \(\delta\) (C pentafluorobenzyl not observed), 192.5 (s, C carbene), 151.0-150.6 (dm, \(^1\)J\(_{C-F}\) = 226 Hz, C-F pentafluorobenzyl), 145.9 (s, C aromatic NHC), 140.1-137.2 (dm, \(^1\)J\(_{C-F}\) = 243 Hz, C-F pentafluorobenzyl), 138.8-135.8 (dm, \(^1\)J\(_{C-F}\) = 250 Hz, C-F pentafluorobenzyl), 134.5 (s, CH aromatic), 130.9 (s, CH imidazole), 124.2 (s, CH aromatic), 122.8 (s, CH aromatic), 29.1 (s, CH(CH\(_3\))\(_2\)), 24.7 (s, CH(CH\(_3\))\(_2\)), 23.9 (s, CH(CH\(_3\))\(_2\)) ppm. Anal. Calcd for C\(_{33}\)H\(_{36}\)AuF\(_5\)N\(_2\): C, 52.66; H, 4.82; N, 3.72. Found: C, 53.02; H, 4.55; N, 4.02.

[\(\text{Au(C}_6\text{HF}_{4})(\text{IPr})\)] (11b): [\(\text{Au(OH)}(\text{IPr})\)]\(_2\) (50 mg, 0.083 mmol) and tetrafluorobenzene 10b (27.9 mg, 0.166 mmol) were charged into a vial containing toluene (0.8 mL). The reaction was stirred at 80°C for 24h. The reaction mixture was allowed to cool to room temperature and solvent volume was reduced by half, under vacuum. Pentane (6 mL) was added and the resulting precipitate was collected on a frit and washed with pentane (3 x 3 mL). The solid was dried under vacuum to afford 12b as a white microcrystalline solid (52.4 mg, 86%).

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$^1$H NMR (400 MHz, C$_6$D$_6$): $\delta$ 7.17 (t, $J = 7.8$ Hz, 2H, CH aromatic), 7.04 (d, $J = 7.8$ Hz, 4H, CH aromatic), 6.29 (s, 2H, CH imidazole), 6.15 (tt, $J_{HF} = 6.9$, 9.5 Hz, 1H, CH aromatic tetrafluoroaryl), 2.60 (sept, $J = 6.9$ Hz, 4H, CH(CH$_3$)$_2$), 1.49 (d, $J = 6.9$ Hz, 12H, CH(CH$_3$)$_2$), 1.08 (d, $J = 6.9$ Hz, 12H, CH(CH$_3$)$_2$) ppm. $^{19}$F (376.5 MHz, C$_6$D$_6$): $\delta$ -118.2 - -118.4 (m, 2F), -141.7 - -141.9 (m, 2F) ppm. $^{13}$C NMR (100 MHz, C$_6$D$_6$): $\delta$ (C tetrafluoroaryl not observed), 193.1 (s, C carbene), 151.4-148.8 (dm, 1$^J_{CF}$ = 226 Hz, C-F tetrafluoroaryl), 147.4-144.6 (dm, 1$^J_{CF}$ = 248 Hz, C-F tetrafluoroaryl), 145.8 (s, C aromatic NHC), 134.5 (s, CH aromatic), 130.8 (s, CH imidazole), 124.2 (s, CH aromatic), 122.8 (s, CH aromatic), 102.4 (t, 2$^J_{CF}$ = 23.5Hz, CH tetrafluoroaryl), 29.1 (s, CH(CH$_3$)$_2$), 24.7 (s, CH(CH$_3$)$_2$), 23.9 (s, CH(CH$_3$)$_2$) ppm. Anal. Calcd for C$_{33}$H$_{37}$AuF$_4$N$_2$: C, 53.95; H, 5.08; N, 3.81. Found: C, 54.25; H, 4.74; N, 4.09.
2. Crystallographic data for compounds 2-7

<table>
<thead>
<tr>
<th>Formula</th>
<th>M/g.mol$^{-1}$</th>
<th>Crystal system</th>
<th>Space group</th>
<th>a/ Å</th>
<th>b/ Å</th>
<th>c/ Å</th>
<th>α/ °</th>
<th>β/ °</th>
<th>γ/ °</th>
<th>V/ Å$^3$</th>
<th>Z</th>
<th>ρcalcd/ g.cm$^{-3}$</th>
<th>μ(Mo K$_{α}$)/ mm$^{-1}$</th>
<th>T/ K</th>
<th>No of reflections</th>
<th>No of unique refl</th>
<th>$R_{int}$</th>
<th>$R1, wR_2 (I &gt; 2σ(I))$</th>
<th>$R1, wR_2$ (all data)</th>
<th>GOF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au(OH)(IPr) 2</td>
<td>602.55</td>
<td>Monoclinic</td>
<td>$P_{2_1}/c$</td>
<td>12.239(4)</td>
<td>9.380(2)</td>
<td>23.006(7)</td>
<td>90</td>
<td>95.899(7)</td>
<td>90</td>
<td>2627.3(12)</td>
<td>4</td>
<td>1.523</td>
<td>5.619</td>
<td>93(2)</td>
<td>16266</td>
<td>3627</td>
<td>0.0822</td>
<td>0.0546, 0.1347</td>
<td>0.0756, 0.1547</td>
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</tr>
<tr>
<td>Au(CN)(IPr) 3</td>
<td>850.30</td>
<td>Triclinic</td>
<td>P-1</td>
<td>10.415(8)</td>
<td>12.852(5)</td>
<td>15.096(8)</td>
<td>90</td>
<td>88.93(7)</td>
<td>90</td>
<td>1834.0(18)</td>
<td>2</td>
<td>1.540</td>
<td>4.471</td>
<td>93(2)</td>
<td>11540</td>
<td>6431</td>
<td>0.1630</td>
<td>0.1346, 0.2898</td>
<td>0.2083, 0.3484</td>
<td>1.000</td>
</tr>
<tr>
<td>Au(OAc)(IPr) 4</td>
<td>704.27</td>
<td>Monoclinic</td>
<td>$P_{2_1}/c$</td>
<td>17.530(5)</td>
<td>23.690(6)</td>
<td>16.642(5)</td>
<td>90</td>
<td>117.753(7)</td>
<td>90</td>
<td>6116(3)</td>
<td>8</td>
<td>1.530</td>
<td>4.968</td>
<td>93(2)</td>
<td>11018</td>
<td>11111</td>
<td>0.1439</td>
<td>0.0825, 0.1571</td>
<td>0.1880, 0.1962</td>
<td>0.976</td>
</tr>
<tr>
<td>Au(CH$_2$CO$_2$Me)$_2$(IPr) 5</td>
<td>716.65</td>
<td>Monoclinic</td>
<td>P-1</td>
<td>9.218(3)</td>
<td>10.0459(15)</td>
<td>18.472(6)</td>
<td>90</td>
<td>89.03(3)</td>
<td>90</td>
<td>1542.9(6)</td>
<td>2</td>
<td>1.543</td>
<td>4.804</td>
<td>293(2)</td>
<td>9756</td>
<td>5448</td>
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<td>0.0763, 0.1832</td>
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<td>Au(Ph)(IPr) 6</td>
<td>782.01</td>
<td>Monoclinic</td>
<td>$P_{2_1}/n$</td>
<td>10.598(3)</td>
<td>15.354(4)</td>
<td>21.195(5)</td>
<td>90</td>
<td>98.952(7)</td>
<td>90</td>
<td>3406.9(15)</td>
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<td>1.525</td>
<td>4.578</td>
<td>366(2)</td>
<td>21408</td>
<td>6204</td>
<td>0.0906</td>
<td>0.0653, 0.1342</td>
<td>0.1073, 0.1544</td>
<td>1.082</td>
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<td>Au(CCPh)(IPr) 7</td>
<td>806.03</td>
<td>Monoclinic</td>
<td>$P_{2_1}/n$</td>
<td>10.8026(15)</td>
<td>14.985(2)</td>
<td>22.788(3)</td>
<td>90</td>
<td>100.880(6)</td>
<td>90</td>
<td>3622.6(8)</td>
<td>4</td>
<td>1.478</td>
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<td>18875</td>
<td>6450</td>
<td>0.0928</td>
<td>0.0500, 0.1211</td>
<td>0.0605, 0.1295</td>
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$^1$H NMR (400 MHz, CDCl$_3$)
$^{13}$C NMR, CD$_2$Cl$_2$, 500MHz
$^1$H NMR (400 MHz, CDCl$_3$)
$^{13}$C NMR, CDCl$_3$, 100MHz
$^1$H NMR (400 MHz, CD$_2$Cl$_2$)
$^{13}$C NMR, CD$_2$Cl$_2$, 100MHz
$^1$H NMR (400 MHz, CDCl$_3$)
$^{13}$C NMR, CDCl$_3$, 400MHz

186.8, 172.6, 145.6, 133.9, 130.4, 124.0, 122.8, 77.4, 77.0, 76.6, 50.0, 43.0, 28.7, 24.3, 23.9
$^1$H NMR (400 MHz, C$_6$D$_6$)
13C NMR, CDCl₃, 100MHz
$^{1}$H NMR (400 MHz, C$_6$D$_6$)
$^1$H NMR, CDCl$_3$, 100MHz

$^1$C NMR, CDCl$_3$, 100MHz

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$^1$H NMR (400 MHz, CD$_2$Cl$_2$)
1H NMR (400 MHz, CDCl₃)
$^1$H NMR (400 MHz, $C_6D_6$)
$^{19}$F NMR (376.5 MHz, C$_6$D$_6$)
$^{13}$C NMR, C$_6$D$_6$, 100MHz
$^{1}$H NMR (400 MHz, C$_6$D$_6$)
$^{19}$F NMR (376.5 MHz, C$_6$D$_6$)