Supplemental Data

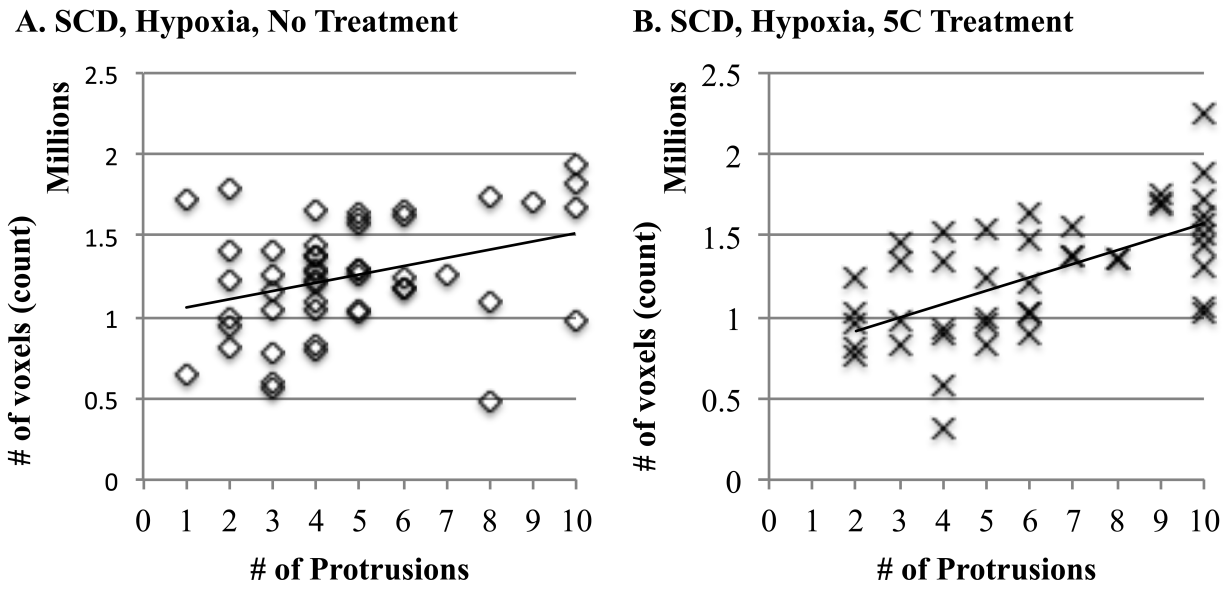

Figure S1. No significant volumetric difference between no treatment and treatment datasets. A. Sickle RBCs under hypoxia conditions without treatment (N= 56) and **B.** with treatment (N=48). Using one-way analysis of variance, there was no statistical difference in volume regardless of treatment. In both groups, protrusion number was statistically correlated with volume ($p<0.05$). The lack of a volumetric difference between the no treatment and treatment populations indicates the treatment is not acting to change the volume of sickled RBCs.

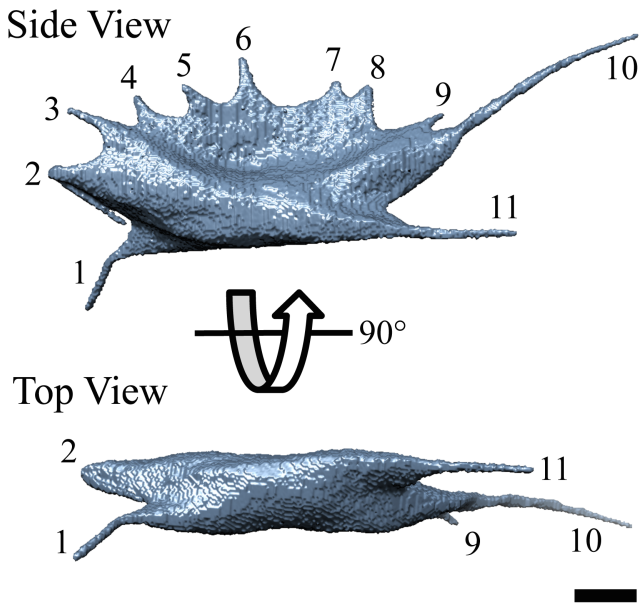

Figure S2. Three-dimensional Data is Necessary for Protrusion Number Analysis. An example of the variability in protrusion number counting when using projection images of the same sickle RBC from different angles. From one view (side) it is clear that there are 11 protrusions (numbered), however when the same cell is rotated by 90° (top) many of the protrusions are obscured by the body of the cell (same numbering as side view). Because the orientation of the cells cannot be controlled, accurate counting of protrusion number and volumetric analysis is not possible without 3D data. Scale bar is 1 μm.

Table S1. Hematological parameters of SCD Tg mice treated with or without 5C

SCD Tg: sickle cell disease transgenic mice; RBC: red blood cells; Hb: hemoglobin; HCT: hematocrit; MCV: mean corpuscular volume; MCH: mean corpuscular hemoglobin; MCHC: mean corpuscular hemoglobin concentration; RDW: red cell distribution width; WBC: white blood cell. * $p<0.05$ vs. SCD Tg mice without treatment.

	RBC (M/µl)	**Hb (g/dl)**	**HCT (%)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**RDW (%)**	**Reticulocyte (%)**	**Sickle cell (%)**	**WBC (k/µl)**
SCD +Saline (n=8)	4.72 ±0.82	5.58 ±0.91	21.82 ±2.53	50.24 ±8.16	12.32 ±1.59	25.85 ±1.42	32.18 ±2.68	58.34 ±7.57	16.54 ±3.07	25.90 ±7.38
SCD +5C (n=11)	6.71 ±0.60*	10.33 ±1.12*	35.97 ±3.86*	52.64 ±2.64*	15.06 ±0.52*	28.73 ±0.65*	25.74 ±3.32*	20.95 ±4.23*	3.91 ±0.93*	7.02 ±2.47*