Supporting Information

Palladium Pincer Complex-Catalyzed Stannyl and Silyl Transfer to Propargylic Substrates. Synthetic Scope and Mechanism

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Contents:

- Experimental procedures and characterization of the products
- Description of the stoichiometric reactions followed by ^{119}Sn -NMR and ^{29}Si -NMR spectroscopy
- Computational details of DFT studies
- ^{13}C NMR spectra of the propargyl- and allenyl- products

Experimental Procedures and Characterization of the Prepared Compounds

All solvents used in the reactions were freshly distilled prior to use. The NMR spectra were recorded on Varian spectrometers. All reactions were conducted under argon atmosphere by employing standard manifold techniques. For column chromatography silica gel (230-400 mesh) was used. All eluents for silica gel chromatography are given in volume:volume ratios. ^1H -NMR spectra were recorded at either 300 or 400 MHz, ^{13}C -NMR spectra were recorded at either 75 or 100.5 MHz, ^{29}Si -NMR spectra were recorded at 79.5 MHz, and ^{119}Sn -NMR spectra were recorded at 149.1 MHz. Unless otherwise stated CDCl_3 was used as solvent for the NMR-measurements using CHCl_3 ($\delta[^1\text{H}] = 7.26$ ppm), $\delta[^{13}\text{C}] = 77.0$ ppm) as internal standard. Mass spectra were recorded on a Finnigan Thermoquest 2000A spectrometer. The stoichiometric reaction of **1f** with hexamethylditin (**2a**) was conducted in THF-d_8 and the reaction was monitored by ^1H - and ^{119}Sn -NMR spectroscopy. In these measurements THF ($\delta[^1\text{H}] = 1.85$ ppm) and hexamethylditin¹ ($\delta[^{119}\text{Sn}] = -109$ ppm) were used as internal standard. The stoichiometric reaction of **1a** with (Dimethylphenylsilyl)trimethylstannane (**2b**) was also conducted in THF-d_8 and the reaction was monitored by ^1H - and ^{29}Si -NMR spectroscopy. In these measurements THF ($\delta[^1\text{H}] = 1.85$ ppm) and TMS ($\delta[^{29}\text{Si}] = 0$ ppm) were used as internal standards.

Complex **1a** was prepared according to the procedure published by van Koten and co-workers² except that the final product was purified by column chromatography using CH_2Cl_2 :ether 20:1 as eluent. Complex **1e** was prepared according to Yao and co-workers³ except that it was purified by column chromatography using CH_2Cl_2 :ether 20:1 as eluent. (Dimethylphenylsilyl)trimethylstannane (**2b**) was prepared according to Ritter⁴ except that **2b** was purified by column chromatography using pentane as eluent. The propargylic substrates were prepared using literature procedures.⁴⁻¹⁵

General procedure A: Catalytic Stannylation with 2a. The corresponding propargylic substrate **3a-u** (0.16 mmol) and catalyst **1** (0.004 mmol, 2.5 mol%) were dissolved in THF (0.25 mL). To this mixture hexamethylditin **2a** (0.168 mmol) was added resulting in

a dark-yellow solution. The reaction mixture was then stirred for the allotted temperatures and times given in Table 1. The solvent was evaporated and the products were purified by column chromatography. To avoid decomposition of the allenyl and propargyl stannane products a rapid chromatography procedure was applied. Accordingly, we used a short silica-gel column (5-10 cm long and 3 cm in diameter) with a relatively fast eluent system given below for the corresponding products. It was found that the allenyl stannane products are usually more stable than their propargylic counterparts.

General procedure B: Catalytic Silylation with 2b. The corresponding propargyl substrate (0.16 mmol), catalyst **1a** (0.008 mmol, 5 mol%) and 4Å molecular sieves in THF (0.20 ml) were heated to 40 °C. To this mixture (dimethylphenylsilyl)-trimethylstannane (**2b**) (0.24 mmol) in THF (0.25 ml) was added via syringe-pump over 5 h at 40 °C; and this reaction mixture was stirred for an additional 19 h at 40 °C. The solvent was evaporated and the products were purified by column chromatography. To avoid decomposition of the allenyl silane products a rapid chromatography was applied (see General procedure A).

The isolated allenyl and propargyl stannanes and silanes are usually thermally unstable and decompose slowly even when refrigerated. However, the products can be stored in dilute solution at -18°C for several weeks without significant decomposition.

Reactions of 3a with 2a (entries 1-5). These reactions were performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent. When complexes **1a** and **1d** were employed, an 8:1 mixture of **4a** and **5a** was obtained. The corresponding reaction with complexes **1b** and **1e** gave a 7:1 mixture of **4a** and **5a**. NMR data for trimethyl(3-phenylprop-2-ynyl)stannane **5a**. ¹H NMR: 0.27 (s, 9H, ³J(H-Sn) = 26.4 Hz, and 27.7 Hz), 1.81 (s, 2H, ³J(H-Sn) = 28.4 Hz, and 29.9 Hz), 7.14-7.38 (m, 5H). ¹³C NMR: -9.33 (²J(C-Sn) = 164.1 Hz, and 170.5 Hz), -0.84 (²J(C-Sn) = 126.2 Hz, and 131.6 Hz), 79.02, 90.98, 125.11, 126.74, 128.12, 131.29.

Reactions of 3c with 2a (entries 7-8). These reactions were performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving a 10:1 mixture of **4b** and **5b**. NMR data for trimethyl(oct-2-ynyl)stannane **4b**: ^1H NMR: 0.18 (s, 9H, $^3J(\text{H-Sn}) = 26.2$ Hz, $^3J(\text{H-Sn}) = 27.4$ Hz), 0.85-0.93 (m, 3H), 1.24-1.38 (m, 4H), 1.40-1.50 (m, 2H), 1.54 (t, 2H, $^3J(\text{H-H}) = 2.7$ Hz), 2.08-2.19 (m, 2H). ^{13}C NMR: -9.66 ($^2J(\text{C-Sn}) = 163.0$ Hz, and 170.1 Hz), -1.97 ($^2J(\text{C-Sn}) = 135.8$ Hz, and 142.6 Hz), 14.03, 19.00, 22.26, 29.29, 31.10, 78.29, 79.53.

Trimethyl(propa-1,2-dienyl)stannane (5c) (entry 9). This reaction was performed according to general procedure A but the reaction was conducted in THF-d_8 and the progress of the reaction was monitored by ^1H -NMR spectroscopy. The product **5c** was not isolated because of its volatility. ^1H NMR (THF-d_8): 0.21 (s, 9H), 4.12 (d, 2H, $^3J(\text{H-H}) = 7.1$ Hz), 5.02 (t, 1H, $^3J(\text{H-H}) = 7.1$ Hz). ^{13}C NMR: -9.12, 63.64, 79.79, 210.89.

2-(1,1,1-Trimethylstannyl)buta-2,3-dienoate (5d) (entries 10-11). These reactions were performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **5d** as product. ^1H NMR: 0.26 (s, 9H, $^3J(\text{H-Sn}) = 27.4$ Hz, and 28.5 Hz), 1.27 (t, 3H, $^3J(\text{H-H}) = 7.0$ Hz), 4.16 (q, 2H, $^3J(\text{H-H}) = 7.3$, 15.6 Hz), 4.67 (s, 2H, $^3J(\text{H-Sn}) = 16.0$ Hz). ^{13}C NMR: -8.43 ($^2J(\text{C-Sn}) = 177.7$ Hz, and 185.4 Hz), 14.21, 61.09, 69.18 ($^2J(\text{C-Sn}) = 18.3$ Hz), 91.56, 168.25, 213.56.

(1,1,1-Trimethylstannyl)buta-2,3-dien-1-ol (5e) (entry 12). This reaction was performed according to general procedure A and the reaction was purified by column chromatography using pentane:ether 2:1 as eluent giving **5e** as product. ^1H NMR: 0.23 (s, 9H, $^3J(\text{H-Sn}) = 27.1$ Hz, and 27.9 Hz), 1.61 (t, 1H, $^3J(\text{H-H}) = 5.6$ Hz), 4.24 (dt, 2H, $^3J(\text{H-H}) = 3.7$ Hz, and 5.9 Hz), 4.39 (t, 2H, $^3J(\text{H-H}) = 3.7$ Hz). ^{13}C NMR: -9.08 ($^2J(\text{C-Sn}) = 170.3$ Hz, and 178.0 Hz), 62.78 ($^2J(\text{C-Sn}) = 12.2$ Hz), 68.51 ($^2J(\text{C-Sn}) = 21.3$ Hz), 94.11, 202.62.

(1-Benzyl-1,2-propadienyl)(trimethyl)stannane (5f) (entries 13-14). These reactions were performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **5f** as product. When complex **1a** was employed, a 1:5 mixture of **4c** and **5f** was obtained. The corresponding reaction with complex **1e** gave a 1:4 mixture of **4c** and **5f**. NMR data for (1-benzyl-1,2-propadienyl)(trimethyl)stannane **5f** ^1H : 0.21 (s, $^3J(\text{Sn-H}) = 26.7$ Hz, and 27.9 Hz, 9H), 4.21 (t, $^3J(\text{H-H}) = 3.0$ Hz, 2H), 4.31 (t, $^3J(\text{H-H}) = 3.0$ Hz, 2H), 4.51 (s, 2H), 7.27-7.38 (m, 5H). ^{13}C : -8.90, 66.35 ($^2J(\text{Sn-C}) = 21.5$ Hz), 70.81, 71.91, 91.84, 127.49, 127.75, 128.29, 138.23, 204.14.

[5-(Benzyloxy)-2-pentynyl](trimethyl)stannane (4d) (entry 15). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **4d** as product. ^1H -NMR: 0.18 (s, $^3J(\text{Sn-H}) = 26.1$ Hz, and 27.2 Hz, 9H), 1.54 (t, $^3J(\text{H-H}) = 2.8$ Hz, $^3J(\text{Sn-H}) = 29.3$ Hz, 2H), 2.48 (m, 2H), 3.55 (t, $^3J(\text{H-H}) = 6.8$ Hz, 2H), 4.54 (s, 2H), 7.25-7.37 (m, 5H). ^{13}C -NMR: -9.61 ($^2J(\text{Sn-C}) = 163.2$ Hz, and 170.8 Hz), -1.92 ($^2J(\text{Sn-C}) = 133.6$ Hz, and 141.1 Hz), 20.44, 69.49, 72.89, 74.53, 76.68, 81.02, 127.56, 127.67, 128.35, 138.29.

1-Phenyl-4-(1,1,1-trimethylstannyl)buta-2,3-dienyl acetate (5h) (entry 16). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **5h** as product. ^1H -NMR: 0.09 (s, 9H, $^3J(\text{H-Sn}) = 26.7$ Hz, and 27.9 Hz), 2.10 (s, 3H), 4.40 (dd, 2H, $^3J(\text{H-H}) = 3.1$, 6.6 Hz), $^3J(\text{H-Sn}) = 12.6$ Hz, and 15.4 Hz), 6.41 (t, 1H, $^3J(\text{H-H}) = 3.3$ Hz, $^3J(\text{H-Sn}) = 14.9$ Hz), 7.27-7.36 (m, 5H). ^{13}C -NMR: -8.58 ($^2J(\text{C-Sn}) = 173.4$ Hz, and 180.8 Hz), 21.19, 68.62 ($^2J(\text{C-Sn}) = 20.2$ Hz), 76.24 ($^2J(\text{C-Sn}) = 10.1$ Hz), 95.37, 126.94, 127.98, 128.32, 140.03, 169.78, 204.68.

Trimethyl-1-[phenyl(tetrahydro-2H-pyran-2-yloxy)methyl]propa-1,2-dienyl-stannane (5i) (entry 17). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether

15:1 as eluent giving **5i** as product. ^1H -NMR: -0.01 (s, 9H, $^3J(\text{H-Sn}) = 26.8$ Hz, and 28.0 Hz), 1.45-1.66 (m, 3H), 1.67-1.84 (m, 2H), 1.87-2.01 (m, 1H), 3.47 (dt, 1H, $^3J(\text{H-H}) = 11.4, 4.2, 1.3$ Hz), 3.77 (m, 1H), 4.40 (t, 2H, $^3J(\text{H-H}) = 1.7, 18.3$ Hz, $^3J(\text{H-Sn}) = 10.8$ Hz, and 12.2 Hz), 4.99 (t, 1H, $^3J(\text{H-H}) = 3.3$ Hz), 5.56 (s, 1H, $^3J(\text{H-Sn}) = 20.2$ Hz, and 23.1 Hz), 7.18-7.47 (m, 5H). ^{13}C -NMR: -8.57 ($^2J(\text{C-Sn}) = 169.2$ Hz, and 178.2 Hz), 19.09, 25.56, 30.44, 61.66, 66.70 ($^2J(\text{C-Sn}) = 21.0$ Hz, and 26.3 Hz), 77.58, 94.94, 95.85, 126.21, 126.92, 128.00, 142.76, 206.36.

Reaction of 3k with 2a (entry 18). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using CH_2Cl_2 : NEt_3 10:1 as eluent giving a 2:3 mixture of **4e** and **5j**. Subsequently, this mixture was further purified by column chromatography using (CH_2Cl_2 : MeOH 15:1) as eluent to obtain pure **5j**. Under this second chromatography propargyl derivative **4e** was completely decomposed. NMR data for 4-[2-(1,1,1-trimethylstannyl)buta-2,3-dienyl]morpholine **5j**: ^1H NMR: δ 0.18 (s, 9H, $^3J(\text{H-Sn}) = 26.40$ Hz, and 27.97 Hz), 2.44 (m, 4H), 3.07 (t, 2H, $^3J(\text{H-H}) = 3.30$ Hz), and 23.57), 3.67 (t, 4H, $^3J(\text{H-H}) = 5.14$ Hz), 4.23 (t, 2H, $^3J(\text{H-H}) = 3.21$ Hz), and 19.83). ^{13}C NMR: δ - 8.71, 53.80, 61.40, 65.84, 67.33, 92.00, 205.09. The NMR data for 4-[4-(1,1,1-trimethylstannyl)but-2-ynyl]morpholine **4e** (determined from the 2:3 mixture of **4e** and **5j**): ^1H NMR: δ 0.20 (s, 9H, $^3J(\text{H-Sn}) = 25.72$ Hz, and 25.47 Hz), 1.58 (t, 2H $^3J(\text{H-H}) = 2.99$ Hz, and 26.17), 2.53 (m, 2H), 3.25 (t, 2H, $^3J(\text{H-H}) = 2.88$ Hz, and 8.65), 3.73 (t, 2H $^3J(\text{H-H}) = 4.55$ Hz).

Reaction of 3l with 2a (entry 19). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using CH_2Cl_2 : ether 15:1 as eluent giving a 1:2 mixture of **4f** and **5k**. Subsequently, this mixture was further purified by column chromatography using (pentane:ether 15:1) as eluent to obtain pure **5k**. Under this second chromatography propargyl derivative **4f** was decomposed. NMR data for *N*1-phenyl-*N*1-[2-(1,1,1-trimethylstannyl)buta-2,3-dienyl]acetamide **5k**: ^1H NMR: -0.21 (s, 9H, $^3J(\text{H-Sn}) = 26.5$ Hz, and 27.9 Hz), 1.55 (s, 3H), 4.20 (t, 2H, $^3J(\text{H-H}) = 2.5$ Hz, $^3J(\text{H-Sn}) = 18.3$ Hz), 4.36 (t, 2H, $^3J(\text{H-H}) = 2.3$ Hz, $^3J(\text{H-Sn}) = 17.1$ Hz, 7.16-7.46 (m, 5H). ^{13}C NMR: -8.77 ($^2J(\text{C-Sn}) = 170.9$ Hz, and 177.8

Hz), 22.52, 51.25 ($^2J(\text{C-Sn}) = 14.9$ Hz), 67.03 ($^2J(\text{C-Sn}) = 21.3$ Hz), 89.06, 127.69, 128.18, 129.39, 143.29, 169.94, 206.39. The ^1H NMR data for *N*1-phenyl-*N*1-[4-(1,1,1-trimethylstannyl)but-2-ynyl]acetamide **4f** (determined from the 1:2 mixture of **4f** and **5k**): 0.18 (s, 9H), 1.50 (t, 2H, $^3J(\text{H-H}) = 2.9$ Hz), 1.55 (s, 3H), 4.46 (t, 2H, 2.6 Hz), 7.06-7.46 (m, 5H).

Reaction of 3m with 2a (entry 20). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using CH_2Cl_2 : ether 10:1 as eluent giving a 1:6 mixture of **4g** and **5l**. Subsequently, this mixture was further purified by column chromatography using pure CH_2Cl_2 as eluent to obtain pure **5l**. Under this second chromatography propargyl derivative **4g** was decomposed. NMR data for *N*1-phenyl-*N*1-[2-(1,1,1-trimethylstannyl)buta-2,3-dienyl]-4-methylbenzene-1-sulfonamide **5l**: ^1H NMR: δ 0.20 (s, 9H, $^3J(\text{H-Sn}) = 27.08$ Hz, and 28.16 Hz), 2.40 (s, 3H), 4.06 (t, 2H $^3J(\text{H-H}) = 2.47$ Hz), 4.24 (t, 4H, $^3J(\text{H-H}) = 2.26$ Hz), 7.04 (m, 2H), 7.24 (m, 5H), 7.40 (m, 2H). ^{13}C NMR: δ -8.83, 21.51, 52.41, 66.50, 88.96, 127.27, 127.76, 128.38, 128.41, 129.28, 134.57, 138.68, 143.39, 207.42. ^1H NMR data for *N*1-phenyl-*N*1-[4-(1,1,1-trimethylstannyl)but-2-ynyl]-4-methylbenzene-1-sulfonamide **4g** (determined from the 1:2 mixture of **4g** and **5l**): 0.07 (s, 9H), 1.38 (t, 2H, 2.7 Hz), 2.40 (s, 3H), 4.42 (t, 2H, 2.7 Hz), 7.01-7.55 (m, 9H).

Trimethyl(3-phenyl-1,2-propadienyl)stannane (5m) (entry 21). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 15:1 as eluent giving **5m** as product. ^1H -NMR: 0.27 (s, $^3J(\text{Sn-H}) = 26.8$ Hz, and 28.1 Hz, 9H), 5.58 (d, $^3J(\text{H-H}) = 6.9$ Hz, $^3J(\text{Sn-H}) = 8.3$ Hz, 1H), 5.75 (d, $^3J(\text{H-H}) = 6.9$ Hz, $^3J(\text{Sn-H}) = 15.2$ Hz, and 21.9 Hz, 1H), 7.08-7.32 (m, 5H). ^{13}C -NMR: -8.49 ($^2J(\text{Sn-C}) = 171.2$ Hz, and 181.7 Hz), 81.57, 85.01 ($^2J(\text{Sn-C}) = 27.3$ Hz), 125.48, 125.76, 128.52, 136.11, 206.53.

Trimethyl[3-(1-naphthyl)-1,2-propadienyl]stannane (5n) (entry 22). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 1:1 as eluent giving **5n** as product. ^1H -

NMR: 0.29 (s, $^3J(\text{Sn-H}) = 26.7$ Hz, and 27.8 Hz, 9H), 5.67 (d, $^3J(\text{H-H}) = 6.9$ Hz, $^3J(\text{Sn-H}) = 15.7$ Hz, and 22.4 Hz, 1H), 5.94 (d, $^3J(\text{H-H}) = 6.8$ Hz, $^3J(\text{Sn-H}) = 15.5$ Hz, and 22.4 Hz, 1H), 7.34-7.50 (m, 3H), 7.58 (s, 1H), 7.71-7.80 (m, 3H). ^{13}C -NMR: -8.46 ($^2J(\text{Sn-C}) = 171.3$ Hz, and 175.6 Hz), 81.84, 85.42, 123.66, 124.40, 124.90, 126.04, 127.32, 127.66, 128.07, 132.00, 133.69, 133.90, 206.89.

Trimethyl(4-phenyl-1,2-butadienyl)stannane (5o) (entry 23). The reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **5o** as product. ^1H -NMR: 0.17 (s, $^3J(\text{Sn-H}) = 27.5$ Hz, 9H), 3.31 (dd, $^3J(\text{H-H}) = 3.6$ Hz, and 6.5 Hz, 2H), 4.86 (app. q, $^3J(\text{H-H}) = 6.8$ Hz, and 10.5 Hz, 1H), 5.12 (m, 1H), 7.15-7.33 (m, 5H). ^{13}C -NMR: -8.92 ($^2J(\text{Sn-C}) = 169.2$ Hz, and 182.6 Hz), 34.96, 77.94, 82.43 ($^2J(\text{Sn-C}) = 25.4$ Hz), 125.92, 128.24, 128.46, 141.31, 207.87.

N1-[4-(1,1,1-trimethylstannyl)-2,3-butadienyl]-2,2-dimethylpropan-amide (5p) (entries 24-25). These reactions were performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 1:1 as eluent giving **5p** as product. ^1H -NMR: 0.20 (s, $^3J(\text{Sn-H}) = 26.9$ Hz, and 28.2 Hz, 9H), 1.44 (s, 9H), 3.68 (m, 2H), 4.55 (br. s, 1H), 4.74 (app. q, $^3J(\text{H-H}) = 6.7$ Hz, and 10.1 Hz, 1H), 5.23 (m, 1H). ^{13}C -NMR: -8.90 ($^2J(\text{Sn-C}) = 172.8$ Hz, 180.9 Hz), 28.40, 39.18, 78.79 ($^2J(\text{Sn-C}) = 24.1$ Hz), 79.11, 79.96, 155.64, 206.41.

(1,3-Diphenyl-1,2-propadienyl)(trimethyl)stannane (5q) (entry 26). The reaction mixture was purified by column chromatography using pentane:ether 5:2 as eluent giving **5q** as product. ^1H -NMR: 0.38 (s, $^3J(\text{Sn-H}) = 26.0$ Hz, and 28.2 Hz, 9H), 6.15 (s, 1H), 7.17 (m, 1H), 7.22 (m, 1H), 7.28-7.35 (m, 8H). ^{13}C : -7.65 ($^2J(\text{Sn-C}) = 177.2$ Hz), 88.99 ($^2J(\text{Sn-C}) = 24.0$ Hz), 101.57, 125.99, 126.06, 126.60, 128.10, 128.65, 128.72, 135.70, 137.12, 204.28.

2-Phenyl-4-(1,1,1-trimethylstannyl)-2,3-butadien-1-ol (5r) (entry 27). This reaction mixture was purified by column chromatography using pentane:ether 2:1 as eluent giving

5r as product. $^1\text{H-NMR}$: 0.27 (s, $^3\text{J}(\text{Sn-H}) = 26.7$ Hz, and 28.0 Hz, 9H), 4.54 (m, 2H), 5.69 (t, $^3\text{J}(\text{H-H}) = 2.8$ Hz, 1H), 7.12-7.27 (m, 1H), 7.27-7.44 (m, 4H). $^{13}\text{C-NMR}$: -8.30 ($^2\text{J}(\text{Sn-C}) = 170.1$ Hz, and 178.6 Hz), 62.34 ($^2\text{J}(\text{Sn-C}) = 10.0$ Hz), 82.79, 96.78, 125.31, 125.79, 128.55, 135.60, 205.11.

2-[2-(1,1,1-Trimethylstannyl)-1-ethenylidene]-1-cyclohexanol (5s) (entry 28). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 1:1 as eluent giving **5s** as product. $^1\text{H-NMR}$: 0.18 (s, $^3\text{J}(\text{Sn-H}) = 26.6$ Hz, and 27.8 Hz, 9H), 1.30-2.06 (m, 7H), 2.36 (m, 1H), 4.09 (m, 1H), 5.30 (app. q, $^3\text{J}(\text{H-H}) = 2.6$ Hz, and 4.1 Hz, 1H). $^{13}\text{C-NMR}$: -8.76 ($^2\text{J}(\text{Sn-C}) = 170.2$ Hz, and 177.5 Hz), 22.80, 26.75, 28.45, 35.46, 69.02 ($^2\text{J}(\text{Sn-C}) = 10.3$ Hz), 81.55, 96.92, 201.12.

2-[2-(1,1,1-Trimethylstannyl)-1-ethenylidene]-1-cyclopentanol (5t) (entry 29). This reaction was performed according to general procedure A and the reaction mixture was purified by column chromatography using pentane:ether 1:1 as eluent giving **5t** as product. $^1\text{H-NMR}$: 0.19 (s, $^3\text{J}(\text{Sn-H}) = 27.0$ Hz, and 28.0 Hz, 9H), 1.47-1.93 (m, 4H), 2.32 (m, 1H), 2.58 (m, 1H), 4.66 (m, 1H), 5.34 (dt, $^3\text{J}(\text{H-H}) = 26.8$ Hz, and 28.0 Hz, 9H). $^{13}\text{C-NMR}$: -8.66 ($^2\text{J}(\text{Sn-C}) = 169.1$ Hz, and 177.6 Hz), 23.70, 29.13, 36.46, 75.88, 81.26, 97.90, 202.70.

Dimethyl(phenyl)(1-phenyl-1,2-propadienyl)silane (8a) (entry 30). This reaction was performed according to general procedure B and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **8a** as product. $^1\text{H-NMR}$: δ 0.48 (s, 6H), 4.78 (s, 2H), 7.12-7.65 (m, 10H). $^{13}\text{C-NMR}$: δ -1.86, 71.14, 97.05, 126.19, 127.82, 127.86, 128.36, 129.17, 133.94, 136.50, 138.24, 212.30. MS (EI): m/z (rel. int.): 251 ($M+1$, 8), 250 (M^+ , 29), 235 (17), 135 (100), 115 (4).

Trimethyl(1-phenyl-1,2-propadienyl)silane (8b) (entry 31). The reaction was performed according to general procedure B except that **2c** was added in one portion and the reaction was conducted for 4 h at 60 °C. The reaction mixture was purified by column

chromatography using pentane as eluent giving **8b** as product. ^1H -NMR: δ 0.24 (s, 9H), 4.67 (s, 2H), 7.17-7.37 (m, 5H). ^{13}C -NMR: δ -0.50, 70.43, 98.59, 126.12, 127.63, 128.44, 137.05, 211.11.

Reaction of 3c with 2b (entry 32). This reaction was performed according to general procedure B and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving a 4:1 mixture of the allenyl:propargyl silanes. Subsequently, this mixture was further purified by column chromatography using pentane as eluent to obtain pure dimethyl(1-pentyl-1,2-propadienyl)phenylsilane **8c**. Under this second chromatography the propargyl silane was completely decomposed. Spectral data for **8c**: ^1H -NMR: δ 0.37 (s, 6H), 0.80-1.45 (m, 11H), 1.89 (m, 2H), 4.40 (t, $^3J(\text{H-H}) = 3.2$ Hz), 7.33-7.54 (m, 5H). ^{13}C NMR: δ -3.08, 14.04, 22.45, 28.54, 28.83, 31.50, 69.37, 93.40, 127.69, 129.01, 133.84, 138.18, 209.33. MS (EI): m/z (rel. int.): 245 (M+1, 1), 229 (3), 215 (2), 201 (2), 188 (17), 174 (4), 135 (100), 108 (2).

2-(1,1-Dimethyl-1-phenylsilyl)-2,3-butadienoate (8d) (entry 33). This reaction was performed according to general procedure B and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **8d** as product. ^1H -NMR: δ 0.48 (s, 6H), 1.20 (t, 3H, $^3J(\text{H-H}) = 6.9$ Hz), 4.13 (q, 2H, $^3J(\text{H-H}) = 6.9$ and 10.6 Hz), 4.84 (s, 2H), 7.32-7.38 (m, 3H), 7.55-7.60 (m, 2H). ^{13}C -NMR: δ -2.69, 14.07, 60.91, 72.59, 93.91, 127.65, 129.25, 133.91, 137.04, 167.23, 218.10.

1-[(Benzyloxy)methyl]-1,2-propadienyl-(dimethyl)phenylsilane (8e) (entry 34). This reaction was performed according to general procedure B and the reaction mixture was purified by column chromatography using pentane:ether 10:1 as eluent giving **8e**. ^1H -NMR: δ 0.44 (s, 6H), 4.08 (t, 2H, $^3J(\text{H-H}) = 2.6$ Hz), 4.41 (s, 2H), 4.52 (t, 2H, $^3J(\text{H-H}) = 2.6$ Hz), 7.21-7.58 (m, 10H). ^{13}C -NMR: δ -2.90, -2.78, 69.69, 69.83, 71.80, 92.20, 127.41, 127.72, 127.76, 128.23, 129.11, 133.91, 137.60, 138.20, 210.41.

1-[2-(Benzyloxy)ethyl]-1,2-propadienyl(dimethyl)-phenylsilane (8f) (entry 35). This reaction was performed according to general procedure B and the reaction mixture was

purified by column chromatography using pentane:ether 10:1 as eluent giving **8f**. ^1H -NMR: ^1H NMR: δ 0.38 (s, 6H), 2.25 (m, 2H), 3.54 (t, 2H, $^3J(\text{H-H}) = 7.5$ Hz), 4.42 (t, 2H, $^3J(\text{H-H}) = 3.2$ Hz), 4.44 (s, 2H), 7.26-7.56 (m, 10H). ^{13}C -NMR: δ -3.24, 28.89, 69.62, 69.69, 72.85, 89.97, 127.45, 127.64, 127.76, 128.30, 129.13, 133.84, 137.72, 138.52, 209.44.

Dimethyl(phenyl)(4-phenyl-1,2-butadienyl)silane (8g) (entry 36). This reaction was performed according to general procedure B and the reaction mixture was purified by column chromatography using pentane:ether 50:1 as eluent giving **8g** as product. Spectral data for dimethyl-(phenyl)(4-phenyl-1,2-butadienyl)silane: ^1H -NMR: δ 0.34 (s, 3H), 0.36 (s, 3H), 3.34 (dd, 2H, $^3J(\text{H-H}) = 3.8$ and 7.2 Hz), 5.04 (q, 1H, $^3J(\text{H-H}) = 7.1$ and 15.1 Hz), 5.10 (m, 1H), 7.17-7.53 (m, 10H). ^{13}C -NMR: δ -2.35, -2.25, 34.51, 81.74, 83.70, 126.04, 127.76, 128.29, 128.50, 129.08, 133.70, 138.43, 140.70, 211.25. MS (EI): m/z (rel. int.): 265 ($M+1$, 11), 264 (M^+ , 28), 249 (70), 187 (50), 186 (8), 135 (100), 129 (9), 128 (30), 77 (10).

***tert*-Butyl *N*-[4-(1,1-dimethyl-1-phenylsilyl)-2,3-butadienyl]carbamate (8h) (entry 37).** This reaction was performed according to general procedure B and the reaction mixture was purified by column chromatography using pentane:ether 4 : 1 as eluent giving **8h**. ^1H -NMR: ^1H NMR: δ 0.38 (s, 6H), 1.44 (s, 9H), 3.67 (m, 1H), 4.21 (s, 1H), 4.91 (q, 1H, $^3J(\text{H-H}) = 6.4$ and 13.8 Hz), 5.13 (dt, 1H, $^3J(\text{H-H}) = 4.1$ and 7.2 Hz), 7.34-7.41 (m, 3H), 7.50-7.57 (m, 2H). ^{13}C -NMR: δ -2.43, -2.37, 28.38, 38.67, 82.34, 83.82, 127.82, 129.27, 133.65, 137.98, 155.58, 210.15.

2-(2-Phenyl-1-ethenylidene)-1-cyclohexanol (12a). Phenyl iodide (33 mg, 0.16 mmol) and freshly prepared stannane **5s** (46 mg, 0.16 mmol) in DMF (0.5 mL) were added to a mixture of $\text{Pd}(\text{PPh}_3)_4$ (**6**) (9.2 mg, 0.008 mmol) and LiCl (8.1 mg, 0.19 mmol) at 5 °C. This reaction mixture was stirred at 5 °C for 48 h, thereafter ether (5 mL) was added and the crude reaction mixture was washed three times with water (2 mL). The crude product was dried over Na_2SO_4 and purified by column chromatography using pentane:ether 7:3 as eluent giving of **12a** as product with 60% yield. ^1H -NMR: 1.19-1.62 (m, 8H), 4.22 (m,

1H, anti), 6.35 (dd, $^3J(\text{H-H}) = 1.2 \text{ Hz}$, and 3.0 Hz , 1H). ^{13}C -NMR: 23.45, 26.68, 29.56, 35.94, 69.14, 98.10, 111.68, 126.72, 126.05, 128.60, 135.01, 196.63.

Reaction of Complex 1b with 2a Monitored by NMR. The chloride counter ion of **1a** was exchanged to acetate (forming **1f**) by using the following procedure. Complex **1a** (12 mg 0.032 mmol) was added to AgOAc (8 mg, 0.048 mmol) suspended in CHCl₃ at 0 °C. This mixture was stirred 1h at 0 °C and then an additional hour at 25 °C in a dark reaction vessel. The AgBr precipitation was separated by centrifugation and the solvent was evaporated to yield **1f**. Complex **1f** was dissolved in 0.7 mL THF-d₈, and then hexamethylditin (63 mg, 0.192 mmol) was added to the solution. The progress of the reaction was monitored by using ¹H- and ¹¹⁹Sn-NMR (Figure 1) spectroscopy. Under the above conditions about 50% of **1f** was converted to tin-complex **1g** according to the ¹H-NMR spectrum of the reaction mixture. NMR (ppm) for complex **1g** (determined from the obtained reaction mixture); ¹H-NMR: 0.05 (s, 9H), 2.87 (s, 12H), 3.98 (s, 4H), 6.64 (d, ³J(H-H) = 7.9 Hz, 2H), 6.71 (t, ³J(H-H) = 7.9 Hz, 1H). ¹¹⁹Sn-NMR: -0.2.

Reaction of Complex 1a with Silyl-Stannane 2b Monitored by NMR. To complex **1a** (12mg, 0.032 mmol) in THF-d₈ (0.20 mL) silyl-stannane **2b** (29 mg, 0.096 mmol, 3 equiv.) in THF-d₈ (0.25 mL) was added over 5 h via syringe-pump at room temperature. Then, the reaction mixture was analyzed by ¹H- and ²⁹Si-NMR (page S56) spectroscopy. According to ¹H-NMR spectroscopy under these reaction conditions **1a** was fully converted to silicon complex **1h**. The ²⁹Si-NMR shifts (relative to TMS) for the pure silyl compounds were determined in separate experiments: Me₃Sn-SiMe₂Ph **2b**, -13.4 ppm; (PhMe₂Si)₂ **2e**, -21.9 ppm; (PhMe₂Si)₂O, -1.2 ppm; The ²⁹Si-NMR measurements were carried out using an INEPT pulse sequence¹⁶ with a delay time parameter (τ) of 0.0357 s.^{17,18} NMR data (ppm) for complex **1h** (determined from the obtained reaction mixture); ¹H-NMR: 0.18 (s, 6H), 2.91 (s, 12H), 3.92 (s, 4H), 6.73 (d, ³J(H-H) = 8.4 Hz, 2H), 6.89 (t, ³J(H-H) = 8.4 Hz, 1H), 7.27-7.41 (m, 5H). ²⁹Si-NMR: -5.5 ppm.

Figure 1. ^{119}Sn -NMR spectrum of the reaction of **1f** with **2a** in THF-d_8 . The sampling times are given in minutes.

Molecular Geometries Obtained in the DFT Calculations**Complex 1g**

C1	-0.030146	0.016182	-0.027351
C2	-0.009186	-0.029074	1.373825
C3	1.215362	0.008975	2.046500
C4	2.420175	0.155565	1.353373
C5	2.410671	0.201062	-0.047950
C6	1.183906	0.115415	-0.728754
Pd7	1.250870	-0.270145	4.009807
Sn8	1.243094	-0.712695	6.723098
C9	-1.205979	0.010980	2.288669
N10	-0.860991	-0.557820	3.640441
C11	-1.046363	-2.028204	3.598055
C12	3.611342	0.379743	2.249039
N13	3.377931	-0.230088	3.606623
C14	4.204820	0.484047	4.600112
C15	-1.778937	0.017171	4.644506
C16	3.793059	-1.652160	3.563927
H17	-0.971371	-0.016821	-0.580340
H18	1.172756	0.140235	-1.818694
H19	3.336792	0.309471	-0.616551
H20	-1.489582	1.060540	2.450713
H21	-2.094505	-0.506568	1.889332
H22	4.562178	0.003301	1.835409
H23	3.733307	1.460680	2.405927
H24	3.573162	-2.126221	4.524744
H25	3.238584	-2.168466	2.774035
H26	4.875087	-1.730220	3.357990

H27	4.119746	-0.015860	5.567868
H28	5.264035	0.498076	4.287903
H29	3.844292	1.512725	4.703394
H30	-1.621855	-0.474877	5.608038
H31	-1.574295	1.086379	4.758704
H32	-2.829829	-0.123398	4.336144
H33	-0.720528	-2.464787	4.546435
H34	-2.108292	-2.276519	3.424455
H35	-0.443201	-2.444797	2.785299
C36	3.100357	-1.250622	7.774423
C37	0.555771	0.965305	7.958486
C38	-0.054299	-2.338860	7.448153
H39	2.848621	-1.574408	8.794235
H40	3.642305	-2.076471	7.291159
H41	3.789260	-0.398213	7.864054
H42	0.506484	0.673866	9.017173
H43	1.241235	1.820199	7.873146
H44	-0.442738	1.311066	7.655744
H45	0.018719	-2.400860	8.543288
H46	-1.116599	-2.197752	7.199930
H47	0.257179	-3.310683	7.038515

TS Structure 10a

C1	-0.001434	-0.033486	-0.070965
C2	-0.013039	0.013157	1.329963
C3	1.197712	0.089254	2.024197
C4	2.412251	0.245974	1.349150
C5	2.431396	0.200421	-0.051153
C6	1.225023	0.035039	-0.752181
C7	-1.238276	0.152459	2.195563
N8	-0.927618	-0.254676	3.606203

C9	-1.934994	0.323388	4.514403
Pd10	1.172045	0.222340	4.002236
Sn11	0.974697	1.776990	6.319450
C12	2.728212	2.294391	7.490211
C13	3.574377	0.604177	2.239760
N14	3.311607	0.126367	3.635026
C15	4.168049	0.850540	4.589952
C16	1.272439	-0.869488	6.401529
C17	2.339843	-1.233898	6.968730
C18	3.380179	-1.853657	7.703318
Cl19	2.921688	-3.564629	8.524158
C20	3.636106	-1.319991	3.704630
C21	-1.000629	-1.734340	3.686885
C22	-0.636505	1.632768	7.780645
C23	0.501351	3.659389	5.274608
H24	3.367302	0.307139	-0.603359
H25	1.238087	-0.010261	-1.841176
H26	-0.931861	-0.105405	-0.637897
H27	-1.528845	1.211778	2.225993
H28	-2.110441	-0.416261	1.830335
H29	4.544559	0.212773	1.889238
H30	3.660375	1.698736	2.285196
H31	-1.747489	-0.019193	5.536515
H32	-2.952953	0.015736	4.219205
H33	-1.869267	1.415403	4.494023
H34	-0.701852	-2.076324	4.681605
H35	-2.030135	-2.076109	3.484863
H36	-0.322999	-2.173218	2.949088
H37	3.975749	0.468729	5.599160
H38	5.234888	0.705853	4.346387
H39	3.934695	1.919015	4.558804

H40	3.347341	-1.708379	4.683917
H41	3.079234	-1.855992	2.930401
H42	4.717545	-1.471484	3.545315
H43	-0.464706	3.606708	4.754904
H44	1.270165	3.908133	4.531581
H45	0.450027	4.477010	6.008102
H46	3.302836	1.403433	7.774360
H47	3.390169	2.982280	6.948022
H48	2.406453	2.794571	8.413685
H49	-1.630310	1.743551	7.326352
H50	-0.604187	0.679768	8.324053
H51	-0.518977	2.442483	8.514336
H52	0.232020	-1.174364	6.362709
H53	4.246683	-2.140925	7.101231
H54	3.696786	-1.271132	8.572597

TS Structure 10b

C1	-0.157198	-0.078442	-0.053823
C2	-0.107893	-0.055690	1.343243
C3	1.114198	-0.280507	1.991245
C4	2.272705	-0.489998	1.226432
C5	2.230686	-0.420275	-0.174905
C6	1.006400	-0.191432	-0.818326
C7	-1.388202	0.369499	2.004181
N8	-2.553992	0.029795	1.125278
C9	-3.715575	0.841454	1.540209
C10	0.832570	0.125139	-2.276004
N11	-0.585371	-0.114400	-2.707418
C12	-0.837996	0.706156	-3.910661
Pd13	-1.889321	0.199128	-0.962853
Sn14	-3.796207	2.054896	-1.831496

C15	-4.127097	-0.538992	-2.755406
C16	-5.161715	-1.490885	-4.824573
C17	-0.719453	-1.549595	-3.068784
C18	-2.888057	-1.399762	1.337194
C19	-5.806194	2.195389	-1.003283
C20	-4.026171	2.624327	-3.911033
C21	-2.691709	3.728977	-0.940214
C22	-3.963832	-1.772724	-2.060556
C23	-3.851584	-2.859806	-1.511086
H24	1.176483	-0.279693	3.081068
H25	3.222032	-0.678064	1.727809
H26	3.151713	-0.527470	-0.750922
H27	1.038177	1.194921	-2.421926
H28	1.516535	-0.429953	-2.938923
H29	-1.540441	-0.066965	3.005647
H30	-1.378762	1.462244	2.122209
H31	-1.820478	0.478103	-4.330088
H32	-0.077972	0.498406	-4.682230
H33	-0.801756	1.767835	-3.649015
H34	-1.747355	-1.782410	-3.353433
H35	-0.052507	-1.785767	-3.914696
H36	-0.446445	-2.166793	-2.207707
H37	-4.598746	0.537807	0.972073
H38	-3.917320	0.701335	2.615771
H39	-3.518371	1.901057	1.351064
H40	-3.685582	-1.696320	0.652790
H41	-2.006242	-2.015371	1.135489
H42	-3.211813	-1.557622	2.380050
H43	-1.857394	4.017323	-1.592729
H44	-2.278718	3.496053	0.049202
H45	-3.367414	4.590722	-0.842965

H46	-6.287076	1.215028	-0.887603
H47	-5.802149	2.694346	-0.025121
H48	-6.429715	2.792653	-1.682410
H49	-3.064873	2.837663	-4.396732
H50	-4.541370	1.846389	-4.489923
H51	-4.631033	3.540955	-3.958220
H52	-3.787687	-3.844903	-1.093142
H53	-5.102874	-0.066043	-2.728174
H54	-3.462136	-0.289189	-3.564325

TS Structure 10c

C1	-0.034054	0.207561	-0.087368
C2	-0.173355	0.215832	1.307817
C3	0.962358	0.028548	2.113587
C4	2.236259	-0.136485	1.544059
C5	2.368408	-0.144119	0.148301
C6	1.228216	-0.003673	-0.644543
C7	3.660406	-0.167078	-0.626533
N8	3.433684	-0.701676	-2.013176
C9	4.526616	-0.232758	-2.886153
Pd10	1.389574	-0.203278	-2.610497
N11	-0.777614	-0.057454	-2.433599
C12	-1.247608	-1.462845	-2.453568
C13	-1.106831	0.537108	-1.092583
C14	3.460190	-2.182415	-1.947639
Sn15	1.698359	-0.399919	-5.731796
C16	2.131881	0.306621	-7.874887
C17	2.536742	1.501875	-8.125305
C18	2.975156	2.627077	-8.856282
C19	1.984726	1.642544	-5.103472
C20	3.230933	-1.927152	-5.887523

C21	-0.217412	-1.234397	-6.315135
C22	-1.484191	0.709034	-3.477554
Cl23	3.136104	2.346910	-10.842857
H24	3.107746	-0.247836	2.192576
H25	0.855493	0.025455	3.198393
H26	-1.147412	0.374593	1.775278
H27	4.025100	0.863721	-0.737030
H28	4.462109	-0.744791	-0.136328
H29	-2.117095	0.217386	-0.786040
H30	-1.139449	1.627299	-1.227476
H31	-0.925238	-1.943828	-3.381012
H32	-0.814364	-2.001411	-1.605214
H33	-2.348815	-1.503886	-2.383908
H34	-1.324907	0.235911	-4.448620
H35	-2.567835	0.746871	-3.269591
H36	-1.091347	1.730118	-3.510530
H37	4.419108	-0.676528	-3.878139
H38	4.481592	0.856929	-2.979311
H39	5.509251	-0.515595	-2.470274
H40	3.213993	-2.601313	-2.926593
H41	4.460501	-2.537262	-1.643508
H42	2.720817	-2.525440	-1.217530
H43	-0.015097	-1.846647	-7.204597
H44	-0.707954	-1.868600	-5.569225
H45	-0.901352	-0.433312	-6.622148
H46	1.017335	2.124423	-4.915446
H47	2.636963	1.807147	-4.239869
H48	2.427628	2.063806	-6.041016
H49	2.985858	-2.488543	-6.799209
H50	4.211070	-1.461558	-6.047921
H51	3.290284	-2.634902	-5.054293

H52	1.968498	-0.501368	-8.599828
H53	2.281599	3.470416	-8.841611
H54	3.996193	2.941331	-8.629879

TS Structure 10d

C1	0.106819	0.343251	-0.023786
C2	0.110863	0.362765	1.380511
C3	1.307138	0.222993	2.104007
C4	2.509967	0.028154	1.411256
C5	2.487514	-0.037459	0.016880
C6	1.313090	0.150602	-0.712792
C7	3.891072	-0.009257	2.008493
N8	4.824832	-0.770579	1.109635
C9	4.654656	-2.217947	1.384623
Pd10	4.147791	-0.503780	-0.945379
Sn11	6.743016	-0.906336	-2.314905
C12	6.832800	1.238884	-1.891454
C13	1.514219	0.264974	-2.199428
N14	2.772218	-0.442908	-2.627166
C15	3.264646	0.197915	-3.864455
C16	6.211552	-0.369954	1.423918
C17	2.445603	-1.862366	-2.907694
C18	7.671884	-2.507301	-1.170289
C19	6.373688	-1.548803	-4.358748
C20	9.077476	-0.517029	-3.117913
C21	9.811790	-0.096419	-1.972440
C22	10.357492	0.256834	-0.933271
Cl23	11.042122	-0.490695	-4.905994
H24	1.289836	0.274433	3.194406
H25	-0.827172	0.503907	1.917324
H26	-0.830854	0.488113	-0.564123

H27	4.277996	1.017128	2.076401
H28	3.925098	-0.439265	3.023519
H29	0.664370	-0.106730	-2.795140
H30	1.644708	1.326481	-2.451941
H31	3.361197	-2.409993	-3.149989
H32	1.986175	-2.311552	-2.021544
H33	1.743657	-1.936222	-3.756208
H34	4.098384	-0.376894	-4.270738
H35	2.463037	0.246420	-4.621229
H36	3.608160	1.212985	-3.640167
H37	6.913395	-1.000403	0.873459
H38	6.368093	0.672954	1.131541
H39	6.410168	-0.476863	2.503997
H40	5.242662	-2.801285	0.672019
H41	4.985627	-2.456294	2.409996
H42	3.599232	-2.485252	1.275481
H43	7.238776	-2.135550	-4.690687
H44	5.476144	-2.169641	-4.461810
H45	6.291250	-0.679015	-5.023075
H46	6.919178	1.754458	-2.856342
H47	5.944914	1.601511	-1.362686
H48	7.738231	1.425767	-1.302794
H49	8.103728	-3.193508	-1.910251
H50	8.490597	-2.098784	-0.565617
H51	6.977370	-3.072168	-0.540616
H52	8.863198	0.231033	-3.879199
H53	9.264276	-1.524534	-3.484075
H54	10.953006	0.576165	-0.100704

Complex 1i

C1	-.012477	-.039268	.035154
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C2	-.009649	-.048095	1.436472
C3	1.214966	-.004191	2.124491
C4	2.436948	.036759	1.431617
C5	2.434428	.022007	.030356
C6	1.209685	-.009970	-.645323
C7	3.642092	-.049158	-.870465
N8	3.278318	.398141	-2.260413
C9	3.423426	1.867783	-2.372130
Pd10	1.206038	-.014426	-2.570740
N11	-.864999	-.425211	-2.250854
C12	-1.010902	-1.895246	-2.356364
C13	-1.223614	.027619	-.861322
C14	4.155720	-.254360	-3.254009
Cl15	1.201033	-.021323	-5.009881
C16	-1.745752	.223679	-3.243861
H17	1.217050	-.001904	3.214558
H18	-.944652	-.076779	1.999615
H19	3.374083	.067706	1.991085
H20	3.972774	-1.094122	-.948832
H21	4.501335	.536294	-.503633
H22	-2.081116	-.556787	-.488811
H23	-1.555243	1.072065	-.942608
H24	-1.454422	-.107761	-4.244831
H25	-2.802329	-.027067	-3.047368
H26	-1.611776	1.309140	-3.195180
H27	-2.068506	-2.187331	-2.235457
H28	-.652821	-2.219718	-3.338399
H29	-.411083	-2.378430	-1.578537
H30	3.061830	2.188335	-3.354161
H31	2.826181	2.353844	-1.594117
H32	4.481366	2.160600	-2.256021

H33	3.861231	.073493	-4.255237
H34	5.212957	-.002994	-3.061901
H35	4.021845	-1.339630	-3.201035

Compound 3d

C1	-0.007247	-0.014340	-0.005386
C2	0.007568	0.010118	1.210306
H3	-0.015338	-0.026314	-1.078038
C4	0.002284	-0.000697	2.667595
H5	-1.021950	0.010212	3.052337
H6	0.524031	-0.882543	3.051398
C17	0.836560	1.443268	3.371554

Compound 5c

C1	0.385781	0.831472	0.249262
C2	0.095918	0.098708	1.310905
C3	-0.233634	-0.603429	2.372355
Sn4	-2.040130	-0.205291	3.467065
H5	0.979007	1.742034	0.340234
H6	0.440983	-1.405407	2.689148
H7	0.053771	0.534213	-0.746098
C8	-1.511008	0.232480	5.506750
C9	-3.030250	1.460742	2.547702
C10	-3.271898	-1.969192	3.406877
H11	-2.407157	0.451303	6.101402
H12	-0.995907	-0.620688	5.965918
H13	-0.844276	1.102193	5.554314
H14	-4.206539	-1.808938	3.959519
H15	-3.523431	-2.229557	2.371442
H16	-2.749876	-2.822346	3.858090
H17	-3.980368	1.671162	3.054659

H18	-2.403655	2.359332	2.598468
H19	-3.239293	1.249934	1.492032

Compound 11

C1	0.359690	-0.006202	-0.061437
Sn2	-0.140890	0.025306	2.033460
C3	1.629232	-0.057662	3.245229
C4	-1.333371	-1.755237	2.466904
C5	-1.685085	-1.796457	3.878913
C6	-1.953383	-1.785521	5.069704
C7	-1.331565	1.747856	2.508658
H8	-2.204833	-1.803828	6.111458
H9	-0.756489	-2.647709	2.189204
H10	0.956453	0.875180	-0.329068
H11	0.944298	-0.900865	-0.310653
H12	-0.545825	-0.004470	-0.681354
H13	2.189924	0.883692	3.186063
H14	1.356686	-0.233627	4.292885
H15	2.288860	-0.871327	2.918863
H16	-0.745298	2.669677	2.405617
H17	-2.200824	1.817991	1.842898
H18	-1.693347	1.680996	3.541816
H19	-2.239356	-1.737514	1.846240

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^{29}Si spectrum obtained for the reaction of complex **1a** with **2b**