That is why

Why does the axolotl never grow up?

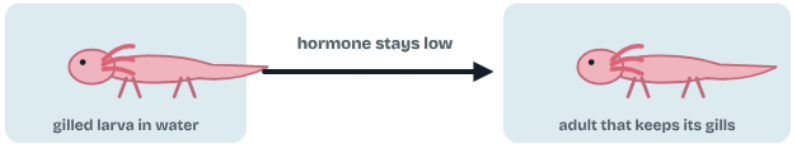
Its thyroid hormone stays low, so it never gets the signal to transform. It grows up and breeds with its gills on.

A Two cousins, two paths

Tiger salamander



Axolotl



Grown up, still a larva

Axolotls breed in their larval body and live their whole lives in the water. Tiger salamanders normally transform.

B The missing signal

switched off here?

Brain: hypothalamus
sends the "start" message

↓

Pituitary gland
passes it on (TSH)

↓

Thyroid gland
releases thyroid hormone

↓

Body
transforms for land

Add the hormone

Give an axolotl thyroid hormone and it transforms. The fault is thought to lie in the hypothalamus or pituitary, so the start signal stays off.

C Life as a lifelong larva

1 Two lakes

Wild axolotls come only from Lakes Xochimilco and Chalco in Mexico.

2 Regrowing parts

Limbs, lungs, heart, jaws, spine and even parts of the brain.

3 In danger

Lives 10 to 15 years. Critically Endangered in the wild.

A few were seen transforming by Duméril in 1865.

No start signal, no transformation: an adult that keeps its gills for life.

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