

Abstrakt

Fish model organisms such as *Danio rerio* have the ability to regenerate heart muscle during its whole lifespan. Compared to *Danio rerio*, the ability of heart regeneration differs in amphibians. While the newt has the ability to regenerate its heart tissue throughout its whole life, the *Xenopus leavis* loses its power when it goes through metamorphosis. The regenerative ability varies not only between genera but also between species. For example compared to *Xenopus leavis*, *Xenopus tropicalis* has the ability to regenerate its heart tissue even in adulthood. Mammals have a very limited ability to regenerate their heart muscle. We can observe the ability to regenerate heart after injury in mice and humans for a very limited time of a few days after birth. In adulthood the heart is healed via rich collagen scar. It is vital that signaling pathways in highly regenerative model organisms are intensively studied, so that the knowledge gained may help us in the treatment of heart injuries in humans.

Key words: regeneration, heart muscle, repair, zebrafish, mammals, amphibians, heart development, vertebrates