## **Supporting Information**

## Molten salt synthesis $Er^{3+}/Yb^{3+}/Sr^{2+}$ doped L-Ta<sub>2</sub>O<sub>5</sub> with intercalated intergrowth structure boosting pure green upconversion luminescence

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**Fig. S1.** (a) Powder XRD patterns of S1 and S2 samples. (b) Corresponding UCL emission spectra under 980 nm laser excitation.



Fig. S2. SEM results of S3 (a), S4 (b) and S5 (c) samples.



Fig. S3. SEM results of S6 (a) and S9 (b) samples.



Fig. S4. The EDS measurement result of S9 sample before AP (a) and after AP (b).



Fig. S5. SEM results of S11 (a), S12 (b), S9 (c) and S14 (d) samples.



Fig. S6. UCL spectra of S9 sample measured from 303 to 633 K under 980 nm laser excitation.