Electronic Supplementary Information for

Identification of the smallest peptide with a zwitterion as the global

minimum: a first-principles study on arginine-containing peptides

Hongbao Li,*a Jun Jiang*a and Yi Luoa, b

^{a.} Hefei National Laboratory for Physical Sciences at the Microscale, School of Chemistry and Materials Science, University of Science and Technology of China, Hefei, Anhui, 230026, China

^{b.} Guizhou Provincial Key Laboratory of Computational Nano-Material Science and Guizhou Synergetic Innovation Center of Scientific Big Data for Advanced Manufacturing Technology, Guizhou Normal College, Guiyang, Guizhou, 550018, China.

*Correspondence to: lihb@mail.ustc.edu.cn, Jiangj1@ustc.edu.cn.



Fig. S1 Simulated IR spectra of the most abundant conformers of the two arginine-containing peptides (a) ArgAla and (b) ArgSer at 298 K. A Lorentzian profile with a FWHM of 20 cm⁻¹ is used to convolute the calculated spectra.