Support of Stem Cell Therapies to Improve Efficacy and Outcomes

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Abstract:

In this session Dr. Anderson will combine his many decades of integrative and regenerative medical practice to illustrate methods used to create synergy with stem cell therapies. Combining intravenous, light and oral therapies Dr. Anderson developed some of the first protocols in the US to support patients undergoing stem cell and other transplant therapies in oncology. Later with colleagues he published the first peer-reviewed paper summarizing the methods best suited for regenerative medical uses of stem cell therapies. This presentation will “get right to the point” and outline clinically verified best practices.

FROM THE CLINIC

Autologous Stem Cell Therapy

A NATUROPATHIC APPROACH FOR THE TREATMENT OF CHRONIC MUSCULOSKELETAL PAIN CONDITIONS—Part I of II

HARRY A DELSON, ND, TYNA MOORE, ND, DC, AND PAUL ANDERSON, NMD

FROM THE CLINIC

Autologous Stem Cell Therapy

A NATUROPATHIC APPROACH FOR THE TREATMENT OF CHRONIC MUSCULOSKELETAL PAIN CONDITIONS—Part II of II

HARRY A DELSON, ND

References / Links for those papers

- **Stem Cell Support Part-1**

https://www.academia.edu/36317398/Stem_Cell_Support_Part-1_Integrative_Pain_Management

- **Stem Cell Support Part-2**

https://www.academia.edu/36317439/Stem_Cell_Support_Part-2_Integrative_Pain_Management

Nutritional Support

Vitamins and Minerals:

In the promotion of stem cell support, production and release almost every vitamin and mineral has some or a great deal of data supporting its need. The idea that a well-balanced micronutrient milieu is required for stem cell function is logical and based in the available data. The fat soluble nutrients vitamin A, D, E and K, the water soluble ascorbate as well as every B-Vitamin and associated nutrient (such as Biotin and PABA) all have data showing need [1,2,3,5,9,10]. In addition to the vitamins most minerals common to human nutrition are also supported in the data. Notably the minerals copper, magnesium, iron, selenium and zinc appear in the most data [1,9,12].

Amino Acids:

As would seem logical many amino acid structures are represented in the data.

Specifically acetyl-l-carnitine (ALCAR) [3] tyrosine, tryptophan, lysine [5] glycine, glutamate, cysteine [11] and the tripeptide glutathione [3, 10] are well studied.

Other Oral Supplements

Fatty acids such as fish oils in general [4] and the omega three oils specifically [2] are necessary for stem cell propagation. Basic antioxidants (in addition to those mentioned above) including **anthocyanidins** (blueberry and beet root), **spirulina, green tea polyphenols, and fucoxanthin** show data support as well [2, 14, 15].

Other cofactors such as **alpha-lipoic acid** (ALA) and **ubiquinone** (coenzyme Q10; CoQ10) as well as the trophic nutrients glycerophosphocholine (GPC), and **phosphatidylserine** (PS) appear to be required [3].

The potential for modulation of IGF-1 as a key in cytokine signaling in stem cell biology [6,8] appears promising. One manner to promote such balance is in the use of **quercetin** [7].

Blueberry [13], and fucoidan (fucoxanthin in fucoidan-containing brown algae) [13,14,15] **promote stem cell release and function.**

Intravenous Micronutrient Therapy

The use of micronutrient nutritional therapy via the intravenous (IV) route is an excellent method to replete a person before and during stem cell therapy. The aforementioned nutrients in previous sections can be administered in the IV form. While it is not the intent of this section to provide an exhaustive review of IV nutrition I will spotlight the use of selected nutrients that are known to support stem cell activity.

The basic nutrients such as the water soluble vitamins and minerals can all be safely administered as IV additives. Likewise amino acids (as mixtures or separate additions), glutathione and other support nutrients are also safe and effective in the IV form. A few specific nutrients for IV use are listed below:

Alpha Lipoic Acid (ALA):

ALA is a thiol and as such is known in basic science to support levels of glutathione in the liver and other tissues.

In experimental models [16,17] ALA has been shown to be helpful in pushing the redox balance in a positive direction via modulation of inflammatory cytokines such as Tumor Necrosis Factor and NF-kappa-b. LAMC/POLYMVA advanced ALA option.

The amino structures Taurine and Carnitine:

Carnitine (either in the “l” form or the more bioavailable “acetyl-l” form) is useful in varied targets including decreasing neurotoxicity [22], decreasing lactic acid build up [23] as well as its more commonly known biochemical function of transporting fatty acids into the mitochondria for beta oxidation based energy production. The l-carnitine form in our clinic is administered IV at doses of 500 – 4000 mg and the acetyl-l-carnitine form at doses of 100 mg to 1000 mg in most cases.

The amino structures Taurine and Carnitine:

Taurine is the master osmolyte in the human body and as such regulates distribution of the excitable ions (Na, K, Ca, Mg and Cl) to their appropriate sides of the cell membrane [24,25]. In this role the authors clinical observation has been that the addition of taurine to IV formulas containing magnesium and other excitable tissue acting minerals causes a greater benefit as reported by patients. Taurine is used constantly at the cell membrane and thus depleted both in low dietary intake as well as by oxidative stressors [25]. Taurine in our clinic is dosed between 200 and 1000 mg in most IV formulas.

Glutathione:

A favorite IV additive, glutathione is known by those who use it to have extremely positive effects in the treatment of a wide range of illnesses and appropriate cell regulation [26].

General doses are between one and three grams and may be as high as six to ten grams in some cases. Clinically the use of glutathione IV appears to be more efficient when support nutrients (such as are found in the general nutrient IV formulas) are given before the glutathione infusion. As some patients will have sulfation SNP defects and other reasons not to tolerate glutathione the author typically uses a lower test dose on the first IV infusion of glutathione ranging from 100-500 mg.

Glutathione Presentation:

GLUTATHIONE AUGMENTATION - Anderson

https://www.academia.edu/21925456/Glutathione_Augmentation_in_a_nerve_injury_model

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Laser Support

8.4 The role of Low- Level- Laser Therapy

- Proliferation: Stem cells need to be reproducible in adequate quantity.
- Differentiability: Stem cells need to have the potential to differentiate in the respectively required type of cell
- Purity: The differentiation process needs to be controllable: cells of one and the same kind have to be producible
- Pinpoint integrateability: The cell/ tissue replacements must be transplantable to the target part of the body
- Immunity of tumour development: It has to be assured that transplants don´t grow in an uncontrolled manner and thus induce tumour growth.
- Long term therapeutic effectiveness: The transplants need to prove their functionality and therapeutic effect in the long term.
- Immune compatibility: The transplants must be compatible to the immune system of the acceptor.

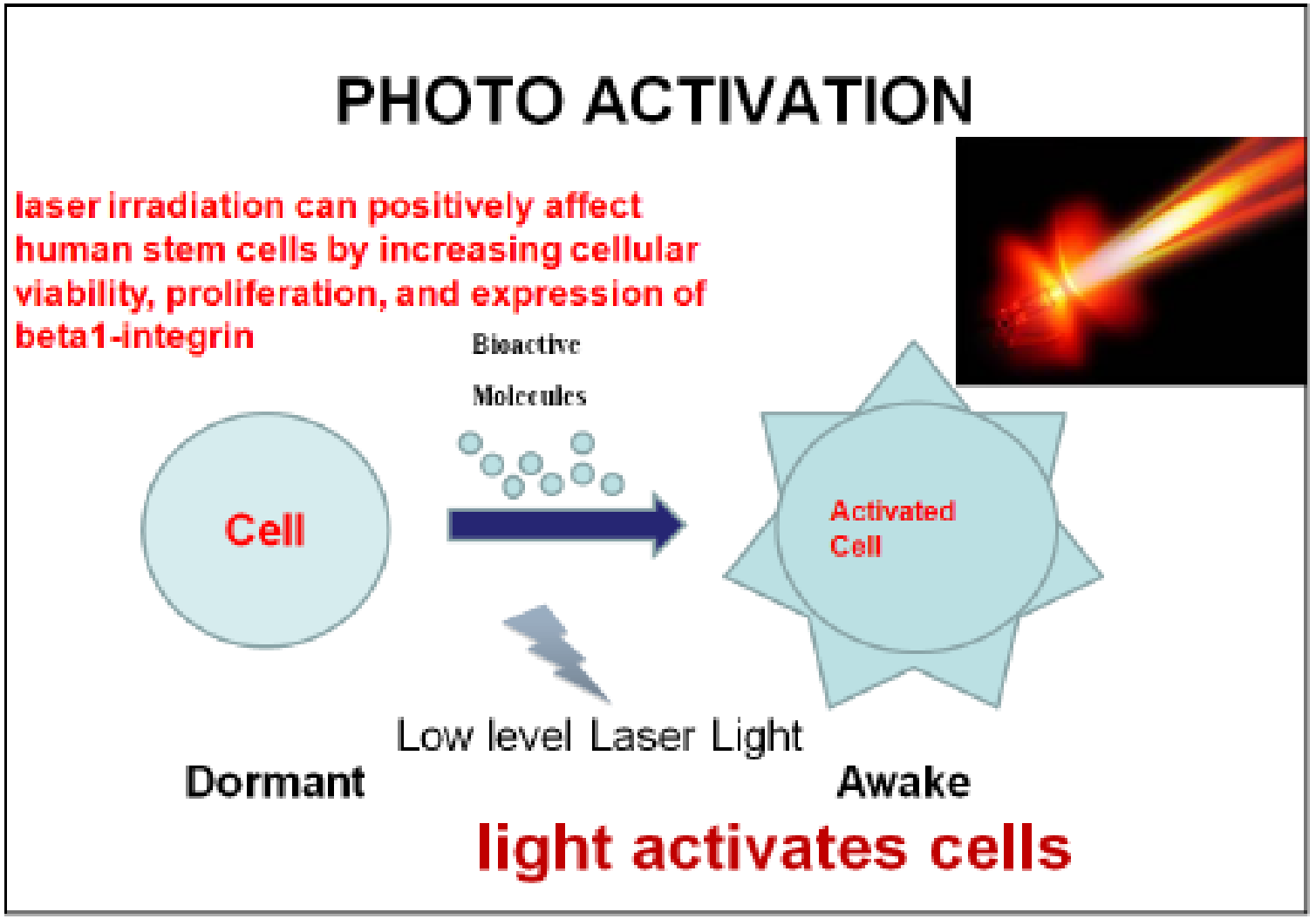


Fig.4: Effect on Low-Level-Laser Light on stem cells.

1) Lasers stimulate stem cells for heart repair. By: Prof. Uri Oron, Tel Aviv
(WALT-Laserconference, Washington DC, September 2014)
In a study conducted by Prof. Uri Oron, University of Tel Aviv, it was shown that a simple new process significantly reduces heart scarring after an ischemic event.

The method is called "shining" and consists of applying low-level laser energy to living bone marrow stem cells a few hours after a heart attack.
This procedure reduces scarring by up to 80 percent.

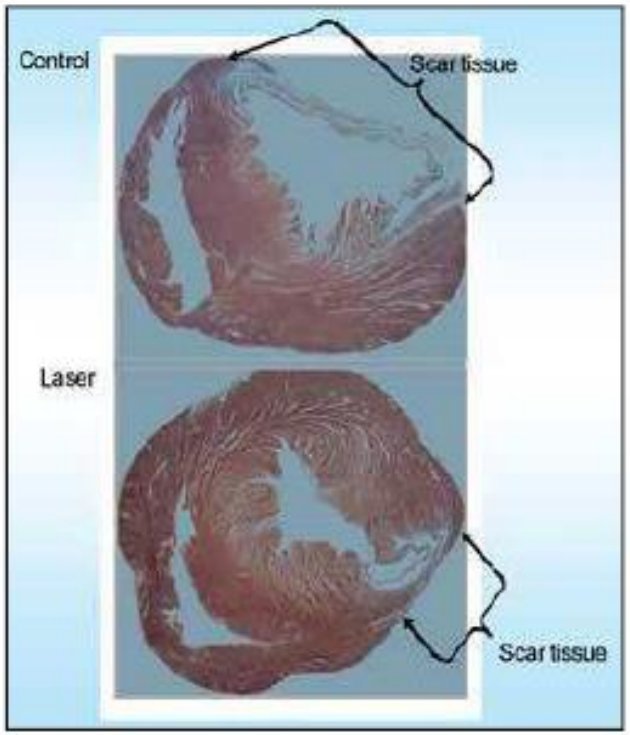
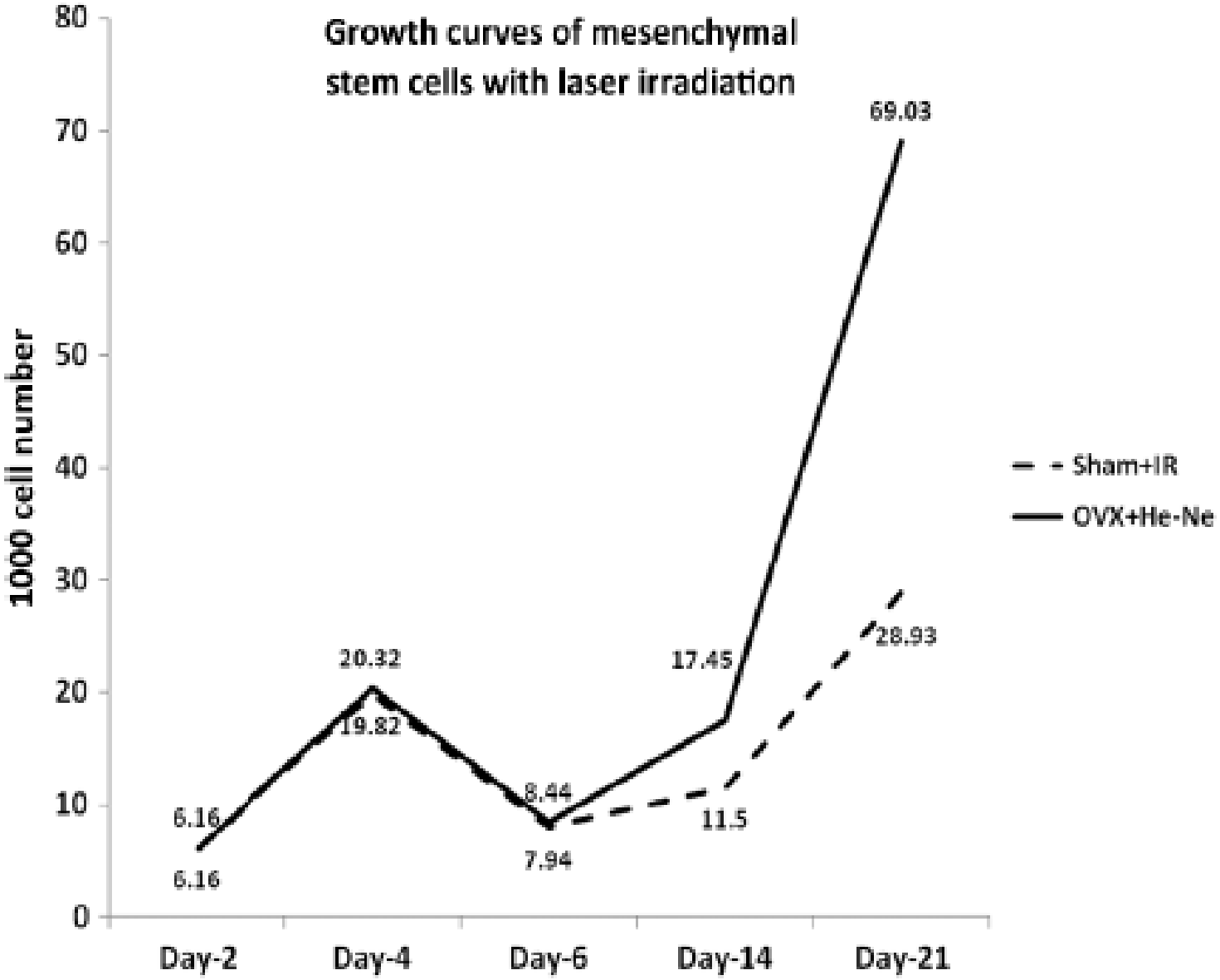


Fig.5: Reduction of scarring by up to 80 percent.


Growth curves of mesenchymal stem cells with laser irradiation
1000 cell number
80
70
60
50
40
30
20
10
0
Day-2
Day-4
Day-6
Day-14
Day-21
69.03
20.32
19.82
17.45
28.93
8.44
6.16
11.5
7.94
6.16
Sham+IR
OVX+He-Ne

Poly-MVA

Poly-MVA
aka. Lipoic Acid Mineral Complex (LAMC):

Known as the proprietary formula “Poly MVA” in North America, LAMC has shown to be helpful in cell repair, mitochondrial repair and radioprotection [18-21].

The author has found that low IV doses (5-15 mL) combined with low oral doses (5-10 mL BID) improve energy via mitochondrial support.

Poly-MVA Reference

LAMC (PolyMVA) – Anderson

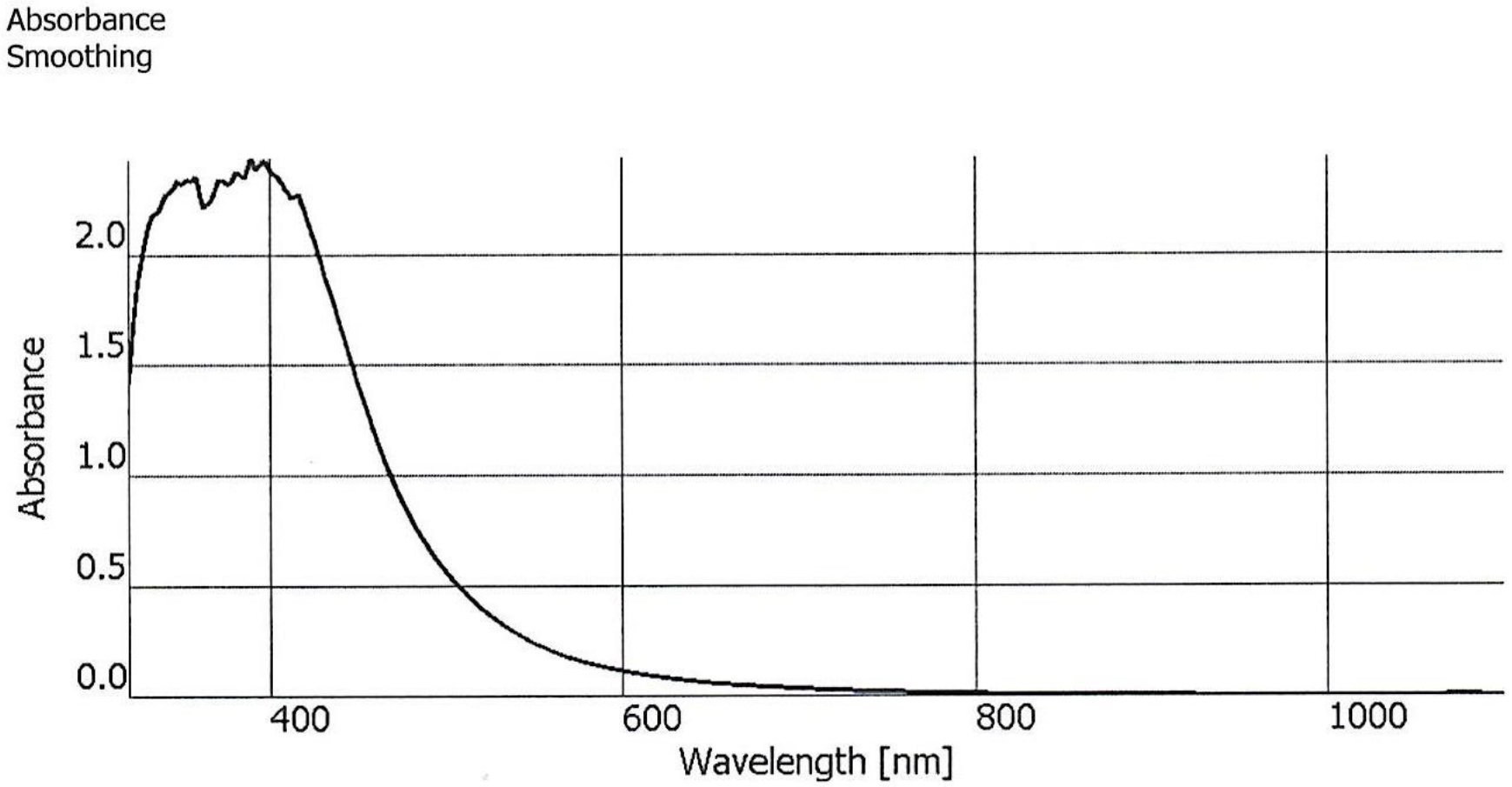
https://www.academia.edu/20316600/Lipoic_Acid_Mineral_Complex_PolyMVA_Monograph

Poly-MVA as a support

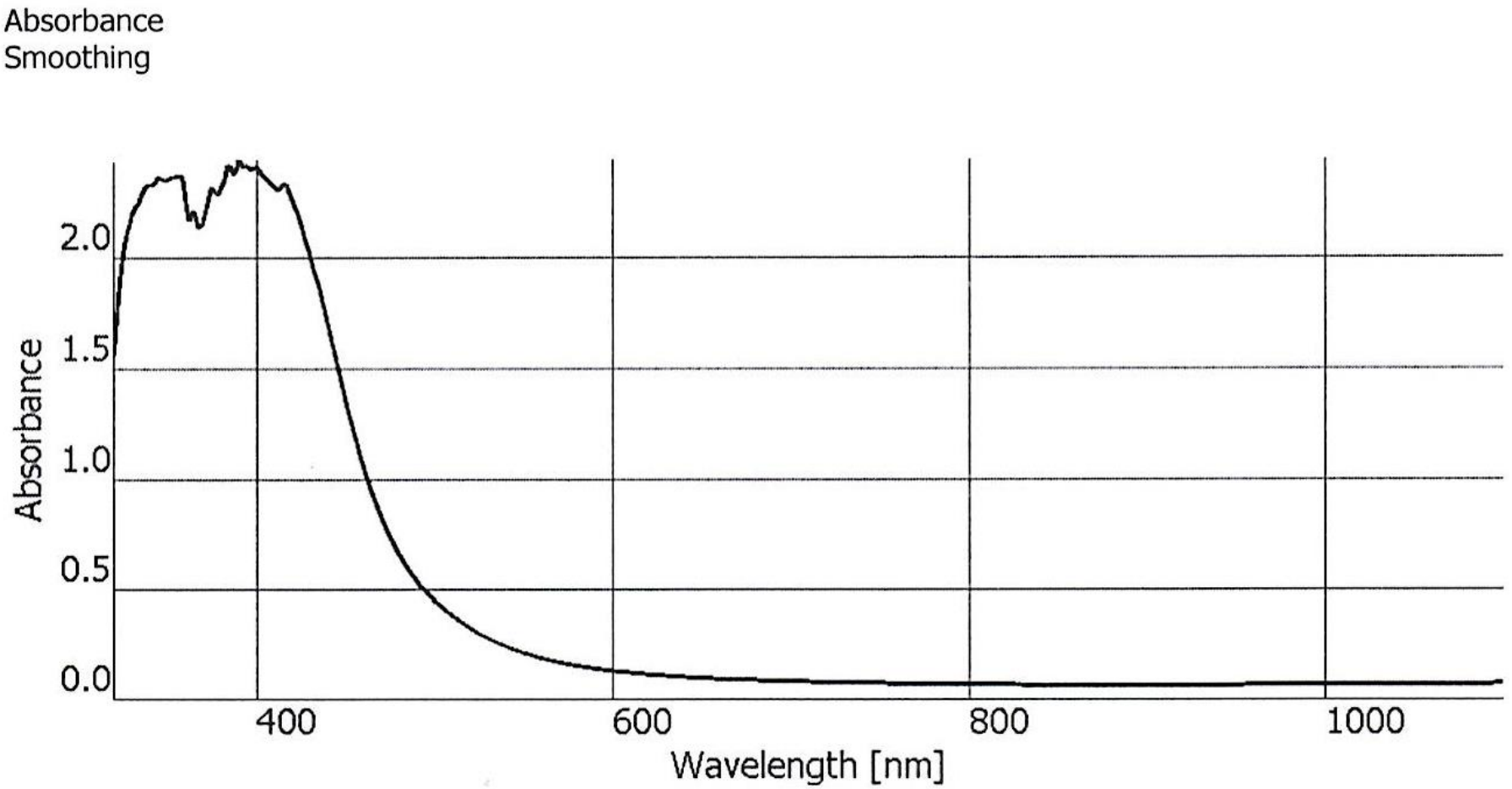
AND

Photosensitizer

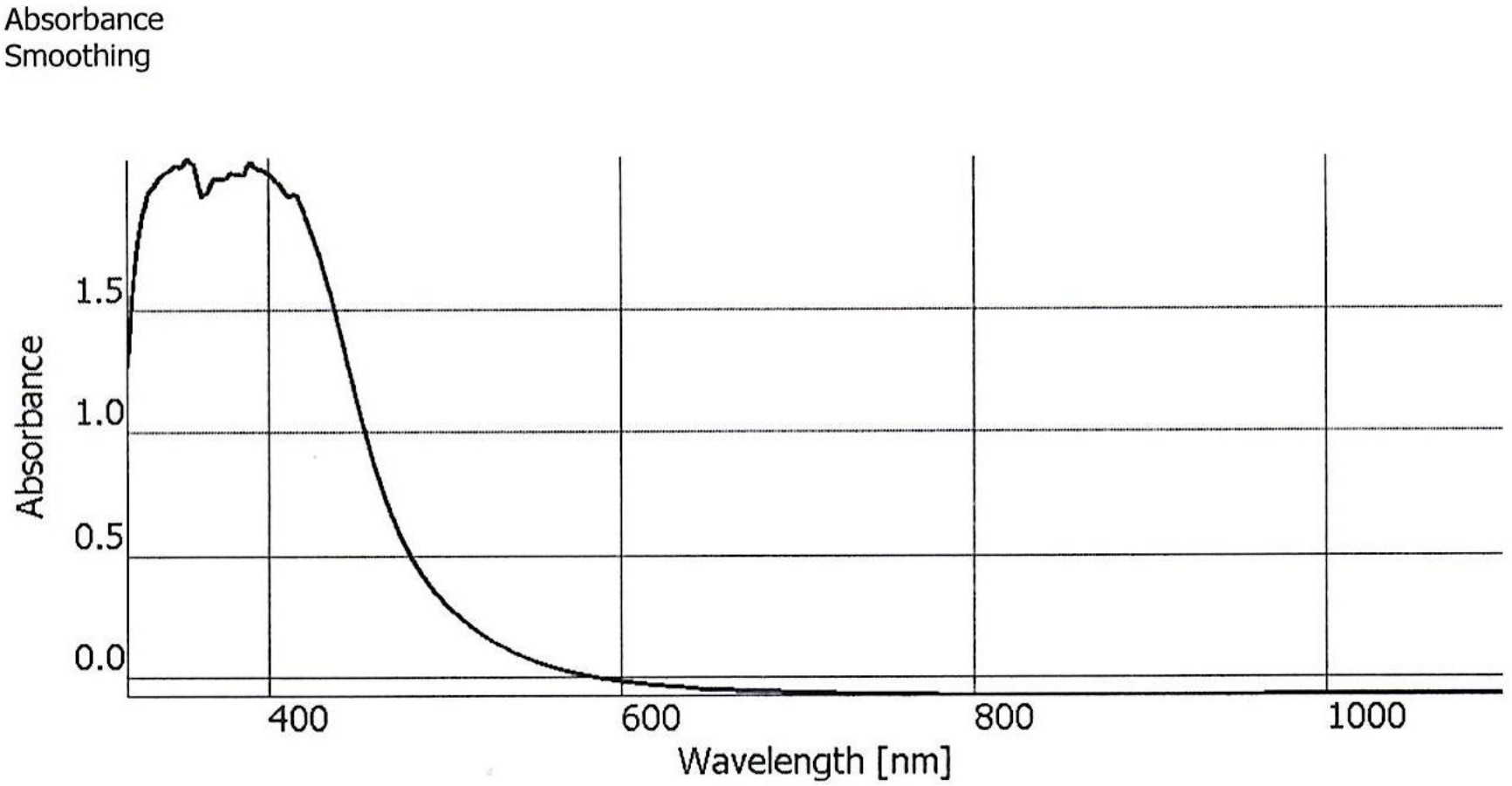
Poly-MVA Full Strength



Poly-MVA 50% Dilution



Poly-Plus (with retinoid)



BLUE LASER (REGENERATION, EASE, COOLING)

WAVELENGTH : 451 nm - 495 nm
ABSORPTION : almost completely absorbed at skin.
Absorbed by **HAEMOGLOBIN** and by the NADH-dehydrogenase-complex, the starter complex of the RESPIRATORY CHAIN IN THE MITOCHONDRIA.

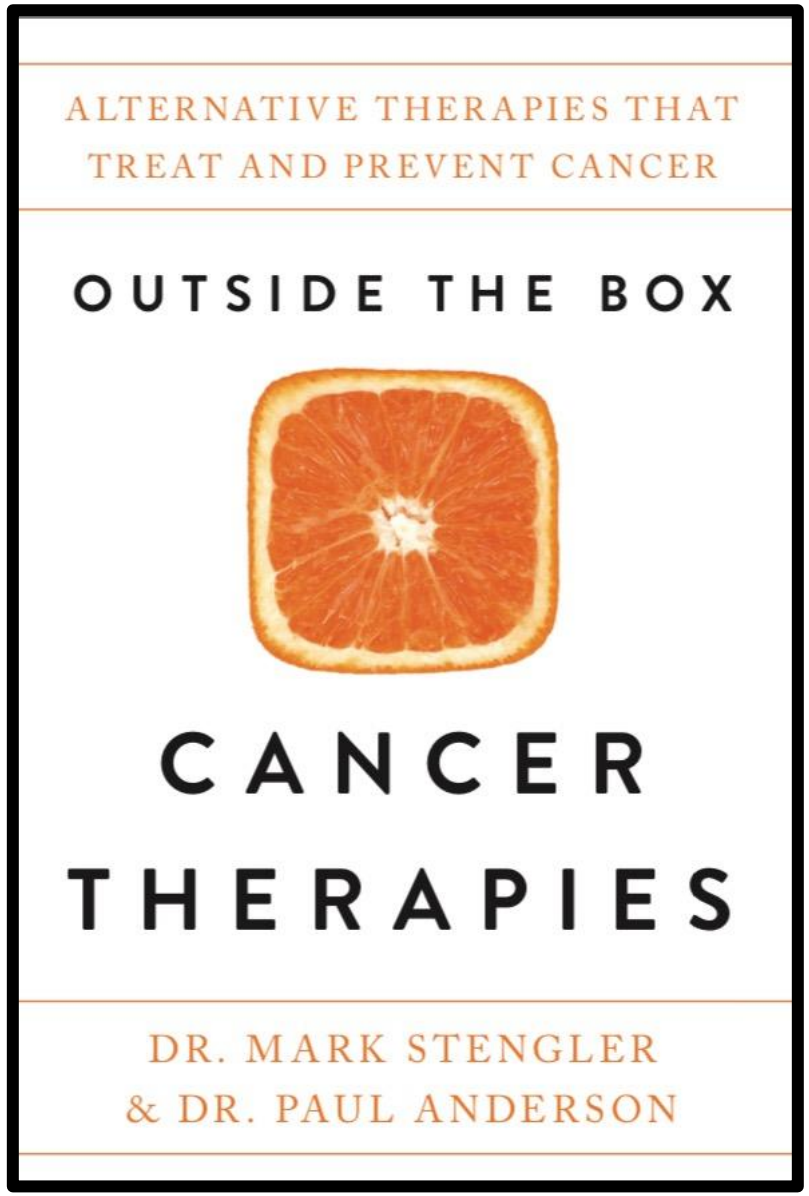
PENETRATION DEPTH : 1 - 2 mm

TREATMENT INTENSITY (inW/mw): 50 - 60 mW (p.611).
30 mW for interstitial and intra-articular laser therapies.

Summary

- Support is possible
- Support is necessary
- Synergy improves overall outcomes, viability and activity

NEW! Integrative Oncology Book



Next:

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Thanks