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Abstract Title:	**The Ability Of B1 Repetitive Sequences Methylation In Improving Rat Second Degree Burn Wound Healing**
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Objective:	1) Discuss the role of the methylation level of short intersperse repetitive sequences levels in wound healing processes. 2) Describe possible biotechnology that can promote global methylation, reduce genomic instability and improve burn wound healing.
Abstract:	**Introduction:** Burn wounds are very difficult wounds to heal and have been the most common and most costly complications in the health care system. In the United States, there are about 2.2 million burn injuries and about 5,500 deaths from burn wounds. They cost the country more than $10 million. In Thailand, there are more than 40,000-45,000 cases of burn injuries each year. There are 600-800 deaths per year, which require large expensive both in terms of personnel and money, as most wound dressings are very expensive and imported from abroad. When high temperature injures cells, it causes the protein to denature, DNA injuries and increases DNA damage response markers. These consequences cause the arrest of cell cycles, the impairment of cell proliferation and the delayed in wound healing. The B1 siRNA enhances burn wound healing by increasing methylation level, recover dermal growth, recover the wound and decrease scar formation. Considering the mechanisms of molecules and proteins affecting cell actions in varied situations generates benefits in finding new methods to improve wound closure and to treat and heal difficult burn wounds. This research has the potential to translate to clinical applications to improve patients' burn wounds and restore skin functions. The maintenance of genome stability is crucial for survival and proper functions of cells. If we can decrease genomic instability by adding B1 siRNA to increase methylation level, this can promote cell proliferation and burn wound healing. **Method:** Three groups of 8 rats per group were burned with hot 10 millimeter-width-aluminum rods. The rats were divided into the control(normal saline), Calcium-phosphate nanoparticle and B1siRNA groups. B1 siRNA was applied to direct B1 interspersed repetitive

	sequences methylation. Wound contraction rates, histology, immunohistochemistry, and levels of B1 methylation were evaluated. **Results:** There were significantly different among groups after 7th-day post-burn injuries. B1 siRNA group show better-wound contraction rates than the control and nanoparticle groups on days 5,7,10,14,21 and 28. The B1 siRNA shows higher pathologic scores than the control and nanoparticle groups on days 14 and 21. There are no significant differences in wound contraction rates in the control and calcium-phosphate nanoparticle groups. We observed a positive correlation between B1 element methylation, wound contraction rates, pathologic scores and immunohistochemistry results. The results of histology exhibited well-formed horizontally oriented collagen fibers in the B1siRNA treatment groups. **Conclusion:** B1 methylation stabilizes the genome by preventing the accumulation of DNA damage, B1 siRNA could be useful to improve the wound healing and genomic stability in rat burn wounds. Moreover, humans have these short repetitive sequences called ALU sequences. Therefore, it can be used as a topical treatment agent for burn wounds.