Supporting Information

Substituent-tuned structure and luminescence sensitizing towards

$\text{Al}^{3+}$ based on phenoxy bridged dinuclear Eu$^{\text{III}}$ complexes

Jing-Jing Zhou, Xue-Qin Song,* Yuan-Ang Liu and Xiao-Long Wang

Table 1  Continuous Shape Measures calculation for EuL and EuL'

Nine-coordinate complexes, %fullout option

| Structure     | EP-9     | OPY-9    | HBPY-9   | JTC-9    | JCCU-9   | CCU-9     | JCSAPR-9 | CSAPR-9 | JTCTPR-9 | TCTPR-9 | JTDIC-9 | HH-9 | MFF-9 |
|---------------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|------|-------|
| ABOXIY        | 18.302,  | 23.921,  | 25.684,  | 15.971,  | 17.063,  | 20.752,   | 16.350,  | 19.155,  | 12.068,  | 22.186,  | 18.705  |      |       |
| ACACPT        | 19.197,  | 22.683,  | 27.127,  | 15.203,  | 17.881,  | 21.660,   | 16.118,  | 18.897,  | 12.066,  | 21.187,  | 18.588  |      |       |

Eight-coordinate complexes, %fullout option
OP-8     1 D8h   Octagon
HPY-8     2 C7v   Heptagonal pyramid
HBPY-8    3 D6h   Hexagonal bipyramid
CU-8      4 Oh    Cube
SAPR-8    5 D4d   Square antiprism
TDD-8     6 D2d   Triangular dodecahedron
JGBF-8    7 D2d   Johnson gyrobifastigium J26
JETBPY-8  8 D3h   Johnson elongated triangular bipyramid J14
JBTOR-8   9 C2v   Biaugmented trigonal prism J50
BTPR-8    10 C2v  Biaugmented trigonal prism
JSD-8     11 D2d  Snub diphenoid J84
TT-8      12 Td   Triakis tetrahedron
ETBPY-8   13 D3h  Elongated trigonal bipyramid

| Structure | OP-8     | HPY-8     | HBPY-8    | CU-8     | SAPR-8   | TDD-8    |
|-----------|----------|-----------|-----------|----------|----------|----------|
| JGBF-8    |          | ABOXIY    | 24.980,   | 14.518,  | 18.231,  | 14.784,  | 5.258,   | 7.570,   | 19.181,  | 21.422   |
| ETBPY-8   |          | ACACPT    | 25.112,   | 14.259,  | 19.528,  | 15.596,  | 7.034,   | 7.781,   | 18.750,  | 22.964   |

Figure S1. Coordination polyhedron of Eu$^{III}$ ions in EuL.
Figure S2. Coordination polyhedron of Eu$^{III}$ ions in EuL$'$.  

Figure S3. Job’s plot between EuL and Al$^{3+}$.  

Figure S4. ESI-MS spectra of EuL-Al.
Figure S5 LOD curves of EuL towards Al$^{3+}$. 