

SUPPLEMENTARY FIGURES

Human	MPVARSWCRTYVTPRRPF EKSR LDQELK LIGEYGLRNKREVRVKFTLAKIRKAAREL
Zebrafish	MPVAKTWCSKTYVTPRRPF EKSR LDQELRLIGEYGLRNKREVRVKFTLAKIRKAAREL ****, : ** *****
Human	LTLDEKDP RRLFE GNALLRRLVRIGVLDEGKMKLDYILGLKIEDFLERRLQTQVFKLGLA
Zebrafish	LTLDEKDPKRLFE GNALLRRLVRIGVLDEGKMKLDYILGLKVEDFLERRLQTQVFKLGLA *****, *****
Human	KSIHHARV LIRQRH IRVRKQV VNI PSFIVRLDSQKHIDFSLRSPYGGGRPGRVKRKNNAKK
Zebrafish	KSIHHARV LIRQRH IRVRKQV VNI PSFVRLDSQKHIDFSLRSPYGGGRPGRVKRKNNAKK *****, *****
Human	GQGGAGAGDDEEED 194
Zebrafish	AQGGGGGDDEEED 194 . ** , * , *****

Figure S1. Protein alignment between human and zebrafish. Only 9 in 194 amino acids are not conserved between human and zebrafish.

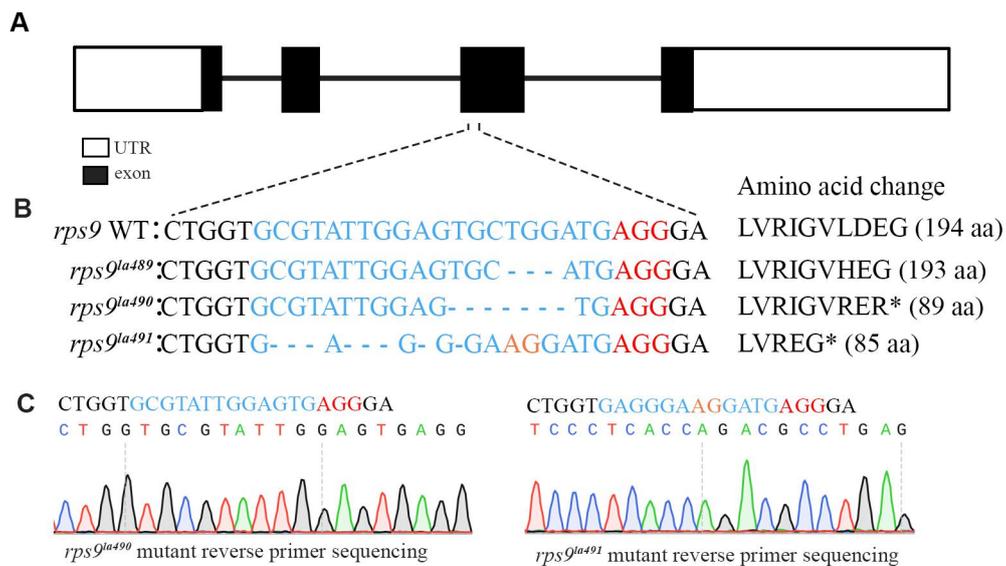


Figure S2. *rps9* gene targeting illustration.

(A) Illustration of *rps9* locus. (B) Gene editing details for each mutant line. Targeting sequence (blue), insertion (orange), deletion (blue dashes), PAM region (red) are indicated; * represents the end of amino acid sequence. (C) Sequencing results for two mutant lines with frameshift indels.

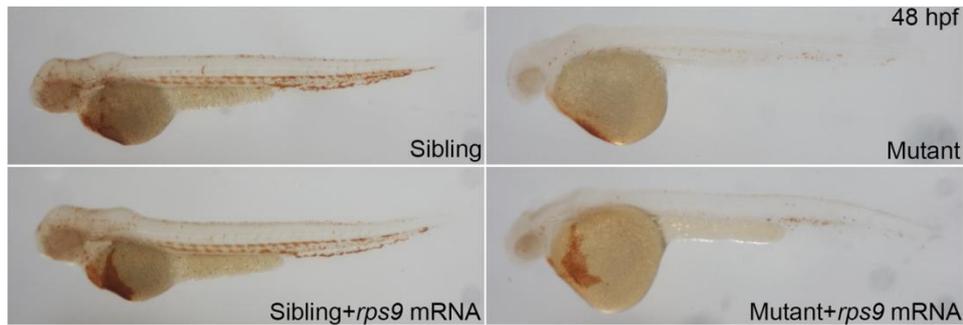


Figure S3. Hemoglobin level is recovered with *rps9* mRNA in *rps9* deficient embryos.

Siblings injected with *rps9* mRNA (400 pg) display a similar hemoglobin level to the sibling without treatment, while mutants injected with *rps9* mRNA (400 pg) show a moderate increase of red blood cells.

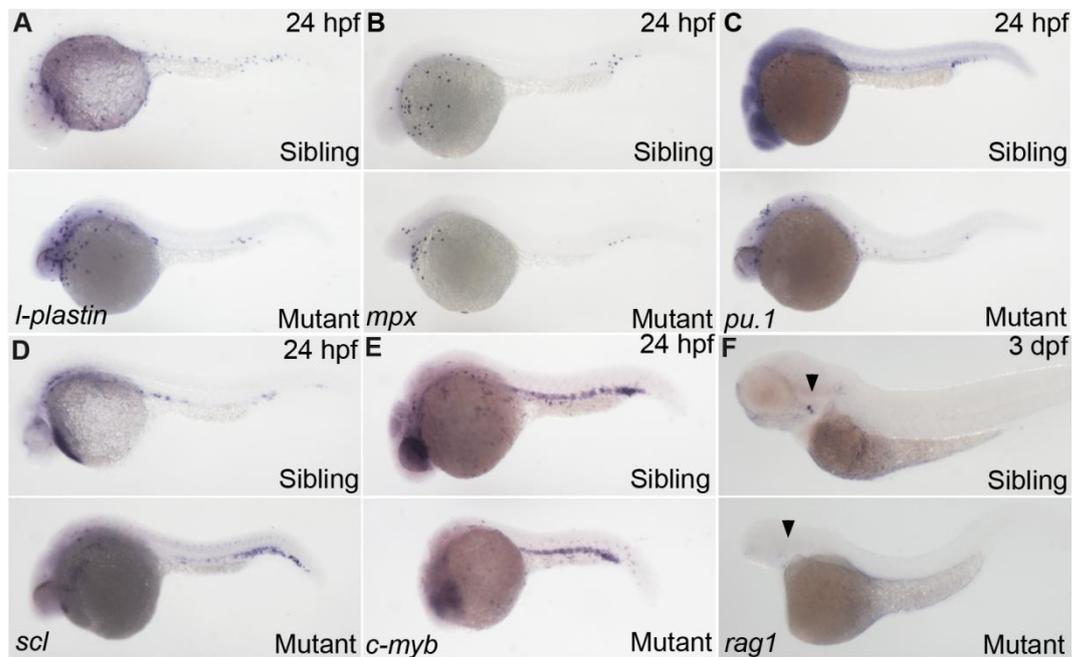


Figure S4. In situ hybridization of *l-plastin*, *mpx*, *pu.1*, *scl*, *c-myb* and *rag1* in *rps9* mutants.

(A-C) Myeloid cells are not affected by *rps9* deficiency, as indicated by three myeloid markers including *l-plastin*, *mpx*, and *pu.1*. (D-E) Hematopoietic stem cells appear normal, as shown by two markers, *scl* and *c-myb*. (F) Lymphoid lineage is impaired in *rps9* mutant, which is demonstrated by the decreased level of *rag1* expression (arrowheads).

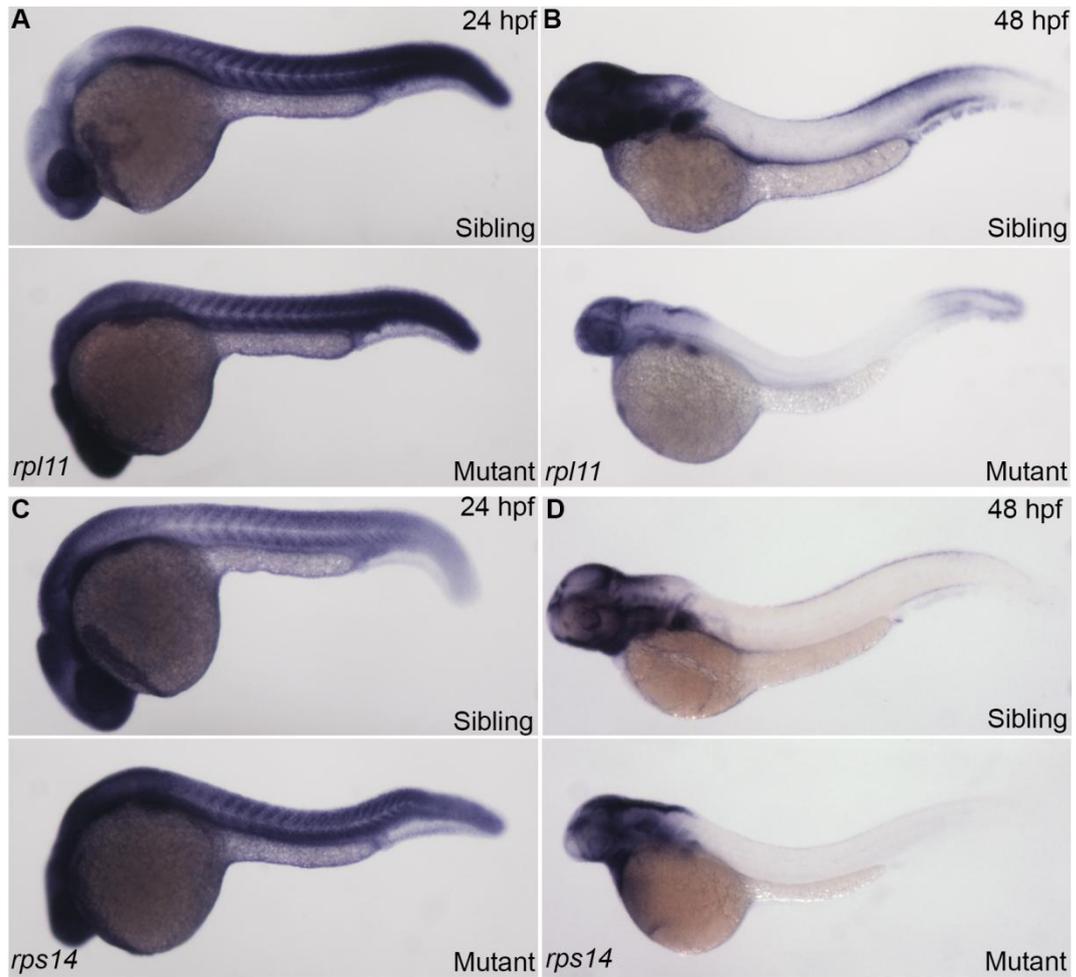


Figure S5. Expression of other ribosomal protein genes is not affected in *rps9* mutants.

(A-D) Expression of *rpl11* (ribosome large subunit) and *rps14* (ribosome small subunit) is not altered in *rps9* mutants.



Figure S6. Apoptosis is elevated in *rps9* mutant.

(A-C) TUNNEL staining is performed using TMR-red at 24 hpf (A), 48 hpf (B), and 72 hpf (C). Arrowheads indicate the sites of apoptosis.

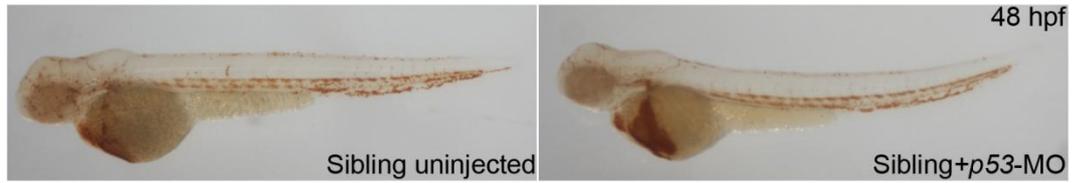


Figure S7. Erythroid level is not affected by knockdown of *p53* under normal conditions.



Figure S8. Intersomitic vessels are impaired in *rps9* mutants.

(A-B) In situ hybridization of two vascular markers, *flk* and *fli1*, in *rps9* mutants.

Movie S1. Circulation of *rps9* mutant at 3 dpf.

Movie S2. Circulation of *rps9* sibling at 3 dpf.