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Supplementary information for

## Tethered cationic alkaline earth - olefin complexes

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Figure S1. <sup>1</sup>H NMR spectrum (400.13 MHz) of  $\{RO^F\}H$  at 298 K in benzene- $d_6$ .



Figure S2. <sup>1</sup>H NMR spectrum (400.13 MHz) of  $[{\mu^2-RO^F}CaN(SiMe_2H)_2]_2$  (1) at 298 K in C<sub>6</sub>D<sub>6</sub>.



Figure S3. <sup>19</sup>F NMR spectrum (376.49 MHz) of  $[{\mu^2-RO^F}CaN(SiMe_2H)_2]_2$  (1) at 298 K in C<sub>6</sub>D<sub>6</sub>.



Figure S4. <sup>1</sup>H NMR spectrum (400.13 MHz) of  $[{\mu^2-RO^F}SrN(SiMe_2H)_2]_2$  (2) at 298 K in C<sub>6</sub>D<sub>6</sub>.



-76.3 -76.5 -76.7 -76.9 -77.1 -77.3 -77.5 -77.7 -77.9 -78.1 -78.3 -78.5 -78.7 -78.9 -79.1 -79.3 -79.5 -79.7 -79.9 **Figure S5.** <sup>19</sup>F NMR spectrum (376.49 MHz) of  $[\{\mu^2 - RO^F\}SrN(SiMe_2H)_2]_2$  (2) at 298 K in C<sub>6</sub>D<sub>6</sub>.



**Figure S6**. <sup>1</sup>H NMR spectrum (400.13 MHz) of  $[(\{\mu^2 - RO^F\}Ca^{\bullet}(Et_2O)_2)_2]^{2+}.2[H_2N\{B(C_6F_5)_3\}_2]^{-}$  (**3a**) at 298 K in dichloromethane- $d_2$ .





**Figure S8**. <sup>1</sup>H NMR spectrum (400.13 MHz) of  $[({\mu^2-RO^F}Sr \cdot (Et_2O)_2)_2]^{2+} \cdot 2[H_2N \{B(C_6F_5)_3\}_2]^{-}$  (4a) at 298 K in dichloromethane- $d_2$ .



-75 -80 -85 -90 -95 -100 -105 -110 -115 -120 -125 -130 -135 -140 -145 -150 -155 -160 -165 -170 **Figure S9**. <sup>19</sup>F NMR spectrum (376.47 MHz) of  $[(\{\mu^2-RO^F\}Sr^{\bullet}(Et_2O)_2)_2]^{2+}.2[H_2N\{B(C_6F_5)_3\}_2]^{-}$  (4a) at 298 K in dichloromethane- $d_2$ .



**Figure S10.** Molecular structures of the cation in  $[({\mu^2-RO^F}Ca \cdot (H_2O))_2]^{2+}.2[H_2N{B(C_6F_5)_3}_2]^-$ , obtained by recrystallisation of **3a**. The anions and hydrogen atoms have been omitted for clarity purposes. Metric parameters are not given due to the poor quality of the crystal structure.



**Figure S11.** Molecular structures of the cation in  $[({\mu^2-RO^F}Ca^{\bullet}(Et_2O))_2]^{2+}.2[H_2N{B(C_6F_5)_3}_2]^{-}$ , obtained by recrystallisation of **3a**. The anions and hydrogen atoms have been omitted for clarity purposes. Metric parameters are not given due to the poor quality of the crystal structure.