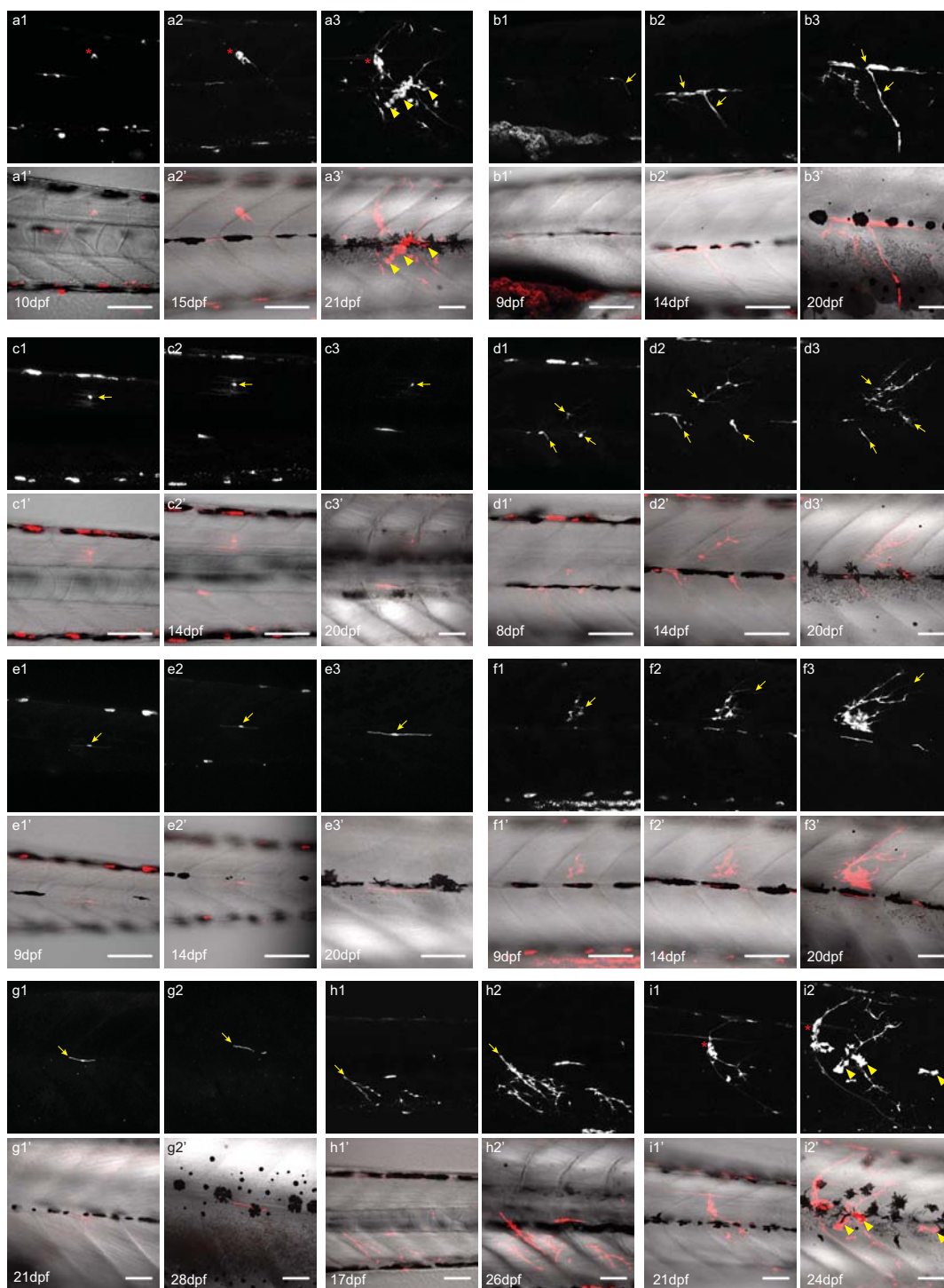


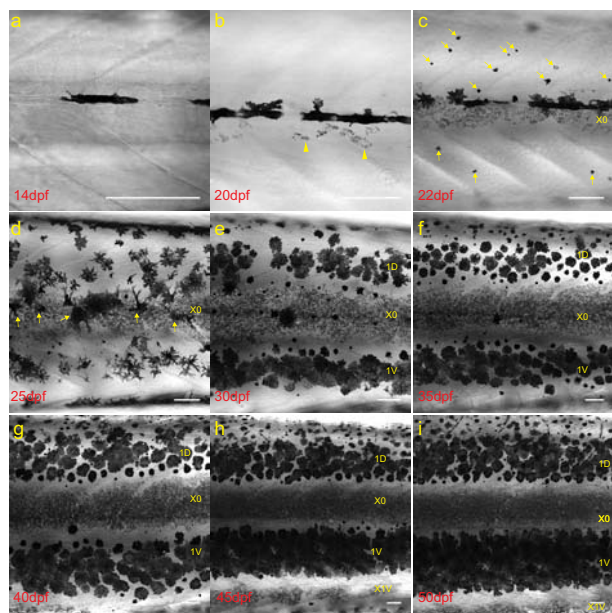
Supplementary Figure 1 Pigment cell clones vary in size and cellular composition. **(a-o)** Cre-lox induced clones (red) in the juvenile skin (>14 mmSL) of *Tg(sox10:ERT²-Cre); Tg(β -actin2:loxP-STOP-loxP-DsRed-express)* animals label various cell types. **(a-b)** Examples of small clones with only iridophore labelling, **(c-g, k-l)** typical mixed clones with iridophores and variable numbers of melanophores, and **(i-j)** small clones with only melanophore labelling. Iridophore clones in **(a-b)** are restricted to the first interstripe along the D-V axis, clones in **(dg,l)** extend both dorsally and ventrally, clones in **(h,k)** cover the skin predominantly ventrally whereas clone in **(c)** predominantly cover the skin dorsally of the first interstripe. Labeled pigment cells of the scales can be seen in **(d, e, l)**. **(n-r'')** Different kinds of pigment cells can be identified by their distinct shape, location,

and pigment content. **(n-n'')** a single labelled melanophore in the stripe of a juvenile shows characteristic morphology and black pigment (arrow in **n'**). **(o-o'')** Dense iridophores are located in the interstripe (arrowheads). **(p-p'')** loose iridophores and **(q-q'')** L-iridophores are located in the stripe region and are close to the melanophores. **(r-r'')** Xanthophores have distinctly different morphology and packaging in the interstripe compared to the dense S-iridophores. Scale bar: 100 μ m. **(s)** The majority of the iridophore clones span two to four segments along the anterior-posterior axis (79%, n=136 clones) and **(t)** more than one stripe along the dorso-ventral axis (87%, n=163 clones). **(u)** Labeling of iridophores in the new interstripes is strongly associated with labeling of iridophores in the first interstripe (93.6%, n=142 clones). **(v)** Frequency of association of iridophores with the DRGs.



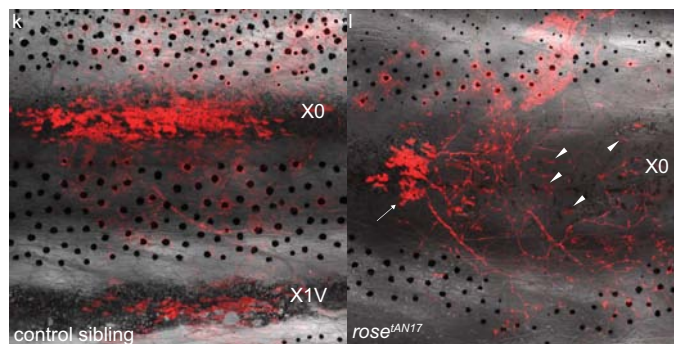
Supplementary Figure 2 Metamorphic iridophores are clonally associated with the neurons and glia of the DRGs. **(a1-a3')** In a premetamorphic *Tg(sox10:ER^{T2}-Cre); Tg(β -actin2:loxP-STOP-loxP-DsRed-express)* larva with Cre-induced clones, a couple of labelled cells (red asterisk) can be seen. At the onset of metamorphosis, these cells start to proliferate and differentiate into the neurons and glia of the

DRGs (red asterisk in **a2-a3**) and into iridophores (yellow arrowheads in **a3**). **(b1-h2)** Several other cell types were also observed before and after metamorphosis which did not make iridophores. **(i1-i2')** shows another example of clonal and developmental association between the iridophores (yellow arrowheads) and the cells of the DRG (asterisk). Scale bar: 100 μ m.



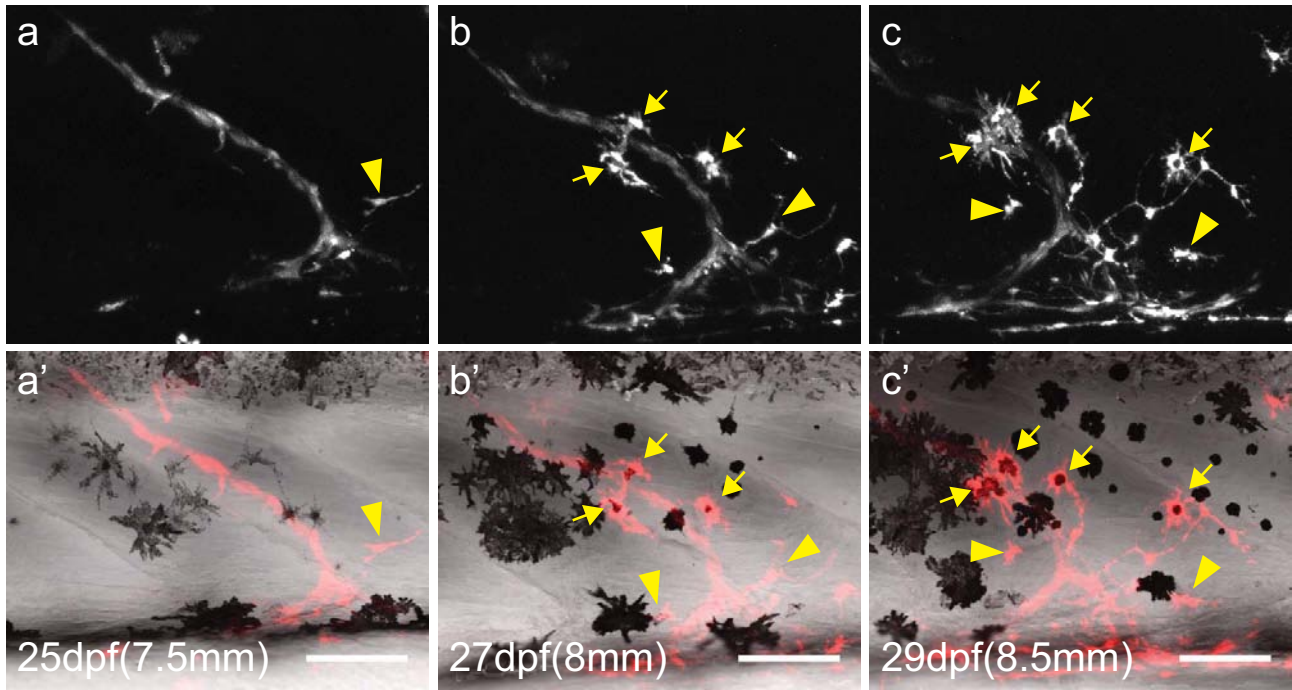
j. Percentage of animals displaying melanophore stripes added after 1D and 1V

Genotype (n)	WT (35)	<i>shady^{sh1}</i> (38)	<i>transparent^{tr}</i> (33)	<i>rose^{ELFR02}</i> (35)	<i>rose^{AN17}</i> (35)
Stripe 2D	100%	0%	0%	0%	51%
Stripe 2V	100%	0%	0%	17%	19%
Stripe 3V	77%	0%	0%	0%	0%



Supplementary Figure 3 Interstripe formation precedes stripe formation and is necessary for subsequent stripe formation. **(a-c)** At the onset of metamorphosis, clusters of iridophores appear along the HM (arrowheads in **b**). While the clusters of iridophores form the first interstripe (X0 in **c**), melanophores (arrows in **c**) begin to appear in the skin. Stripe 1D and 1V become clear at later stages as more melanophores appear in the stripe region **(e-f)**. **(d-h)** The initial fuzzy boundary between stripes and interstripes gets sharpened during metamorphosis. New interstripe (X1V) starts to appear

at subsequent stages (40-50 dpf) and is prominent in **(h-i)** while dark stripe are yet to develop. Scale bar: 100 μ m. **(j)** Compared to wild-type controls, iridophore mutants add fewer stripes beyond the basic metamorphic stripes 1D and 1V. **(k-l)** In animals homozygous for a weak allele of *rose* (genotype: *rose^{AN17X}; Tg(sox10:ERT²-Cre)*+/+; *Tg(β -actin2:loxP-STOP-loxP-DsRed-express)*+/+), iridophores appear scattered (arrowheads in **c** indicate a few scattered loose iridophores) and disorganized unlike the iridophores in the **(b)** control sibling. Arrow: a small cluster of iridophores in the interstripe X0.



Supplementary Figure 4 Development of metamorphic melanophores which appear near the ventral myotome. (A-C') Melanophores (arrows) and unpigmented cells (arrowheads) are seen close to the ventral myotome in a clone. The melanophores contribute to the ventral stripe (1V). Scale bar: 100 μ m.

Supplementary Video 1

Iridophore behaviour in the skin during metamorphosis. Time-lapse images from the Figure 2c-x are compiled in this video after manual alignment of the stacks in Adobe Photoshop. The stacks encompass metamorphic stages from 28 dpf to 45 dpf.