## Whole-mount IHC protocol for zebrafish embryos

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- 1. Dechorionate embryos, if necessary, and fix in PFA at 4 °C for overnight.
- 2. Aspirate PFA and then wash embryos by PBST for 10 min X 3 times
- Dehydrate embryos through a series wash of methanol/ PBST (25%→50%→75%→100% MeOH/PBST, 10 mins for each step)
- Placed embryos in 100% methanol in the freezer (-20°C) for overnight. Note: Embryos could be stored in 100% methanol for few months
- 5. The embryos are rehydrated through a series wash of methanol/PBST (100%→75%→50%→25% MeOH/PBST, 5 mins for each step)
- 6. Wash embryos by PBST for 5 min X 3 times
- 7. Wash the embryos with Tris buffer (150 mM Tris-HCl pH9.0) for 5 mins.
- 8. Equilibrate the embryos in Tris buffer (150 mM Tris-HCl pH9.0) at 70°C for 15 mins.
- 9. Wash the embryos with PBST for twice, 5 mins for each wash.

#### Optional: step 10-13 are for embryos of stage> 24hpf

- 10. Rinse the embryos quickly with dH2O twice on the ice.
- 11. Penetrate the embryos with Pre-chilled Acetone (-20°C) at -20°C for 20 mins.
- 12. Remove the acetone and rinse the embryos quickly with dH2O twice for 5 min X 3 times.
- 13. Blocking the embryos with fresh prepared 10% NGS/2%BSA /PBT for 4 hrs at 4°C.
- 14. Incubate the embryo with the primary Ab (concentration varies with different Ab) diluted in 2% NGS/2%BSA /PBT at 4 °C for 1 days.
- **15.** Wash the embryos with PBT for 30 min X 4 times.
- 16. Incubate the embryos with Secondary Ab diluted in 2% NGS/2%BSA /PBT for 3hrs at R.T. (in dark).
- 17. Wash the embryos with PBST for 5 min X 5 times.
- 18. Fixed the embryos again with 4% PFA for 20 mins at RT.
- **19.** Wash the embryos with PBST for 5 min X 5 times.
- 20. Immerse in 100% glycerol/PBS for microscope observation (through a series glycerol/PBS wash 25% →50% →75% →100% glycerol/PBS , 20 mins each)

#### Reagent recipe

PBT	(	0.1 M phosphate buffer (Na2HPO4 + 2H2O + NaH2PO4 + H2O, pH7.3-7.4) + 0.8% Triton X100
PBST	T I	PBS + 0.1% Tween20
Tris-H	HCI	150 mM Tris-HCl pH9.0
NGS	1	Normal goat serum
BSA	I	Bovine serum albumin

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