

Licking your wounds: Scientists isolate compound in human saliva that speeds wound healing

July 23 2008

New research in the FASEB Journal raises expectations for people with chronic wounds

A report by scientists from The Netherlands published online in *The FASEB Journal* identifies a compound in human saliva that greatly speeds wound healing. This research may offer hope to people suffering from chronic wounds related to diabetes and other disorders, as well as traumatic injuries and burns. In addition, because the compounds can be mass produced, they have the potential to become as common as antibiotic creams and rubbing alcohol.

"We hope our finding is ultimately beneficial for people who suffer from non-healing wounds, such as foot ulcers and diabetic ulcers, as well as for treatment of trauma-induced wounds like burns," said Menno Oudhoff, first author of the report.

Specifically, scientists found that histatin, a small protein in saliva previously only believed to kill bacteria was responsible for the healing. To come to this conclusion, the researchers used epithelial cells that line the inner cheek, and cultured in dishes until the surfaces were completely covered with cells. Then they made an artificial wound in the cell layer in each dish, by scratching a small piece of the cells away. In one dish, cells were bathed in an isotonic fluid without any additions. In the other dish, cells were bathed in human saliva.

After 16 hours the scientists noticed that the saliva treated "wound" was almost completely closed. In the dish with the untreated "wound," a substantial part of the "wound" was still open. This proved that human saliva contains a factor which accelerates wound closure of oral cells. Because saliva is a complex liquid with many components, the next step was to identify which component was responsible for wound healing. Using various techniques the researchers split the saliva into its individual components, tested each in their wound model, and finally determined that histatin was responsible.

"This study not only answers the biological question of why animals lick their wounds," said Gerald Weissmann, MD, Editor-in-Chief of The FASEB Journal, "it also explains why wounds in the mouth, like those of a tooth extraction, heal much faster than comparable wounds of the skin and bone. It also directs us to begin looking at saliva as a source for new drugs."

Source: Federation of American Societies for Experimental Biology

Citation: Licking your wounds: Scientists isolate compound in human saliva that speeds wound healing (2008, July 23) retrieved 20 September 2024 from <https://medicalxpress.com/news/2008-07-wounds-scientists-isolate-compound-human.html>

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