Table S1. Crystal data and structure refinement for Li3Ba2Y3(WO4)8 crystal.

Empirical formula	Li3Ba2Y3(WO4)8
Formula weight	2544.93
Temperature	293(2) K
Wavelength	0.71073 Å
Crystal system, space group	Monoclinic, C2/c
Unit cell dimensions	a = 5.181(2) Å, α = 90°
	b = 12.677(7) Å, β = 92.237(13) °
	c = 19.161(10) Å, γ= 90°
Volume	1257.4(11)Å3
Z	2
Calculated density	6.722 Mg/m3
Absorption coefficient	46.449 mm-1
F(000)	2172
Crystal size	0.1800×0.0600×0.0500 mm
Theta range for data collection	3.19 – 27.48°
Limiting indices	-6<=h<=6, -16<=k<=16, -24<=l<=24
Reflections collected / unique	5255 / 1439 [R(int) = 0.1660]
Completeness to θ = 27.48	99.5 %
Refinement method	Full-matrix least-squares on F2
Data / restraints / parameters	1439 / 6 / 111
Goodness-of-fit on F2	1.054
Final R indices [I > 2σ(I)]	R1 = 0.0463, wR2 = 0.0976
R indices (all data)	R1 = 0.0523, wR2 = 0.1009
Extinction coefficient	0.00795(12)
Largest diff. peak and hole	3.574 and -4.504 e.Å-3

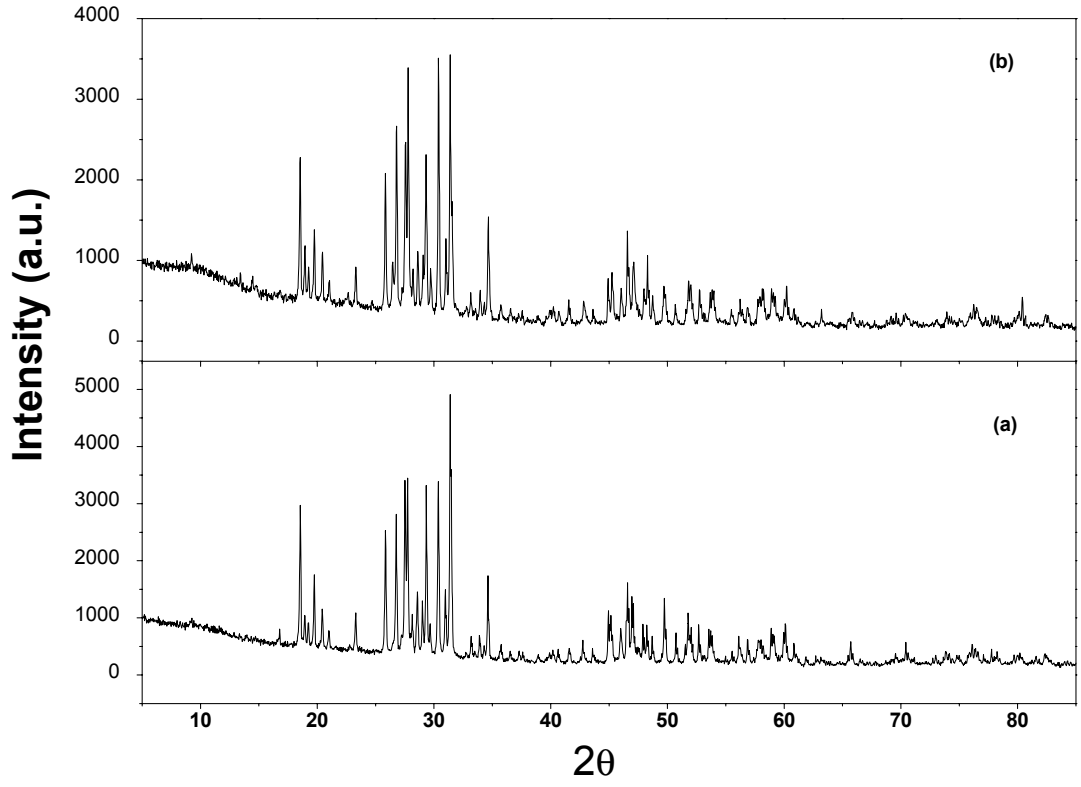

Fig S1. The X-ray powder diffraction patterns of: (a) the as-grown Nd3+-doped Li3Ba2Y3(WO4)8 crystal from Li2WO4; (b) the sample synthesized by solid-state reaction.