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Supporting materials

Carbonate and phosphite encaged in the frameworks constructed by square lanthanum aminopolycarboxylates and sodium chlorides

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Figure and Table Options

Figure S1. 2D layered structure of $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**) viewed along *c* axis.
Figure S2. 2D layered structure of $Na_{12n}[La(edta)(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**) viewed along *c* axis.
Figure S3. Schematic descriptions of the equivalent topology frameworks in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**) and $Na_{12n}[La(edta)(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**). Color codes: teal for La units, violet for Na units.
Figure S4. (a) Two sodium cations in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**). Symmetry codes: *a* (*x*, 1½ – *y*, 1 – *z*), *b* (½ + *x*, -½ + *y*, *z*), *c* (½ + *x*, 1 – *y*, 1 – *z*); (b) The plane with sodium chlorides in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**). Symmetry codes: *a* (*x*, 1½ – *y*, 1 – *z*), *b* (½ + *x*, -½ + *y*, *z*), *d* (1 – *x*, ½ + *y*, 1 – *z*).
Figure S5. The site of sodium chloride in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**). Symmetry codes: *a* (*x*, 1½ – *y*, 1 – *z*), *b* (1 – *x*, 2 – *y*, 1 – *z*), *c* (1 – *x*, ½ + *y*, *z*).
Figure S6. 2D layered structure of $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35nH_2O (**3**) viewed along *c* axis.
Figure S7. Potassium atoms in $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35H_2O (**3**). Symmetry codes: *a* (1 – *x*, *y*, ½ – *z*).
Figure S8. Potassium atoms in $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35H_2O (**3**). Symmetry codes: *a* (1 – *x*, *y*, ½ – *z*), *b* (1 – *x*, 1 + *y*, ½ – *z*), *c* (*x*, 1 + *y*, *z*), *d* (½ –*x*, –½ – *y*, ½ – *z*), *e* (½ + *x*, ½ + *y*, *z*), *f* (½ – *x*, ½ + *y*, ½ – *z*), *g* (½ + *x*, –½ + *y*, *z*).
Figure S9. TG–DTG curves of $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**).
Figure S10. TG–DTG curves of $Na_{12n}[La(edta)(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**).
Figure S11. TG–DTG curves of $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35nH_2O (**3**).
Figure S12. IR spectra of $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**), $Na_{12n}[La(edta)$

$(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**) and K_{12n}[La(cdta)$(CO_3)]_{4n}$ 35nH_2O (**3**).

Table S1. Selected bond distances (Å) and angles (°) for Na_{12n}[La(edta)$(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**).

Table S2. Selected bond distances (Å) and angles (°) for Na_{12n}[La(edta) $(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**).

Table S3. Selected bond distances (Å) and angles (°) for K_{12n}[La(cdta)$(CO_3)]_{4n}$ 35nH_2O (**3**).

Table S4. Comparisons of selected bond distances (Å) for **1** ~ **77**.

Table S5. Solid ^{13}C NMR data for K_{12n}[La(cdta)$(CO_3)]_{4n}$ 35nH_2O (**3**).

Table S6. Crystal data and structural refinements for **1** ~ **3**.

Figure S1. 2D layered structure of $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**) viewed along *c* axis.

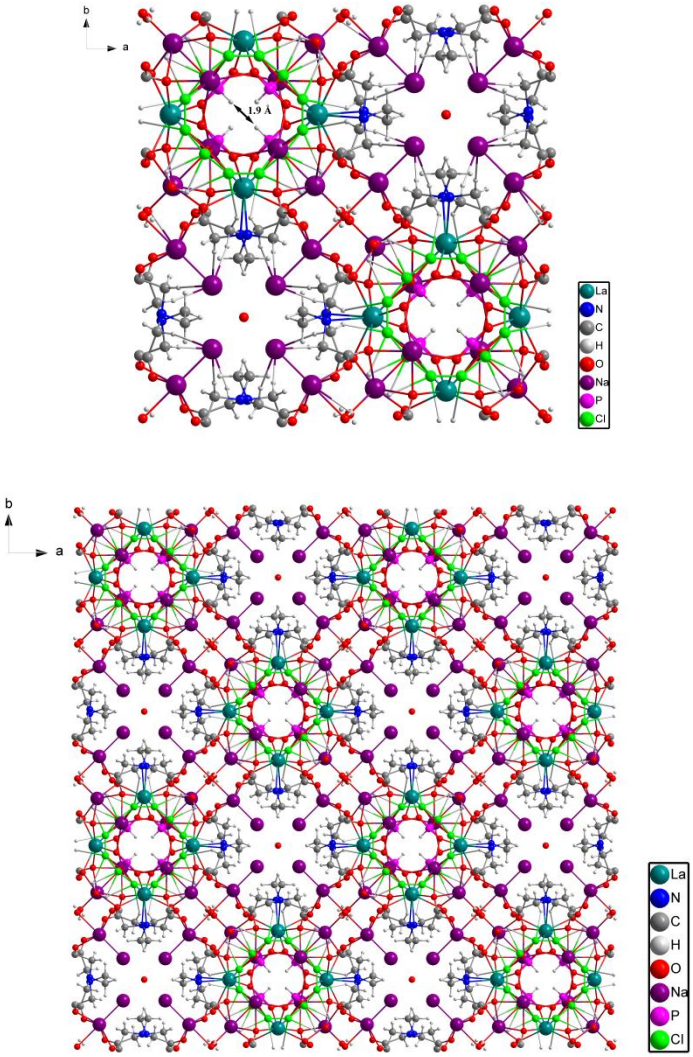

Figure S2. 2D layered structure of $Na_{12n}[La(edta)(CO_3)]_{4n}$ ·8nNaCl ·4nH_2O (**2**) viewed along *c* axis.

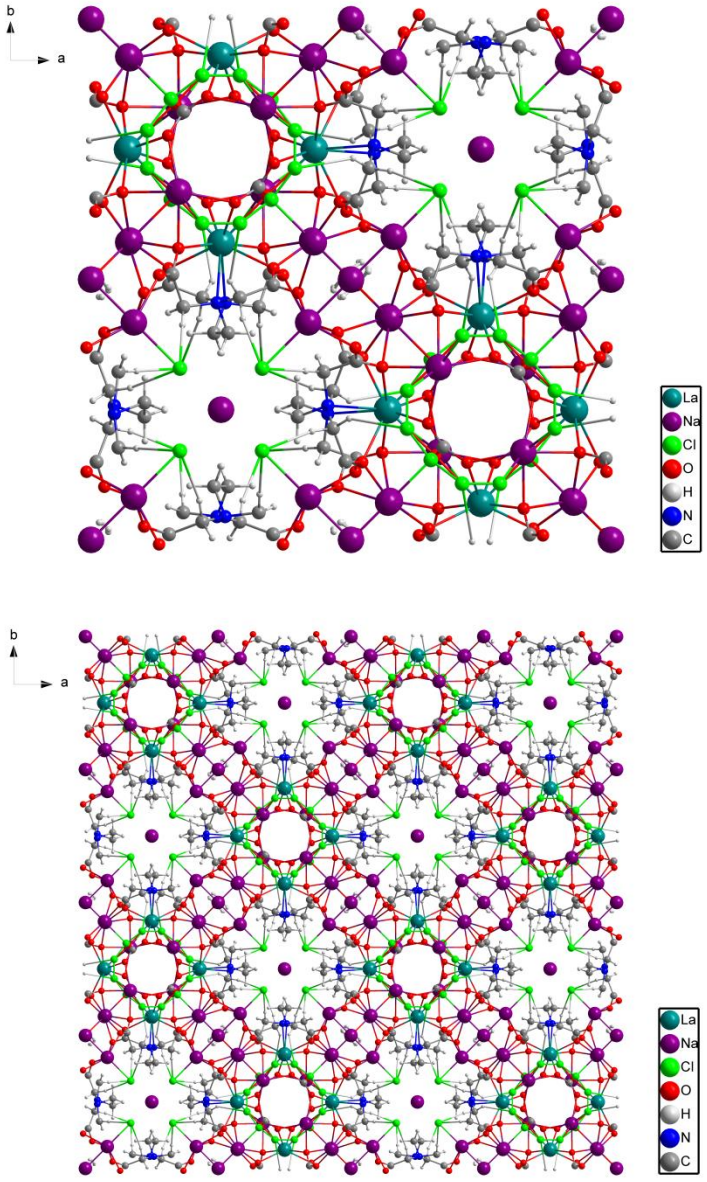

Figure S3. Schematic descriptions of the equivalent topology frameworks in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**) and $Na_{12n}[La(edta)(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**). Color codes: teal for La units, violet for Na units.

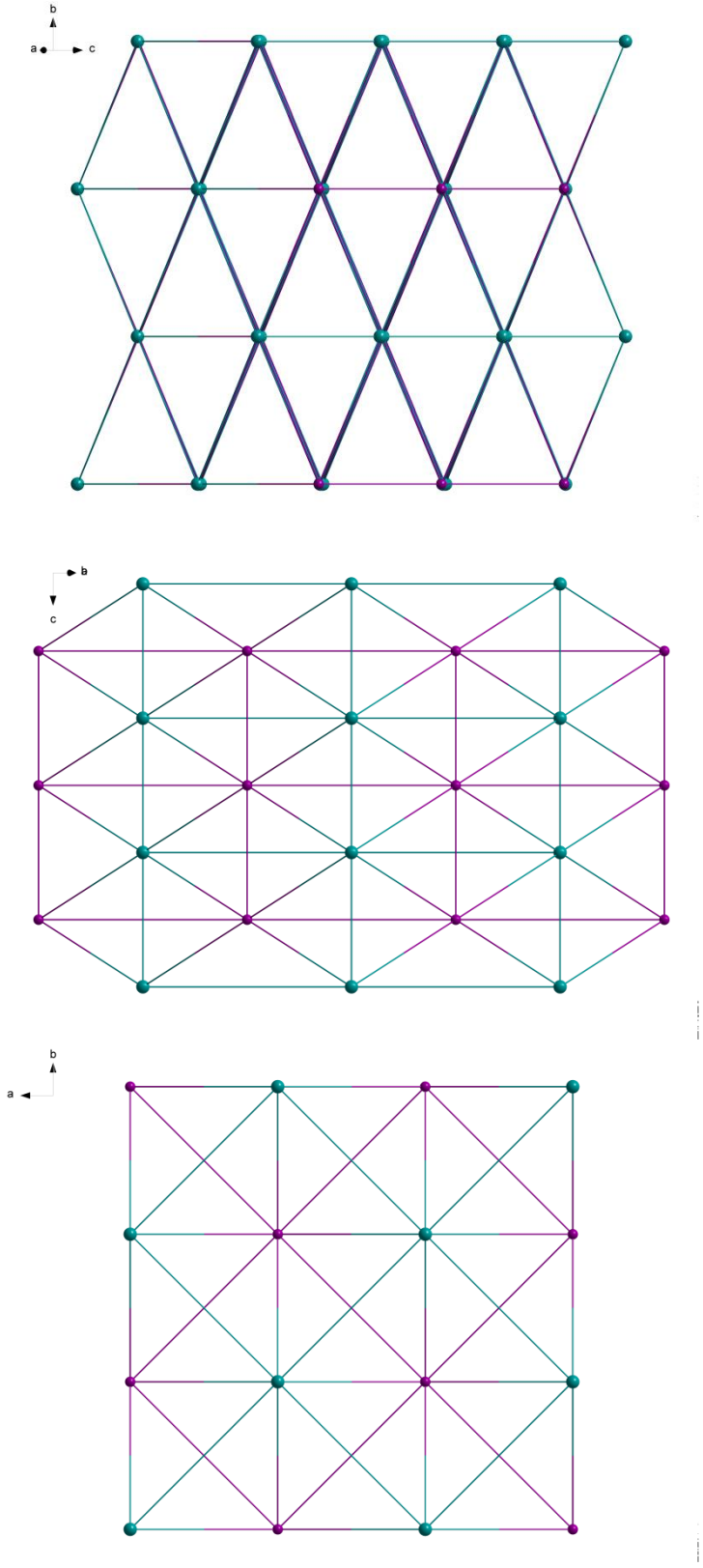

Figure S4. (a) Two sodium cations in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**). Symmetry codes: *a* (*x*, 1½ – *y*, 1 – *z*), *b* (½ + *x*, -½ + *y*, *z*), *c* (½ + *x*, 1 – *y*, 1 – *z*); (b) The plane with sodium chlorides in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**). Symmetry codes: *a* (*x*, 1½ – *y*, 1 – *z*), *b* (½ + *x*, -½ + *y*, *z*), *d* (1 – *x*, ½ + *y*, 1 – *z*).

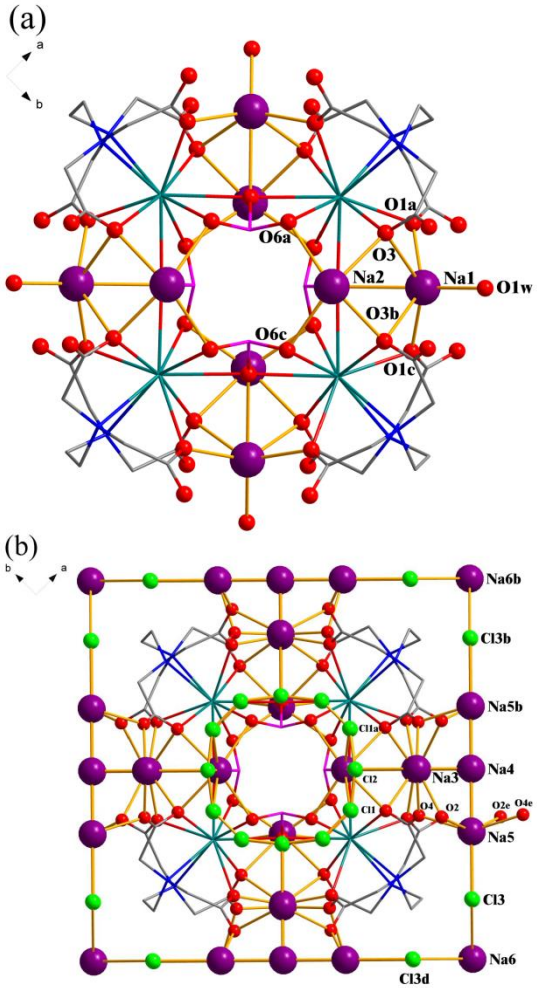

Figure S5. The site of sodium chloride in $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**). Symmetry codes: *a* (*x*, 1½ – *y*, 1 – *z*), *b* (1 – *x*, 2 – *y*, 1 – *z*), *c* (1 – *x*, ½ + *y*, *z*).

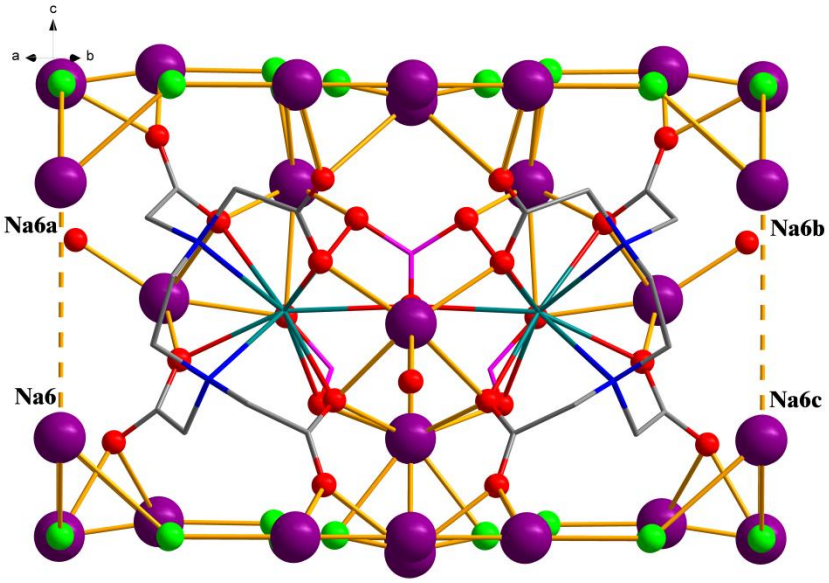

Figure S6. 2D layered structure of $K_{12n}[La(cdta)(CO_3)]_{4n}$ $35nH_2O$ (**3**) viewed along *c* axis.

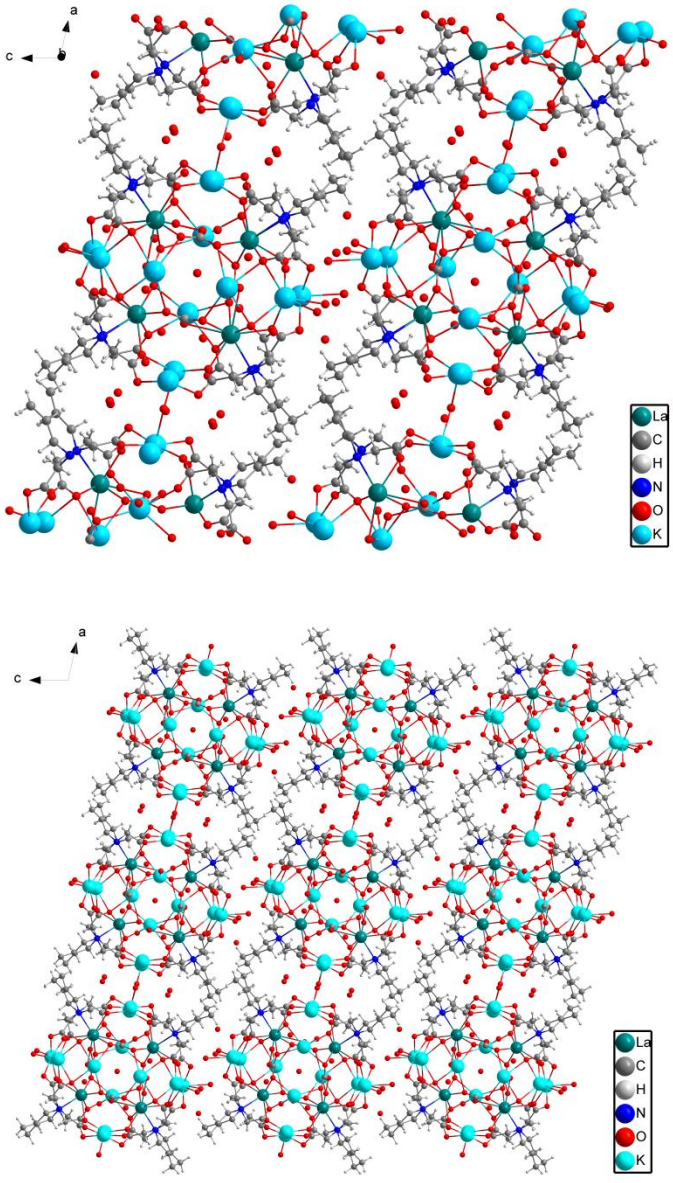

Figure S7. Potassium atoms in $K_{12n}[La(cdta)(CO_3)]_{4n}\cdot 35H_2O$ (**3**). Symmetry codes: *a* (1 – *x*, *y*, ½ – *z*).

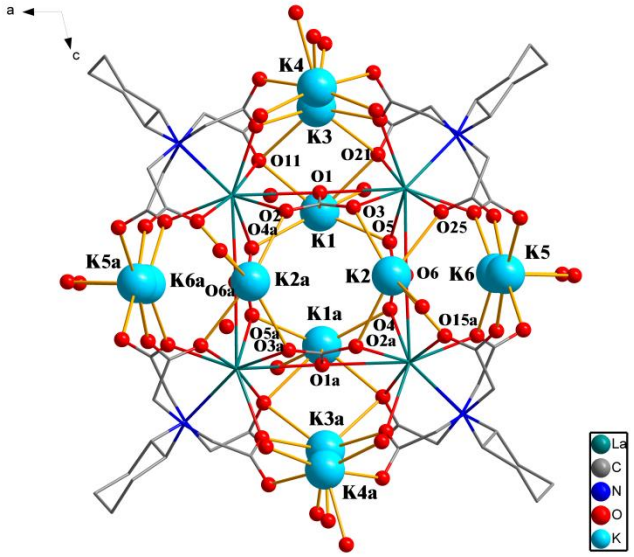

Figure S8. Potassium atoms in $K_{12n}[La(cdta)(CO_3)]_{4n}\cdot 35H_2O$ (**3**). Symmetry codes: *a* (1 – *x*, *y*, ½ – *z*), *b* (1 – *x*, 1 + *y*, ½ – *z*), *c* (*x*, 1 + *y*, *z*), *d* (½ –*x*, –½ – *y*, ½ – *z*), *e* (½ + *x*, ½ + *y*, *z*), *f* (½ – *x*, ½ + *y*, ½ – *z*), *g* (½ + *x*, –½ + *y*, *z*).

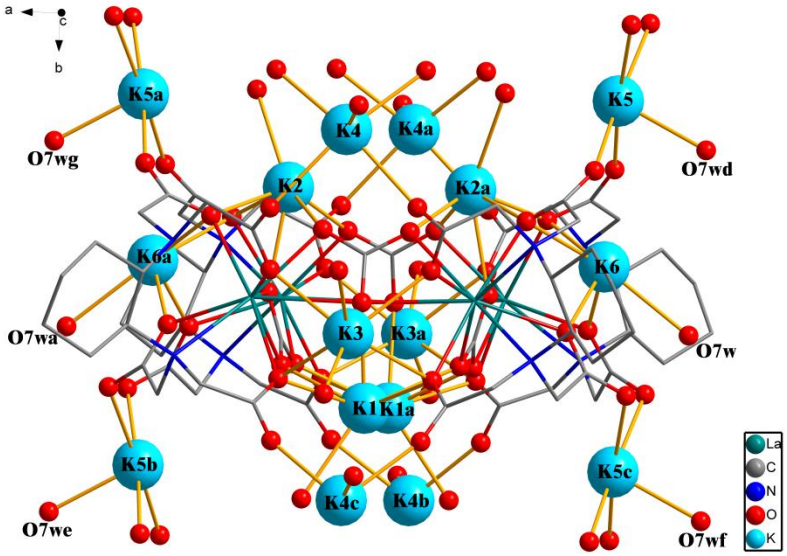

Figure S9. TG–DTG curves of $Na_{12n}[La(edta)(HPO_3)]_{4n}$ ·nNaCl ·nH_2O (**1**).

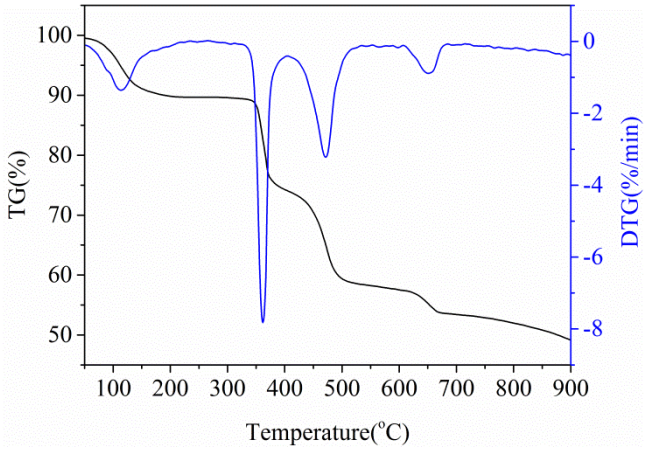

Figure S10. TG–DTG curves of $Na_{12n}[La(edta)(CO_3)]_{4n}$ ·nNaCl ·nH_2O (**2**).

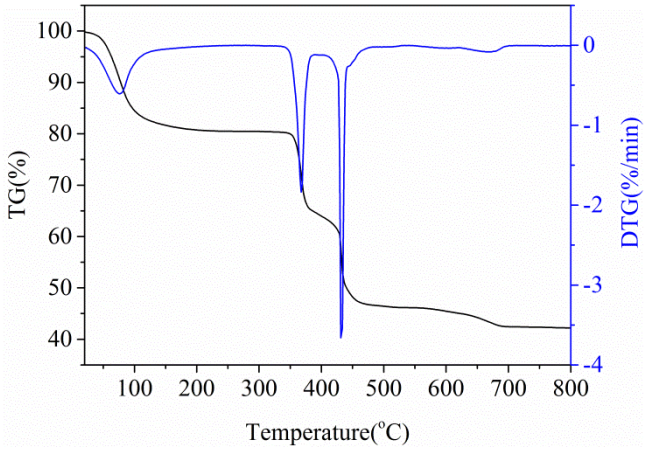

Figure S11. TG–DTG curves of $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35nH_2O (**3**).

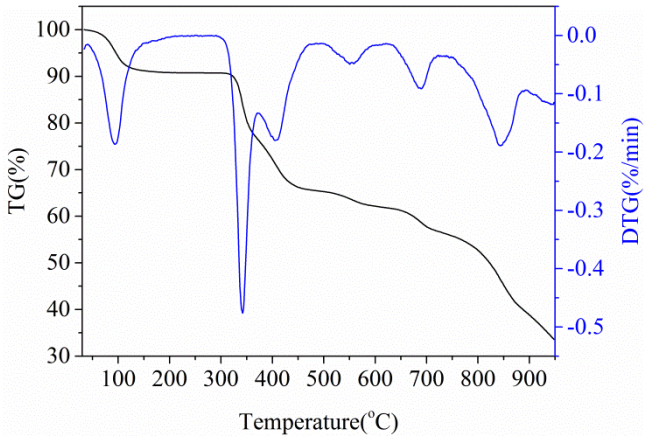

Figure S12. IR spectra of $Na_{12n}[La(edta)(HPO_3)]_{4n}$ 8nNaCl 4nH_2O (**1**), $Na_{12n}[La(edta)(CO_3)]_{4n}$ 8nNaCl 4nH_2O (**2**) and $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35nH_2O (**3**).

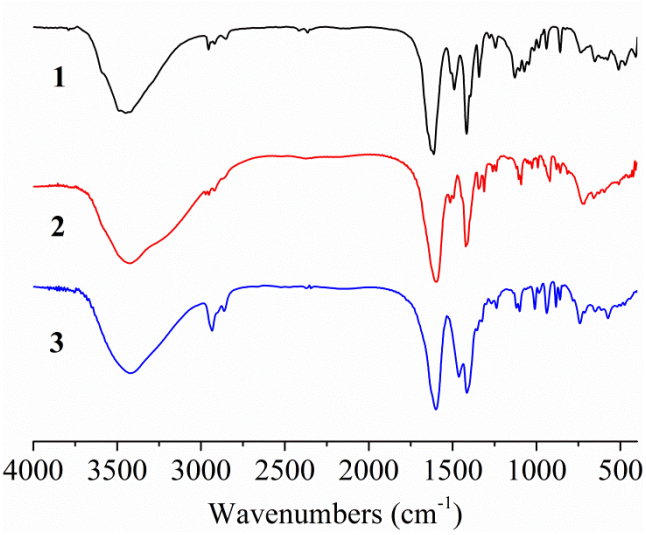

Table S1. Selected bond distances (Å) and angles (°) for $Na_{12n}[La(edta)(HPO_3)]_{4n}$ ·8n$NaCl$ ·4nH_2O (**1**).

La(1)–O(1)	2.564(7)	La(1)–P(1)	3.13(1)
La(1)–O(1a)	2.564(7)	La(1)–P(1b)	3.13(1)
La(1)–O(3)	2.577(7)	La(1)–N(1)	2.821(8)
La(1)–O(3a)	2.577(7)	La(1)–N(1a)	2.822(8)
La(1)–O(5)	2.7014(9)	La(1c)–O(5)	2.7014(8)
La(1)–O(5b)	2.7014(9)	La(1c)–P(1)	3.13(1)
La(1)–O(6)	2.606(8)	La(1c)–P(2)	3.15(1)
La(1)–O(6a)	2.606(8)	La(1c)–Na(1)	3.711(5)
O(1)–La(1)–O(1a)	133.4(3)	P(1b)–La(1)–N(1a)	153.7(4)
O(1)–La(1)–O(3)	102.8(2)	N(1)–La(1)–N(1a)	62.5(3)
O(1)–La(1)–O(3a)	73.1(2)	La(1)–P(1)–La(1c)	118.9(7)
O(1a)–La(1)–O(3)	73.1(2)	O(5)–P(1)–La(1)	59.5(3)
O(1a)–La(1)–O(3a)	102.8(2)	O(5)–P(1)–La(1c)	59.5(3)
O(1)–La(1)–O(5)	150.8(4)	O(6)–P(1)–La(1)	55.4(5)
O(1)–La(1)–O(5b)	72.3(3)	O(6d)–P(1)–La(1)	150(1)
O(1a)–La(1)–O(5)	72.3(3)	O(6)–P(1)–La(1c)	150(1)
O(1a)–La(1)–O(5b)	150.8(4)	O(6d)–P(1)–La(1c)	55.4(5)
O(1)–La(1)–O(6)	136.4(2)	P(2)–P(1)–La(1)	83(1)
O(1)–La(1)–O(6a)	76.7(3)	P(2)–P(1)–La(1c)	83(1)
O(1a)–La(1)–O(6)	76.7(3)	La(1)–P(1)–Na(2b)	72.2(1)
O(1a)–La(1)–O(6a)	136.4(2)	La(1)–P(1)–Na(2c)	167.5(6)
O(1)–La(1)–P(1)	143.4(4)	La(1c)–P(1)–Na(2b)	167.5(6)
O(1)–La(1)–P(1b)	82.1(4)	La(1c)–P(1)–Na(2c)	72.2(1)
O(1a)–La(1)–P(1)	82.1(4)	La(1)–P(2)–La(1c)	117.6(8)
O(1a)–La(1)–P(1b)	143.4(4)	O(5)–P(2)–La(1)	58.8(4)
O(1)–La(1)–N(1)	60.0(2)	O(5)–P(2)–La(1c)	58.8(4)
O(1)–La(1)–N(1a)	79.8(2)	O(6)–P(2)–La(1)	54.2(7)
O(1a)–La(1)–N(1)	79.8(2)	O(6d)–P(2)–La(1)	153(2)
O(1a)–La(1)–N(1a)	60.0(2)	O(6)–P(2)–La(1c)	153(2)
O(3)–La(1)–O(3a)	170.1(3)	O(6d)–P(2)–La(1c)	54.2(7)
O(3)–La(1)–O(5)	67.9(3)	P(1)–P(2)–La(1)	80(1)
O(3)–La(1)–O(5b)	120.0(3)	P(1)–P(2)–La(1c)	80(1)
O(3a)–La(1)–O(5)	120.0(3)	La(1)–P(2)–Na(1)	70.2(4)
O(3a)–La(1)–O(5b)	67.9(3)	La(1c)–P(2)–Na(1)	70.2(4)
O(3)–La(1)–O(6)	117.8(2)	La(1)–Na(1)–La(1c)	93.3(2)
O(3)–La(1)–O(6a)	69.0(2)	O(1a)–Na(1)–La(1)	43.2(2)
O(3a)–La(1)–O(6)	69.0(2)	O(1c)–Na(1)–La(1)	117.6(3)
O(3a)–La(1)–O(6a)	117.8(2)	O(1a)–Na(1)–La(1c)	117.6(3)
O(3)–La(1)–P(1)	95.9(4)	O(1c)–Na(1)–La(1c)	43.2(2)
O(3)–La(1)–P(1b)	92.4(4)	O(3)–Na(1)–La(1)	43.9(2)
O(3a)–La(1)–P(1)	92.4(4)	O(3d)–Na(1)–La(1)	101.5(3)

O(3a)–La(1)–P(1b)	95.9(4)	O(3)–Na(1)–La(1c)	101.5(3)
O(3)–La(1)–N(1)	60.6(2)	O(3d)–Na(1)–La(1c)	43.9(2)
O(3)–La(1)–N(1a)	110.1(2)	O(5)–Na(1)–La(1)	46.70(8)
O(3a)–La(1)–N(1)	110.1(2)	O(5)–Na(1)–La(1c)	46.70(8)
O(3a)–La(1)–N(1a)	60.6(2)	O(1w)–Na(1)–La(1)	127.5(2)
O(5b)–La(1)–O(5)	88.2(6)	O(1w)–Na(1)–La(1c)	127.5(2)
O(6)–La(1)–O(5)	51.4(3)	P(2)–Na(1)–La(1)	53.1(3)
O(6a)–La(1)–O(5)	74.1(4)	P(2)–Na(1)–La(1c)	53.1(3)
O(6)–La(1)–O(5b)	74.1(4)	Na(2)–Na(1)–La(1)	62.3(1)
O(6a)–La(1)–O(5b)	51.4(3)	Na(2)–Na(1)–La(1c)	62.3(1)
O(5)–La(1)–P(1)	28.1(4)	C(1)–O(1)–La(1)	123.0(6)
O(5)–La(1)–P(1b)	71.1(5)	Na(1b)–O(1)–La(1)	98.1(3)
O(5b)–La(1)–P(1)	71.1(5)	C(3)–O(3)–La(1)	126.8(6)
O(5b)–La(1)–P(1b)	28.1(4)	Na(1)–O(3)–La(1)	92.1(3)
O(5)–La(1)–N(1)	126.5(3)	Na(2)–O(3)–La(1)	99.6(3)
O(5)–La(1)–N(1a)	129.3(4)	La(1)–O(5)–La(1c)	174.9(6)
O(5b)–La(1)–N(1)	129.3(4)	P(1)–O(5)–La(1)	92.4(3)
O(5b)–La(1)–N(1a)	126.5(3)	P(1)–O(5)–La(1c)	92.4(3)
O(6a)–La(1)–O(6)	102.6(4)	P(2)–O(5)–La(1)	92.4(3)
O(6)–La(1)–P(1)	26.3(4)	P(2)–O(5)–La(1c)	92.4(3)
O(6)–La(1)–P(1b)	81.2(4)	Na(1)–O(5)–La(1)	88.7(3)
O(6a)–La(1)–P(1)	81.2(4)	Na(1)–O(5)–La(1c)	88.7(3)
O(6a)–La(1)–P(1b)	26.3(4)	La(1)–O(5)–Na(2)	87.7(3)
O(6)–La(1)–N(1)	155.5(3)	La(1c)–O(5)–Na(2)	87.7(3)
O(6)–La(1)–N(1a)	99.1(3)	P(1)–O(6)–La(1)	98.3(8)
O(6a)–La(1)–N(1)	99.1(3)	P(2)–O(6)–La(1)	101(1)
O(6a)–La(1)–N(1a)	155.5(3)	Na(2b)–O(6)–La(1)	98.1(3)
P(1)–La(1)–P(1b)	65.8(7)	C(2)–N(1)–La(1)	103.8(6)
P(1)–La(1)–N(1)	153.7(4)	C(4)–N(1)–La(1)	109.8(6)
P(1)–La(1)–N(1a)	122.7(4)	C(5)–N(1)–La(1)	115.2(6)
P(1b)–La(1)–N(1)	122.6(4)		

Symmetry codes: (a) *x*, 1½ – *y*, 1 – *z*; (b) -½ + *y*, 1 – *x*, 1 – *z*; (c) 1 – *y*, ½ + *x*, 1 – *z*; (d) -½ + *y*, ½ + *x*, *z*.

Table S2. Selected bond distances (Å) and angles (°) for $Na_{12n}[La(edta)(CO_3)]_{4n}$ ·8n$NaCl$ ·4nH_2O (**2**).

La(1)–O(1)	2.571(6)	La(1)–C(6)	3.046(6)
La(1)–O(1a)	2.570(6)	La(1)–C(6b)	3.046(6)
La(1)–O(3)	2.574(6)	La(1)–N(1)	2.829(6)
La(1)–O(3a)	2.574(6)	La(1)–N(1a)	2.829(6)
La(1)–O(5)	2.6735(7)	La(1b)–Na(1)	3.692(4)
La(1)–O(5b)	2.6735(7)	La(1c)–Na(2)	3.806(4)
La(1)–O(6)	2.586(6)	La(1c)–O(5)	2.6735(7)
La(1)–O(6a)	2.586(6)	La(1c)–C(6)	3.046(6)
O(1)–La(1)–O(1a)	170.1(3)	C(6b)–La(1)–N(1)	115.6(3)
O(1)–La(1)–O(3)	102.8(2)	C(6b)–La(1)–N(1a)	146.8(3)
O(1)–La(1)–O(3a)	73.1(2)	N(1)–La(1)–N(1a)	62.4(3)
O(1a)–La(1)–O(3)	73.1(2)	La(1)–Na(1)–La(1b)	92.6(1)
O(1a)–La(1)–O(3a)	102.8(2)	Na(2b)–Na(1)–La(1)	61.9(1)
O(1)–La(1)–O(5)	68.7(2)	Na(2b)–Na(1)–La(1b)	61.9(1)
O(1)–La(1)–O(5b)	119.1(2)	O(1a)–Na(1)–La(1)	44.1(1)
O(1a)–La(1)–O(5)	119.1(2)	O(1a)–Na(1)–La(1b)	100.7(2)
O(1a)–La(1)–O(5b)	68.7(2)	O(1b)–Na(1)–La(1)	100.7(2)
O(1)–La(1)–O(6)	117.2(2)	O(1b)–Na(1)–La(1b)	44.1(1)
O(1)–La(1)–O(6a)	69.7(2)	O(3)–Na(1)–La(1)	43.7(2)
O(1a)–La(1)–O(6)	69.7(2)	O(3)–Na(1)–La(1b)	117.4(2)
O(1a)–La(1)–O(6a)	117.2(2)	O(3d)–Na(1)–La(1)	117.4(2)
O(1)–La(1)–C(6)	93.4(2)	O(3d)–Na(1)–La(1b)	43.7(2)
O(1)–La(1)–C(6b)	93.9(2)	O(5b)–Na(1)–La(1)	46.37(7)
O(1a)–La(1)–C(6)	93.9(2)	O(5b)–Na(1)–La(1b)	46.38(7)
O(1a)–La(1)–C(6b)	93.4(2)	O(1w)–Na(1)–La(1)	128.1(2)
O(1)–La(1)–N(1)	60.6(2)	O(1w)–Na(1)–La(1b)	128.1(2)
O(1)–La(1)–N(1a)	110.1(2)	La(1)–Na(2)–La(1c)	89.1(1)
O(1a)–La(1)–N(1)	110.1(2)	Na(1c)–Na(2)–La(1)	58.83(9)
O(1a)–La(1)–N(1a)	60.6(2)	Na(1c)–Na(2)–La(1c)	58.83(9)
O(3)–La(1)–O(3a)	132.9(3)	Na(3e)–Na(2)–La(1)	113.8(2)
O(3)–La(1)–O(5)	151.7(2)	Na(3e)–Na(2)–La(1c)	113.8(2)
O(3)–La(1)–O(5b)	72.1(2)	C(l1)–Na(2)–La(1)	133.2(1)
O(3a)–La(1)–O(5)	72.1(2)	C(l1)–Na(2)–La(1c)	133.2(1)
O(3a)–La(1)–O(5b)	151.7(2)	C(l2)–Na(2)–La(1)	96.8(4)
O(3)–La(1)–O(6)	136.9(2)	C(l2)–Na(2)–La(1c)	168.9(4)
O(3)–La(1)–O(6a)	77.1(2)	C(l2f)–Na(2)–La(1)	168.9(4)
O(3a)–La(1)–O(6)	77.1(2)	C(l2f)–Na(2)–La(1c)	96.8(4)
O(3a)–La(1)–O(6a)	136.9(2)	O(1)–Na(2)–La(1)	41.8(2)
O(3)–La(1)–C(6)	152.6(3)	O(1)–Na(2)–La(1c)	100.4(2)
O(3)–La(1)–C(6b)	72.8(3)	O(1f)–Na(2)–La(1)	100.4(2)
O(3a)–La(1)–C(6)	72.8(3)	O(1f)–Na(2)–La(1c)	41.8(2)

O(3a)–La(1)–C(6b)	152.6(3)	O(5)–Na(2)–La(1)	44.54(6)
O(3)–La(1)–N(1)	59.9(2)	O(5)–Na(2)–La(1c)	44.54(6)
O(3)–La(1)–N(1a)	79.5(2)	O(6a)–Na(2)–La(1)	42.2(2)
O(3a)–La(1)–N(1)	79.5(2)	O(6a)–Na(2)–La(1c)	110.9(2)
O(3a)–La(1)–N(1a)	59.9(2)	O(6c)–Na(2)–La(1)	110.9(2)
O(5)–La(1)–O(5b)	88.2(4)	O(6c)–Na(2)–La(1c)	42.2(2)
O(5)–La(1)–O(6)	49.8(2)	C(3)–O(1)–La(1)	126.5(5)
O(5)–La(1)–O(6a)	74.7(2)	Na(1c)–O(1)–La(1)	91.9(2)
O(5b)–La(1)–O(6)	74.7(2)	Na(2)–O(1)–La(1)	99.2(2)
O(5b)–La(1)–O(6a)	49.8(2)	C(1)–O(3)–La(1)	123.0(5)
O(5)–La(1)–C(6)	25.4(3)	Na(1)–O(3)–La(1)	97.8(3)
O(5)–La(1)–C(6b)	80.7(3)	La(1)–O(5)–La(1c)	173.2(4)
O(5b)–La(1)–C(6)	80.7(3)	C(6)–O(5)–La(1)	93.4(2)
O(5b)–La(1)–C(6b)	25.4(3)	C(6)–O(5)–La(1c)	93.4(2)
O(5)–La(1)–N(1)	127.0(2)	Na(1c)–O(5)–La(1c)	88.5(2)
O(5)–La(1)–N(1a)	128.8(2)	Na(1c)–O(5)–La(1)	88.5(2)
O(5b)–La(1)–N(1)	128.8(2)	Na(2)–O(5)–La(1)	86.9(2)
O(5b)–La(1)–N(1a)	127.0(2)	Na(2)–O(5)–La(1c)	86.9(2)
O(6)–La(1)–O(6a)	101.4(3)	C(6)–O(6)–La(1)	98.5(6)
O(6)–La(1)–C(6)	24.4(2)	Na(2b)–O(6)–La(1)	98.6(2)
O(6)–La(1)–C(6b)	88.4(3)	La(1)–C(6)–La(1c)	122.4(4)
O(6a)–La(1)–C(6)	88.4(3)	O(5)–C(6)–La(1)	61.2(2)
O(6a)–La(1)–C(6b)	24.4(2)	O(5)–C(6)–La(1c)	61.2(2)
O(6)–La(1)–N(1)	155.8(2)	O(6)–C(6)–La(1)	57.1(4)
O(6)–La(1)–N(1a)	99.9(2)	O(6)–C(6)–La(1c)	178.5(9)
O(6a)–La(1)–N(1)	99.9(2)	O(6f)–C(6)–La(1)	178.5(9)
O(6a)–La(1)–N(1a)	155.8(2)	O(6f)–C(6)–La(1c)	57.1(4)
C(6)–La(1)–C(6b)	84.3(5)	C(2)–N(1)–La(1)	103.9(5)
C(6)–La(1)–N(1)	146.8(3)	C(4)–N(1)–La(1)	109.1(5)
C(6)–La(1)–N(1a)	115.6(3)	C(5)–N(1)–La(1)	114.9(5)

Symmetry codes: (a) ½ – *x*, *y*, 1 – *z*; (b) 1 – *y*, ½ + *x*, 1 – *z*; (c) -½ + *y*, 1 – *x*, 1 – *z*; (d) 1 – *y*, 1 – *x*, *z*; (e) ½ – *y*, *x*, *z*; (f) -½ + *y*, ½ + *x*, *z*.

Table S3. Selected bond distances (Å) and angles (°) for $K_{12n}[La(cdta)(CO_3)]_{4n}$ 35nH_2O (**3**).

La(1)–O(1)	2.914(7)	La(1a)–C(2)	3.11(1)
La(1)–O(2)	2.539(6)	La(2)–O(1)	2.845(7)
La(1)–O(4a)	2.515(7)	La(2)–O(3)	2.532(7)
La(1)–O(6a)	2.889(7)	La(2)–O(5)	2.532(7)
La(1)–O(11)	2.519(7)	La(2)–O(6)	2.880(7)
La(1)–O(13)	2.526(7)	La(2)–O(21)	2.530(7)
La(1)–O(15)	2.509(7)	La(2)–O(23)	2.528(6)
La(1)–O(17)	2.547(7)	La(2)–O(25)	2.501(6)
La(1)–C(1)	3.135(9)	La(2)–O(27)	2.543(7)
La(1)–C(2a)	3.11(1)	La(2)–C(1)	3.105(9)
La(1)–N(1)	2.870(7)	La(2)–C(2)	3.09(1)
La(1)–N(2)	2.875(7)	La(2)–N(3)	2.873(7)
La(1a)–O(4)	2.515(7)	La(2)–N(4)	2.912(8)
La(1a)–O(6)	2.889(7)	La(2a)–K(2)	4.060(3)
O(1)–La(1)–O(2)	47.5(2)	O(27)–La(2)–C(1)	75.2(2)
O(1)–La(1)–O(4a)	75.1(2)	O(27)–La(2)–C(2)	154.4(2)
O(1)–La(1)–O(6a)	89.5(2)	O(27)–La(2)–N(3)	78.1(2)
O(1)–La(1)–O(11)	67.1(2)	O(27)–La(2)–N(4)	59.5(2)
O(1)–La(1)–O(13)	152.5(2)	C(1)–La(2)–C(2)	82.8(3)
O(1)–La(1)–O(15)	119.9(2)	C(1)–La(2)–N(3)	146.7(2)
O(1)–La(1)–O(17)	71.0(2)	C(1)–La(2)–N(4)	118.6(2)
O(1)–La(1)–C(1)	24.2(2)	C(2)–La(2)–N(3)	116.6(2)
O(1)–La(1)–C(2a)	82.3(2)	C(2)–La(2)–N(4)	145.5(2)
O(1)–La(1)–N(1)	125.1(2)	N(3)–La(2)–N(4)	61.0(2)
O(1)–La(1)–N(2)	128.4(2)	La(1)–C(1)–La(2)	134.6(3)
O(2)–La(1)–O(4a)	97.5(2)	O(1)–C(1)–La(1)	68.3(5)
O(2)–La(1)–O(6a)	74.5(2)	O(2)–C(1)–La(1)	51.4(5)
O(2)–La(1)–O(11)	113.8(2)	O(3)–C(1)–La(1)	172.5(7)
O(2)–La(1)–O(13)	139.3(2)	La(1a)–C(2)–La(2)	136.8(4)
O(2)–La(1)–O(15)	72.6(2)	O(4)–C(2)–La(1a)	51.6(5)
O(2)–La(1)–O(17)	76.7(2)	O(5)–C(2)–La(1a)	169.6(8)
O(2)–La(1)–C(1)	23.3(2)	O(6)–C(2)–La(1a)	68.3(6)
O(2)–La(1)–C(2a)	86.3(2)	O(1)–C(1)–La(2)	66.4(5)
O(2)–La(1)–N(1)	155.3(2)	O(2)–C(1)–La(2)	174.0(7)
O(2)–La(1)–N(2)	103.0(2)	O(3)–C(1)–La(2)	52.3(5)
O(4a)–La(1)–O(6a)	47.7(2)	O(4)–C(2)–La(2)	171.6(8)
O(4a)–La(1)–O(11)	71.4(2)	O(5)–C(2)–La(2)	53.1(5)
O(4a)–La(1)–O(13)	77.4(2)	O(6)–C(2)–La(2)	68.6(6)
O(4a)–La(1)–O(15)	115.1(2)	C(11)–N(1)–La(1)	108.6(5)
O(4a)–La(1)–O(17)	138.5(2)	C(13)–N(1)–La(1)	100.9(5)
O(4a)–La(1)–C(1)	86.5(2)	C(19)–N(1)–La(1)	115.3(5)

O(4a)–La(1)–C(2a)	23.9(3)	C(15)–N(2)–La(1)	107.7(5)
O(4a)–La(1)–N(1)	102.7(2)	C(17)–N(2)–La(1)	101.0(5)
O(4a)–La(1)–N(2)	156.0(2)	C(20)–N(2)–La(1)	115.6(5)
O(6a)–La(1)–O(11)	118.8(2)	C(21)–N(3)–La(2)	108.5(5)
O(6a)–La(1)–O(13)	72.7(2)	C(23)–N(3)–La(2)	101.2(5)
O(6a)–La(1)–O(15)	68.5(2)	C(29)–N(3)–La(2)	116.2(5)
O(6a)–La(1)–O(17)	151.2(2)	C(25)–N(4)–La(2)	106.5(5)
O(6a)–La(1)–C(1)	81.5(2)	C(27)–N(4)–La(2)	100.5(5)
O(6a)–La(1)–C(2a)	23.7(2)	C(30)–N(4)–La(2)	116.0(5)
O(6a)–La(1)–N(1)	130.0(2)	La(1)–O(1)–La(2)	176.1(3)
O(6a)–La(1)–N(2)	127.0(2)	C(1)–O(1)–La(1)	87.6(5)
O(11)–La(1)–O(13)	102.9(2)	C(1)–O(1)–La(2)	89.2(5)
O(11)–La(1)–O(15)	170.9(2)	K(1)–O(1)–La(1)	91.2(2)
O(11)–La(1)–O(17)	73.7(2)	K(1)–O(1)–La(2)	92.7(2)
O(11)–La(1)–C(1)	90.8(2)	K(3)–O(1)–La(1)	89.9(2)
O(11)–La(1)–C(2a)	95.3(3)	K(3)–O(1)–La(2)	90.2(2)
O(11)–La(1)–N(1)	60.8(2)	C(1)–O(2)–La(1)	105.4(6)
O(11)–La(1)–N(2)	110.5(2)	K(2)–O(2)–La(1)	98.0(2)
O(13)–La(1)–O(15)	73.4(2)	C(1)–O(3)–La(2)	104.0(6)
O(13)–La(1)–O(17)	132.7(2)	K(2a)–O(3)–La(2)	98.6(2)
O(13)–La(1)–C(1)	154.1(2)	C(2)–O(4)–La(1a)	104.4(6)
O(13)–La(1)–C(2a)	73.0(2)	K(1a)–O(4)–La(1a)	99.9(3)
O(13)–La(1)–N(1)	60.5(2)	C(2)–O(5)–La(2)	102.7(7)
O(13)–La(1)–N(2)	78.9(2)	K(1)–O(5)–La(2)	100.5(2)
O(15)–La(1)–O(17)	102.5(2)	La(1a)–O(6)–La(2)	174.5(3)
O(15)–La(1)–C(1)	95.8(2)	C(2)–O(6)–La(1a)	87.9(6)
O(15)–La(1)–C(2a)	91.6(3)	C(2)–O(6)–La(2)	87.6(6)
O(15)–La(1)–N(1)	110.6(2)	K(2a)–O(6)–La(1a)	92.7(2)
O(15)–La(1)–N(2)	60.8(2)	K(2a)–O(6)–La(2)	92.8(2)
O(17)–La(1)–C(1)	72.1(2)	K(6)–O(6)–La(1a)	89.7(2)
O(17)–La(1)–C(2a)	153.3(2)	K(6)–O(6)–La(2)	89.8(2)
O(17)–La(1)–N(1)	78.8(2)	C(12)–O(11)–La(1)	128.6(7)
O(17)–La(1)–N(2)	60.1(2)	K(1)–O(11)–La(1)	101.1(2)
C(1)–La(1)–C(2a)	84.1(3)	K(3)–O(11)–La(1)	100.6(3)
C(1)–La(1)–N(1)	144.2(2)	C(14)–O(13)–La(1)	124.1(6)
C(1)–La(1)–N(2)	117.0(2)	K(6a)–O(13)–La(1)	106.3(3)
C(2a)–La(1)–N(1)	117.6(2)	C(16)–O(15)–La(1)	127.4(7)
C(2a)–La(1)–N(2)	145.3(3)	K(2)–O(15)–La(1)	100.4(2)
N(1)–La(1)–N(2)	61.5(2)	K(6a)–O(15)–La(1)	101.6(3)
O(1)–La(2)–O(3)	48.1(2)	C(18)–O(17)–La(1)	123.3(6)
O(1)–La(2)–O(5)	74.8(2)	K(3)–O(17)–La(1)	105.0(3)
O(1)–La(2)–O(6)	87.9(2)	C(22)–O(21)–La(2)	128.2(7)
O(1)–La(2)–O(21)	68.6(2)	K(1)–O(21)–La(2)	99.0(2)
O(1)–La(2)–O(23)	151.2(2)	K(3)–O(21)–La(2)	99.6(2)

O(1)–La(2)–O(25)	119.4(2)	C(24)–O(23)–La(2)	123.0(5)
O(1)–La(2)–O(27)	73.9(2)	K(6)–O(23)–La(2)	107.7(2)
O(1)–La(2)–C(1)	24.5(2)	C(26)–O(25)–La(2)	128.7(6)
O(1)–La(2)–C(2)	80.6(2)	K(2a)–O(25)–La(2)	100.0(2)
O(1)–La(2)–N(3)	127.0(2)	K(6)–O(25)–La(2)	100.4(2)
O(1)–La(2)–N(4)	130.3(2)	C(28)–O(27)–La(2)	124.3(6)
O(3)–La(2)–O(5)	99.4(2)	K(3)–O(27)–La(2)	103.2(3)
O(3)–La(2)–O(6)	74.5(2)	O(2)–K(2)–La(2a)	111.7(2)
O(3)–La(2)–O(21)	115.5(2)	O(3a)–K(2)–La(2a)	38.1(1)
O(3)–La(2)–O(23)	137.7(2)	O(6a)–K(2)–La(2a)	45.1(2)
O(3)–La(2)–O(25)	71.5(2)	O(15)–K(2)–La(2a)	104.3(2)
O(3)–La(2)–O(27)	78.6(2)	O(25a)–K(2)–La(2a)	37.3(1)
O(3)–La(2)–C(1)	23.7(2)	O(1w)–K(2)–La(2a)	99.8(6)
O(3)–La(2)–C(2)	86.6(3)	O(5w)–K(2)–La(2a)	144.3(7)
O(3)–La(2)–N(3)	156.3(2)	O(8wb)–K(2)–La(2a)	74.9(4)
O(3)–La(2)–N(4)	103.2(2)	O(9wc)–K(2)–La(2a)	122.8(1)
O(5)–La(2)–O(6)	48.1(2)	O(13wc)–K(2)–La(2a)	163.6(3)
O(5)–La(2)–O(21)	71.3(2)	K(6a)–K(2)–La(2a)	63.31(6)
O(5)–La(2)–O(23)	76.4(2)	La(1)–K(1)–La(2)	90.25(6)
O(5)–La(2)–O(25)	116.5(2)	O(1)–K(1)–La(1)	45.8(1)
O(5)–La(2)–O(27)	139.0(2)	O(4a)–K(1)–La(1)	37.6(2)
O(5)–La(2)–C(1)	86.9(2)	O(5)–K(1)–La(1)	113.0(2)
O(5)–La(2)–C(2)	24.2(3)	O(11)–K(1)–La(1)	37.5(1)
O(5)–La(2)–N(3)	100.8(2)	O(21)–K(1)–La(1)	103.1(2)
O(5)–La(2)–N(4)	154.1(2)	O(8w)–K(1)–La(1)	153.7(6)
O(6)–La(2)–O(21)	119.0(2)	O(9w)–K(1)–La(1)	124.4(1)
O(6)–La(2)–O(23)	71.9(2)	O(13w)–K(1)–La(1)	97.0(3)
O(6)–La(2)–O(25)	69.7(2)	K(1a)–K(1)–La(1)	98.37(7)
O(6)–La(2)–O(27)	153.1(2)	K(3)–K(1)–La(1)	62.21(5)
O(6)–La(2)–C(1)	80.0(2)	O(1)–K(1)–La(2)	44.4(1)
O(6)–La(2)–C(2)	23.9(2)	O(4a)–K(1)–La(2)	112.2(2)
O(6)–La(2)–N(3)	128.8(2)	O(5)–K(1)–La(2)	37.8(2)
O(6)–La(2)–N(4)	127.3(2)	O(11)–K(1)–La(2)	102.6(2)
O(21)–La(2)–O(23)	103.1(2)	O(21)–K(1)–La(2)	38.0(1)
O(21)–La(2)–O(25)	169.5(2)	O(8w)–K(1)–La(2)	98.8(3)
O(21)–La(2)–O(27)	73.0(2)	O(9w)–K(1)–La(2)	126.2(1)
O(21)–La(2)–C(1)	92.5(2)	O(13w)–K(1)–La(2)	156.1(4)
O(21)–La(2)–C(2)	95.3(3)	K(1a)–K(1)–La(2)	100.17(6)
O(21)–La(2)–N(3)	60.6(2)	K(3)–K(1)–La(2)	61.56(6)
O(21)–La(2)–N(4)	109.4(2)	O(6)–K(6)–La(2)	43.1(1)
O(23)–La(2)–O(25)	73.2(2)	O(13a)–K(6)–La(2)	102.2(2)
O(23)–La(2)–O(27)	131.7(2)	O(15a)–K(6)–La(2)	98.2(1)
O(23)–La(2)–C(1)	151.8(2)	O(16a)–K(6)–La(2)	125.6(3)
O(23)–La(2)–C(2)	72.6(2)	O(23)–K(6)–La(2)	34.9(1)

O(23)–La(2)–N(3)	60.3(2)	O(25)–K(6)–La(2)	35.7(1)
O(23)–La(2)–N(4)	78.4(2)	O(26)–K(6)–La(2)	75.4(2)
O(25)–La(2)–O(27)	101.9(2)	O(7w)–K(6)–La(2)	116.2(2)
O(25)–La(2)–C(1)	95.0(2)	C(16a)–K(6)–La(2)	120.3(2)
O(25)–La(2)–C(2)	92.9(3)	C(26)–K(6)–La(2)	53.2(2)
O(25)–La(2)–N(3)	109.8(2)	K(2a)–K(6)–La(2)	59.48(5)
O(25)–La(2)–N(4)	60.5(2)		

Symmetry codes: (a) 1 – *x*, *y*, ½ – *z*; (b) 1 – *x*, -1 + *y*, ½ – *z*; (c) *x*, -1 + *y*, *z*.

Table S4. Comparisons of selected bond distances (Å) for $Na_{12n}[La(edta)(HPO_3)]_{4n}$ ·8nNaCl ·4nH_2O (**1**), $Na_{12n}[La(edta)(CO_3)]_{4n}$ ·8nNaCl ·4nH_2O (**2**), $K_{12n}[La(cdta)(CO_3)]_{4n}$ ·35H_2O (**3**), $Na[La(edta)(H_2O)_3]$ ·5H_2O (**4**),[1] $\{[La(edta)(H_2O)]_2\}_n$ (**5**),[2] $[IC_{17}H_{20}N_2]_2[La_2(edta)_2(H_2O)_4]$ ·4H_2O (**6**),[3] $[La_5Cl_2(edta)_3(H_2O)_{18}]_nCl_n$ ·8nH_2O (**7**),[4] $K_{3n}[La(edta)(HPO_3)]_n$ ·7nH_2O (**8**),[5] $Na_8[La_2(CO_3)_3(edta)_2]$ ·20H_2O (**9**), $[La_2(NO_3)_2(edta)(H_2O)_5]_n$ ·3nH_2O (**10**),[4] $[La_2(SO_4)(edta)(H_2O)_3]_n$ (**11**),[4] $K_6[La_2(Hmal)_2(edta)_2]$ ·14H_2O (**12**),[6] $(NH_4)_8[La_2(Hcit)_2(edta)_2]$ ·9H_2O (**13**),[6] $K_8[La_2(Hcit)_2(edta)_2]$ ·16H_2O (**14**),[6] $Na[Gd(edta)(H_2O)_3]$ ·5H_2O (**15**),[7] (MnH)$[Gd(edta)(H_2O)_3]$ ·4H_2O (**16**),[8] $Cs[Gd(edta)(H_2O)_3]$ ·4H_2O (**17**),[9] $Na[Gd(edta)(H_2O)_3]_n$ ·5H_2O (**18**),[10] $K_{3n}[Gd(edta)(HPO_3)]_n$ ·7nH_2O (**19**),[5] $Na_6[Gd_2(edta)_2(HPO_3)_2]$ ·2.5NaCl ·21H_2O (**20**),[5] $(NH_4)_2Na[Gd(edta)(H_2cit)]$ ·4H_2O (**21**),[5] $[C(NH_2)_3]_3[Er(edta)(CO_3)]$ ·H_2O (**22**),[11] $[C(NH_2)_3]_2[Er(edta)(H_2O)_2]$ ·ClO_4 ·6H_2O (**23**),[12] $[C(NH_2)_3]_4[Th(edta)(CO_3)_2]$ ·5H_2O (**24**),[11] $[Th(edta)(H_2O)_4]$ (**25**),[13] $(N_2H_5)[Ce(edta)(H_2O)_3]$ ·4H_2O (**26**),[14] $K_4[Ce(O_2)(edta)]_2$ ·14H_2O (**27**),[15] $Rb_4[Ce(O_2)(edta)]_2$ ·14H_2O (**28**),[15] $K[Co(NH_3)_6][Ce(O_2)(edta)]_2$ ·7H_2O (**29**),[15] $K_6[Ce_2(Hmal)_2(edta)_2]$ ·14H_2O (**30**),[6] $(NH_4)_8[Ce_2(Hcit)_2(edta)_2]$ ·9H_2O (**31**),[6] $Na[Pr(edta)(H_2O)_3]$ ·5H_2O (**32**),[7] $(N_2H_5)[Pr(edta)(H_2O)_3]$ ·5H_2O (**33**),[16] $[H_2(PhNHNH_2)_3][Pr_2(EDTA)_2(H_2O)_4]$ ·5H_2O (**34**),[17] $Na[Nd(edta)(H_2O)_3]$ ·5H_2O (**35**),[1] $Na[Nd(edta)(H_2O)_3]$ ·5H_2O (**36**),[18] $K[Nd(edta)(H_2O)_3]$ ·5H_2O (**37**),[19] $(N_2H_5)[Nd(edta)(H_2O)_3]$ ·5H_2O (**38**),[16] $[C(NH_2)_3]$ $[Nd(edta)(H_2O)_3]$ (**39**),[18] [Nd(edta)(H_2O)]n (**40**),[20] $Na[Sm(edta)(H_2O)_3]$ ·5H_2O (**41**),[7] $Na[Sm(edta)(H_2O)_3]$ ·5H_2O (**42**),[21] $Cs[Sm(edta)(H_2O)_3]$ ·4H_2O (**43**),[9] $(N_2H_5)[Sm(edta)(H_2O)_3]$ ·5H_2O (**44**),[16] $[Sm_2(H_2cdta)_2(H_2O)_{12}][H_2SiW_{12}O_{40}]$ ·17H_2O (**45**),[22] $Na[Eu(edta)(H_2O)_3]$ ·5H_2O (**46**),[1] $(N_2H_5)[Eu(edta)(H_2O)_3]$ ·4H_2O (**47**),[14] $Na[Eu(edta)(H_2O)_3]_n$ ·5H_2O (**48**),[23] $[C(NH_2)_3][Eu(edta)(H_2O)_3]$ (**49**),[24] $Na[Eu(cdta)·H_2O]$ ·4H_2O (**50**),[25] $[C(NH_2)_3][Eu(cdta)(H_2O)]$ ·2.375H_2O (**51**),[26] $[C(NH_2)_3]_3[Eu_2(cdta)_2(H_2O)_2]ClO_4$ ·7H_2O (**52**),[26] $[Eu_2(H_2cdta)_2(H_2O)_{12}][H_2SiW_{12}O_{40}]$ ·17H_2O (**53**),[22] $Na[Tb(edta)(H_2O)_3]_n$ ·5H_2O (**54**),[23] $Na[Dy(edta)(H_2O)_3]$ ·5H_2O (**55**),[27] $Na[Dy(edta)(H_2O)_3]$ ·3.25H_2O (**56**),[28] $Cs[Dy(edta)(H_2O)_2]$ ·3H_2O (**57**),[9] $Na[Dy(edta)(H_2O)_3]_n$ ·5H_2O (**58**),[23] $(H_3O)_n[Dy(edta)]_n$ ·nH_2O (**59**),[29] $\{[Dy(edta)]$ ·3$H_2O\}_n$ (**60**),[30] $Na[Ho(edta)(H_2O)_3]$ ·5H_2O (**61**),[31] $K[Ho(edta)(H_2O)_3]$ ·2H_2O (**62**),[9] $Cs[Ho(edta)(H_2O)_2]$ ·3H_2O (**63**),[9] $\{(H_3O)[Ho(edta)]$ ·n$H_2O\}_n$ (**64**),[32] $\{(H_3O)[Er(edta)]$ ·$H_2O\}_n$ (**65**),[29] $Na[Er(edta)(H_2O)_2]$ ·5H_2O (**66**),[9] $Na[Er(edta)(H_2O)_3]$ ·5H_2O (**67**),[12] $[Er_2(H_2cdta)_2(H_2O)_{12}][H_2SiW_{12}O_{40}]$ ·17H_2O (**68**),[22] $K[Yb(edta)(H_2O)_2]$ ·5H_2O (**69**),[33] $Cs[Yb(edta)(H_2O)_2]$ ·3H_2O (**70**),[27] $[C(NH_2)_3]_2[Yb(edta)(H_2O)_2]ClO_4$ ·6H_2O (**71**),[34] $K_3[Yb(edta)(CO_3)](H_2O)$ ·H_2O (**72**),[35] $K_3[Yb(edta)(CO_3)](H_2O)_4$ ·2H_2O (**73**),[35] $Rb_3[Yb(edta)(CO_3)](H_2O)_4$ ·2H_2O (**74**),[35] $Cs_3[Yb(edta)(CO_3)](H_2O)_4$ ·2H_2O (**75**),[35] $Na[Yb(cdta)(H_2O)_2]$ ·5H_2O (**76**),[36] and $[C(NH_2)_3]_2[Yb(cdta)(H_2O)_2]$ ·4H_2O (**77**).[34]

Complexes	Ln–$O_{carboxy}$(av)	Ln–$O_{inorganic}$(av)	Ln–N(av)	Ln–O_w(av)	P/C–O(av)
1	2.570(7)	2.653(9)	2.822(8)		1.418(7)

2	2.572(6)	2.630(7)	2.829(7)		1.283(7)
3	2.585(7)	2.708(7)	2.882(7)		1.285(7)
4[1]	2.493(4)		2.768(4)	2.589(4)	
5[2]	2.524(3)		2.849(4)	2.655(4)	
6[3]	2.55(1)		2.83(1)	2.60(1)	
7[4]	2.57(1)		2.82(1)		
8[5]	2.545(7)	2.601(7)	2.793(9)	---	1.526(7)
9	2.573(4)	2.581(4)	2.788(5)	---	1.289(4)
10[4]	2.515(3)	2.657(4)	2.746(3)		1.253(5)
11[4]	2.612(3)	2.609(3)	2.786(4)	2.532(3)	1.474(3)
12[6]	2.563(2)		2.801(2)		
13[6]	2.563(2)		2.814(2)		
14[6]	2.563(7)		2.785(9)		
15[7]	2.399(4)		2.655(4)	2.472(4)	
16[8]	2.41(2)		2.68(2)	2.49(2)	
17[9]	2.39(2)		2.655(8)	2.439(7)	
18[10]	2.400(8)		2.65(1)	2.468(9)	
19[5]	2.406(6)	2.308(5)	2.616(6)		1.515(6)
20[5]	2.393(5)	2.319(5)	2.609(6)		1.50(1)
21[5]	2.397(5)		2.656(7)		
22[11]	2.286(3)	2.329(3)	2.574(4)		1.286(6)
23[12]	2.275(1)		2.591(1)	2.344(1)	
24[11]	2.491(4)	2.454(4)	2.787(4)		1.286(7)
25[13]	2.428(2)		2.805(2)	2.532(2)	
26[14]	2.471(3)		2.731(3)	2.554(3)	
27[15]	2.494(3)	2.317(3)	2.563(3)		
28[15]	2.484(5)	2.315(5)	2.590(6)		
29[15]	2.408(4)	2.331(4)	2.712(5)		
30[6]	2.542(4)		2.782(4)		
31[6]	2.543(4)		2.794(5)		
32[7]	2.458(5)		2.714(6)	2.536(5)	
33[16]	2.454(2)		2.713(2)	2.54(1)	
34[17]	2.475(4)		2.780(4)	2.524(4)	
35[1]	2.451(5)		2.699(6)	2.534(6)	
36[18]	2.454(3)		2.694(3)	2.525(3)	

37[19]	2.436(4)	2.712(4)	2.539(4)
38[16]	2.439(3)	2.702(3)	2.523(3)
39[18]	2.445(3)	2.692(4)	2.516(3)
40[20]	2.452(2)	2.776(2)	2.552(2)
41[7]	2.422(5)	2.673(5)	2.499(5)
42[21]	2.42(1)	2.667(7)	2.494(8)
43[9]	2.42(1)	2.67(5)	2.473(5)
44[16]	2.415(3)	2.679(3)	2.489(3)
45[22]	2.37(2)		2.43(3)
46[1]	2.411(6)	2.674(7)	2.494(6)
47[14]	2.415(3)	2.693(3)	2.493(3)
48[23]	2.410(3)	2.665(4)	2.480(3)
49[24]	2.415(2)	2.674(2)	2.476(2)
50[25]	2.387(3)	2.636(3)	2.339(3)
51[26]	2.37(1)	2.62(2)	2.44(2)
52[26]	2.361(6)	2.611(6)	2.464(6)
53[22]	2.36(2)		2.42(2)
54[23]	2.382(6)	2.643(7)	2.447(7)
55[27]	2.39(2)	2.63(2)	2.46(2)
56[28]	2.381(5)	2.649(6)	2.460(5)
57[9]	2.31(1)	2.57(1)	2.39(1)
58[23]	2.38(1)	2.64(1)	2.46(1)
59[29]	2.325(3)	2.605(4)	
60[30]	2.354(3)	2.627(3)	
61[31]	2.363(7)	2.633(6)	2.453(6)
62[9]	2.367(8)	2.617(9)	2.446(8)
63[9]	2.31(2)	2.59(2)	2.38(2)
64[32]	2.311(3)	2.592(4)	
65[29]	2.298(4)	2.578(6)	
66[9]	2.351(6)	2.620(6)	2.430(6)
67[12]	2.351(6)	2.620(6)	2.430(6)
68[22]	2.32(2)		2.34(2)
69[33]	2.272(2)	2.519(3)	2.344(2)
70[27]	2.262(6)	2.533(7)	2.369(6)
71[34]	2.254(2)	2.577(3)	2.322(3)

72[35]	2.283(2)	2.306(2)	2.553(3)		1.290(4)
73[35]	2.274(2)	2.303(2)	2.539(2)		1.291(4)
74[35]	2.272(4)	2.299(4)	2.533(5)		1.279(7)
75[35]	2.276(4)	2.294(4)	2.541(5)		1.289(7)
76[36]	2.274(4)		2.528(5)	2.324(4)	
77[34]	2.271(3)		2.549(3)	2.317(3)	

Table S5. Solid ^{13}C NMR data for $K_{12n}[La(cdta)(CO_3)]_{4n}$ $35nH_2O$ (**3**).

Complex	$–CH_2$	$–CH_2CHN$	–CHN	$–CH_2CO_2$	$–CO_2$
3	23.6	25.7	54.4	59.5	179.1

Table S6. Crystal data and structural refinements for **1** ~ **3**.[a]

Complexes references	**1**	**2**	**3**
Chemical formula	$C_{40}H_{60}N_8O_{48}La_4Na_{20}Cl_8P_4$	$C_{44}H_{56}N_8O_{48}La_4Na_{20}Cl_8$	$C_{60}H_{118}K_{12}La_4N_8O_{67}$
Formula Mass	2843.88	2764.00	3048.46
Temperature/K	173(1)	173(1)	173(1)
Crystal system	Tetragonal	Tetragonal	Monoclinic
Space group	*P 4/nbm*	*P 4/nbm*	*C 2/c*
a/Å	21.0289(2)	21.0220(3)	32.893(1)
b/Å	21.0289(2)	21.0220(3)	9.4679(4)
c/Å	9.5708(2)	9.5449(3)	34.229(1)
α/ °	90	90	90
β/ °	90	90	102.532(4)
γ/ °	90	90	90
Unit cell volume/Å^3	4232.4(1)	4218.1(1)	10406.0(7)
Z	2	2	4
Absorption coefficient, μ/mm^{-1}	2.514	2.447	2.202
No. of reflections measured	18415	14428	23750
No. of independent reflections	2170	2886	8712
R_{int}	0.0281	0.0435	0.0550
Final R_1 values [$I > 2\sigma(I)$]	0.0880	0.0805	0.0748
Final $wR(F^2)$ values [$I > 2\sigma(I)$]	0.1745	0.1609	0.1435
Final R_1 values (all data)	0.0885	0.0917	0.0970
Final $wR(F^2)$ values (all data)	0.1747	0.1657	0.1529
Goodness of fit on F^2	1.259	1.208	1.090

[a] $R_1 = \sum||F_o| - |F_c|| / \sum|F_o|$, $wR_2 = \sum[w(F_o^2 - F_c^2)^2] / \sum[w(F_o^2)^2]^{1/2}$

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