

Scientists find wound healing RNA "switch"

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Singapore: In the non-healing wounds of diabetics, miR-198 does not disappear and wound healing remains blocked. This therefore identifies miR-198 as a potential diagnostic biomarker for non-healing wounds.

These findings were recently published in the prestigious journal *Nature*. The research leading to this discovery was carried out in collaboration with A*STAR's Bioinformatics Institute (BII), National University Hospital (NUH), Singapore and Jnana Sanjeevini Diabetes Center, Bangalore, India.

Dr Prabha Sampath, principal investigator at IMB and lead author of the paper, said, "Moving forward, we hope to translate this research into improved patient outcomes. We can now build on this research, to see how we can modulate the defective switch in chronic wounds by targeting miR-198 and its interacting molecules, to develop new strategies for treating chronic wounds. Our research provides a comprehensive understanding of the mechanism of the wound healing process."

The information necessary to express microRNA-198 (miR-198) and follistatin-like 1 (FSTL1) protein are found in a single "message" produced by the cell. However, miR-198 and FSTL1 protein cannot be produced at the same time - it can only be one or the other.

These two molecules also have opposite roles: miR-198 (found in unwounded skin) inhibits skin cell migration and wound healing, whereas FSTL1 protein (expressed after injury) promotes skin cell migration and wound healing. A regulatory switch dictates their expression, and hence controls the "see-saw" between inactive resting skin cells and the cell migration necessary for wound healing.