



Fig. S1. Long development of the *env* probe from *zferv1a* by ISH revealed labelling of neuromasts (Black arrows).

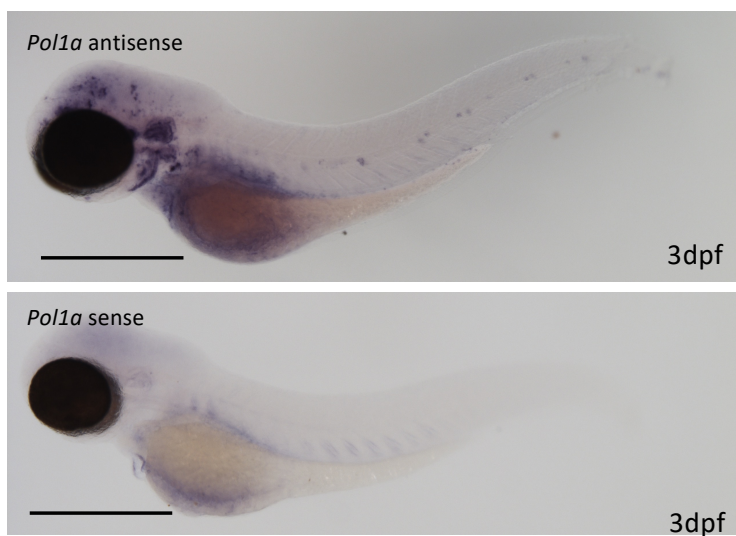


Fig. S2. Expression of the reverse transcriptase gene (*pol*) of *zferv1a* (called *pol1a* here) by *in situ* hybridisation at 3dpf. Scale bar 500 μ m.



Fig. S3. Alignment of the envelope gene from *zferfv1a* and *zferfv1b* to highlight to regions with significant differences between the two genes. Primers used to design the probes are underlined in red.

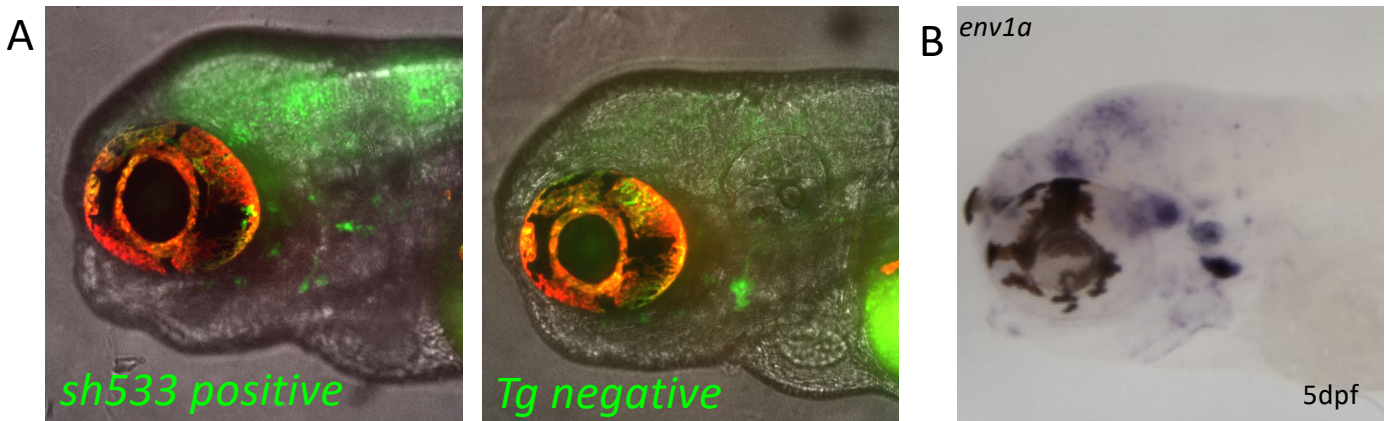
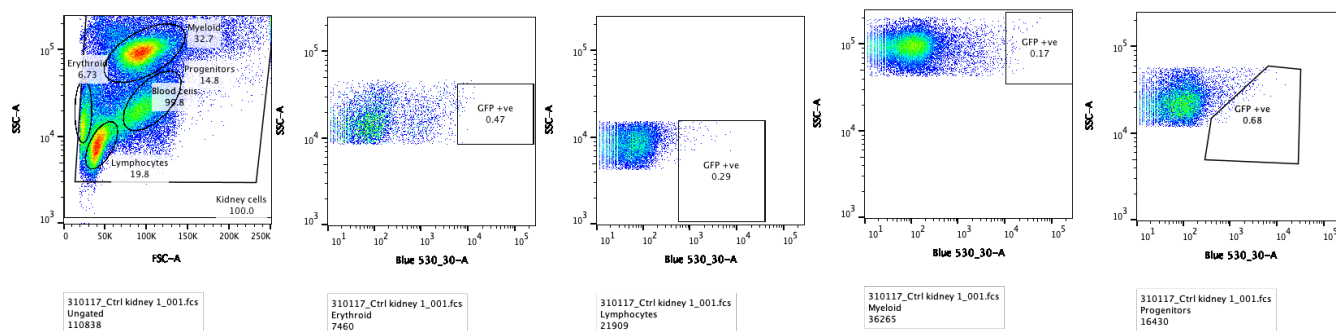


Fig. S4. **A.** *sh533* positive and negative embryo illuminated with the GFP and mCherry laser to highlight the similar light reflection in the lenses that act as mirrors. **B.** ISH with RNA probe *env1a* in a 5dpf embryos injected with a crRNA against the tyrosinase gene generating a mosaic pattern of pigment in the eye

A: Non transgenic control



B: *sh533*

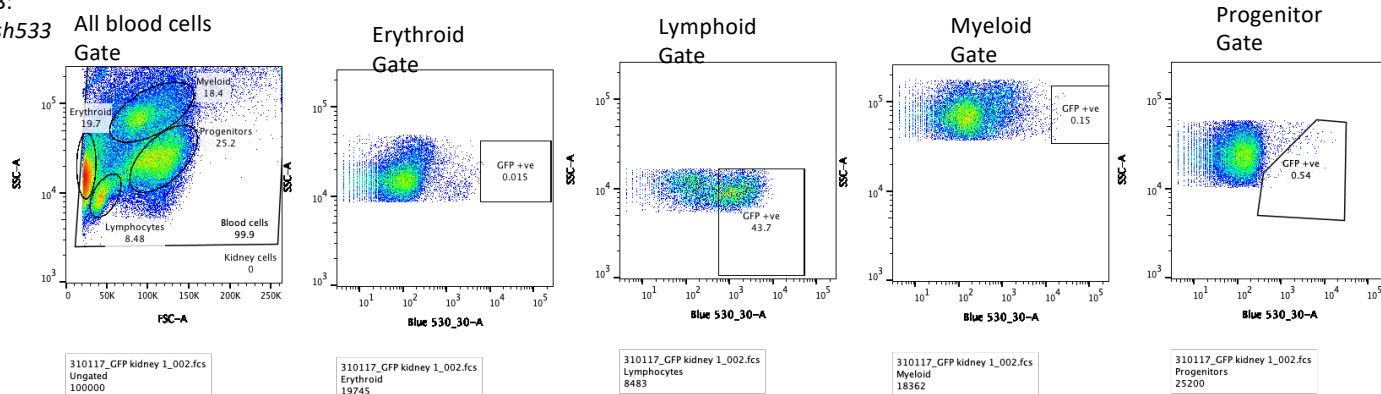


Fig. S5. Gating strategy for each hematopoietic lineage (erythroid, lymphoid, myeloid and progenitor) drawn first in non transgenic control (A) and applied to the *sh533* transgenic kidney samples.

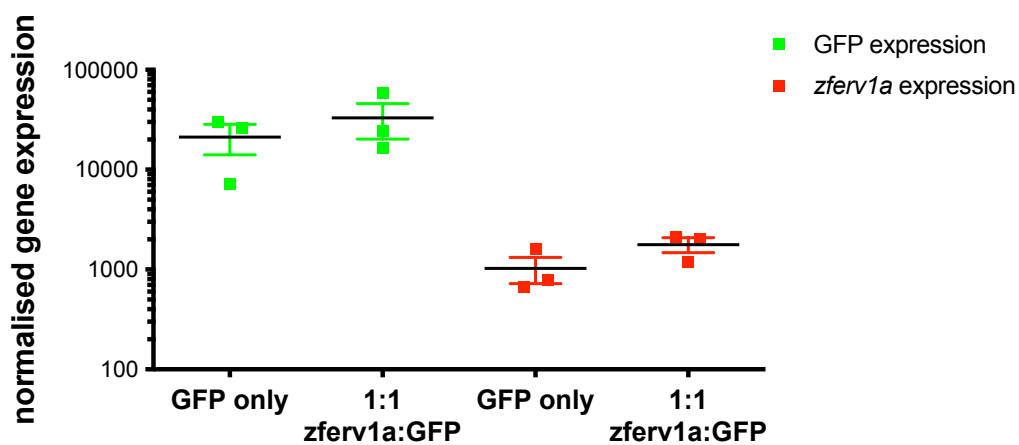
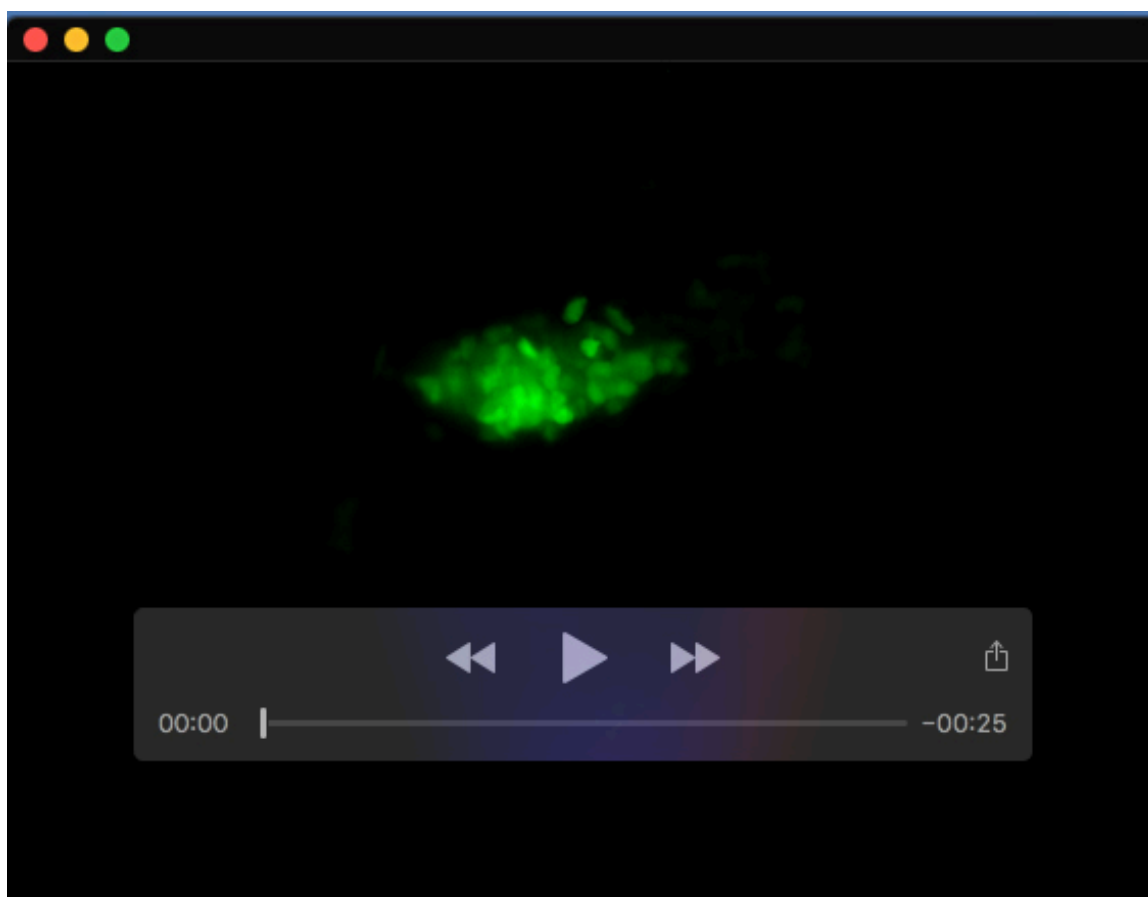


Fig. S6. Expression of GFP (green) and *zfer1a* (red) by qPCR after 1-cell stage injection of a GFP expressing vector alone (GFP only) or in equimolar concentration with *zfer1a* expression vector (1:1 *zfer1a*:GFP).

Table S1. Coordinates of the *zferv1-7* genomic segments

ERV name	chromosome (scaffold)	orientation	5' limit	3' limit
<i>zferv1a</i>	4	reverse	62,546,461	62,557,677
<i>zferv1b</i>	KN149691.1 - NW_001884427.4	forward	211.988	223.087
<i>zferv2</i>	7	reverse	19,379,508	19,389,176
<i>zferv3</i>	16	reverse	9,986,975	9,996,169
<i>zferv4</i>	5 - NW_018394575	reverse	168.525	178.11
<i>zferv5</i>	15	forward	44,144,056	44,162,279
<i>zferv6</i>	7 - NW_018394672	reverse	116.062	124.356
<i>zferv7</i>	19	forward	7,960,461	7,968,734



Movie 1. Timelapse using lightsheet microscopy of *sh533* transgenic embryos at 5dpf, duration 1h30 every 50sec as fast as possible. 215um stack every 1um slice.