Supporting Information

Crystal structure and near-infrared luminescence properties of novel binuclear erbium and erbium-ytterbium cocrystalline complexes

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Figure S1 X-ray energy dispersive spectrum from the complex Er\textsubscript{1.4}Yb\textsubscript{0.6}(Ba\textsubscript{6}(Phen\textsubscript{2}.)

Table S1 EDS analysis results for the complex Er\textsubscript{1.4}Yb\textsubscript{0.6}(Ba\textsubscript{6}(Phen\textsubscript{2}.)

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight%</th>
<th>Atomic%</th>
</tr>
</thead>
<tbody>
<tr>
<td>C K</td>
<td>17.16</td>
<td>62.47</td>
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<tr>
<td>O K</td>
<td>6.50</td>
<td>17.77</td>
</tr>
<tr>
<td>Er M</td>
<td>53.47</td>
<td>13.98</td>
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<tr>
<td>Yb M</td>
<td>22.86</td>
<td>5.78</td>
</tr>
<tr>
<td>Totals</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

Spectrum processing: No peaks omitted; Processing option: All elements analyzed (Normalised); Number of iterations = 1.
Figure S2 Calculated isotope patterns of \([\text{Ln}_2(\text{Ba})_3(\text{Phen})_2]^+\). (a) is calculated isotope patterns of \([\text{Er}_2(\text{Ba})_3(\text{Phen})_2]^+\); (b) is calculated isotope patterns of \([\text{Yb}_2(\text{Ba})_3(\text{Phen})_2]^+\); (c) is calculated isotope patterns of \([\text{ErYb}(\text{Ba})_3(\text{Phen})_2]^+\).

Figure S3 NIR PL spectra of bulk microcrystalline powders of complexes \(\text{Er}_{2-x}\text{Yb}_x(\text{Ba})_6(\text{Phen})_2\) (\(x=0, 0.6, 1.0, 1.4, 2.0\)) around 1535 nm excited at 320 nm at room temperature.
Figure S4 Schematic drawing for the sensitization process of Er$^{3+}$ and Yb$^{3+}$.