Supplementary Information

Entropy and metal ions control ligand affinity and specificity in the malachite green binding RNA aptamer †

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S1: Binding curves from equilibrium dialysis experiments preformed at 100mM phosphate buffer, 50mM NaCl, pH6.0. The binding curves were fit using Origin using the equation $y = (B_{\text{max}} \times x) / (K_d + x)$. 
S2: Binding curves from Nanodrop fluorescence experiments performed at 50mM phosphate buffer, 150mM NaCl, pH 6.7. The binding curves were fit using Origin using the equation \( y = \frac{B_{\text{max}} \times x}{K_d + x} \).
S3: Right: Typical ITC raw data showing heat generated over time as dye is injected into cell containing MGA RNA. Left: Integrated data fitted using Origin to a single binding site model which provides $K_d$, $\Delta H$, $\Delta S$ values. Experiments were performed at 10mM phosphate buffer with varying salt concentrations (1mM, 150mM, 1M), pH 6.7.
S4: Plot of log $K_a$ versus log [Na$^+$] for MG, TMR and PY binding to MGA. Data points were fit using linear regression (Excel) to generate lines and equations. Linear regression fits of shown as solid lines (---) MG data ($y = 0.1306x + 6.5273$, $R^2 = 0.7426$), TMR data ($y = 0.29x + 6.8315$, $R^2 = 0.9925$), and PY data ($y = 0.245x + 5.5827$, $R^2 = 0.9996$).