

**SUPPLEMENTARY INFORMATION**

**for**

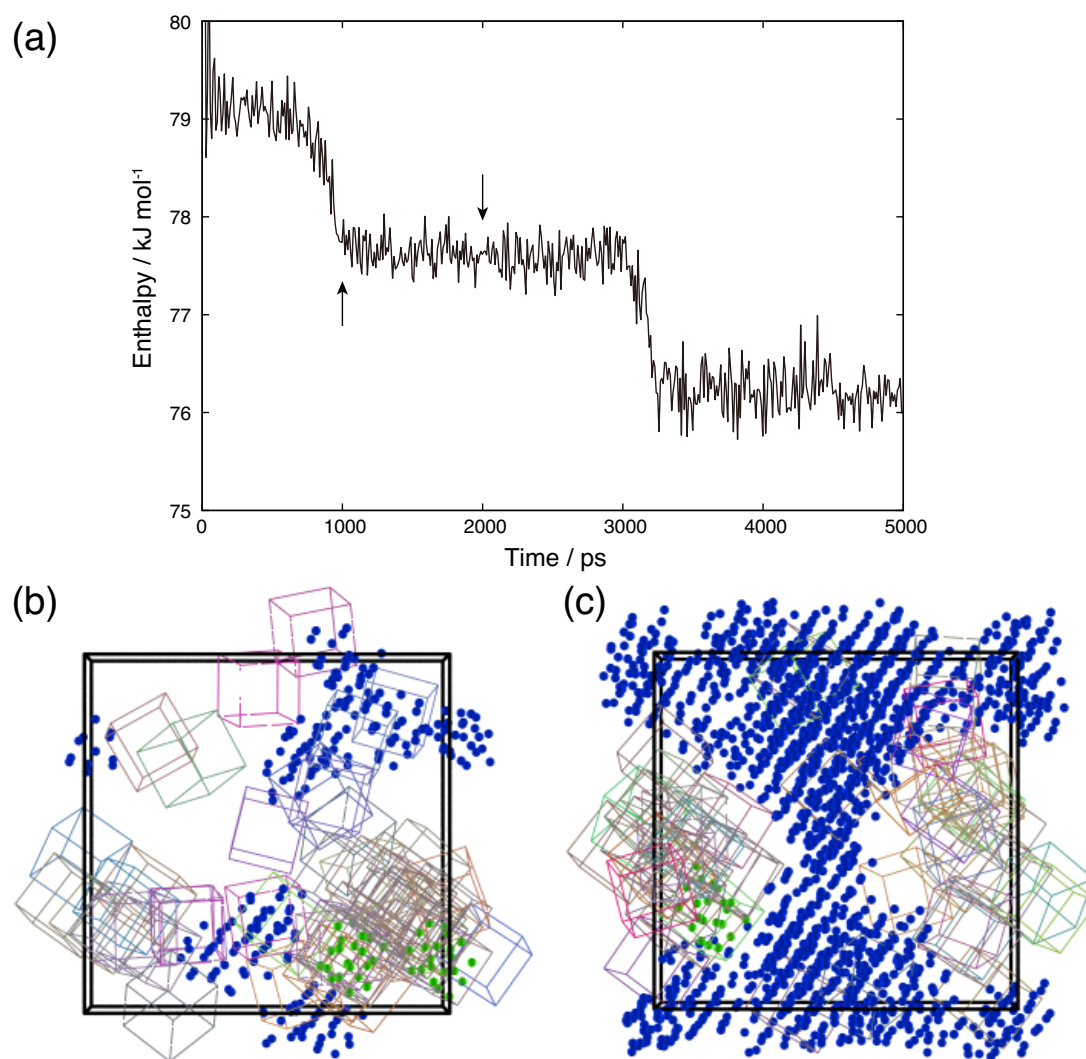
**Diversity of transition pathways in the course of crystallization into ice VII**

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**Figure S1**

(a) Time evolution of enthalpy of the stepwise phase transition at 400K and at 10GPa using TIP4P/2005 water model ( $N=3456$ ).

(b) (c) Snapshots at 1000ps and 2000ps in Fig. S1(a), respectively. The cube represents the local structure loosely matched to a unit cell of the metastable phase ( $s < 10.0 \text{ \AA}^2$ ). A similar color is assigned for the unit cells with a similar orientation. Green and blue dots represent the molecules strictly matched to a unit cell of the metastable phase and an eightfold unit cell of ice VII ( $s < 2.0 \text{ \AA}^2$ ), respectively.