Investigation of the Ability of Newt Blood to Inhibit Fibrosis

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Fibrosis is a major obstacle to complete tissue regeneration in mammals, often leading to pathological conditions such as keloids and organ fibrosis. In contrast, urodele amphibians like newts possess remarkable regenerative abilities without fibrotic scarring. This study investigates the effects of newt plasma on mammalian fibroblasts, focusing on its impact on myofibroblast differentiation.Mouse fibroblasts treated with newt plasma exhibited significantly reduced expression of α-smooth muscle actin (αSMA), indicating inhibition of TGF-β1–induced myofibroblast differentiation. Furthermore, extracellular vesicles (EVs) isolated from newt plasma replicated the anti-fibrotic effect, suggesting that active components reside within EVs.These findings indicate that newt-derived plasma factors, especially EV-associated molecules, can influence fibroblast behavior and suppress fibrosis across species. Understanding these mechanisms may lead to novel therapeutic approaches for managing fibrosis and enhancing regenerative medicine. This study highlights the translational potential of insights from non-mammalian species.