Supporting Information

A Fluoroponytailed NHC- Silver Complex formed from Vinyl-imidazolium /$AgNO_3$ under Aqueous-Ammoniacal Conditions

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† Dedicated to the memory of Professor Victor Snieckus.

Content

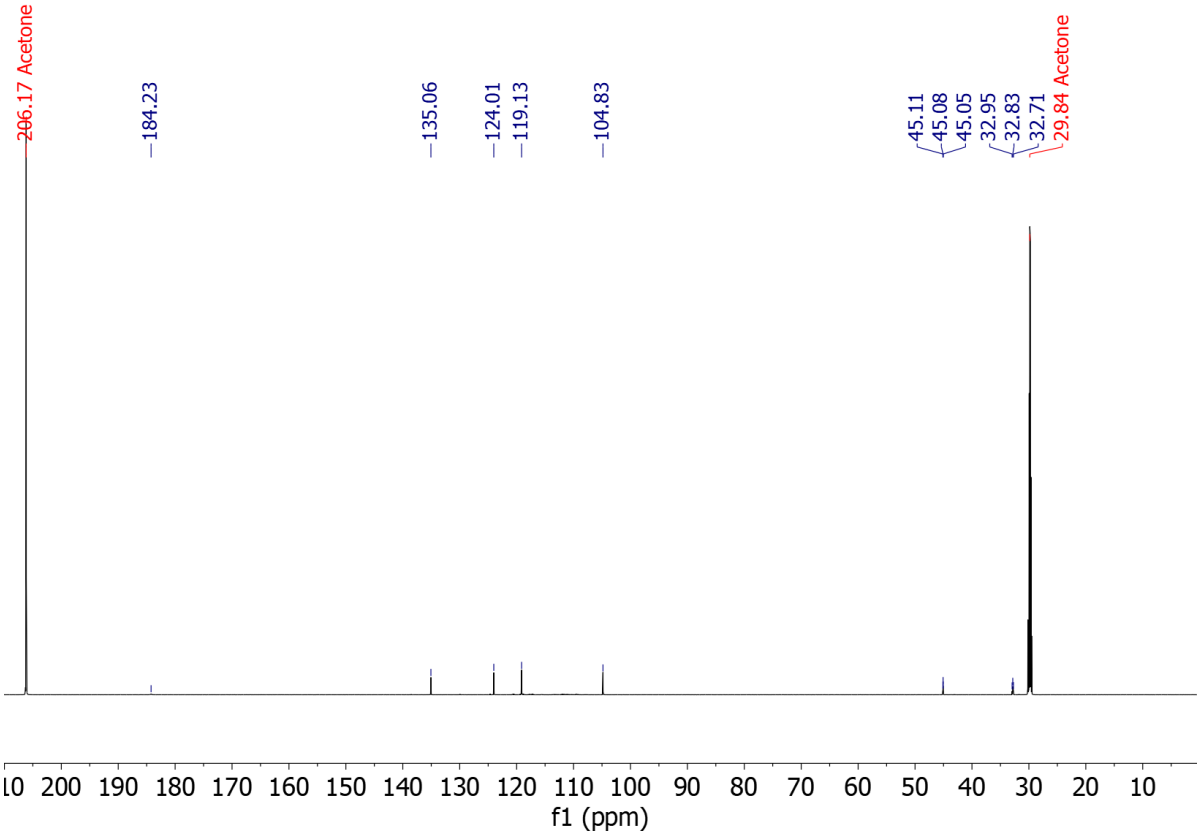

Figure S1: ^{13}C NMR spectrum (176 MHz, acetone-d_6) of [bis(3-(1*H*,1*H*,2*H*,2*H*-perfluoroctyl)-1-vinylimidazol-2-ylidene)silver(I)] nitrate (**Ag(FNHC)$_2$NO$_3$**).

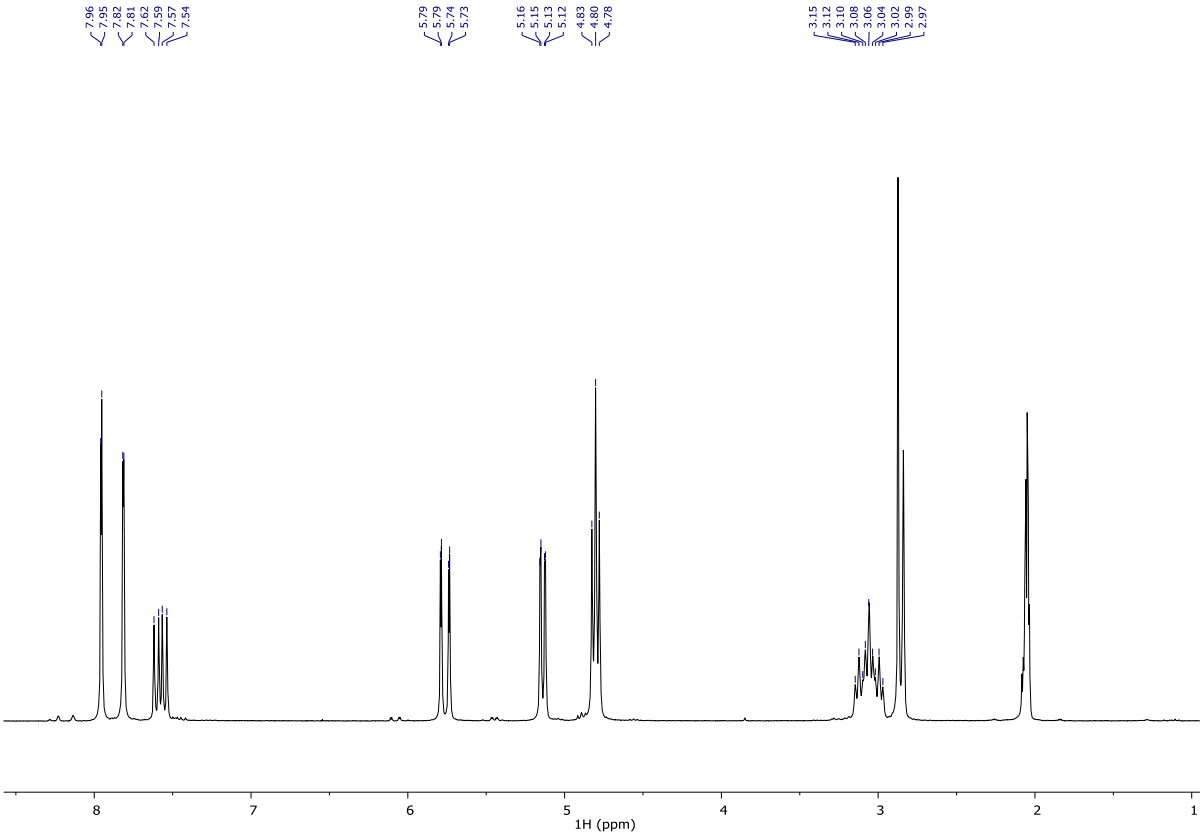

Figure S2: ^{1}H NMR spectrum (300 MHz, acetone-d_6) of **Ag(FNHC)$_2$NO$_3$**.

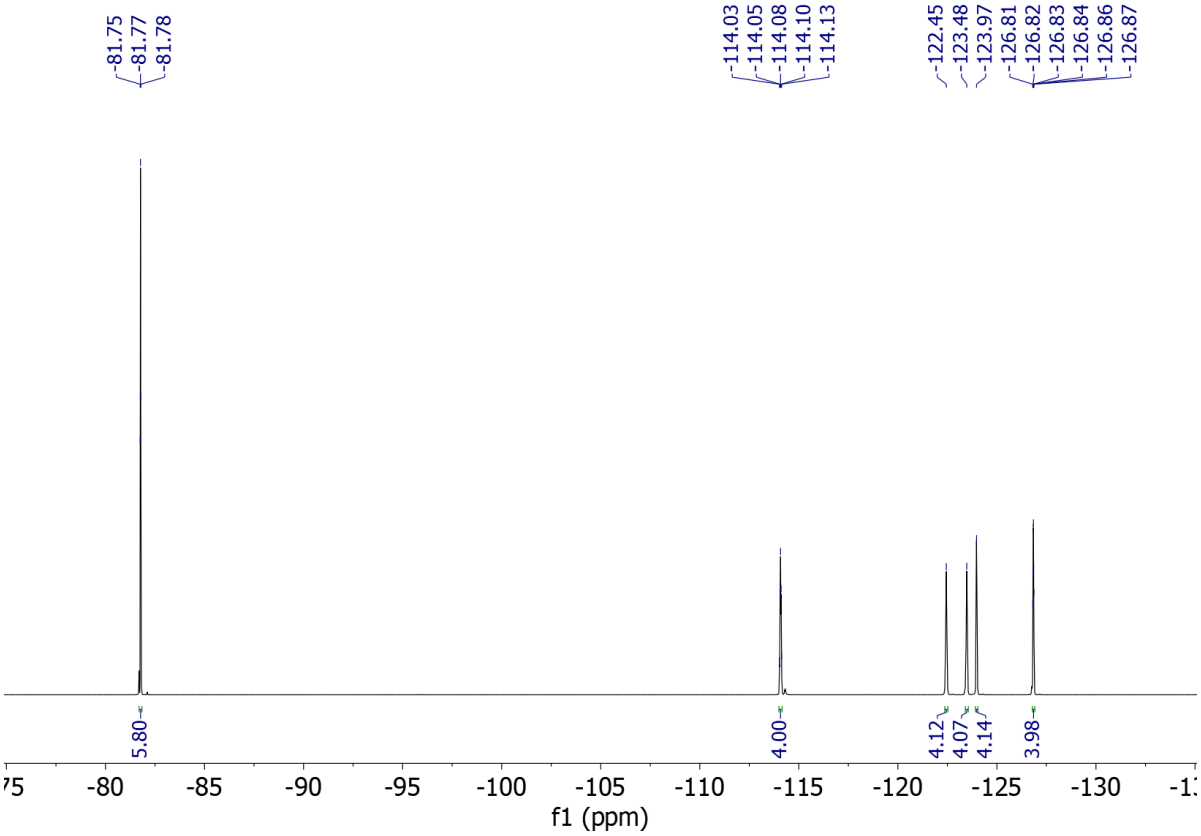

Figure S3: ^{19}F NMR spectrum (659 MHz, acetone-d_6) of **Ag(FNHC)$_2$NO$_3$**.

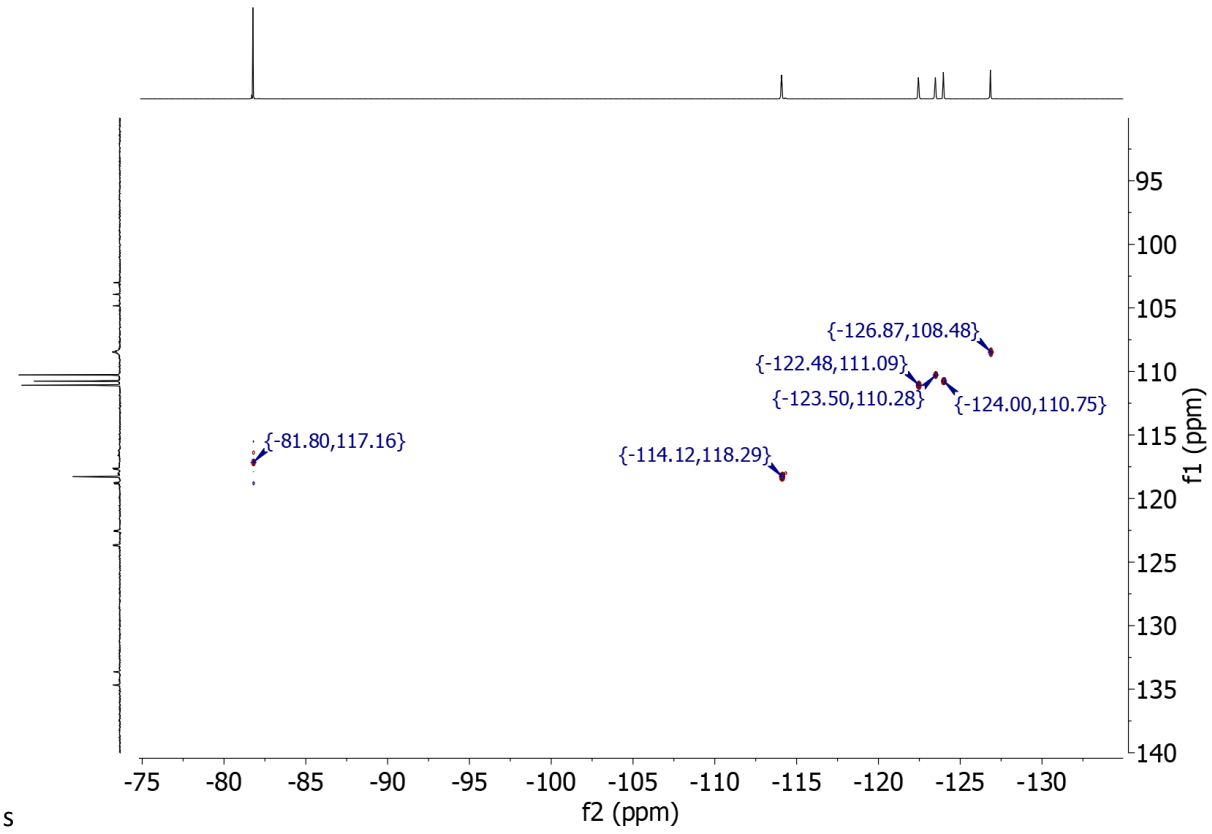

Figure S4: ^{19}F - ^{13}C HSQC NMR spectrum (^{19}F frequency =659 MHz, acetone-d_6) of **Ag(FNHC)$_2$NO$_3$**. ^{13}C (^{19}F decoupled) trace is shown on the left; ^{19}F trace is shown on top.

Note: For clarity and better s/n ratio, the ^{13}C trace shown in Figure **S**4 is ^{19}F decoupled. The ^{13}C trace in Figure **S**1 is ^{1}H decoupled and thus looks markedly different.

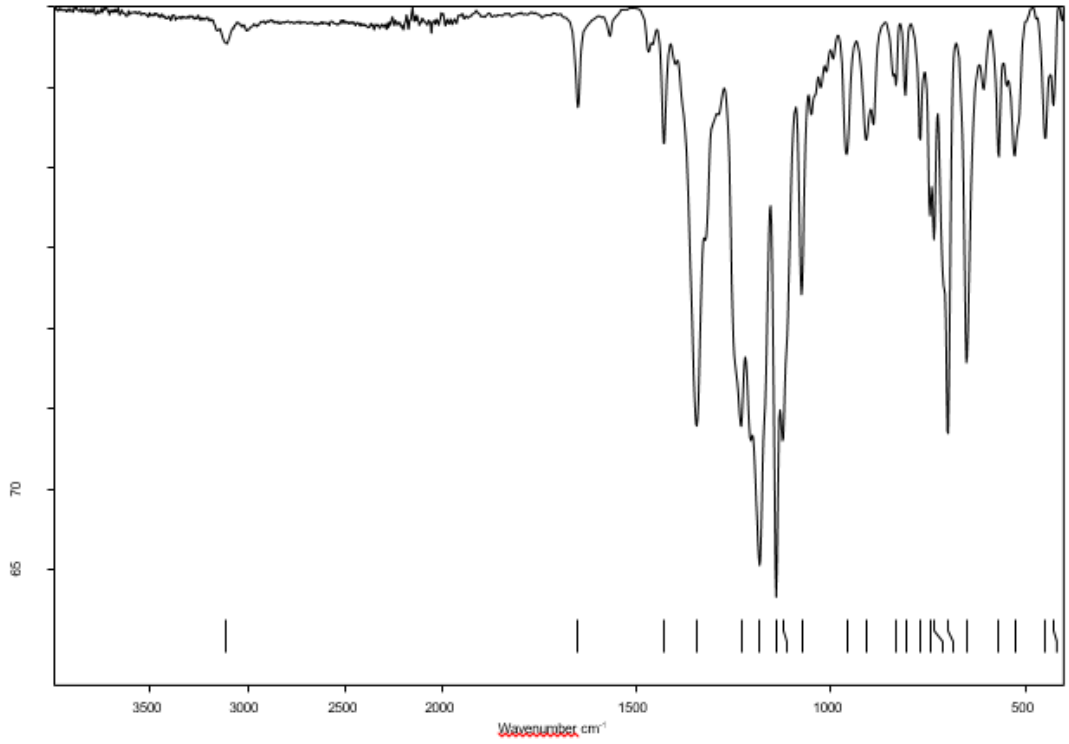

Figure S5: ATR-FT-IR spectrum (neat) of **Ag(FNHC)$_2$NO$_3$**.

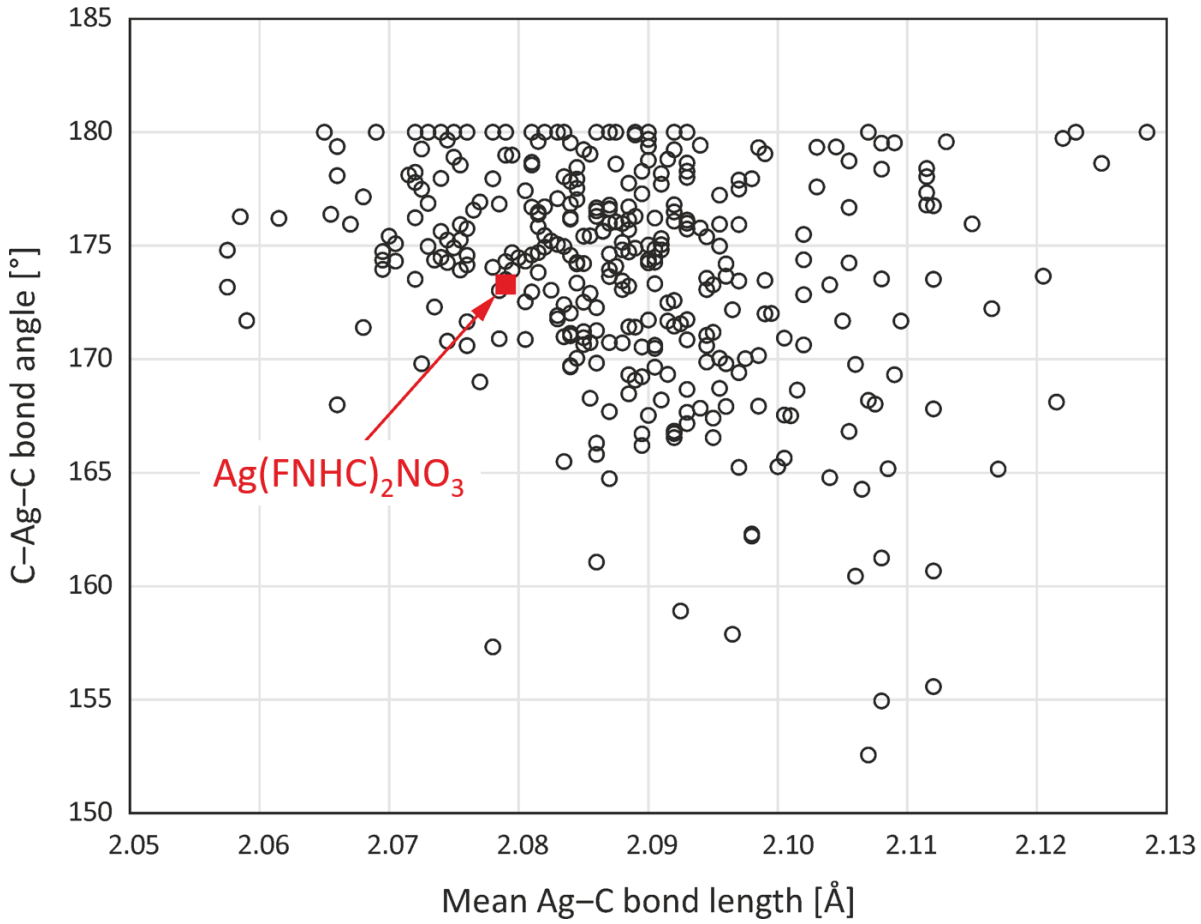

Figure S6: Plot showing Ag-C bond lengths (x-axis) and their corresponding C-Ag-C bond angles (y-axis) in reported bis-carbene-Ag complexes in comparison to those of **Ag(FNHC)$_2$NO$_3$**.

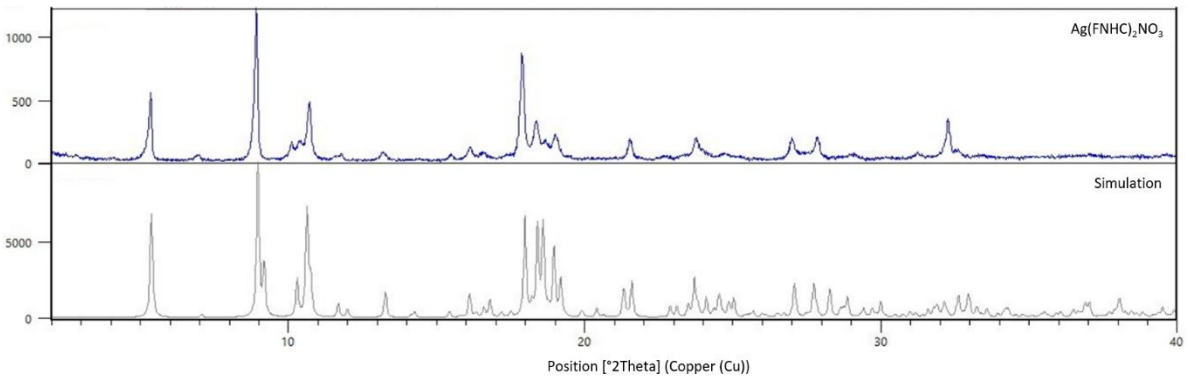

Figure S7: Powder diffractogram of **Ag(FNHC)$_2$NO$_3$** (top) and comparison to simulated powder diffraction pattern (bottom).

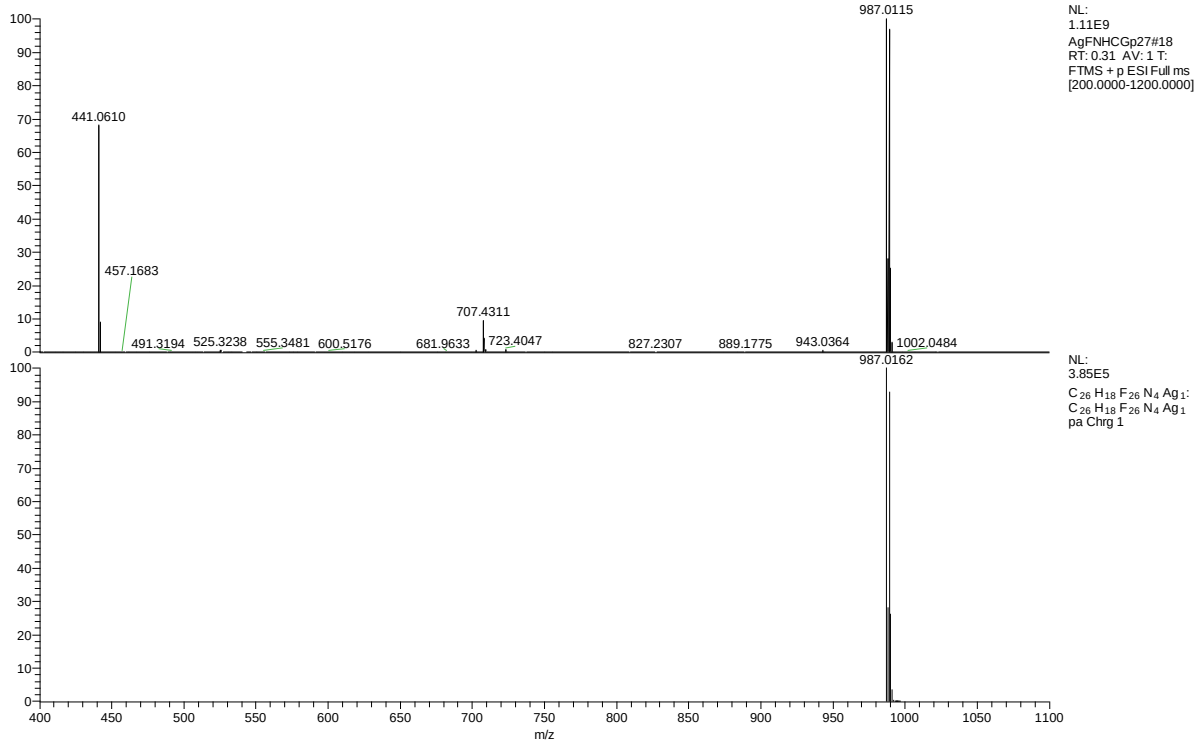

Figure S8: High resolution mass spectrum of **Ag$^+$(FNHC)$_2$** (top) and simulated spectrum thereof (bottom). The peak at 441.0610 m/z is attributable to the 3-(1*H*,1*H*,2*H*,2*H*-perfluoroctyl)-1-vinylimidazolium ion.

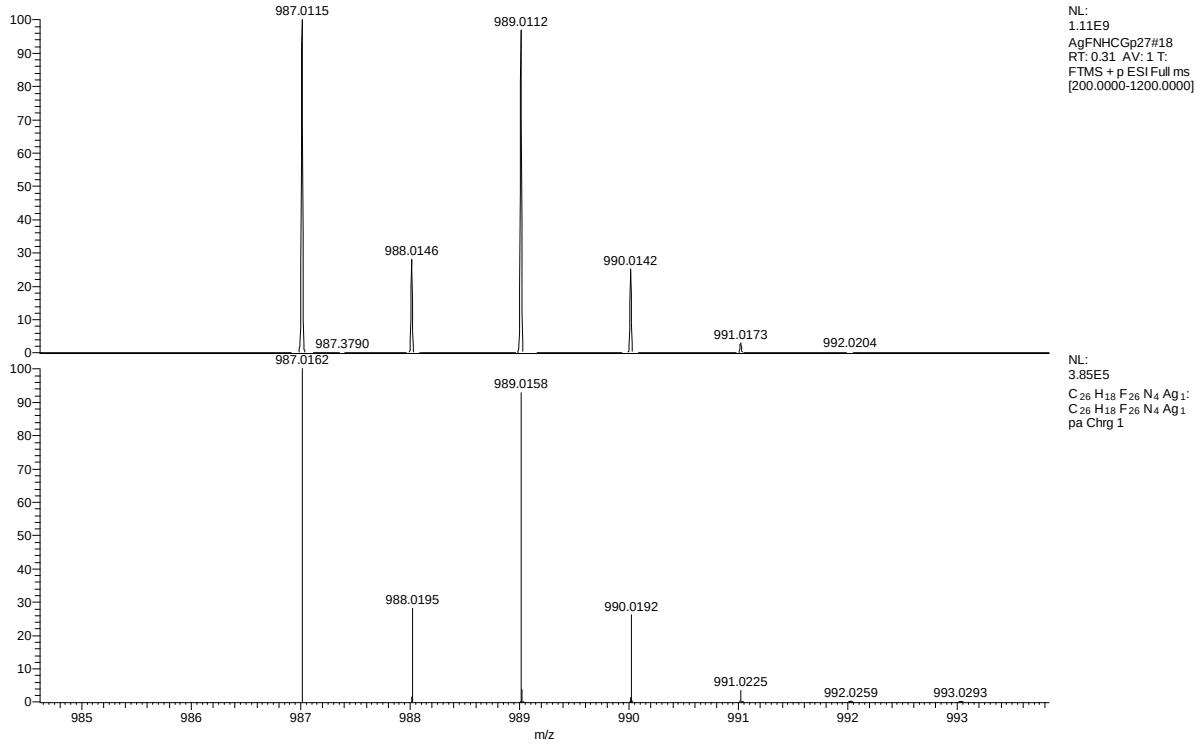

Figure S9: High resolution mass spectrum of the molecule ion peak $\mathbf{Ag^{+}(FNHC)_2}$ (top) and simulated spectrum thereof (bottom).

Elemental analysis

Elemental composition values for $C_{26}H_{18}AgF_{26}N_5O_3$	Calculated	Found
C	29.73 %	28.61%
H	1.73 %	1.55%
N	6.67%	6.36%

Note: Composition values for carbon and hydrogen likely deviate from the expected values due to reluctant combustion behavior of the polyfluorinated compound.