

Abstrakt

The model organisms like for example the fish *Danio rerio* has 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 does not only differ between salamanders and claws. We can observe some differences between regeneration of *Xenopus tropicalis* and *Xenopus leavis* too. 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 reverse heart damage in mice and humans for a very limited time of a few days after they are born. In adulthood they repair the heart muscle and the rich collagen scar is formed. It is vital that signaling pathways in regeneration of model organisms is researched further, 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