Supplementary Figure and Table Legends

Supplementary Table S1. Top 20 data sets by weight w_d with GEO accession numbers.

Supplementary Table S2. Zebrafish morpholino sequences.

Supplementary Table S2. RT-PCR Primer sequences.

Supplementary Figure S1. Mammalian SLC22A4 lacks a unique zebrafish ortholog. Dendrogram generated by multiple alignment of protein sequences using ClustalW. Branch lengths reflect alignment dissimilarity.

Supplementary Figure S2. Quantitative enumeration of anemia in WT and morphant zebrafish embryos. The percentage of embryos showing normal hemoglobinization (WT), reduced levels of hemoglobinized cells (reduced), or absence of hemoglobinized cells (null) was determined for different rounds of injections using the same optimal morpholino concentration for each gene. Embryo numbers are indicated above each bar.

Supplementary Figure S3. Morpholino knockdown of the candidate genes does not affect erythroid or myeloid lineage specification. Control wildtype (WT) and morpholino injected embryos were stained for αE3-globin (*hbae3*) at 24- and 48hpf, and for myeloperoxidase (*mpo*) at 48hpf.

Supplementary Table S1

GEO Acc	Species	Chip	Description	Weight w_d
GSE4655	Human	U133+	In vitro erythroid differentiation	0.99
GSE5657	Mouse	M430	Hypophosphatemia in mid-shaft of femur	0.98
GSE5671	Mouse	M430	Cardiac differentiation of embryonic stem cells	0.98
GSE9954	Mouse	M430	Tissue atlas	0.96
GSE1133	Human	U133A	Tissue atlas	0.95
GSE4310	Mouse	U74A	Lung Development Timecourse	0.94
GSE3241	Mouse	M430A	Sca1-CD45 sorted bone marrow	0.93
GSE3912	Human	U133A	Relapse in childhood acute lymphoblastic leukemia	0.92
GSE4698	Human	U133A	Relapse in childhood acute lymphoblastic leukemia	0.90
GSE5891	Mouse	M430	Fetal liver	0.87
GSE6787	Mouse	U74A	Fetal liver, Rb-/-	0.87
GSE8836	Mouse	M430	B-cell chronic lymphocytic leukemia	0.85
GSE7020	Mouse	M430	Nix ablation in apoptosis and erythropoiesis	0.83
GSE5811	Mouse	M430A	Splenocyte response to Bcl-2 overexpression	0.81
GSE4324	Mouse	M430A	WBCs from spleen after Plasmodium chabaudi infection	0.80
GSE1922	Human	U133A	Leukemia, K562 cell line	0.78
GSE135	Mouse	U74A	Erythroid Progenitor Cell Gene Expression Profiles	0.78
GSE4619	Human	U133+	CD34+ cells from MDS patients and normal controls	0.78
GSE9894	Human	U133+	Human bone marrow mesenchymal stem cells	0.78
GSE6506	Mouse	M430	Hematopoietic stem cells and their progeny	0.73

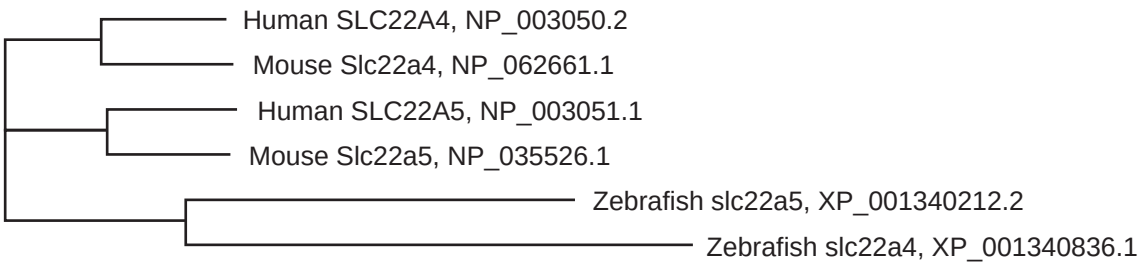
Supplementary Table S2: Zebrafish morpholino sequences

	Morpholino
slc25a39	CTGCTTGTGATCTGTACCTTGAAAG
slc22a5	ACATCACAGCAGGCTCACCGAGAAC
slc22a4	ATCTCACTGCCTGCAGATCAAGATG
tmem14c	ATCGAGCATTCTCATTACCTGCTTT
c1orf69	GTGTGTTAATTTTACCTGTAAAGGA
isca1	ATGGAGTCAGAACTCACCAGTGTTA

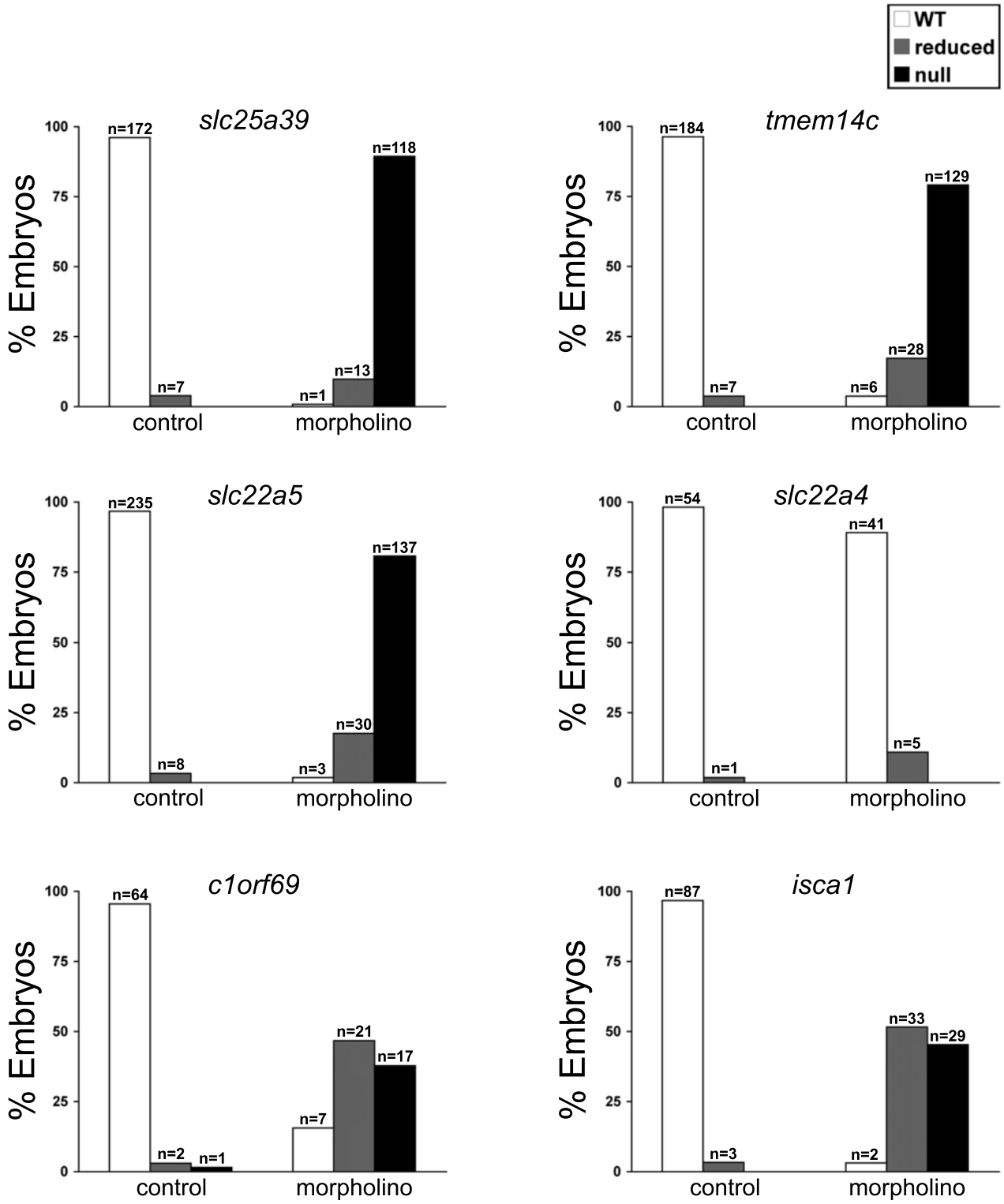
Supplementary Table S3: RT-PCR Primer sequences

slc25a39	Fwd: CCGGCAGGATGGGAGAT Rev: CAGCTATGAGAGGTATGTGGTC
slc22a5	Fwd: GGTCCCGTTGGCCAGCTCTACTCT Rev: TAATGCAGAAACGCCCCCAGTGTG
slc22a4	Fwd: CTTCTGTGGTGTTTTAGTGG Rev: CAGGATGAGAGCGTAGTATG
tmem14c	Fwd: ATTACGAGTTGACTACACGAA Rev: AAGTTTTGCCAGCATCAGGAC
c1orf69	Fwd: CGGACTTCAGGCGCACTATTT Rev: AGATCTCCGACTCCTTCAG
β-actin	Fwd: GTTGGTATGGGACAGAAAGACAG Rev: ACCAGAGGCATACAGGGACAG

Supplementary Figure S1



Supplementary Figure S2



Supplementary Figure S3