

TrAPs: A mimetic wound healing approach

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Our first line of protection against foreign pathogens is our skin, an essential component of our body. When the skin is damaged, especially in the form of wounds, it becomes susceptible to infections, inflammation, contamination, and other complications. This is especially detrimental to patients who have underlying morbidities such as diabetes, lupus, or other immune system-related diseases. Wound healing, as intricate as it is, is an important process that must take place not just to repair the wound, but also to protect us from further concerns. Traction force-activated payloads (TrAPs) are wound-healing molecules made from the DNA strands containing different chemical groups, which help to heal the wounds. TrAPs are growth factors that help in forming collagen by interacting with the body's tissue naturally. TrAPs is a novel method towards wound healing that combines nanotechnology and biomimetics; nano-sized TrAPs are incorporated into scaffolds in this method. Scaffolds are made up of polymeric components that can transport medications and cells. These are porous biodegradable materials made of natural or synthetic polymers or a combination of the two. When TrAPs are integrated into scaffolds, they cause a cascade of growth factors to be released. These contain the exact therapeutics that the surrounding cells require in healing. This method of treatment is helpful because it is simple, effective and inexpensive. To give a bigger picture, these could be promising, safer alternatives, and their use could be expanded on a larger scale, such as the treatment of bone defects. They can also be tailored for specific uses, and finally, this method enables direct communication between cells for the wound healing process to take place, and it can mimic the natural healing process with nearly no adverse effects.

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