

# THE SCIENCE BEHIND LLLT

## From molecular biology to cell and tissue level- what are the mechanisms of action?



### A TOPICAL SYMPOSIUM

7 - 8 August 2009, 8.00am - 5.00pm

**Venue:** University of Rochester (Goergen Building)

**Organizing Committee:** Ray Lanzafame, Juanita Anders, Michael Hamblin, David Sliney, Margaret Wong-Riley, James Zavislan

Over the past 40 years there have been many seemingly extraordinary claims of successful treatments of a wide range of diseases, dysfunctions and injuries through the use of "low-level" laser (or light) therapy (LLLT). Many different terms have been used - from LLLT to "biostimulation," "photobiomodulation," and other terms. Claims ranging from wound healing, analgesia, reduction of inflammation and nerve regeneration have been seriously questioned by the scientific community and met with great skepticism by much of the medical community. Since irradiances are below levels that produce any significant increase in tissue temperature, it is generally agreed that if these photobiological treatments are real, then they are photochemical rather than photothermal in nature.

Although there are now FDA-cleared LLLT treatments and growing acceptance from some quarters, the scientific acceptance has been routinely set back by poorly designed, less-than-rigorous experimental and clinical studies. Clearly presented photobiological dosimetry and recognition of fundamental methodology in the field of photobiology have frequently been lacking. The aim of this ASP symposium is to explore the scientific evidence for the photobiological mechanisms behind LLLT—from molecular biology to cell and tissue level, and to review those clinical results that appear to be well founded. Ample time has been planned for discussion after each review of the key scientific questions from action spectra to temporal and spatial factors that appear to influence outcome.



#### Speakers:

Juanita Anders  
Margaret Wong-Riley  
Stuart Bisland  
Thomas Coohill  
James Carroll  
Istvan Stadler  
Tomas Hode

#### Titles:

Acute Light Exposure  
UV-A Corneal Collagen  
Skin and Wound Studies  
Basics of Photobiology  
Dosimetry and the Natural Environment  
Production of Reactive Oxygen Species  
UV Interaction with DNA & Cellular Repair



7th - 8th AUGUST

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*Further details coming soon*

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