**SUPPLEMENTAL FIGURE LEGENDS**

**SUPPLEMENTAL FIGURE 1** – Doxycycline (Dox, 1 mg/mL) inducible expression of the GSH1 encoding gene (*Tb927.10.12370*) as measured by qRT-PCR. Biological triplicate samples were grown with and without (Dox) for 24 hours before RNA extraction and cDNA synthesis using Superscript III. Standard iTaq SYBR qPCR using *Tb927.10.12370* forward and reverse oligos was conducted and fold change determined using ddCt method based on URA3 internal control. Blue dots correspond with GSH1 overexpressing cell line treated with dox compared to no dox (uninduced) condition. Red dots correspond with GSH1 overexpressing cell line treated with dox compared with SM cells expressing endogenous GSH1.

**SUPPLEMENTAL FIGURE 2 –** Sampleimmunofluorescence microscopy panels shown for each of the conditions tested and used for nuclei and kinetoplast counts per cells depicted graphically in Figure 2D.

**SUPPLEMENTAL FIGURE 3 –** BrdU incorporation assay during melarsoprol treatment (35 nM) at 6 and 12 hours in parental (SM) cells and during GSH1 overexpression. Untreated controls for both cell lines are also shown.