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## Photobiomodulation at 660nm alters the expression of cell adhesion molecules and extracellular matrix proteins in a diabetic wounded fibroblast cell model

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Diabetes was declared a global burden by the International Diabetes Federation, with 382 million cases worldwide in 2013. Diabetic foot ulcers require extensive treatment and impacts heavily on patients quality of life. The ulcer recurrence rate over five years is as high as 70% and often necessitate amputation. The use of lasers and light (photobiomodulation) in medicine has made great strides and today photomedicine is practiced in a wide variety of fields, including the treatment of diabetic foot ulcers. Advances in the area of photobiomodulation continues to revolutionize and transform our world and the medical industry. The use of photobiomodulation at 660 nm with 5 J/cm<sup>2</sup> on gene profile of 84 genes was investigated by real-time reverse transcription (RT) quantitative polymerase chain reaction (qPCR) in diabetic wounded skin fibroblast cells (WS1). The expression of various cell adhesion molecules and extracellular matrix proteins was modulated by photobiomodulation; eighteen genes were upregulated, while 31 genes were downregulated. There is a definite need to generate new treatment modalities to improve diabetic wound healing, and photobiomodulation has an unmistakable place in this. It would be ignorant to emasculate a multidisciplinary approach, and photobiomodulation needs to be adequately and critically studied alongside existing treatments in a clinical environment for its benefits to be properly recognized.

### Biography

Nicolette N Houreld completed her Doctorate in 2006 from the University of Johannesburg and is a full time Senior Lecturer and Researcher in the Laser Research Centre, Faculty of Health Sciences, University of Johannesburg. As a NRF (National Research Foundation, South Africa) Y2-rated scientist, her field of research is laser tissue interaction and focuses on molecular effects of lasers for application in diabetic wound healing. She has published more than 34 papers in reputed journals, and serves as an Editorial Board Member for Photomedicine and Laser Surgery and on the executive committee for World Association for Laser Therapy.

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