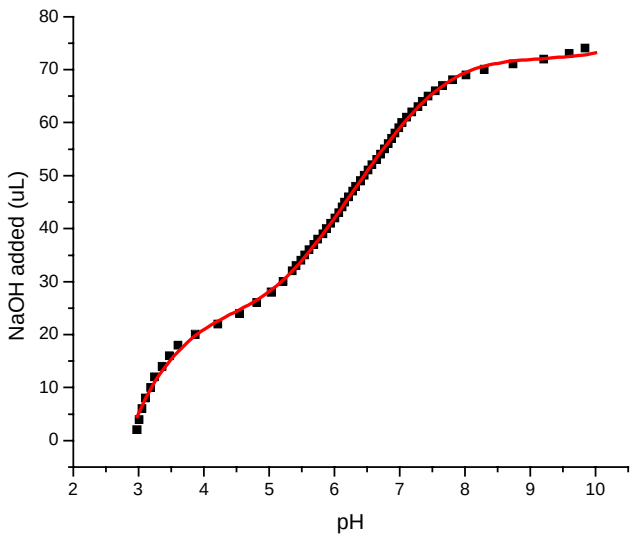
## Supplementary Information




**S1.** pH titration of 1.25mM IRT1pep with 100uM NaOH. Red line indicates best fit according to algorithm described in Experimental Section.

## Table of Contents Synopsis

Isothermal titration calorimetry (ITC) was used to quantify the metal-binding thermodynamics of a 10 residue peptide corresponding to the His-rich sequence of the iron regulated transporter (IRT1) from *A. thaliana.* Stabilities of the metal-peptide complexes follow the Irving-Williams series, with lower affinities for $Fe^{+2}$ and other transported metal ions. Enthalpic and entropic contributions were determined, including the entropy-driven high affinity for $Fe^{+3}$.