Supporting	Information
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 Table S1.
 Summary of Crystal Data and Structural Refinement Parameters

empiral engineCinglay Right Cinglay Right Cinglay RightCinglay RightCinglay RightCinglay RightCinglay RightredCinglay RightCinglay RightCinglay RightCinglay RightCinglay RightCinglay RightCinglay RightCinglay RightredCinglay Right<	compound	1	2	3	4	6
inmale weight290.37290.37290.37290.37290.37crystal systemTrelinicTrelinicTrelinicTrelinicTrelinicTrelinicspace group1.41.41.41.41.41.41.4a (Å)1.43203001.43030101.4303001.4303001.4303001.430300a (Å)1.4301001.43431001.4301001.4301001.4301001.4301001.430100a (Å)1.5302001.5307001.5301001.500101.500101.50010a (Å)7.3401007.3303007.3704007.3524007.5709(100)b (Å)7.3401007.3303007.3501007.3524007.5709(100)b (Å)7.3401007.3303007.3501007.3524007.5709(100)b (Å)7.3401007.3303007.3501007.3524007.5709(100)b (Å)7.3401007.351407.3501007.5709(100)7.5709(100)b (Å)7.3401007.351407.351407.5709(100)7.5709(100)b (Å)7.3401007.351407.5301007.5709(100)7.5709(100)b (Å)7.3401007.351407.5301007.5709(100)7.5709(100)b (Å)7.5301007.5301007.5709(100)7.5709(100)7.5709(100)b (Å)7.5301007.5301007.5709(100)7.5709(100)7.5709(100)b (Å)7.5301007.5709(100)7.5709(100)7.5709(100)7.5709(100)b (Å)7.5301007.570	empirical formula	$C_{132}H_{94}N_{18}Nd_2O_{17}\\$	$C_{132}H_{94}N_{18}Sm_2O_{17}$	$C_{132}H_{94}N_{18}Eu_2O_{17}$	$C_{132}H_{94}N_{18}Gd_2O_{17}\\$	$C_{132}H_{94}N_{18}Dy_2O_{17}\\$
eyslatisytionFielmFielmFielmFielmFielmFielmFielmspace groupP1P1P1P1P1P1P1a (Å)13c32(10)13c32(10)13c32(10)13c32(10)13c32(10)13c32(10)13c32(10)b (Å)13c32(10)13c32(10)13c32(10)13c32(10)13c32(10)13c32(10)12c32(10)a (Å)73s70(10)73s3(10)73s70(10	formula weight	2492.75	2504.99	2508.20	2518.77	2529.27
$space groupP-1P-1P-1P-1P-1P-1a(\Lambda)1.632(10)1.632(10)1.636(3)1.616(3)1.673(3)1.673(3)b(\Lambda)1.630(10)1.630(2)1.630(2)1.630(2)1.630(2)1.6222(3)a(\Lambda)1.630(2)7.830(2)7.870(2)7.870(2)7.870(2)7.870(2)\beta(\Lambda)7.360(1)7.353(2)7.870(2)7.870(2)7.870(2)7.970(2)\gamma(\Lambda)2.630(2)6.515(2)6.515(2)6.515(2)6.513(2)7.970(2)\gamma(\Lambda)1.830(2)8.810(2)2.810(2)2.810(2)2.810(2)2.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(2)1.810(2)1.810(2)1.810(2)1.810(2)\gamma(\Lambda)1.810(1)1.810(1)1.810(1)1.810(1)$	crystal system	Triclinic	Triclinic	Triclinic	Triclinic	Triclinic
a (Å)I3.632(19)I3.632(18)I3.619(3)I3.619(3)I3.739(8)b (Å)I4.401(0)I3.983(19)I4.392(3)I3.916(3)I4.358(3)c (Å)I5.302(12)I5.317(3)I5.317(3)I5.212(3)a (Å)73.730(10)73.35(3)73.730(3)73.7352(4)73.559(7)β (*)73.350(10)I5.518(2)65.55(4)I5.13(3)I5.171(1)γ (*)I3.6114.11IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.530(10)14.9114.1IIγ (*)I3.830(10)14.9114.1IIγ (*)I3.830(10)14.9114.1IIγ (*)I3.83010.9114.1IIγ (*)I3.83010.9114.1IIγ (*)I3.83016.9114.91IIγ (*)I3.9110.9110.9110.91Iγ (*)I3.9110.9110.9110.91Iγ (*)I3.9110.9110.9110.91Iγ (*)I3.9110.9110.9110.91I <td>space group</td> <td>P-1</td> <td>P-1</td> <td>P-1</td> <td>P-1</td> <td>P-1</td>	space group	P-1	P-1	P-1	P-1	P-1
b(Å)14.90(0)14.938(19)14.392(3)14.39(3)14.392(3)14	<i>a</i> (Å)	13.6238(10)	13.6332(18)	13.659(3)	13.616(3)	13.6739(8)
c (Å)16.3902(12)16.347(2)16.317(3)16.304(3)16.2252(9)α (°)78.7970(10)78.969(3)78.947(3)78.978(4)79.0640(10)β (°)77.3460(10)77.355(3)77.370(4)77.352(4)77.570(10)β (°)65.5370(10)65.518(2)65.555(4)65.513(3)65.7110(10)γ (Å)838.6(4)2830.6(10)2830.8(10)2810.6(1)2817.2(3) $P_{cakl}(grem3)$ 14531463146514801487µ (mm ¹)0.9831051.1751.2441394µ (mm ¹)0.9831051.1751.2441393reflns collected14362143614170141841433Reflns unique94890098698679667garameters766766772766761S on F ² 0.9510.6961.1200.0959.01350.017.01.050 R_1 wR2 (1) Had)0.589.01370.196.014950.989.013610.599.013610.696.0130 $A p_{max} (mink)^{2}$ 0.549.01370.918 and -0.590.894.01370.649.01.015 $A p_{max} (mink)^{2}$ 0.549.01370.918 and -0.590.899.013610.699.013610.699.01361 $A (u) = 12^{12} u unik)^{2}$ 0.129.02030.699.013610.6169.0130.6149.010.6149.01 $A (u) = 12^{12} u unik)^{2}$ 0.129.02030.838.013610.894.013610.694.012.01 $A (u) = 12^{12} u unik)^{2}$ 0.129.012.010.129.012.011.6149.010.129.012	<i>b</i> (Å)	14.4019(10)	14.3983(19)	14.392(3)	14.396(3)	14.3581(8)
α (°)78.970(10)78.969(3)78.974(3)78.978(4)79.0640(1)β (°)77.340(1)77.335(3)77.370(4)77.352(4)77.570(1)γ (°)65.5370(10)65.518(2)65.555(4)65.513(3)65.711(1)V (°)283.6(4)283.0(10)283.8(10)281.9(1)281.7(2)Z11111ρ _{chol} (grcm ⁻¹)1.4531.651.4651.4801.87β (0)12581.621.751.2441.394F(00)12581.621.641.911.4141.338R(mm ⁻¹)0.931.621.641.921.631.63F(1)1.4521.641.641.921.631.63F(1)1.4521.641.641.431.431.63R(mm)1.931.641.641.641.641.64F(1)1.4521.641.641.641.641.64F(1)0.940.641.641.641.641.64R(m)0.940.641.661.641.641.64R(m)0.910.910.910.930.910.910.91R(m)0.910.910.910.910.910.910.910.91R(m)0.910.910.910.910.910.910.910.910.91R(m)0.910.910.910.910.910.910.910.910.91 <td><i>c</i> (Å)</td> <td>16.3902(12)</td> <td>16.347(2)</td> <td>16.317(3)</td> <td>16.304(3)</td> <td>16.2252(9)</td>	<i>c</i> (Å)	16.3902(12)	16.347(2)	16.317(3)	16.304(3)	16.2252(9)
β (°)77.3460(10)77.335(3)77.370(4)77.352(4)77.5790(10)γ (°)65.5370(10)65.518(2)65.555(4)65.513(3)65.7110(10)V (Å ³)2836.6(4)2831.0(6)2830.8(10)2819.6(10)2817.2(3)Z111111ρ _{alcd} (grm ³)1.4531.4631.4651.4801.485µ (mm ⁻¹)0.9831.1051.1751.2441.394F(000)12581264127012701270reflns collected14362143614170141841433Reflns unique9489900988698699869garameters76672667266S on F ² 0.9510.6070.05950.047, 0.1050A pmax endmin(A ⁴)1.138 and -0.700.913 and -1.9320.929, 0.13530.047, 0.1050A pmax endmin(A ⁴)1.138 and -0.770.913 and -1.9320.823 and -0.7811.649 and -0.910A pmax endmin(A ⁴)1.138 and -0.770.132 hyAls fitz Ori1.324 Alge 1.1551.649 and -0.911A pmax endmin(A ⁴)1.138 and -0.770.132 hyAls fitz Ori1.691 hyAls fitz Ori1.649 and -0.911A pmax endmin(A ⁴)1.138 and -0.770.132 hyAls fitz Ori1.324 Alge 1.1551.649 hyAls fitz Ori1.649 hyAls fitz OriA pmax endmin(A ⁴)1.518 hyAls fitz Ori1.528 hyAls fitz Ori1.518 hyAls fitz Ori1.649 hyAls fitz Ori1.649 hyAls fitz OriA pmax endmin(A ⁴)1	α (°)	78.7970(10)	78.969(3)	78.947(3)	78.978(4)	79.0640(10)
γ (°)65.530(10)65.518(2)65.515(4)65.513(3)65.711(10) $V(Å^3)$ 2836.6(1)2831.0(2)2830.8(10)2819.6(10)2817.2(3) Z 111111 ρ_{edel} (grm3)1.4531.4631.4651.4801.485 μ (mm1)0.9831.051.751.2441.394F(00)1.2581262126412701270reflus callected1.3621.463141701.41841.433Reflus unique9489009869870.624 $Pamerker7640.6470.6470.5970.624gamerker0.6240.6470.6490.5910.647R_{in}0.9510.699.012600.698.018540.959.00350.6147.0150P_{in} R_2 (Jack)0.599.01370.169.012600.059.01200.624.01155A_{in} R_2 (Jack)0.138.04.0700.913.01.0120.524.01155A_{in} R_2 (Jack)0.138.04.0700.913.01.0120.524.01155A_{in} R_2 (Jack)0.139.01.0200.913.01.010.644.01.011A_{in} R_2 (Jack)0.139.01.0200.913.01.010.644.01.011A_{in} R_2 (Jack)0.139.01.010.129.01.010.614.01.01A_{in} R_2 (Jack)0.139.01.010.139.01.010.149.01.01A_{in} R_2 (Jack)0.139.01.010.149.01.010.149.01.01A_{in} R_2 (Jack)0.139.01.010.149.01.010.149.01.01A_{in} R_2 (Jack)$	β (°)	77.3460(10)	77.335(3)	77.370(4)	77.352(4)	77.5790(10)
V (Å)2836.6(4)2831.0(6)2830.8(10)2819.6(10)2817.2(3)Z111111 ρ_{eadc} (grm-3)1.4531.4631.4651.4801.485 μ (mm-1)0.9831.051.2641.2701.270reflns collected1362126212641.41841.433Reflns unique9948900988698679869R _(m) 0.02940.06440.06070.05950.263parameters766727676S on F20.9510.967.001.0830.937.000.417.01050R _{(m})0.0589.0.13780.1060.014950.898.0.18540.0599.0.09350.417.0.1050Apmax endme(x ⁴)1.138 and-0.709.118.01-0.1200.823 and-0.701.649 and-0.115Apmax endme(x ⁴)1.138 and-0.701.139.012020.813.01-0.1200.604 And-0.115Apmax endme(x ⁴)1.138.01-0.701.138.01-0.101.129.020280.109.01.1000.604 And-0.115Apmax endme(x ⁴)1.138.01-0.701.139.01.201.649.01-0.1151.649.01-0.1151.649.01-0.115Apmax endme(x ⁴)1.138.01-0.701.138.01-0.701.139.01.101.649.01-0.1151.649.01-0.115Apmax endme(x ⁴)1.138.01-0.701.139.01.101.139.01.101.610.1151.649.01-0.115Apmax endme(x ⁴)1.139.011.139.01.101.139.01.111.649.01-0.1151.649.01-0.115Apmax endme(x ⁴)1.610.111.139.011.	γ (°)	65.5370(10)	65.518(2)	65.555(4)	65.513(3)	65.7110(10)
Z11111ρ _{clacl} (grum ³)1.4531.4631.4651.4801.485µ(mm ¹)0.9831.0151.1751.2441.394F(00)12512621.641.2701.270refns collected1.4321.4361.41701.41841.4338Refns unique9489009.869.679.699.69R _{(mi} 0.02940.06440.6070.05950.263Parameters7676727676S on F ² 0.9510.690,012690.898,018540.599,00350.417,01501R ₁ wR ₂ (glad)0.589,013780.160,014900.129,02080.109,012080.594,0135Ap _{maxedmin} (A ³ 1.38 and-0.790.138 and-0.690.31 and-0.820.164,014910.644,0149Ap _{maxedmin} (A ³ 1.38 and-0.790.138,01490.121,0149,01490.644,01490.644,0149Ap _{maxedmin} (A ³ 1.391,01491.516,01490.121,0149,01491.640,01491.640,0149Ap _{maxedmin} (A ³ 1.514,01491.516,0141.516,0141.516,0141.516,0141.516,014Ap _{maxedmin} (A ³ 1.514,01491.516,0141.516,0141.516,0141.516,0141.516,014Ap _{maxedmin} (A ³ 1.514,01491.516,0141.516,0141.516,0141.516,0141.516,014Ap _{maxedmin} (A ³ 1.514,01491.516,0141.516,0141.516,0141.516,0141.516,014Ap _{maxedmin} (A ³ 1.514,014	$V(Å^3)$	2836.6(4)	2831.0(6)	2830.8(10)	2819.6(10)	2817.2(3)
ρ _{eaded} (grem³)1.4531.4631.4651.4801.485μ (mm¹)0.9831.1051.1751.2441.394F(000)12581262126412701270reflns collected1.43621.436141701418414338Reflns unique9489900988698679869 $R_{(mi)}$ 0.2940.60440.6070.5950.263parameters766766722766S on F²0.9510.9670.898,0.18540.93700.417,0.1050 R_1 , wR ₂ [1>2α(j)0.478,0.12710.609,0.12690.898,0.18540.509,0.03530.417,0.1050 R_1 , wR ₂ (al data)0.558,0.13780.1106,0.14950.913 and -1.0320.109,0.12030.424,0.1155 Δp_{max} and min(ų)1.38 and -0.7670.138 and -0.6700.913 and -1.9200.823 and -0.7810.469 and -0.910 Δp_{max} and min(Å*Å)1.38 and -0.7670.138 and -0.6700.132 and -0.7910.469 and -0.910 Δp_{max} and min(Å*Å)1.38 and -0.7670.132 and -0.7910.469 and -0.910 Γ 189111 Γ 1.38 and -0.7670.132 and -0.7610.469 and -0.9101.469 and -0.910 Γ 1.38 and -0.7670.132 and -0.7611.492 and -0.9101.492 and -0.910 Γ 1.393 and -0.7671.383 and -0.7671.392 and -0.7811.492 and -0.910 Γ 1.394 and -0.7671.392 and -0.7811.492 and -0.910 <th< td=""><td>Ζ</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></th<>	Ζ	1	1	1	1	1
μ (mm ⁻¹)0.9831.1051.1751.2441.394F(000)12581262126412701270reflns collected1436214346141701418414338Reflns unique94899009886986798679869R(mi)0.02940.06440.06070.59500.263parameters766766727676S on F ² 0.9510.9671.0830.9370.1037R, wR ₂ [I>2σ(1)0.478, 0.12710.609, 0.12690.898, 0.15540.599, 0.09350.417, 0.1050R, wR ₂ (al data)0.589, 0.13780.1160, 0.14950.1129, 0.20280.1096, 0.12090.594, 0.1155 Δp_{max} and mine Å ³ 1.138 and -0.7670.918 and -0.6700.931 and -1.9320.523 and -0.7871.649 and -0.910 Δp_{max} and mine Å ³ 1.38 and -0.7670.132 hol, 1.8E2 Or0.531 and -0.7800.532 and -0.7801.649 and -0.910formula weight2.534.132.538.792.53.551.58.3491.403.791.403.71grace groupP.1P.1P.1P.1P.1P.1P.1P.1P.1a (Å)1.3670(18)1.3696(15)1.3690(17)8.566(11)8.5902(5)1.3902(5)b (Å)1.43.413(18)1.4565(17)1.43.457(18)1.3992(18)1.3902(18)1.3902(18)c (Å)1.6202(2)1.6202(17)1.6203(2)1.6484(18)1.4020(9)1.3902(18)c (Å)1.5912(1)1.5912(ρ_{calcd} (g·cm ⁻³)	1.453	1.463	1.465	1.480	1.485
F(000)12581262126412701270reflns collected1436214346141701418414338Reflns unique99489900886098679869 <i>R</i> (mi)0.02940.06440.06070.05950.0263parameters766766722766S on F ² 0.9510.9697.012690.0898.013540.9370.01200.0417.01050 <i>R</i> ₁ , wR ₂ (ald ata)0.0589.013780.1106.0.14950.1129.0.20280.1096.0.11200.0524.0.1155 <i>Δ</i> _{pmaxad min} eÅ ³ 1.138 and -0.769151640.911 <i>P</i> 89166.044.0250.01416.044.051formula weight213.13213.879213.134253.57138.49140.51space groupFiclinicTriclinicTriclinicTriclinic1.049.0120 <i>q</i> (Å)14.3018114.365(17)14.367(18)14.392(15)1.392(15) <i>q</i> (Å)14.313(18)14.356(17)14.367(18)14.684(18)14.902(19) <i>q</i> (Å)9.1202.0279.075(2)79.042(2)73.559(2)73.710(10) <i>q</i> (°)77.3027.666(2)78.86(2)56.312(2)52.571(2)57.971(10)	μ (mm ⁻¹)	0.983	1.105	1.175	1.244	1.394
refns collected1436214346141701418414338Refns unique9489900988698679867R(m)0.02940.06440.06070.05950.0263parameters7667667276S on F ² 0.9510.9691.0830.9370.017, 0.1050R, wR2 (l-2α)(l)0.478, 0.1270.0699, 0.12690.129, 0.2030.0599, 0.0350.0417, 0.1050Apmax and mic/sÅ ³ 0.138 and 0.700.918 and 0.6700.129, 0.2030.1096, 0.11200.0524, 0.1155Apmax and mic/sÅ ³ 1.138 and 0.700.918 and 0.6700.931 and 1.9320.823 and 0.7811.649 and 0.9101Apmax and mic/sÅ ⁴ 1.138 and 0.70891616.91021.649 and 0.9101formula weight0.132 holyn high b20 mic1.321 holyn high b20 mic<	<i>F</i> (000)	1258	1262	1264	1270	1270
Refins unique99489900988698679869Refins unique0.02940.06440.06070.05950.263Parameters76676772076Son F²0.9510.96701.0830.93700.371R ₁ , wR ₂ [>>2010.0478, 0.12700.6099, 0.12690.898, 0.1830.939, 0.0350.417, 0.1050R ₁ , wR ₂ [>>2010.3438, 0.13780.106, 0.1490.129, 0.20280.109, 0.01300.524, 0.1150R ₁ , wR ₂ (al data)0.358, 0.13780.116, 0.1490.129, 0.20280.109, 0.11200.524, 0.1150R ₁ , wR ₂ (al data)0.358, 0.13780.116, 0.1490.129, 0.20280.109, 0.11200.524, 0.1150R ₁ , wR ₂ (al data)0.138, 0.13780.116, 0.1490.1129, 0.20280.109, 0.11200.524, 0.1150R ₁ , wR ₂ (al data)0.138, 0.1370.1129, 0.20280.109, 0.11200.524, 0.11500.524, 0.1150R ₁ , wR ₂ (al data)0.138, 0.1370.1129, 0.20280.109, 0.11200.524, 0.11500.524, 0.1150R ₁ , wR ₂ (al data)0.138, 0.1270.128, 0.1280.128, 0.1280.128, 0.1280.128, 0.128R ₁ , wR ₂ (al data)0.138, 0.1280.128, 0.1280.128, 0.1280.128, 0.1280.128, 0.128R ₁ , wR ₂ (al data)0.138, 0.1280.128, 0.1280.128, 0.1280.128, 0.1280.128, 0.128R ₁ , wR ₂ (al data)0.138, 0.1280.138, 0.1280.138, 0.1280.138, 0.1280.138, 0.128R ₁ , wR ₂ (al data)0.138, 0.128	reflns collected	14362	14346	14170	14184	14338
R(m)0.02940.06440.06070.05950.0263parameters766766772766S on F20.9510.9671.0830.9371.037R_1, wR_2 [1>2α)0.0478, 0.1270.0699, 0.12690.898, 0.18540.599, 0.0350.0417, 0.1050R_1, wR_2 (al dat)0.589, 0.13780.1106, 0.14950.1129, 0.20280.1096, 0.11200.524, 0.1150Δρ _{max and mic} Å. ² 1.138 and -0.7690.913 and -0.500.913 and -0.500.823 and -0.501.649 and -0.501Δρ _{max and mic} Å. ² 1.338 and -0.769915164 and -0.501formircal formulC1 ₂₃ H ₄ N ₁₈ Ho ₂ O ₁ C1 ₂₃ H ₄ N ₁₈ Ho ₂ O ₁ C1 ₂₃ H ₄ N ₁₈ Ho ₂ O ₁ C1 ₂₃ H ₄ N ₁₈ Ho ₂ O ₁ C1 ₂₄ H ₄ G ₄ D ₄ O ₄ C40H ₄ C ₂ N ₄ O ₄ O ₄ formula weightS13.13S13.73S15.35I.383.49140.351C140H ₄ C ₂ N ₄ O ₄ O ₄ forge groupP1P1P1P1P1P1a (Å)I.3670(18)I.3696(15)I.3697(17)S165(11)S1902(5)b (Å)I.4313(18)I.4365(17)I.4367(18)I.1392(15)I.3902(15)b (Å)I.43413(18)I.4365(17)I.4303(18)I.4620(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6203(2)I.6203(2)I.6303(2)I.6303(2)I.6202(1)b (Å)I.4202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)I.6202(2)<	Reflns unique	9948	9900	9886	9867	9869
parameters766766767766S on F20.9510.9671.0830.9371.037 R_1 , wR_2 [l>2c(1)0.478, 0.12700.6699, 0.12690.0898, 0.18540.0599, 0.09350.417, 0.1050 R_1 , wR_2 (all dat)0.589, 0.13780.1106, 0.14950.1129, 0.20280.1096, 0.11200.524, 0.1150 $\Delta \rho_{max and min}(e^{A^2})1.138 and -0.7670.918 and -0.6700.931 and -1.9320.823 and -0.7891.649 and -0.910\Delta \rho_{max and min}(e^{A^2})1.138 and -0.76789151.649 and -0.910\Delta \rho_{max and min}(e^{A^2})1.328 and -0.7876.132 H_94 N_18 V2 06.06 H_40 C2 N_0041.649 And -0.910\Delta \rho_{max and min}(e^{A^2})1.328 and -0.7876.132 H_94 N_18 V2 06.06 H_40 C2 N_0041.640 And -0.910\Delta rempirical formulC_{132} H_94 N_18 V2 05.35.781.383 Ad91.403 C1 And -0.910formula weight2.534.132.538.792.55.351.383.491.403.51formula weight7.16 lineTriclinicTriclinicTriclinicTriclinicspace groupP.1N.11.602(S11.602(S1)1.392(S1)1.3902(S1)a (Å)1.36.90(18)1.3696(S1)1.3697(S1)1.3992(S1)1.3902(S1)a (Å)1.6202(2)1.6202(S1)1.6203(2)1.1392(S1)1.3902(S1)a (\r)1.5202(1)1.6203(2)1.6484(B1)1.4020(P1)a (\r)1.5102(1)1.6202(1)1.6202(1)1.5102(1)1.5102(1)a (\r)$	R _(int)	0.0294	0.0644	0.0607	0.0595	0.0263
S on F^2 0.9510.9671.0830.9371.037 R_1 , wR_2 [J> σ (I)]0.0478, 0.12710.609, 0.12690.0898, 0.18540.0599, 0.03530.0417, 0.1050 R_1 , wR_2 (all dat)0.5589, 0.13780.1106, 0.14950.1129, 0.20280.1096, 0.11200.5224, 0.1155 $\Delta \rho_{max and min}(e, Å')$ 1.138 and -0.7670.918 and -0.6700.931 and -1.9320.823 and -0.7871.649 and -0.910 $\Delta \rho_{max and min}(e, Å')$ 1.38 and -0.767891516empirical formul $C_{132}H_{94}N_{18}H_{2}O_{17}$ $C_{132}H_{94}N_{18}Y_{2}O_{17}$ $C_{60}H_{40}G_{2}N_{6}O_{14}$ $C_{60}H_{40}E_{2}N_{6}O_{14}$ formula weight2534.132538.792550.351383.491403.51crystal systemTriclinicTriclinicTriclinicTriclinic16space groupP-1P-1P-1P-1P-1P-1 a (Å)1.3670(18)13.6968(15)13.6997(17)8.656(11)13.902(5) b (Å)14.313(18)14.3565(17)14.3367(18)14.392(15)14.3902(15) a (Å)16.2022.116.2082(17)16.203(21)14.6846(18)14.6020(9) a (Å)9.152(2)79.075(2)79.042(2)69.373(2)69.5730(10) a (%)77.03(2)77.696(2)78.26(2)73.559(2)73.7410(10) a (%)57.06(2)56.66(2)65.61(2)80.712(2)82.702(10)	parameters	766	766	766	772	766
R_1 , wR_2 [I>2σ(I)]0.0478, 0.12710.0699, 0.12690.0898, 0.18540.0599, 0.09350.0417, 0.1050 R_1 , wR_2 (all data)0.0589, 0.13780.1106, 0.14950.1129, 0.20280.1096, 0.11200.0524, 0.1155 $\Delta \rho_{max and min}(e.Å^{-3})1.138 and -0.7670.918 and -0.6700.931 and -1.9320.823 and -0.7871.649 and -0.910\Delta \rho_{max and min}(e.Å^{-3})1.138 and -0.7670.918 and -0.6700.931 and -1.9320.823 and -0.7871.649 and -0.910P_1R91516empirical formulaC_{132}H_{94}N_{18}Ho_2O_17C_{132}H_{94}N_{18}Fr_2O_17C_{132}H_{94}N_{18}Yb_2O_{17}C_{60}H_{40}Gd_2N_6O_{14}C_{60}H_{40}Er_2N_6O_{14}formula weight2534.132538.792550.351383.491403.51crystal systemTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1a (Å)13.6709(18)13.6968(15)13.6997(17)8.6566(11)8.5902(5)b (Å)14.3413(18)14.3565(17)14.3367(18)11.3992(15)11.3902(7)c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9)a (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10)\beta (°)70.302(2)71.696(2)76.82(2)82.71(2)82.790(10)\gamma (°)65.706(2)65.66(2)65.631(2)82.71(2)82.791(2)$	S on F ²	0.951	0.967	1.083	0.937	1.037
R_1 , wR2 (all data)0.0589, 0.13780.1106, 0.14950.1129, 0.20280.1096, 0.11200.0524, 0.1155 $\Delta \rho_{max and min}(e.Å^{-3})$ 1.138 and -0.7670.918 and -0.6700.931 and -1.9320.823 and -0.7871.649 and -0.910 T R 9 I I I empirical formula $C_{132}H_{94}N_{18}Ho_2O_{17}$ $C_{132}H_{94}N_{18}Yb_2O_{17}$ $C_{60}H_{40}Gd_2N_6O_{14}$ $C_{60}H_{40}Er_2N_6O_{14}$ formula weight2534.132538.792550.351383.491403.51crystal systemTriclinicTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1 a (Å)13.6709(18)13.6968(15)13.6997(17)8.6566(11)8.5902(5) b (Å)14.3413(18)14.3555(17)14.3367(18)11.3992(15)11.3902(7) c (Å)19.29(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)76.66(2)78.86(2)82.71(2)82.790(10)	R_1 , wR ₂ [I>2 σ (I)]	0.0478, 0.1271	0.0699, 0.1269	0.0898, 0.1854	0.0599, 0.0935	0.0417, 0.1050
$\Delta \rho_{max and min}(e.Å-3)$ 1.138 and -0.7670.918 and -0.6700.931 and -1.9320.823 and -0.7871.649 and -0.910 7 8 9 15 16 empirical formula $C_{132}H_{94}N_{18}Ho_2O_1$ $C_{132}H_{94}N_{18}Ho_2O_{17}$ $C_{60}H_{40}Gd_2N_6O_{14}$ $C_{60}H_{40}Er_2N_6O_{14}$ formula weight2534.132538.79 2550.35 1383.49 1403.51 crystal systemTriclinicTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1 a (Å) $14.3413(18)$ $14.3565(17)$ $14.3367(18)$ $1.3992(15)$ $11.3902(7)$ c (Å)16.202(2) $16.2082(17)$ $16.203(2)$ $14.6846(18)$ $14.6020(9)$ a (°) $7.192(2)$ $7.075(2)$ $7.904(2)$ $69.373(2)$ $69.5730(10)$ β (°) $7.703(2)$ $7.666(2)$ $65.61(2)$ $82.771(2)$ $82.771(2)$ $82.790(10)$	R_1 , wR ₂ (all data)	0.0589, 0.1378	0.1106, 0.1495	0.1129, 0.2028	0.1096, 0.1120	0.0524, 0.1155
789156empirical formula $C_{132}H_{94}\Lambda_{18}H_{2O}\Omega_{1}$ $C_{132}H_{94}\Lambda_{18}H_{2O}\Omega_{1}$ $C_{60}H_{40}G_{2A}G_{0A}\Omega_{1}$ $C_{60}H_{40}G_{2A}G_{0A}\Omega_{1}$ formula weight2534.132538.792550.351383.49140.51crystal systemTriclinicTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1P-1a (Å)1.36709(18)1.3696(15)1.36997(17)8.566(11)8.5902(5)b (Å)1.36709(18)1.3696(15)1.3692(15)1.3692(15)1.3992(15)1.3902(7)b (Å)1.3612(12)1.4363(18)1.4363(18)1.392(15)1.3902(15)1.3902(15)b (Å)1.302(2)1.6202(12)1.6202(12)1.6202(12)1.6202(12)1.6202(12)1.6202(12)b (Å)9.1292(12)9.075(2)9.094(2)1.3592(12)1.37410(10)b (Å)9.1292(12)1.6262(12)1.6262(12)1.5262(12)1.3592(12)1.37410(10)b (Å)9.1062(12)5.666(2)5.631(2)5.71(2)5.7902(12)5.7902(12)	$\Delta \rho_{\text{max and min}}(e.\text{Å}^{-3})$	1.138 and -0.767	0.918 and -0.670	0.931 and -1.932	0.823 and -0.787	1.649 and -0.910
empirical formula $C_{132}H_{94}N_{18}Ho_2O_{17}$ $C_{132}H_{94}N_{18}P_2O_{17}$ $C_{60}H_{40}Gd_2N_6O_{14}$ $C_{60}H_{40}Er_2N_6O_{14}$ formula weight 2534.13 2538.79 2550.35 1383.49 1403.51 crystal systemTriclinicTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1 a (Å) $13.6709(18)$ $13.6968(15)$ $13.6997(17)$ $8.6566(11)$ $8.5902(5)$ b (Å) $14.3413(18)$ $14.3565(17)$ $14.3367(18)$ $11.3992(15)$ $11.3902(7)$ c (Å) $16.202(2)$ $16.2082(17)$ $16.203(2)$ $14.6846(18)$ $14.6020(9)$ a (°) $79.129(2)$ $79.075(2)$ $79.004(2)$ $69.373(2)$ $69.5730(10)$ β (°) $77.703(2)$ $77.696(2)$ $77.826(2)$ $73.559(2)$ $73.7410(10)$ γ (°) $65.706(2)$ $65.66(2)$ $65.631(2)$ $82.771(2)$ $82.790(10)$		7	8	9	15	16
formula weight2534.132538.792550.351383.491403.51crystal systemTriclinicTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1 a (Å)13.6709(18)13.6968(15)13.6997(17)8.6566(11)8.5902(5) b (Å)14.3413(18)14.3565(17)14.3367(18)11.3992(15)11.3902(7) c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9) a (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	empirical formula	$C_{132}H_{94}N_{18}Ho_2O_{17}$	$C_{132}H_{94}N_{18}Er_2O_{17}$	$C_{132}H_{94}N_{18}Yb_2O_{17}\\$	$C_{60}H_{40}Gd_2N_6O_{14}\\$	$C_{60}H_{40}Er_2N_6O_{14}$
crystal systemTriclinicTriclinicTriclinicTriclinicTriclinicspace groupP-1P-1P-1P-1P-1 a (Å)13.6709(18)13.6968(15)13.6997(17)8.6566(11)8.5902(5) b (Å)14.3413(18)14.3565(17)14.3367(18)11.3992(15)11.3902(7) c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9) a (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	formula weight	2534.13	2538.79	2550.35	1383.49	1403.51
space groupP-1P-1P-1P-1P-1 a (Å)13.6709(18)13.6968(15)13.6997(17)8.6566(11)8.5902(5) b (Å)14.3413(18)14.3565(17)14.3367(18)11.3992(15)11.3902(7) c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9) a (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	crystal system	Triclinic	Triclinic	Triclinic	Triclinic	Triclinic
a (Å)13.6709(18)13.6968(15)13.6997(17)8.6566(11)8.5902(5) b (Å)14.3413(18)14.3565(17)14.3367(18)11.3992(15)11.3902(7) c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9) α (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	space group	P-1	P-1	P-1	P-1	P-1
b (Å)14.3413(18)14.3565(17)14.3367(18)11.3992(15)11.3902(7) c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9) α (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	<i>a</i> (Å)	13.6709(18)	13.6968(15)	13.6997(17)	8.6566(11)	8.5902(5)
c (Å)16.202(2)16.2082(17)16.203(2)14.6846(18)14.6020(9) α (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	<i>b</i> (Å)	14.3413(18)	14.3565(17)	14.3367(18)	11.3992(15)	11.3902(7)
α (°)79.129(2)79.075(2)79.004(2)69.373(2)69.5730(10) β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) γ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	<i>c</i> (Å)	16.202(2)	16.2082(17)	16.203(2)	14.6846(18)	14.6020(9)
β (°)77.703(2)77.696(2)77.826(2)73.559(2)73.7410(10) $γ$ (°)65.706(2)65.666(2)65.631(2)82.771(2)82.7900(10)	α (°)	79.129(2)	79.075(2)	79.004(2)	69.373(2)	69.5730(10)
γ (°) 65.706(2) 65.666(2) 65.631(2) 82.771(2) 82.7900(10)	β (°)	77.703(2)	77.696(2)	77.826(2)	73.559(2)	73.7410(10)
	γ (°)	65.706(2)	65.666(2)	65.631(2)	82.771(2)	82.7900(10)
$V(Å^3)$ 2810.6(6) 2818.7(5) 2814.4(6) 1300.2(3) 1284.72(13)	$V(Å^3)$	2810.6(6)	2818.7(5)	2814.4(6)	1300.2(3)	1284.72(13)
Z 1 1 1 1 1	Ζ	1	1	1	1	1
ρ_{calcd} (g·cm ⁻³) 1.494 1.492 1.501 1.767 1.814	ρ_{calcd} (g·cm ⁻³)	1.494	1.492	1.501	1.767	1.814
μ (mm ⁻¹) 1.476 1.557 1.730 2.606 3.323	μ (mm ⁻¹)	1.476	1.557	1.730	2.606	3.323
<i>F</i> (000) 9815 1278 1282 682 690	<i>F</i> (000)	9815	1278	1282	682	690

reflns collected	14070	14341	14110	6380	6507
Reflns unique	9815	9855	9806	4489	4483
$R_{(int)}$	0.0392	0.0343	0.0315	0.0193	0.0197
parameters	772	772	772	376	376
S on F ²	1.003	1.051	0.980	1.087	1.029
R_1 , wR ₂ [I>2 σ (I)]	0.0506, 0.1100	0.0492, 0.1063	0.0412, 0.0893	0.0285, 0.0575	0.0239, 0.0505
R_1 , wR ₂ (all data)	0.0706, 0.1213	0.0704, 0.1222	0.0539, 0.0948	0.0318, 0.0592	0.0267, 0.0518
$\Delta \rho_{\text{max and min}}(e.\text{Å}^{-3})$	1.438 and -0.512	1.514 and -0.895	1.359 and -0.921	0.663 and -0.575	0.527 and -0.545

		8 () 8 ()	
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Nd(1)-O(1)	2.447(4)	Nd(1)-O(5)#1	2.751(3)
Nd(1)-O(2)	2.512(3)	Nd(1)-O(6)#1	2.496(3)
Nd(1)-O(3)	2.509(3)	Nd(1)-N(1)#2	2.614(4)
Nd(1)-O(4)	2.492(3)	O(5)-Nd(1)#1	2.751(3)
Nd(1)-O(5)	2.405(3)	O(6)-Nd(1)#1	2.496(3)
Nd(1)-O(7)	2.504(4)	N(1)-Nd(1)#2	2.614(4)
O(5)-Nd(1)-O(4)	76.04(11)	O(5)-Nd(1)-O(1)	91.21(12)
O(5)-Nd(1)-O(6)#1	115.00(10)	O(1)-Nd(1)-O(4)	87.33(12)
O(4)-Nd(1)-O(6)#1	77.67(12)	O(1)-Nd(1)-O(6)#1	144.93(11)
O(1)-Nd(1)-O(7)	124.79(11)	O(5)-Nd(1)-O(7)	80.91(11)

Table S2. Selected Bond Length (Å) and Angles (°) for1-16

O(6)#1-Nd(1)-O(7)	84.03(12)	O(4)-Nd(1)-O(7)	140.75(11)
O(1)-Nd(1)-O(3)	74.17(12)	O(5)-Nd(1)-O(3)	125.66(11)
O(6)#1-Nd(1)-O(3)	71.62(12)	O(4)-Nd(1)-O(3)	51.78(10)
O(5)-Nd(1)-O(2)	84.84(11)	O(7)-Nd(1)-O(3)	149.53(12)
O(4)-Nd(1)-O(2)	135.14(12)	O(1)-Nd(1)-O(2)	52.47(11)
O(7)-Nd(1)-O(2)	72.36(12)	O(6)#1-Nd(1)-O(2)	146.56(12)
O(5)-Nd(1)-N(1)#2	158.37(12)	O(3)-Nd(1)-O(2)	119.90(11)
O(4)-Nd(1)-N(1)#2	125.11(12)	O(1)-Nd(1)-N(1)#2	85.85(13)
O(7)-Nd(1)-N(1)#2	83.21(13)	O(6)#1-Nd(1)-N(1)#2	77.62(12)
O(2)-Nd(1)-N(1)#2	76.38(12)	O(3)-Nd(1)-N(1)#2	74.05(12)
O(1)-Nd(1)-O(5)#1	152.68(11)	O(5)-Nd(1)-O(5)#1	66.69(12)
O(6)#1-Nd(1)-O(5)#1	48.85(9)	O(4)-Nd(1)-O(5)#1	72.33(11)
O(3)-Nd(1)-O(5)#1	104.98(10)	O(7)-Nd(1)-O(5)#1	69.49(10)
N(1)#2-Nd(1)-O(5)#1	120.64(12)	O(2)-Nd(1)-O(5)#1	135.09(10)
N1411 0(5) N1441/41	112 21(12)		

Nd(1)-O(5)-Nd(1)#1 113.31(12)

1			1	
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Sm(1)-O(1)	2.458(5)	Sm(1)-O(5)#1	2.759(5)
Sm(1)-O(2)	2.490(5)	Sm(1)-O(6)#1	2.464(5)
Sm(1)-O(3)	2.487(5)	Sm(1)-N(4)#2	2.587(6)
Sm(1)-O(4)	2.407(5)	O(5)-Sm(1)#1	2.759(5)
Sm(1)-O(5)	2.365(5)	O(6)-Sm(1)#1	2.464(5)
Sm(1)-O(7)	2.471(5)	N(4)-Sm(1)#2	2.587(6)
O(5)-Sm(1)-O(4)	90.77(17)	O(4)-Sm(1)-O(1)	87.13(18)
O(5)-Sm(1)-O(1)	75.79(16)	O(4)-Sm(1)-O(6)#1	145.12(17)
O(5)-Sm(1)-O(6)#1	115.10(17)	O(5)-Sm(1)-O(7)	80.93(16)
O(1)-Sm(1)-O(6)#1	77.83(18)	O(1)-Sm(1)-O(7)	140.43(17)
O(4)-Sm(1)-O(7)	125.05(18)	O(5)-Sm(1)-O(3)	84.12(17)
O(6)#1-Sm(1)-O(7)	83.83(17)	O(1)-Sm(1)-O(3)	134.87(18)
O(4)-Sm(1)-O(3)	52.75(17)	O(7)-Sm(1)-O(3)	72.35(17)
O(6)#1-Sm(1)-O(3)	146.83(17)	O(4)-Sm(1)-O(2)	74.39(18)
O(5)-Sm(1)-O(2)	126.11(16)	O(6)#1-Sm(1)-O(2)	71.47(17)
O(1)-Sm(1)-O(2)	52.47(15)	O(3)-Sm(1)-O(2)	120.30(17)
O(7)-Sm(1)-O(2)	149.04(17)	O(4)-Sm(1)-N(4)#2	86.11(19)
O(5)-Sm(1)-N(4)#2	158.02(18)	O(6)#1-Sm(1)-N(4)#2	77.86(19)
O(1)-Sm(1)-N(4)#2	125.66(18)	O(3)-Sm(1)-N(4)#2	76.68(19)
O(7)-Sm(1)-N(4)#2	83.11(18)	O(5)-Sm(1)-O(5)#1	66.34(18)
O(2)-Sm(1)-N(4)#2	73.85(18)	O(1)-Sm(1)-O(5)#1	72.30(16)
O(4)-Sm(1)-O(5)#1	152.05(16)	O(7)-Sm(1)-O(5)#1	69.15(16)
O(6)#1-Sm(1)-O(5)#1	49.32(14)	O(2)-Sm(1)-O(5)#1	105.46(16)
O(3)-Sm(1)-O(5)#1	134.20(15)	Sm(1)-O(5)-Sm(1)#1	113.66(18)
N(4)#2-Sm(1)-O(5)#1	121.16(18)		
3			
Eu(1)-O(1)	2.458(6)	Eu(1)-O(7)	2.454(7)

Eu(1)-O(2)	2.756(6)	Eu(1)-O(2)#1	2.368(6)
Eu(1)-O(3)	2.476(7)	Eu(1)-N(4)#2	2.580(8)
Eu(1)-O(4)	2.406(7)	O(2)-Eu(1)#1	2.368(6)
Eu(1)-O(5)	2.491(6)	N(4)-Eu(1)#2	2.580(8)
Eu(1)-O(6)	2.438(7)	Eu(1)-Eu(1)#1	4.2884(12)
O(2)#1-Eu(1)-O(4)	90.1(2)	Eu(1)#1-O(2)-Eu(1)	113.4(2)
O(2)#1-Eu(1)-O(6)	75.8(2)	O(4)-Eu(1)-O(6)	86.7(2)
O(2)#1-Eu(1)-O(7)	81.0(2)	O(4)-Eu(1)-O(7)	125.5(2)
O(6)-Eu(1)-O(7)	140.2(2)	O(2)#1-Eu(1)-O(1)	115.0(2)
O(4)-Eu(1)-O(1)	145.6(2)	O(6)-Eu(1)-O(1)	78.0(2)
O(7)-Eu(1)-O(1)	83.3(2)	O(2)#1-Eu(1)-O(3)	83.5(2)
O(4)-Eu(1)-O(3)	53.2(2)	O(6)-Eu(1)-O(3)	134.8(2)
O(7)-Eu(1)-O(3)	72.4(2)	O(1)-Eu(1)-O(3)	146.9(2)
O(2)#1-Eu(1)-O(5)	126.6(2)	O(4)-Eu(1)-O(5)	74.5(2)
O(6)-Eu(1)-O(5)	53.0(2)	O(7)-Eu(1)-O(5)	148.6(2)
O(1)-Eu(1)-O(5)	71.7(2)	O(3)-Eu(1)-O(5)	120.6(2)
O(2)#1-Eu(1)-N(4)#2	157.4(2)	O(4)-Eu(1)-N(4)#2	87.0(3)
O(6)-Eu(1)-N(4)#2	126.3(2)	O(7)-Eu(1)-N(4)#2	82.6(3)
O(1)-Eu(1)-N(4)#2	78.1(2)	O(3)-Eu(1)-N(4)#2	76.9(3)
O(5)-Eu(1)-N(4)#2	74.0(2)	O(2)#1-Eu(1)-O(2)	66.6(2)
O(4)-Eu(1)-O(2)	151.5(2)	O(6)-Eu(1)-O(2)	72.2(2)
O(7)-Eu(1)-O(2)	69.0(2)	O(1)-Eu(1)-O(2)	48.91(19)
O(3)-Eu(1)-O(2)	133.9(2)	O(5)-Eu(1)-O(2)	105.51(19)
N(4)#2-Eu(1)-O(2)	120.9(2)	O(2)#1-Eu(1)-Eu(1)#1	36.15(15)
O(4)-Eu(1)-Eu(1)#1	124.48(17)	O(6)-Eu(1)-Eu(1)#1	70.57(15)
O(7)-Eu(1)-Eu(1)#1	71.54(16)	O(1)-Eu(1)-Eu(1)#1	79.10(14)
O(3)-Eu(1)-Eu(1)#1	112.49(16)	O(5)-Eu(1)-Eu(1)#1	120.07(14)
N(4)#2-Eu(1)-Eu(1)#1	147.1(2)	O(2)-Eu(1)-Eu(1)#1	30.45(13)

Gd(1)-O(1)	2.463(5)	Gd(1)-O(7)	2.421(5)
Gd(1)-O(2)	2.396(5)	Gd(1)-O(3)#1	2.343(4)
Gd(1)-O(3)	2.777(4)	Gd(1)-N(1)#2	2.554(5)
Gd(1)-O(4)	2.441(4)	O(3)-Gd(1)#1	2.343(4)
Gd(1)-O(5)	2.435(4)	N(1)-Gd(1)#2	2.554(5)
Gd(1)-O(6)	2.469(4)		

O(3)#1-Gd(1)-O(2)	90.04(16)	O(3)#1-Gd(1)-O(7)	81.77(16)
O(2)-Gd(1)-O(7)	126.49(17)	O(3)#1-Gd(1)-O(5)	75.81(14)
O(2)-Gd(1)-O(5)	86.74(16)	O(7)-Gd(1)-O(5)	139.87(16)
O(3)#1-Gd(1)-O(4)	115.47(15)	O(2)-Gd(1)-O(4)	145.31(15)
O(7)-Gd(1)-O(4)	82.34(17)	O(5)-Gd(1)-O(4)	78.01(16)
O(3)#1-Gd(1)-O(1)	83.37(15)	O(2)-Gd(1)-O(1)	53.65(15)
O(7)-Gd(1)-O(1)	72.87(17)	O(5)-Gd(1)-O(1)	135.17(15)
O(4)-Gd(1)-O(1)	146.50(15)	O(3)#1-Gd(1)-O(6)	126.85(15)
O(2)-Gd(1)-O(6)	74.19(16)	O(7)-Gd(1)-O(6)	147.45(16)
O(5)-Gd(1)-O(6)	53.36(14)	O(4)-Gd(1)-O(6)	71.69(15)
O(1)-Gd(1)-O(6)	120.52(15)	O(3)#1-Gd(1)-N(1)#2	157.10(16)
O(2)-Gd(1)-N(1)#2	86.65(18)	O(7)-Gd(1)-N(1)#2	82.05(18)
O(5)-Gd(1)-N(1)#2	126.51(16)	O(4)-Gd(1)-N(1)#2	78.15(17)
O(1)-Gd(1)-N(1)#2	76.44(16)	O(6)-Gd(1)-N(1)#2	73.82(16)
O(3)#1-Gd(1)-O(3)	66.62(16)	O(2)-Gd(1)-O(3)	151.32(14)
O(7)-Gd(1)-O(3)	68.65(15)	O(5)-Gd(1)-O(3)	71.98(14)
O(4)-Gd(1)-O(3)	49.34(13)	O(1)-Gd(1)-O(3)	133.62(14)
O(6)-Gd(1)-O(3)	105.83(14)	N(1)#2-Gd(1)-O(3)	121.36(16)
Gd(1)#1-O(3)-Gd(1)	113.38(15)		
5			
Tb(1)-O(1)	2.456(3)	Tb(1)-O(7)	2.406(3)
Tb(1)-O(2)	2.384(3)	Tb(1)-O(3)#1	2.788(3)

Tb(1)-O(3)	2.321(3)	Tb(1)-O(4)#1	2.422(3)
Tb(1)-O(5)	2.454(3)	Tb(1)-N(1)#2	2.543(4)
Tb(1)-O(6)	2.416(3)	O(3)-Tb(1)#1	2.788(3)
N(1)-Tb(1)#2	2.543(4)	O(4)-Tb(1)#1	2.422(3)
O(3)-Tb(1)-O(2)	90.10(11)	O(2)-Tb(1)-O(6)	86.34(11)
O(3)-Tb(1)-O(6)	75.89(10)	O(2)-Tb(1)-O(7)	127.05(12)
O(3)-Tb(1)-O(7)	81.33(12)	O(3)-Tb(1)-O(4)#1	114.64(10)
O(7)-Tb(1)-O(6)	139.51(11)	O(6)-Tb(1)-O(4)#1	77.91(11)
O(2)-Tb(1)-O(4)#1	145.75(11)	O(3)-Tb(1)-O(5)	126.89(10)
O(7)-Tb(1)-O(4)#1	81.93(12)	O(6)-Tb(1)-O(5)	53.15(10)
O(2)-Tb(1)-O(5)	74.30(11)	O(4)#1-Tb(1)-O(5)	71.89(11)
O(7)-Tb(1)-O(5)	147.47(12)	O(2)-Tb(1)-O(1)	53.72(11)
O(3)-Tb(1)-O(1)	83.13(11)	O(7)-Tb(1)-O(1)	73.36(12)
O(6)-Tb(1)-O(1)	134.76(11)	O(5)-Tb(1)-O(1)	120.83(11)
O(4)#1-Tb(1)-O(1)	147.10(11)	O(2)-Tb(1)-N(1)#2	86.93(12)
O(3)-Tb(1)-N(1)#2	156.92(12)	O(7)-Tb(1)-N(1)#2	82.27(12)
O(6)-Tb(1)-N(1)#2	126.65(11)	O(5)-Tb(1)-N(1)#2	74.12(11)
O(4)#1-Tb(1)-N(1)#2	78.79(12)	O(3)-Tb(1)-O(3)#1	66.19(11)
O(1)-Tb(1)-N(1)#2	76.68(12)	O(6)-Tb(1)-O(3)#1	72.04(10)
O(2)-Tb(1)-O(3)#1	150.85(10)	O(4)#1-Tb(1)-O(3)#1	48.93(9)
O(7)-Tb(1)-O(3)#1	68.22(10)	O(1)-Tb(1)-O(3)#1	133.41(10)
O(5)-Tb(1)-O(3)#1	105.70(10)	Tb(1)-O(3)-Tb(1)#1	113.68(11)
N(1)#2-Tb(1)-O(3)#1	121.58(11)		
6			
Dy(1)-O(1)	2.448(3)	Dy(1)-O(7)	2.401(3)
Dy(1)-O(2)	2.372(3)	Dy(1)-O(5)#1	2.306(3)
Dy(1)-O(3)	2.445(3)	Dy(1)-N(1)#2	2.520(4)
Dy(1)-O(4)	2.413(3)	O(5)-Dy(1)#1	2.306(3)

Dy(1)-O(5)	2.815(3)	N(1)-Dy(1)#2	2.520(4)
Dy(1)-O(6)	2.402(3)		
O(5)#1-Dy(1)-O(2)	89.91(12)	O(2)-Dy(1)-O(6)	145.93(12)
O(5)#1-Dy(1)-O(6)	114.54(11)	O(2)-Dy(1)-O(7)	127.10(12)
O(5)#1-Dy(1)-O(7)	80.97(12)	O(5)#1-Dy(1)-O(4)	75.83(11)
O(6)-Dy(1)-O(7)	81.98(12)	O(6)-Dy(1)-O(4)	77.88(12)
O(2)-Dy(1)-O(4)	86.29(12)	O(5)#1-Dy(1)-O(3)	127.15(11)
O(7)-Dy(1)-O(4)	139.18(11)	O(6)-Dy(1)-O(3)	72.10(12)
O(2)-Dy(1)-O(3)	74.21(12)	O(4)-Dy(1)-O(3)	53.54(11)
O(7)-Dy(1)-O(3)	147.67(12)	O(2)-Dy(1)-O(1)	53.95(12)
O(5)#1-Dy(1)-O(1)	82.73(11)	O(7)-Dy(1)-O(1)	73.19(12)
O(6)-Dy(1)-O(1)	147.22(13)	O(3)-Dy(1)-O(1)	120.93(12)
O(4)-Dy(1)-O(1)	134.73(12)	O(2)-Dy(1)-N(1)#2	87.31(13)
O(5)#1-Dy(1)-N(1)#2	156.65(12)	O(7)-Dy(1)-N(1)#2	82.28(12)
O(6)-Dy(1)-N(1)#2	78.87(12)	O(3)-Dy(1)-N(1)#2	74.16(12)
O(4)-Dy(1)-N(1)#2	127.03(12)	O(5)#1-Dy(1)-O(5)	66.28(12)
O(1)-Dy(1)-N(1)#2	76.91(13)	O(6)-Dy(1)-O(5)	48.71(10)
O(2)-Dy(1)-O(5)	150.63(11)	O(4)-Dy(1)-O(5)	71.82(11)
O(7)-Dy(1)-O(5)	68.20(11)	O(1)-Dy(1)-O(5)	133.22(10)
O(3)-Dy(1)-O(5)	105.79(10)	Dy(1)#1-O(5)-Dy(1)	113.72(12)
N(1)#2-Dy(1)-O(5)	121.41(12)		
7			
Ho(1)-O(1)	2.357(4)	Ho(1)-O(5)#1	2.838(4)
Ho(1)-O(2)	2.434(4)	Ho(1)-O(6)#1	2.385(4)
Ho(1)-O(3)	2.439(4)	Ho(1)-N(1)#2	2.510(5)
Ho(1)-O(4)	2.393(4)	O(5)-Ho(1)#1	2.838(4)
Ho(1)-O(5)	2.282(4)	O(6)-Ho(1)#1	2.385(4)
Ho(1)-O(7)	2.386(4)	N(1)-Ho(1)#2	2.510(5)

O(5)-Ho(1)-O(1)	90.19(14)	O(5)-Ho(1)-O(6)#1	114.06(14)
O(1)-Ho(1)-O(6)#1	146.22(14)	O(5)-Ho(1)-O(7)	81.59(15)
O(1)-Ho(1)-O(7)	127.65(15)	O(6)#1-Ho(1)-O(7)	80.98(15)
O(5)-Ho(1)-O(4)	75.27(13)	O(1)-Ho(1)-O(4)	86.75(14)
O(6)#1-Ho(1)-O(4)	77.86(14)	O(7)-Ho(1)-O(4)	138.55(14)
O(5)-Ho(1)-O(2)	82.83(13)	O(1)-Ho(1)-O(2)	54.36(14)
O(6)#1-Ho(1)-O(2)	146.86(15)	O(7)-Ho(1)-O(2)	73.30(14)
O(4)-Ho(1)-O(2)	135.20(14)	O(5)-Ho(1)-O(3)	126.81(13)
O(1)-Ho(1)-O(3)	74.09(14)	O(6)#1-Ho(1)-O(3)	72.54(14)
O(7)-Ho(1)-O(3)	147.13(15)	O(4)-Ho(1)-O(3)	53.82(13)
O(2)-Ho(1)-O(3)	121.37(14)	O(5)-Ho(1)-N(1)#2	156.55(15)
O(1)-Ho(1)-N(1)#2	87.13(16)	O(6)#1-Ho(1)-N(1)#2	79.23(15)
O(7)-Ho(1)-N(1)#2	81.67(16)	O(4)-Ho(1)-N(1)#2	127.74(14)
O(2)-Ho(1)-N(1)#2	76.70(15)	O(3)-Ho(1)-N(1)#2	74.64(15)
O(5)-Ho(1)-O(5)#1	65.92(15)	O(1)-Ho(1)-O(5)#1	150.93(13)
O(6)#1-Ho(1)-O(5)#1	48.64(12)	O(7)-Ho(1)-O(5)#1	67.46(13)
O(4)-Ho(1)-O(5)#1	71.78(13)	O(2)-Ho(1)-O(5)#1	132.33(12)
O(3)-Ho(1)-O(5)#1	106.25(12)	N(1)#2-Ho(1)-O(5)#1	121.42(14)
Ho(1)-O(5)-Ho(1)#1	114.08(15)		
8			
Er(1)-O(1)	2.396(4)	Er(1)-O(5)#1	2.884(4)
Er(1)-O(2)	2.424(4)	Er(1)-O(6)#1	2.378(4)
Er(1)-O(3)	2.344(4)	Er(1)-N(4)#2	2.506(5)
Er(1)-O(4)	2.432(4)	O(5)-Er(1)#1	2.884(4)
Er(1)-O(5)	2.275(4)	O(6)-Er(1)#1	2.378(4)
Er(1)-O(7)	2.371(4)	N(4)-Er(1)#2	2.506(5)
O(5)-Er(1)-O(3)	89.75(15)	O(5)-Er(1)-O(7)	81.13(15)

O(3)-Er(1)-O(7)	128.05(15)	O(5)-Er(1)-O(6)#1	113.49(13)
O(3)-Er(1)-O(6)#1	146.67(14)	O(7)-Er(1)-O(6)#1	80.90(15)
O(5)-Er(1)-O(1)	75.29(13)	O(3)-Er(1)-O(1)	86.45(14)
O(7)-Er(1)-O(1)	138.01(14)	O(6)#1-Er(1)-O(1)	77.48(14)
O(5)-Er(1)-O(2)	127.20(14)	O(3)-Er(1)-O(2)	74.32(14)
O(7)-Er(1)-O(2)	147.05(16)	O(6)#1-Er(1)-O(2)	72.59(14)
O(1)-Er(1)-O(2)	54.17(13)	O(5)-Er(1)-O(4)	82.49(14)
O(3)-Er(1)-O(4)	54.40(14)	O(7)-Er(1)-O(4)	73.68(15)
O(6)#1-Er(1)-O(4)	147.53(15)	O(1)-Er(1)-O(4)	134.96(15)
O(2)-Er(1)-O(4)	121.41(13)	O(5)-Er(1)-N(4)#2	156.29(15)
O(3)-Er(1)-N(4)#2	87.54(16)	O(7)-Er(1)-N(4)#2	82.06(15)
O(6)#1-Er(1)-N(4)#2	80.02(15)	O(1)-Er(1)-N(4)#2	127.97(14)
O(2)-Er(1)-N(4)#2	74.48(14)	O(4)-Er(1)-N(4)#2	76.80(15)
O(5)-Er(1)-O(5)#1	66.14(15)	O(3)-Er(1)-O(5)#1	150.62(13)
O(7)-Er(1)-O(5)#1	66.97(13)	O(6)#1-Er(1)-O(5)#1	47.88(12)
O(1)-Er(1)-O(5)#1	71.81(13)	O(2)-Er(1)-O(5)#1	106.23(12)
O(4)-Er(1)-O(5)#1	132.32(12)	N(4)#2-Er(1)-O(5)#1	121.33(14)
Er(1)-O(5)-Er(1)#1	113.86(15)		
9			
Yb(1)-O(1)	2.343(3)	Yb(1)-O(7)	2.342(4)
Yb(1)-O(2)	2.998(3)	Yb(1)-O(2)#1	2.231(3)
Yb(1)-O(3)	2.390(3)	Yb(1)-N(7)#2	2.481(4)
Yb(1)-O(4)	2.374(3)	O(2)-Yb(1)#1	2.231(3)
Yb(1)-O(5)	2.320(3)	N(7)-Yb(1)#2	2.481(4)
Yb(1)-O(6)	2.416(3)		
O(2)#1-Yb(1)-O(5)	89.52(12)	O(2)#1-Yb(1)-O(7)	80.89(12)
O(5)-Yb(1)-O(7)	128.64(12)	O(2)#1-Yb(1)-O(1)	111.73(12)
O(5)-Yb(1)-O(1)	148.18(12)	O(7)-Yb(1)-O(1)	79.68(12)

O(2)#1-Yb(1)-O(4)	74.90(11)	O(5)-Yb(1)-O(4)	86.95(12)
O(7)-Yb(1)-O(4)	136.64(12)	O(1)-Yb(1)-O(4)	76.76(12)
O(2)#1-Yb(1)-O(3)	127.11(11)	O(5)-Yb(1)-O(3)	74.98(11)
O(7)-Yb(1)-O(3)	146.67(12)	O(1)-Yb(1)-O(3)	73.30(11)
O(4)-Yb(1)-O(3)	54.43(10)	O(2)#1-Yb(1)-O(6)	82.38(11)
O(5)-Yb(1)-O(6)	54.86(11)	O(7)-Yb(1)-O(6)	73.84(12)
O(1)-Yb(1)-O(6)	147.59(12)	O(4)-Yb(1)-O(6)	135.63(12)
O(3)-Yb(1)-O(6)	122.40(11)	O(2)#1-Yb(1)-N(7)#2	155.87(13)
O(5)-Yb(1)-N(7)#2	88.41(13)	O(7)-Yb(1)-N(7)#2	81.70(13)
O(1)-Yb(1)-N(7)#2	81.25(12)	O(4)-Yb(1)-N(7)#2	128.95(12)
O(3)-Yb(1)-N(7)#2	75.31(12)	O(6)-Yb(1)-N(7)#2	76.80(12)
O(2)#1-Yb(1)-O(2)	65.76(12)	O(5)-Yb(1)-O(2)	150.61(10)
O(7)-Yb(1)-O(2)	65.42(10)	O(1)-Yb(1)-O(2)	46.61(10)
O(4)-Yb(1)-O(2)	71.92(10)	O(3)-Yb(1)-O(2)	106.58(10)
O(6)-Yb(1)-O(2)	130.99(10)	N(7)#2-Yb(1)-O(2)	120.70(12)
Yb(1)#1-O(2)-Yb(1)	114.24(12)		
10			
Pr(1)-O(1)	2.513(3)	Pr(1)-O(4)#2	2.524(3)
Pr(1)-O(2)	2.577(2)	Pr(1)-O(6)#1	2.490(3)
Pr(1)-O(3)	2.497(2)	Pr(1)-N(3)#3	2.746(3)
Pr(1)-O(5)	2.511(3)	O(4)-Pr(1)#2	2.524(3)
Pr(1)-O(7)	2.492(3)	O(6)-Pr(1)#1	2.490(3)
Pr(1)-O(8)	2.471(3)	N(3)-Pr(1)#4	2.746(3)
O(8)-Pr(1)-O(6)#1	90.41(10)	O(8)-Pr(1)-O(7)	72.71(12)
O(6)#1-Pr(1)-O(7)	73.20(11)	O(8)-Pr(1)-O(3)	132.61(9)
O(6)#1-Pr(1)-O(3)	86.97(9)	O(7)-Pr(1)-O(3)	148.77(10)
O(8)-Pr(1)-O(5)	141.93(10)	O(6)#1-Pr(1)-O(5)	64.40(8)
O(7)-Pr(1)-O(5)	72.83(11)	O(3)-Pr(1)-O(5)	76.92(9)

O(8)-Pr(1)-O(1)	131.99(10)	O(6)#1-Pr(1)-O(1)	135.52(9)
O(7)-Pr(1)-O(1)	103.52(12)	O(3)-Pr(1)-O(1)	73.88(9)
O(5)-Pr(1)-O(1)	72.20(9)	O(8)-Pr(1)-O(4)#2	69.51(9)
O(6)#1-Pr(1)-O(4)#2	73.96(9)	O(7)-Pr(1)-O(4)#2	128.90(12)
O(3)-Pr(1)-O(4)#2	64.33(8)	O(5)-Pr(1)-O(4)#2	123.71(9)
O(1)-Pr(1)-O(4)#2	127.27(9)	O(8)-Pr(1)-O(2)	84.91(10)
O(6)#1-Pr(1)-O(2)	143.23(9)	O(7)-Pr(1)-O(2)	70.58(10)
O(3)-Pr(1)-O(2)	122.27(9)	O(5)-Pr(1)-O(2)	98.46(9)
O(1)-Pr(1)-O(2)	51.02(8)	O(4)#2-Pr(1)-O(2)	136.24(9)
O(8)-Pr(1)-N(3)#3	76.25(10)	O(6)#1-Pr(1)-N(3)#3	144.64(9)
O(7)-Pr(1)-N(3)#3	130.41(10)	O(3)-Pr(1)-N(3)#3	79.09(9)
O(5)-Pr(1)-N(3)#3	140.39(9)	O(1)-Pr(1)-N(3)#3	71.09(9)
O(4)#2-Pr(1)-N(3)#3	70.71(9)	O(2)-Pr(1)-N(3)#3	69.01(9)
11			
Pr(1)-O(1)	2.497(3)	Pr(1)-O(6)#3	2.505(3)
Pr(1)-O(3)	2.598(3)	O(1)-Pr(1)#2	2.681(3)
Pr(1)-O(4)	2.505(3)	O(2)-Pr(1)#2	2.493(3)
Pr(1)-O(7)	2.503(3)	O(3)-Pr(1)#4	2.543(3)
Pr(1)-O(1)#2	2.681(3)	O(5)-Pr(1)#1	2.420(3)
Pr(1)-O(2)#2	2.493(3)	O(6)-Pr(1)#5	2.505(3)
Pr(1)-O(3)#4	2.543(3)	Pr(1)-Pr(1)#2	4.0755(5)
Pr(1)-O(5)#1	2.420(3)		
O(5)#1-Pr(1)-O(2)#2	78.84(10)	O(2)#2-Pr(1)-O(1)	124.22(9)
O(5)#1-Pr(1)-O(1)	71.79(10)	O(2)#2-Pr(1)-O(7)	72.48(10)
O(5)#1-Pr(1)-O(7)	82.79(10)	O(5)#1-Pr(1)-O(4)	75.73(10)
O(1)-Pr(1)-O(7)	144.30(10)	O(1)-Pr(1)-O(4)	79.24(10)
O(2)#2-Pr(1)-O(4)	136.92(10)	O(5)#1-Pr(1)-O(6)#3	135.79(9)
O(7)-Pr(1)-O(4)	70.31(10)	O(1)-Pr(1)-O(6)#3	73.84(10)

O(2)#2-Pr(1)-O(6)#3	98.84(10)	O(4)-Pr(1)-O(6)#3	123.57(10)
O(7)-Pr(1)-O(6)#3	139.23(10)	O(2)#2-Pr(1)-O(3)#4	76.74(10)
O(5)#1-Pr(1)-O(3)#4	148.00(10)	O(7)-Pr(1)-O(3)#4	70.36(10)
O(1)-Pr(1)-O(3)#4	139.85(9)	O(6)#3-Pr(1)-O(3)#4	68.88(9)
O(4)-Pr(1)-O(3)#4	109.52(9)	O(2)#2-Pr(1)-O(3)	142.11(9)
O(5)#1-Pr(1)-O(3)	126.31(9)	O(7)-Pr(1)-O(3)	82.46(10)
O(1)-Pr(1)-O(3)	92.61(9)	O(6)#3-Pr(1)-O(3)	81.83(9)
O(4)-Pr(1)-O(3)	50.70(9)	O(5)#1-Pr(1)-O(1)#2	73.27(9)
O(3)#4-Pr(1)-O(3)	68.16(10)	O(1)-Pr(1)-O(1)#2	76.24(10)
O(2)#2-Pr(1)-O(1)#2	49.96(9)	O(4)-Pr(1)-O(1)#2	145.12(9)
O(7)-Pr(1)-O(1)#2	120.38(10)	O(3)#4-Pr(1)-O(1)#2	105.23(9)
O(6)#3-Pr(1)-O(1)#2	72.21(9)	O(5)#1-Pr(1)-Pr(1)#2	67.62(6)
O(3)-Pr(1)-O(1)#2	153.67(9)	O(1)-Pr(1)-Pr(1)#2	39.72(6)
O(2)#2-Pr(1)-Pr(1)#2	85.49(7)	O(4)-Pr(1)-Pr(1)#2	115.17(7)
O(7)-Pr(1)-Pr(1)#2	146.12(8)	O(3)#4-Pr(1)-Pr(1)#2	129.88(6)
O(6)#3-Pr(1)-Pr(1)#2	68.19(7)	O(1)#2-Pr(1)-Pr(1)#2	36.52(6)
O(3)-Pr(1)-Pr(1)#2	128.14(7)	Pr(1)#4-O(3)-Pr(1)	111.84(10)
Pr(1)-O(1)-Pr(1)#2	103.76(10)		
12			
Er(1)-O(1)	2.271(4)	Er(1)-N(1)#4	2.539(5)
Er(1)-O(3)	2.827(5)	O(2)-Er(1)#6	2.339(4)
Er(1)-O(4)	2.321(4)	O(3)-Er(1)#6	2.314(5)
Er(1)-O(2)#1	2.339(4)	O(5)-Er(1)#7	2.342(5)
Er(1)-O(3)#1	2.314(5)	O(6)-Er(1)#8	2.318(5)
Er(1)-O(5)#3	2.342(5)	N(1)-Er(1)#5	2.539(5)
Er(1)-O(6)#2	2.318(5)		
O(1)-Er(1)-O(3)#1	75.39(16)	O(1)-Er(1)-O(6)#2	79.93(17)
O(3)#1-Er(1)-O(6)#2	100.01(17)	O(1)-Er(1)-O(4)	123.19(15)

O(3)#1-Er(1)-O(4)	161.32(16)	O(6)#2-Er(1)-O(4)	83.02(18)
O(1)-Er(1)-O(2)#1	144.72(15)	O(3)#1-Er(1)-O(2)#1	87.85(16)
O(6)#2-Er(1)-O(2)#1	134.24(16)	O(4)-Er(1)-O(2)#1	77.24(15)
O(1)-Er(1)-O(5)#3	74.57(17)	O(3)#1-Er(1)-O(5)#3	108.81(16)
O(6)#2-Er(1)-O(5)#3	134.62(17)	O(4)-Er(1)-O(5)#3	80.53(17)
O(2)#1-Er(1)-O(5)#3	82.13(15)	O(1)-Er(1)-N(1)#4	136.38(17)
O(3)#1-Er(1)-N(1)#4	78.28(17)	O(6)#2-Er(1)-N(1)#4	71.12(18)
O(4)-Er(1)-N(1)#4	85.42(17)	O(2)#1-Er(1)-N(1)#4	66.52(16)
O(5)#3-Er(1)-N(1)#4	147.81(16)	O(1)-Er(1)-O(3)	74.16(15)
O(3)#1-Er(1)-O(3)	148.36(8)	O(6)#2-Er(1)-O(3)	66.31(17)
O(4)-Er(1)-O(3)	49.44(14)	O(2)#1-Er(1)-O(3)	122.54(14)
O(5)#3-Er(1)-O(3)	70.89(14)	N(1)#4-Er(1)-O(3)	119.62(16)
Er(1)#6-O(3)-Er(1)	112.90(16)		
13			
Nd(1)-O(3)	2.4161(18)	O(1)-Nd(1)#3	2.409(2)
Nd(1)-N(1)	2.671(2)	O(2)-Nd(1)#6	2.435(2)
Nd(1)-O(1)#3	2.409(2)	O(3)-Nd(1)#5	2.643(2)
Nd(1)-O(2)#4	2.435(2)	O(4)-Nd(1)#5	2.483(2)
Nd(1)-O(3)#5	2.643(2)	O(5)-Nd(1)#1	2.357(2)
Nd(1)-O(4)#5	2.483(2)	O(6)-Nd(1)#7	2.3755(19)
Nd(1)-O(5)#1	2.357(2)	Nd(1)-Nd(1)#5	4.0522(4)
Nd(1)-O(6)#2	2.3755(19)		
O(5)#1-Nd(1)-O(6)#2	83.16(7)	O(5)#1-Nd(1)-O(1)#3	92.02(7)
O(6)#2-Nd(1)-O(1)#3	144.63(7)	O(5)#1-Nd(1)-O(3)	79.48(7)
O(6)#2-Nd(1)-O(3)	137.83(7)	O(1)#3-Nd(1)-O(3)	74.43(7)
O(5)#1-Nd(1)-O(2)#4	111.49(8)	O(6)#2-Nd(1)-O(2)#4	77.19(7)
O(1)#3-Nd(1)-O(2)#4	135.92(7)	O(3)-Nd(1)-O(2)#4	74.07(7)
O(5)#1-Nd(1)-O(4)#5	156.05(7)	O(6)#2-Nd(1)-O(4)#5	81.78(7)

O(1)#3-Nd(1)-O(4)#5	89.57(7)	O(3)-Nd(1)-O(4)#5	123.79(6)
O(2)#4-Nd(1)-O(4)#5	83.11(7)	O(5)#1-Nd(1)-O(3)#5	151.05(7)
O(6)#2-Nd(1)-O(3)#5	124.38(7)	O(1)#3-Nd(1)-O(3)#5	70.74(7)
O(3)-Nd(1)-O(3)#5	73.64(7)	O(2)#4-Nd(1)-O(3)#5	71.32(7)
O(4)#5-Nd(1)-O(3)#5	50.35(6)	O(5)#1-Nd(1)-N(1)	81.17(8)
O(6)#2-Nd(1)-N(1)	72.21(8)	O(1)#3-Nd(1)-N(1)	72.42(7)
O(3)-Nd(1)-N(1)	140.69(7)	O(2)#4-Nd(1)-N(1)	145.19(7)
O(4)#5-Nd(1)-N(1)	76.55(8)	O(3)#5-Nd(1)-N(1)	113.56(7)
O(5)#1-Nd(1)-Nd(1)#5	117.50(5)	O(6)#2-Nd(1)-Nd(1)#5	144.12(5)
O(1)#3-Nd(1)-Nd(1)#5	67.96(5)	O(3)-Nd(1)-Nd(1)#5	38.74(5)
O(2)#4-Nd(1)-Nd(1)#5	68.13(5)	O(4)#5-Nd(1)-Nd(1)#5	85.15(5)
O(3)#5-Nd(1)-Nd(1)#5	34.90(4)	N(1)-Nd(1)-Nd(1)#5	136.22(6)
Nd(1)-O(3)-Nd(1)#5	106.36(7)		
14			
Eu(1)-O(3)	2.263(2)	Eu(1)-O(6)#3	2.434(2)
Eu(1)-O(5)	2.415(2)	O(1)-Eu(1)#1	2.372(2)
Eu(1)-O(7)	2.429(2)	O(2)-Eu(1)#4	2.389(2)
Eu(1)-N(1)	2.557(3)	O(5)-Eu(1)#3	2.481(2)
Eu(1)-O(1)#1	2.372(2)	O(6)-Eu(1)#3	2.434(2)
Eu(1)-O(2)#2	2.389(2)	Eu(1)-Eu(1)#3	3.8840(4)
Eu(1)-O(5)#3	2.481(2)		
O(3)-Eu(1)-O(1)#1	91.09(9)	O(1)#1-Eu(1)-O(2)#2	138.99(8)
O(3)-Eu(1)-O(2)#2	100.01(9)	O(1)#1-Eu(1)-O(5)	73.92(8)
O(3)-Eu(1)-O(5)	74.34(8)	O(3)-Eu(1)-O(7)	78.55(9)
O(2)#2-Eu(1)-O(5)	71.47(8)	O(2)#2-Eu(1)-O(7)	74.20(8)
O(1)#1-Eu(1)-O(7)	146.79(8)	O(3)-Eu(1)-O(6)#3	158.24(9)

O(1)#1-Eu(1)-O(6)#3

O(5)-Eu(1)-O(6)#3	124.80(7)	O(1)#1-Eu(1)-O(5)#3	74.23(7)
O(3)-Eu(1)-O(5)#3	148.65(8)	O(5)-Eu(1)-O(5)#3	75.01(8)
O(2)#2-Eu(1)-O(5)#3	76.14(8)	O(6)#3-Eu(1)-O(5)#3	52.70(7)
O(7)-Eu(1)-O(5)#3	128.06(8)	O(1)#1-Eu(1)-N(1)	76.95(8)
O(3)-Eu(1)-N(1)	90.61(9)	O(5)-Eu(1)-N(1)	146.72(8)
O(2)#2-Eu(1)-N(1)	141.40(8)	O(6)#3-Eu(1)-N(1)	77.59(9)
O(7)-Eu(1)-N(1)	71.76(9)	O(3)-Eu(1)-Eu(1)#3	112.19(6)
O(5)#3-Eu(1)-N(1)	112.00(8)	O(2)#2-Eu(1)-Eu(1)#3	69.47(5)
O(1)#1-Eu(1)-Eu(1)#3	69.77(5)	O(7)-Eu(1)-Eu(1)#3	143.34(6)
O(5)-Eu(1)-Eu(1)#3	38.10(5)	O(5)#3-Eu(1)-Eu(1)#3	36.91(5)
O(6)#3-Eu(1)-Eu(1)#3	88.15(6)	Eu(1)-O(5)-Eu(1)#3	104.99(8)
N(1)-Eu(1)-Eu(1)#3	139.38(6)		
15			
Gd(1)-O(1)	2.377(3)	Gd(1)-N(1)#2	2.549(3)
Gd(1)-O(3)	2.399(3)	O(2)-Gd(1)#1	2.365(3)
Gd(1)-O(5)	2.259(3)	O(3)-Gd(1)#1	2.471(3)
Gd(1)-O(7)	2.420(3)	O(4)-Gd(1)#1	2.427(3)
Gd(1)-O(2)#1	2.365(3)	N(1)-Gd(1)#3	2.549(3)
Gd(1)-O(3)#1	2.471(3)	Gd(1)-Gd(1)#1	3.8692(5)
Gd(1)-O(4)#1	2.427(3)		
O(5)-Gd(1)-O(2)#1	91.27(11)	O(2)#1-Gd(1)-O(1)	139.59(9)
O(5)-Gd(1)-O(1)	99.82(12)	O(2)#1-Gd(1)-O(3)	74.29(9)
O(5)-Gd(1)-O(3)	74.53(10)	O(5)-Gd(1)-O(7)	78.44(11)
O(1)-Gd(1)-O(3)	71.60(10)	O(1)-Gd(1)-O(7)	74.24(10)
O(2)#1-Gd(1)-O(7)	146.16(10)	O(5)-Gd(1)-O(4)#1	157.70(10)
O(3)-Gd(1)-O(7)	131.39(11)	O(1)-Gd(1)-O(4)#1	79.60(11)
O(2)#1-Gd(1)-O(4)#1	103.65(11)	O(7)-Gd(1)-O(4)#1	79.99(11)
O(3)-Gd(1)-O(4)#1	125.16(9)	O(2)#1-Gd(1)-O(3)#1	74.58(9)

O(5)-Gd(1)-O(3)#1	148.72(10)	O(3)-Gd(1)-O(3)#1	74.81(10)
O(1)-Gd(1)-O(3)#1	76.11(10)	O(4)#1-Gd(1)-O(3)#1	53.16(9)
O(7)-Gd(1)-O(3)#1	128.01(10)	O(2)#1-Gd(1)-N(1)#2	76.23(10)
O(5)-Gd(1)-N(1)#2	90.16(12)	O(3)-Gd(1)-N(1)#2	146.25(10)
O(1)-Gd(1)-N(1)#2	141.67(10)	O(4)#1-Gd(1)-N(1)#2	77.69(11)
O(7)-Gd(1)-N(1)#2	71.70(11)	O(5)-Gd(1)-Gd(1)#1	112.36(8)
O(3)#1-Gd(1)-N(1)#2	112.48(10)	O(1)-Gd(1)-Gd(1)#1	69.57(7)
O(2)#1-Gd(1)-Gd(1)#1	70.26(7)	O(7)-Gd(1)-Gd(1)#1	143.44(8)
O(3)-Gd(1)-Gd(1)#1	38.05(6)	O(3)#1-Gd(1)-Gd(1)#1	36.76(6)
O(4)#1-Gd(1)-Gd(1)#1	88.52(7)	Gd(1)-O(3)-Gd(1)#1	105.19(10)
N(1)#2-Gd(1)-Gd(1)#1	139.45(8)		
16			
Er(1)-O(3)	2.373(2)	Er(1)-O(6)#1	2.203(3)
Er(1)-O(4)	2.417(2)	O(1)-Er(1)#2	2.316(2)
Er(1)-O(7)	2.367(2)	O(2)-Er(1)#4	2.331(2)
Er(1)-N(1)	2.490(3)	O(4)-Er(1)#1	2.359(2)
Er(1)-O(1)#2	2.316(2)	O(6)-Er(1)#1	2.203(3)
Er(1)-O(2)#3	2.331(2)	Er(1)-Er(1)#1	3.8034(3)
Er(1)-O(4)#1	2.359(2)		
O(6)#1-Er(1)-O(1)#2	91.00(9)	O(1)#2-Er(1)-O(2)#3	140.20(8)
O(6)#1-Er(1)-O(2)#3	99.78(10)	O(1)#2-Er(1)-O(4)#1	74.44(8)
O(6)#1-Er(1)-O(4)#1	75.37(9)	O(6)#1-Er(1)-O(7)	78.17(9)
O(2)#3-Er(1)-O(4)#1	71.57(8)	O(2)#3-Er(1)-O(7)	73.82(9)
O(1)#2-Er(1)-O(7)	145.95(9)	O(6)#1-Er(1)-O(3)	156.53(9)
O(4)#1-Er(1)-O(7)	131.45(9)	O(2)#3-Er(1)-O(3)	79.82(9)
O(1)#2-Er(1)-O(3)	104.36(9)	O(7)-Er(1)-O(3)	79.24(9)
O(4)#1-Er(1)-O(3)	125.48(8)	O(1)#2-Er(1)-O(4)	74.70(8)
O(6)#1-Er(1)-O(4)	149.10(8)	O(4)#1-Er(1)-O(4)	74.44(9)

O(2)#3-Er(1)-O(4)	76.75(8)	O(3)-Er(1)-O(4)	54.03(8)
O(7)-Er(1)-O(4)	128.16(8)	O(1)#2-Er(1)-N(1)	75.75(9)
O(6)#1-Er(1)-N(1)	88.71(10)	O(4)#1-Er(1)-N(1)	145.74(9)
O(2)#3-Er(1)-N(1)	142.03(9)	O(3)-Er(1)-N(1)	78.29(9)
O(7)-Er(1)-N(1)	71.87(9)	O(6)#1-Er(1)-Er(1)#1	112.86(6)
O(4)-Er(1)-N(1)	113.15(9)	O(2)#3-Er(1)-Er(1)#1	70.02(6)
O(1)#2-Er(1)-Er(1)#1	70.48(6)	O(7)-Er(1)-Er(1)#1	143.44(7)
O(4)#1-Er(1)-Er(1)#1	37.74(6)	O(4)-Er(1)-Er(1)#1	36.70(5)
O(3)-Er(1)-Er(1)#1	89.24(6)	Er(1)#1-O(4)-Er(1)	105.56(9)
N(1)-Er(1)-Er(1)#1	139.68(7)		

Symmetry transformations used to generate equivalent atoms: #1 -x+1,-y,-z; #2 -x+1,y,-z+1 for **1**. #1 -x,-y+1,-z+1; #2 -x,-y+1,-z for **2**. #1 -x+2,-y+1,-z; #2 -x+2,-y+1,-z+1 for **3**. #1 -x,-y+1,-z+2; #2 -x,-y+1,-z+1 for **4**. #1 -x+2,-y,-z; #2 -x+2,-y,-z+1 for **5**. #1 x+1,-y,-z; #2 -x+1,-y-,-z+1 for **6**. #1 -x+1,-y+1,-z+1; #2 -x+ 1,-y+1,-z for **7**. #1 -x+2,y,-z; #2 -x+2,-y,-z+1 for **8**. #1 -x,-y+1,-z+1; #2 -x,-y+1,-z for **9**. #1 -x+1,-y+1,-z+1; #2 -x+1,-y+2,-z+1; #3 x,y+1,z; #4 x,y-1,z for **10**. #1 -x+1,-y+1,-z+1; #2 -x,-y,-z+1; #3 x,y-1,z; #4 -x+1,-y,-z+1; #5 x,y+1,z for **11**. #1 x-1/2,-y+3/2,-z+1/4; #2 x,y+1,z; #3 x-1/2,-y+1/2,-z+1/4; #4 x-1/2,-y+5/2,-z+1/4; #5 x+1/2,-y+5/2,-z+1/2; #6 x+1/2,-y+3/2,z+1/4; #7 x+1/2,-y+1/2,-z+1/4; #8 x,y-1,z for **12**. #1 -x+1,-y+1,-z+1; #2 x,y-1,z; #3 x+1,-y,-z+2; #4 x+1,y,z-1; #5 -x+2,-y,-z+1; #6 x-1,y,z+1; #7 x,y+1,z for **13**. #1 -x+2,y+1,-z; #2 x,y,z+1; #3 -x+2,-y+1,-z+1; #4 x,y,z-1 for **14**. #1 -x,-y+1,-z+1; #2 x,y,z+1; #3 x,y,z-1 for **15**. #1 -x,-y+1,-z; #2 -x,-y+1,-z+1; #3 x,y,z-1; #4 x,y,z+1 for **16**.

Table S3. The CIE coordinates of emissions for 3-Eu, 5-Tb and A-I excited at 365 nm.

Sample	CIE Sample	
Sampic	X	У
5-Tb	0.242	0.397
10% (A)	0.213	0.273
20% (B)	0.208	0.238

30% (C)	0.270	0.231
40% (D)	0.258	0.239
50% (E)	0.280	0.200
60% (F)	0.267	0.174
70% (G)	0.288	0.174
80% (H)	0.319	0.200
90% (I)	0.280	0.150
3-E u	0.614	0.343

Table S4. The CIE coordinates of emissions for C excited at different wavelengths.

Excitation	CIE	
(nm)	X	У
310	0.240	0.381
315	0.254	0.380
320	0.322	0.372

325	0.330	0.368
330	0.334	0.348
335	0.335	0.318
340	0.326	0.293
345	0.314	0.271
350	0.303	0.255
355	0.291	0.241
360	0.280	0.228
365	0.268	0.217
370	0.253	0.204

Figure S1. The detail of π - π interactions in **1**.



Figure S2. The detail of π - π interactions in **2**.



Figure S3. The view of 1D wavy chain inside 12.



Figure S4. The view of double right-handed chain inside 12.



Figure S5. The detail of π - π interactions in 14.







Figure S7. The excitation spectra for compounds 1-16.

Figure S8. The co-existence of the Eu(III), Tb(III) ions and the ligand based emissions under different excitation.



Figure S9. Excitation spectra of the doped compound C.



Figure S10. Emission spectra of compounds 3, 5 and the doped compound C excited

at 330 nm.



Figure S11. The simulated and experimental PXRD patterns for compounds 1-9 (a-simulated 1, b-1, c-2, d-3, e-4, f-5, g-6, h-7, i-8, j-9).



Figure S12. PXRD patterns of compounds 10-13 (a-d) simulated from the X-ray single-crystal structure and as-synthesized.



Figure S13. The simulated and experimental PXRD patterns for compounds 14-16 (a-simulated, b-14, c-15, d-16).



Figure S14. PXRD patterns of 3-Eu, 5-Tb and x%-Eu³⁺-doped 5-Tb



Figure S15. TGA curves for 1-10 (observed weight loss: 3.74% and 84.52%;

calculated weight loss: 3.71% and 84.81%).



Figure S16. TGA curve for 10 (observed weight loss: 16.73% and 62.96%; calculated weight loss: 16.76% and 63.05%).



Figure S17. TGA curve for 11 (observed weight loss: 20.28% and 54.94%; calculated weight loss: 20.16% and 55.07%).



Figure S18. TGA curve for 12 (observed weight loss: 19.91% and 54.22%; calculated weight loss: 20.02% and 54.23%).



Figure S19. TGA curve for 13 (observed weight loss: 22.82% and 54.92%; calculated weight loss: 22.49% and 54.99%).



Figure S20. TGA curve for **14-16** (observed weight loss: 2.21%, 23.74% and 50.98%; calculated weight loss: 2.62%, 23.91% and 51.33%).

