Supplementary Table 1. Thermodynamic parameters for the binding of SNX1/SNX2 with SNX27 by ITC.

| Syringe | Cell       | $K_d$ (μM) | $ΔH$ (kcal/mol) | $ΔG$ (kcal/mol) | $-TΔS$ (kcal/mol) |
|---------|------------|------------|-----------------|-----------------|-------------------|
| hSNX27_{FERM} against mSNX1 proteins | hSNX27_{FERM} mSNX1-139 | 39.10 ± 0.42 | -6.93 ± 0.01 | -6.02 ± 0.01 | -0.92 ± 0.02 |
|         | hSNX27_{FERM} mSNX1_{FL} | 41.00 ± 1.82 | -6.23 ± 3.11 | -5.99 ± 0.02 | 0.24 ± 3.10 |
| hSNX1/2 peptides against mSNX27_{FL} | hSNX135-51 mSNX27_{FL} | 33.43 ± 1.89 | -1.72 ± 0.65 | -6.11 ± 0.04 | -4.39 ± 0.64 |
|         | hSNX135-51 (D45K) mSNX27_{FL} | No binding detected |
|         | hSNX175-92 mSNX27_{FL} | 13.37 ± 0.75 | -1.98 ± 0.18 | -6.65 ± 0.03 | -4.68 ± 0.17 |
|         | hSNX216-33 mSNX27_{FL} | 37.8 ± 1.44 | -0.85 ± 0.30 | -6.04 ± 0.02 | -5.19 ± 0.29 |
|         | hSNX216-33 (DLF-SSS) mSNX27_{FL} | No binding detected |
|         | hSNX262-82 mSNX27_{FL} | 22.63 ± 1.89 | -1.85 ± 0.43 | -6.34 ± 0.05 | -4.49 ± 0.43 |
| Competitive ITC assay of hSNX2_{16-33} and hSNX1_{75-92} with mSNX27_{FL} | hSNX216-33 mSNX27_{FL} | No binding detected |
|         | hSNX175-92 mSNX27_{FL} & hSNX216-33 | 30.35 ± 1.06 | -2.56 ± 0.14 | -6.17 ± 0.02 | -3.61 ± 0.12 |
| hSNX1 peptide 75-92 against hSNX27_{FL} WT and mutants | hSNX175-92 hSNX27_{FL} | 12.77 ± 0.47 | -1.65 ± 0.54 | -6.68 ± 0.03 | -5.03 ± 0.54 |
|         | hSNX175-92 hSNX27_{FL} K495D | No binding detected |
|         | hSNX175-92 hSNX27_{FL} K496D | 56.40 ± 2.83 | -1.30 ± 1.07 | -5.80 ± 0.03 | -4.50 ± 1.04 |
|         | hSNX175-92 hSNX27_{FL} R498D | No binding detected |
|         | hSNX175-92 hSNX27_{FL} K501D | No binding detected |