Supplementary Information

Snowman-like silver alkynyl cluster consolidated by templating chloride and peripheral trifluoroacetates

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Materials and Methods. All reagents and solvents employed were commercially available and used as received without further purification. The C, H, and N microanalyses were carried out with a CE instruments EA 1110 elemental analyzer. The FT-IR spectra were recorded from KBr pellets in the range 4000-400 cm\(^{-1}\) with a Nicolet AVATAR FT-IR360 spectrometer. NMR data were recorded on a Bruker Avance II spectrometer (400 MHz). ESI-MS spectra were recorded on an ion trap mass spectrometer (Bruker, Esquire HCT).

X-ray experimental

Intensity data of compounds 1-3 were collected on a Oxford Gemini S Ultra system with Cu K\(\alpha\) for 1 and 2, Mo K\(\alpha\) for 3. Data collections were conducted at 173 K. Data reductions were performed using CrysAlis RED program. The structures were solved by direct methods using SHELXS-97 and refined by full-matrix least-squares on F\(^2\) with anisotropic displacement parameters for the non-H atoms (except O31, O32, C31, C32, F31, F32, F33, O41, O42, C41, C42, F41, F42 in 1 and O71, O72, C71, C72, F71, F72, F73 in 3) using SHELXL-97. Hydrogen atoms were calculated in ideal positions with isotropic displacement parameters set to 1.2 \(\times\) Ueq of the attached atom (1.5 \(\times\) Ueq for methyl hydrogen atoms). Because a number of terminal C atoms of tert-butyl groups and terminal F atoms of CF\(_3\) groups are not well resolved, thermal motion of the terminal C and F atoms are restrained by SIMU. DFIX restraints were also used for reasonable bond distances of tert-butyl and CF\(_3\) groups. Totally 136 restraints have been applied in the structural refinement of 1, and 78 for 2, 487 for 3.
**Figure S1.** $^1$H NMR spectrum of complex 1 at room temperature in CD$_3$CN. 2.25 (H$_2$O), 1.94 (solvent) and 1.36 ppm (CMe$_3$).
Figure S2. (a) ESI-MS spectra of complex 1 at room temperature in CH$_3$OH; (b) MS pattern observed at 2518.1; (c) Simulated ESI-MS pattern for [Ag$_{14}$(C≡CBu$'$)$_{12}$Cl]$^+$. 