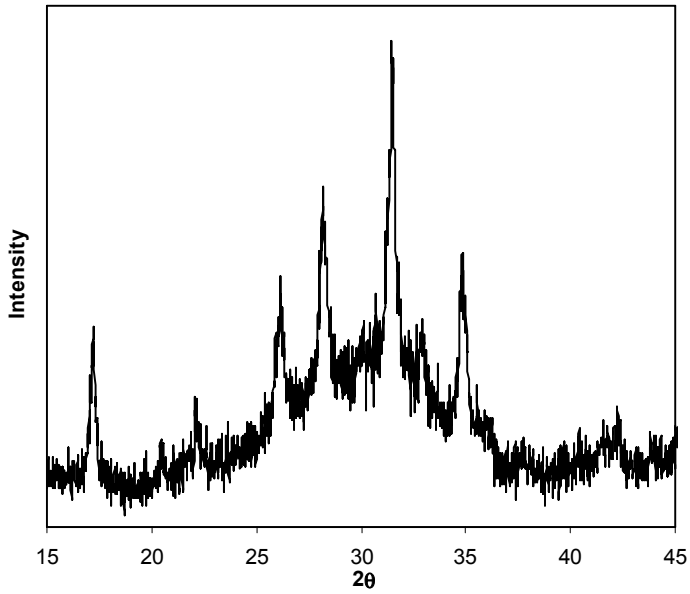
Sample ID	Mg (wt%)	Molarity x 10^{-3}		Mass in 100ml solution/g	
		Calcium	Magnesium	Calcium	Magnesium
0.5Mg-CaP	0.5	81.8	1.7	1.93	0.04
1Mg-CaP	1	80.1	3.4	1.89	0.09
1.5Mg-CaP	1.5	78.4	5.1	1.85	0.13
2Mg-CaP	2	76.6	6.9	1.81	0.18
4Mg-CaP	4	70.0	13.5	1.65	0.35
6Mg-CaP	6	63.6	19.9	1.50	0.51
8Mg-CaP	8	57.3	26.2	1.35	0.67
10Mg-CaP	10	51.1	32.4	1.21	0.83
12Mg-CaP	12	45.1	38.4	1.07	0.99
14Mg-CaP	14	39.2	44.3	0.93	1.14
MgP	28.7	0	83.5	0	2.14

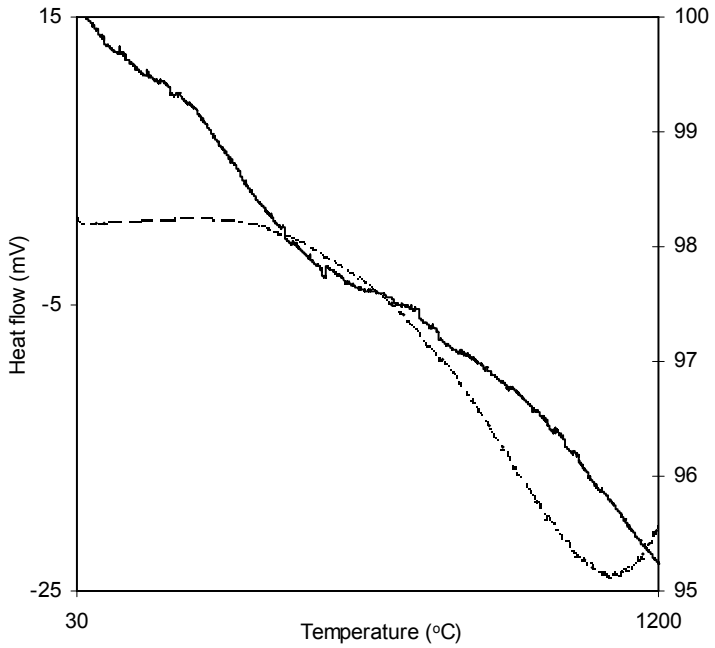
Supplementary Table 1. Sample identification, amount of calcium nitrate and magnesium nitrate used for making solutions. The wt% of magnesium is calculated assuming a formula of $Ca_{10-x}Mg_x(PO_4)_6(OH)_2$, The sample labeled as MgP represents a powder made using magnesium nitrate and no calcium nitrate.

Sample ID	Yield (g) per 100ml solution	Yield (%)
0.5Mg-CaP	0.73	87
1Mg-CaP	0.73	88
1.5Mg-CaP	0.71	84
2Mg-CaP	0.44	58
4Mg-CaP	0.45	66
6Mg-CaP	0.45	66
8Mg-CaP	0.63	93
10Mg-CaP	0.70	99
12Mg-CaP	0.66	97
14Mg-CaP	0.65	96
MgP	0.62	99

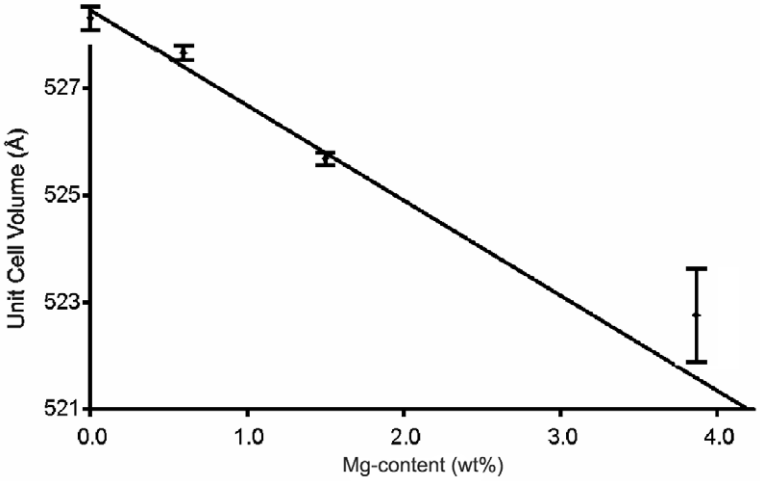
Supplementary Table 2. Yields of product obtained in the continuous hydrothermal flow synthesis system using a superheated water feed at 400 °C and 24 MPa. Yields were calculated using the formula $Ca_{10}(PO_4)_6(OH)_2$ for samples 0.5Mg-CaP, 1.0Mg-CaP and 1.5Mg-CaP. The remaining yields except that for MgP, were calculated using the formula $Ca_3(PO_4)_2$. MgP yield was calculated on the basis of the formula $Mg_2P_2O_7$.



Supplementary Figure 1. X-Ray powder diffraction patterns of sample 10Mg-CaP made in a continuous hydrothermal flow synthesis system using a superheated water feed at 450 °C and 24 MPa (with a band heater at 450 °C).



Supplementary Figure 2. Thermogravimetric analysis and differential scanning calorimetry plots in the range 30 – 1200 °C (in air) for sample 0.5Mg-CaP



Supplementary Figure 3. Plot of magnesium content (measured using EDS) against the refined unit cell volume of hydroxyapatite. The linear fit shown is weighted according to the errors on the refined parameters.