Supplementary Information

Emergence of double-dome superconductivity in ammoniated metal-doped FeSe

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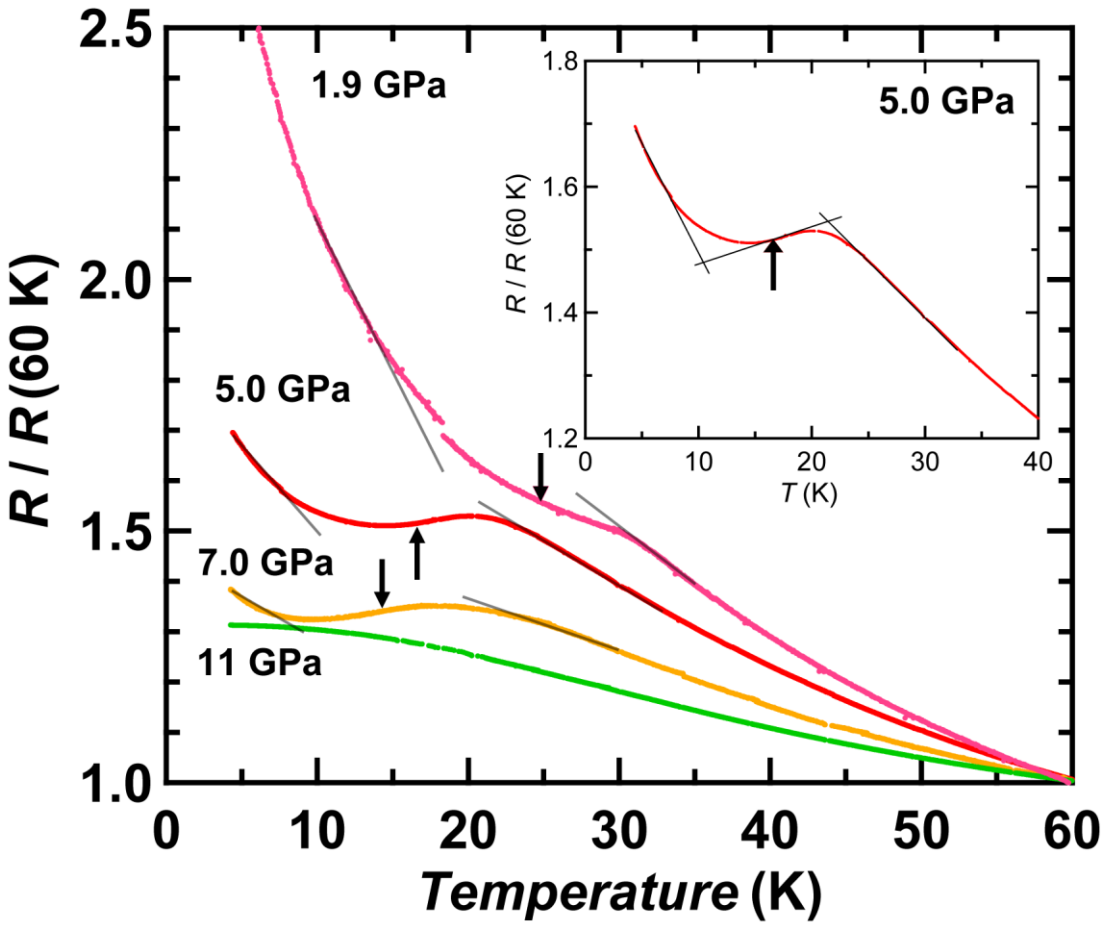

Figure S1. Resistance *vs.* temperature plots of the first $(NH_3)_yCs_{0.4}FeSe$ sample at 1.9, 5.0, 7.0 and 11 GPa. The grey solid lines refer to the fitting ones for the normal and superconducting states. The arrows correspond to the T_c's determined from the midpoint. As described in text, the drop is not observed at 11 GPa. Inset: the expanded resistance *vs*. temperature plot at 5.0 GPa, which is provided to show how to determine the T_c.

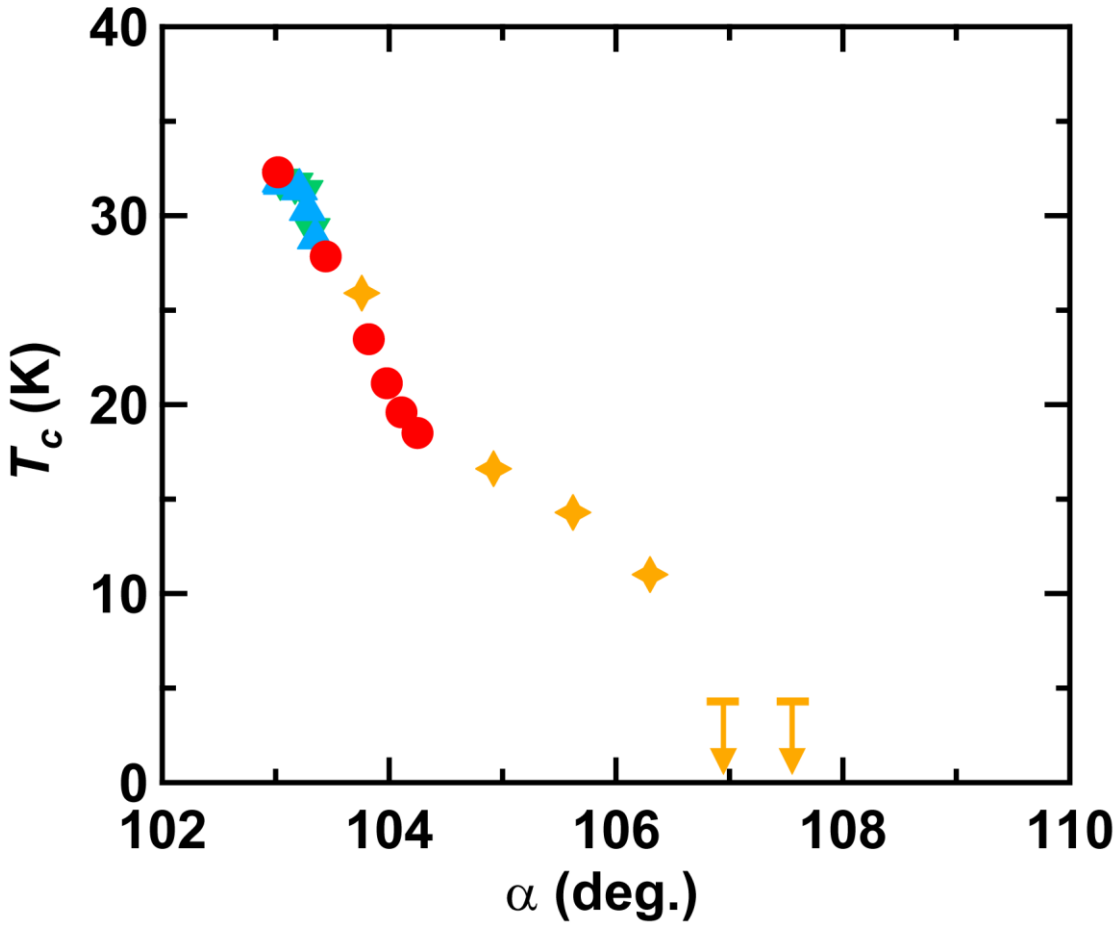

Figure S2: T_c is plotted as a function of α. The symbols are defined in the caption of Figure 1(c) in text. The arrows indicate T_c's lower than the temperatures denoted by bars.

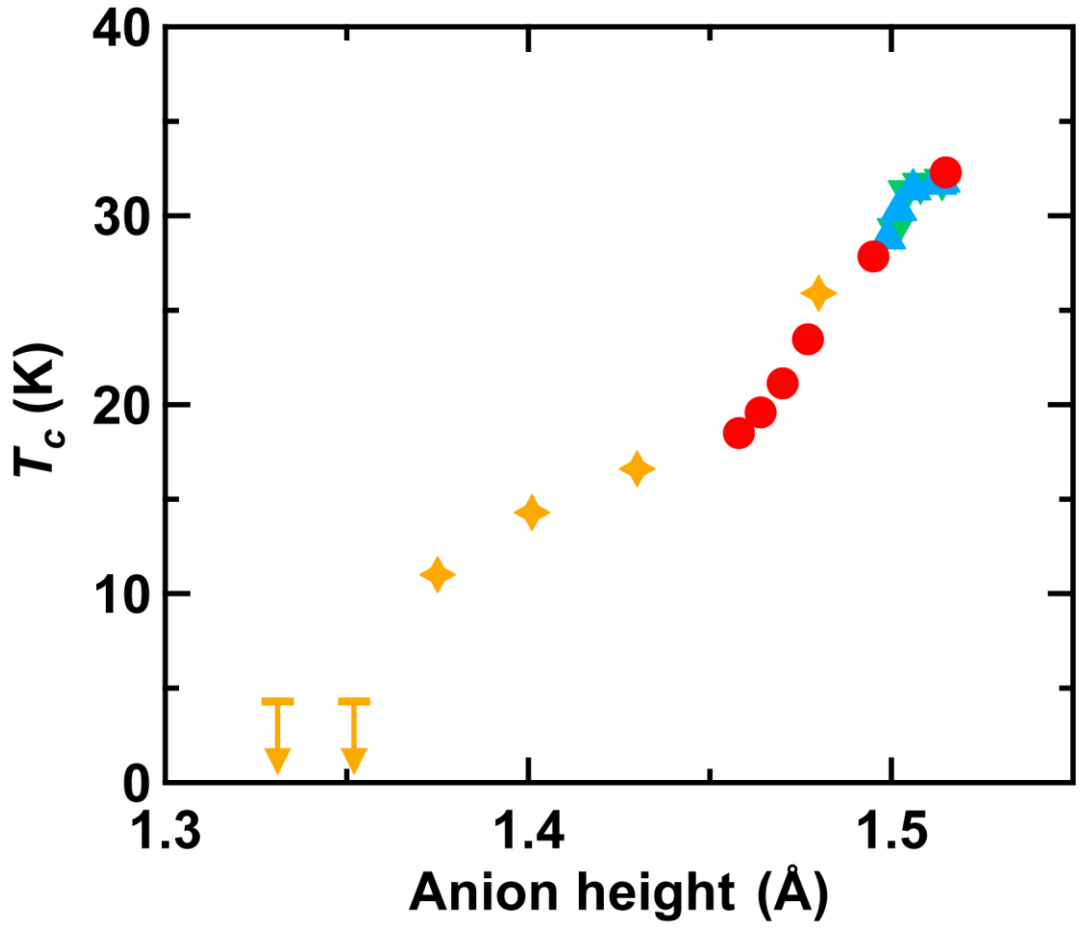

Figure S3: T_c is plotted as a function of anion height in the pressure range of 0- 13 GPa. The symbols are defined in the caption of Figure 1(c) in text. The arrows indicate T_c's lower than the temperatures denoted by bars.

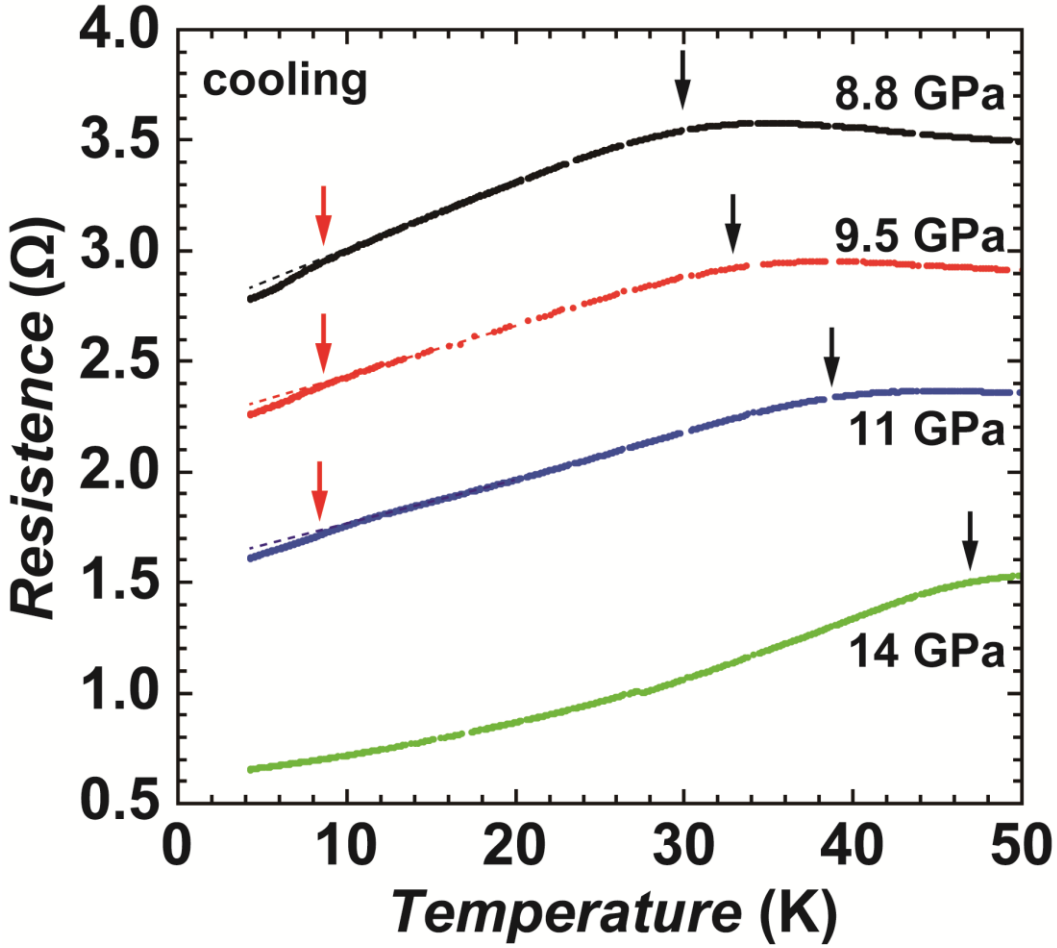

Figure S4: Resistance *vs.* temperature plots of the second $(NH_3)_yCs_{0.4}FeSe$ sample at 8.8, 9.5, 11 and 14 GPa. The arrows correspond to the T_c's in two phases. As described in text, small drops are observed in *R* – *T* plots below 10 K at 8.8 and 9.5 GPa. The drop is observed even at 11 GPa, but no drop is observed below 10 K at 14 GPa.

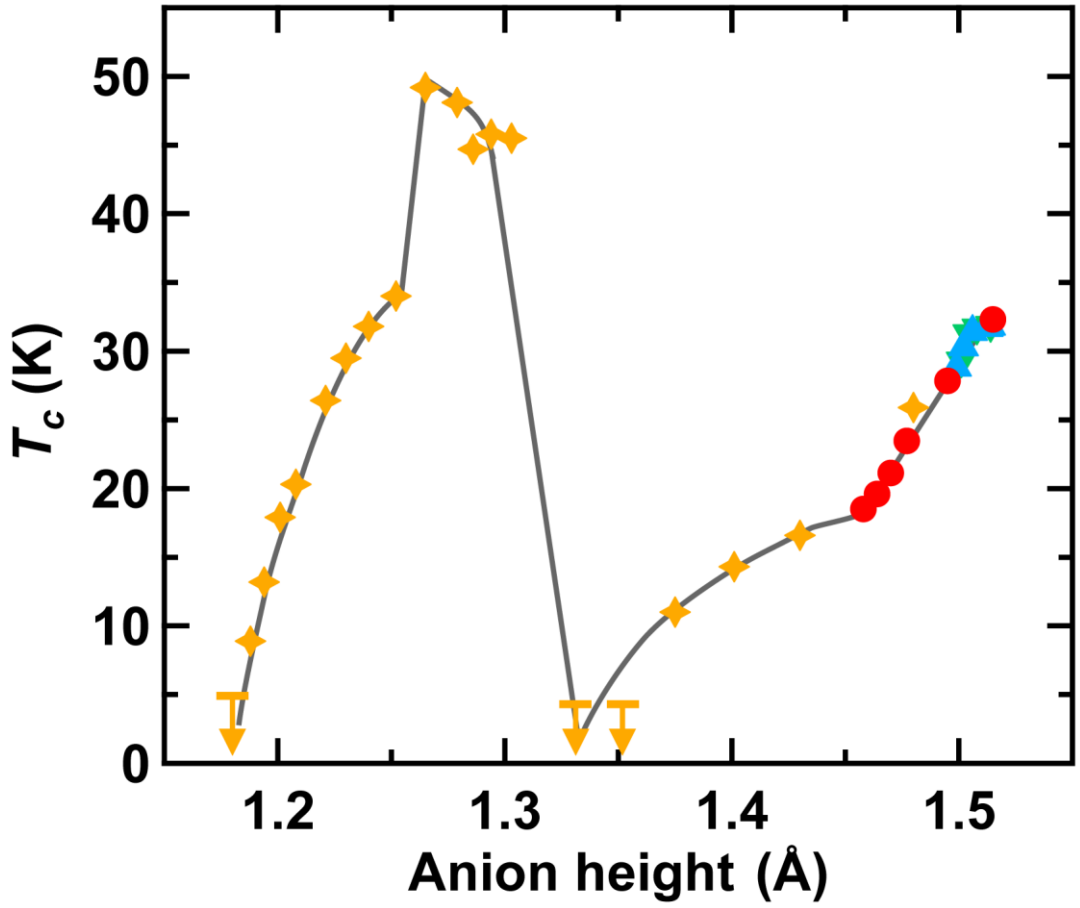

Figure S5: T_c is plotted as a function of anion height in the pressure range of 0 - 41 GPa. The symbols are defined in the caption of Figure 1(c) in text. The arrows indicate T_c's lower than the temperatures denoted by bars. The solid line is a visual aid.