

Literature Overview Low-Level Laser Therapy

1) IV Application:

General

- Andrä Frank: The Effects of intravascular Low Level Laser Therapy in the Scope of a Redifferentiation Therapy of Malignant Tumours. German Medical Journal of Oncology; No 6/2007.
- Bakeeva L, Manteiffel V, Rodichev E, Karu T: Formation of gigantic mitochondria in human blood lymphocytes under the effect of an He-Ne laser. Mol-Biol-Mosk. 1993 May-Jun; 27 (3):608-17.
- Bodenburg R: Laserneedle-acupuncture and intravascular laser blood-irradiation from a legal point of view. Pain & Acupuncture, 2007; 33,1:42-48.
- Boev S, Selivonenco V: The impact of the intravenous He-Ne-Laser therapy on the antioxidant system in patients with stable insertion angina and postinfarkt cardiosclerosis. Klin-Med-Mosk, 1997; 75,12:30-3.
- Brill G, Grigoriev S, Romanova T: Changes of leucocyte metabolism in He-Ne laser blood irradiation in vitro. Proceedings of SPIE. 1993; 1981:204-209.
- De Moraes NC, Barbosa AM, Vale ML, Villaverde AB, de Lima CJ, Cogo JC, Zamuner SR: Anti-inflammatory effect of low-level laser and light-emitting diode in zymosan-induced arthritis. In: Photomed Laser Surg. 2010 Apr;28(2):227-32. doi: 10.1089/pho.2008.2422.
- Dimitriev A, Ludin V, Aparov N, Matyrnov V: Effect of intravascular laser irradiation of the blood on blood cells in pancreatitis. Klin Med (Mosk.). 1989; 67, 5:108-110.
- Driianskaia V: The clinico-immunological effects of immunotherapy in patients with acute pyelonephritis. Lik-Sprava. 1997; Jul- Aug; (4):89-92.
- Dube A, Hausal H, Gupta PK: Modulation of macrophage structure and function by low level He-Ne irradiation. Photochem. Photobiol. Sci. 2003; 2, 8:851-855.
- Frick G, Dehmlow R. Practice Guideline UVBund HOT: Fundamentals and use of stimulus-reaction-therapy. Stuttgart: Hippokrates 2001.
- Funk J, Kruse A, Kirchner H: Cytokine production after helium-neon laser irradiation in cultures of human peripheral blood mononuclear cells. Journal Photochem. Photobiol. Biology, 1992; 16, 3-4: 347-355.
- Gasparyan L: Laser Irradiation of the blood. Laser Partner - Clinixperience - All Volumes - 2003:1-4.
- Gasparyan L, Makela A, Oy E: Intravenous Laser Irradiation of Blood: current state and future perspectives.
- Grubnik V, Dotsenko S, Chuev P, Basenke I, Salemekh A: Laser in the prevention of early postoperative complications in the surgical treatment of obesity. Klein-Khir. 1994; 8:25-27.
- Gulsoy M, Ozer G, Bozkulak O, Tabakoglu H, Aktas E, Deniz G, Ertan C: LLLT increases lymphocyte proliferation. Journal Photochem. Photobiol. Biology, 2006; 82, 3:199-202.
- Hamblin R, Viveiros J, Changming Y, Ahmadi A, Ganz R, Tolkoff J: Helicobacter pylori accumulates photoactive porphyrins and is killed by visible light. Antimicrobial Agents and Chemotherapy, 2005; 49, 7:2822-2827.
- Heine H. Lehrbuch der biologischen Medizin. Stuttgart: Hippokrates, 3. Auflage 2007.
- Heine H, Schaege G: Origin and function of „roodlike structures“ in mitochondria. Acta anat. 1979; 103:1-10.
- Karp G: Molekulare Zellbiologie. Heidelberg: Springer, 4. Auflage 2005.

- Karu T: The Science of Low-Power Laser Therapy. Amsterdam: Gordan and Breach Science Publishers, 1998.
- Kassak P, Sikurova L, Kvasnicka P, Bryszewska M: The response of Na/K-ATPase of human erythrocytes to green laser light treatment. *Physiol Research*, 2006; 55,2:189-194.
- Khotaintsev K, Doger-Guerrero E, Glebova I, Svirid V, Sirenko J: Laser blood irradiation effect on electrophysiological characteristics of acute coronary syndrome patients. *Proc. SPIE*. 2929: 1996:132-137.
- Kipshidze N, Chapidze G, Bokhua M, Marsagishvili L: Effectiveness of blood irradiation using a Helium-Neon-Laser in the acute period of myocardial infarction. *Sov-Med*. 1990; 3:9-12.
- Kolarova H, Ditrichova D, Smolan S: Effect of He-Ne laser irradiation on phagocytotic activity of leukocytes in vitro. *Acta-Univ-Palacki-Olmuc-Fac-Med*. 1991; 129:127-132.
- Kozhura V, Dvoretskii S, Novoderzhkina I, Berezina T, Kiranova A, Iakimento D, Kozinets GI: The effect of intravascular helium neon laser blood irradiation on the state of the compensatory processes in the acute period of hemorrhagic shock and after resuscitation. *Anesteziol Reanimatol*. 1993; 4:43-8.
- Ledin A, Dobkin V, Sadov A, Galichev K, Rzeutsky V: Soft-laser use in the preoperative preparation and postoperative treatment of patients with chronic lung abscesses. *Proc. SPIE*. 1999; 3829:2-5.
- Leonova G., Maistrovskaia O, Chudnovskii V: Helium-neon laser irradiation as inducer of interferon formation. *Vopr-virosol*. 1984; 39, 3:119-121.
- Lindgard A, Hulten L, Svensson L, Soussi B: Irradiation at 634 nm releases nitric oxide from human monocytes. *Lasers Med Sc* 2007; 22:30-36.
- Lutoshkin M, Tsypilev M, Lutoshkina M: Application of a Helium-Neon Laser (HNL) for the correction of renal function in patients with chronic glomerulonephritis. *Uro. Nefrol (Mosk.)*. 1993; 2:17-20.
- Manteifel V, Bakeeva L, Karu T: Ultrastructure changes in chondriome of human lymphocytes after irradiation with He-Ne laser: appearance of giant mitochondria. *Journal Photochem. Photobiol. Biology*, 1997; 38, 25-30.
- Manteifel V, Karu T: Structure of Mitochondria and Activity of their Respiratory Chain in successive Generations of Yeast Cells exposed to He-Ne Laser Light. *Biology Bulletin* 2005; 32, 6:556-566.
- Meshalkin E. (ed.): Application of Direct Laser Irradiation in Experimental and Clinical Heart Surgery [in Russian], Novosibirsk: Nauka, 1981.
- Mi X, Chen J, Cen Y, Liang Z, Zhou L: A comparative study of 632,8 and 532 nm laser irradiation on some rheological factors in human blood in vitro. *J. Photochem. Photobiol. B.*, 2004; 74,1:7-12.
- Moshkovska T, Mayberry J: It is time to test low level laser in Great Britain. *Postgraduate Medical Journal*. 2005; 81:436-441.
- Mouayed A, Fareed F, Ihsan F, Ahmad Y: Estimation of IgM & IgG values in the serum after intravenous irradiation of blood with diode laser. First UAE International Conference on Biological and Medical Physics, Al-Ain. 2005; Abstract No. 70.
- Neeb G: Das Blutstasesyndrom. Verlag für Ganzheitliche Medizin. Kötzting: 2001.
- Neimark A, Muzalevskaia N: Low-intensity laser radiation in preoperative preparation of patients with benign prostatic hyperplasia. *Urologiia*. 2000; 1:11-5.
- Noohi F, Javdani M, Kiavar M: Study of the Efficacy of Low level laser in Myocardial Perfusion of Patients with Chronic Stable Angina. Abstracts: 16th Congress of Iranian Heart Association, Tehran; Nov 18-21, 2008; 91.
- Raggi F, Vallesi G: Intravenous Laser Blood Irradiation in Sports Medicine. *Schmerz & Akupunktur* 3/2008; 34:126-129.

- Romberg H: Physikalische Grundlagen der Lasertherapie. Dt. Ztschr. f. Akupunktur 2005; 48,1:33-42.
- Schulte-Übbing, C (2014): Die Intravenöse Lasertherapie als integratives Verfahren in der Immunologie.
- Schulte-Übbing, C. et al (2015): Ein Integratives Therapiekonzept zur Behandlung von Autoimmun-Erkrankungen am Beispiel von Morbus Hashimoto.
- Schumm N. Intravasale Laser-Blutbestrahlung des Blutes. Schmerz & Akupunktur 2006; 32,4:211-215.
- Schumm N. Komplement. Integr. Med. KIM-11-12/2008.
- Shnitkind E, Yaping E, Geen S, Shalita AR, Lee WL: Anti-inflammatory properties of narrow-band blue light. In: J Drugs Dermatol. 2006 Jul-Aug;5(7):605-10.
- Siposan G, Lukacs A: Relative variation to received dose of some erythrocytic and leukocytic indices of huma blood as a result of low-level-laser radiation. Journal of Clinical Laser Medicine & Surgery. 2001; 19, 2:89-103.
- Skvorcov V, Nedogoda V: Niederleistungs-lasertherapie gegen chronische Lebererkrankungen. Raum & Zeit, 2002, 119: 5-12, übersetzt aus dem Russischen von Veronika Müller, Würzburg.
- Sluga E, Monneron A: Über die Feinstruktur und Topochemie von Riesenmitochondrien und deren Einlagerungen bei Myopathien. Virchows Archiv. 1970; 350, 3:250-260.
- SpasovA, Nedogoda V, Konan K, Kucheravenko A: Effect of the intravenous laser blood irradiation on efficacy of drug preparations. Eksp Klin Farmakol. 2000; 63, 5:65-7.
- Stadler I, Evans R, Kolb B, Naim J, Narayan V, Buehner N, Lazafame R: In vitro effects of low level laser irradiation at 660 nm on peripheral blood lymphocytes. Lasers Surg. Med. 2000; 27, 3:255-261.
- Tuner J, Hode L: Laser Therapy - Clinical Practice and Scientific Background. Grängesberg: Prima Books AB, 2002.
- Vinck E, Cagnie B, Cornelissen M, Declerque H, Cambier D: Green light emitting diode Irridation enhances Fibroblast Growth impaired by high glucose levels. Photomedicine and laser surgery. 2005, 23, 2:167-171.
- Weber M: Vorrichtung zur intravasalen Laserblutbestrahlung und Verfahren zur Herstellung eines Einmal-Katheters für eine solche Vorrichtung. Deutsche Patentanmeldung 10 2005 019 006.5-55; www.webermedical.com.
- Weber M: Der blaue Laser. Schmerz & Akupunktur, 2006, 32, 4:208-210.
- Weight R, Viator J, Dale P, Caldwell C, Lisle A: Photoacoustic detection of metastatic melanoma cells in the human circulatory system. Optical Letters. 2006; 31, 20:2998-3000.
- Wieden, T: Schmerztherapie der Fibromyalgie. Schmerz & Akupunktur 3/2008; 34:130-136.
- Wirz-Ridolfi, A: Frequencies with consequences. Schmerz & Akupunktur 2/2008; 61-65.
- Wirz-Ridolfi, A: Intravenous laser therapy in horses, Preliminary results of a Multi-Center Pilot Study. Schmerz & Akupunktur 3/2008; 120-124.
- www.wissenschaft.de, News 4.4.2005-Gesundheit, publiziert im Journal of Antimicrobial Agents and Chemotherapy, Bd. 49; 139.
- Xavier M, David DR, de Souza RA, Arrieiro AN, Miranda H, Santana ET, Silva JA Jr, Salgado MA, Aimbre F, Albertini R: Anti-inflammatory effects of low-level light emitting diode therapy on Achilles tendinitis in rats. In: Lasers Surg Med. 2010 Aug;42(6):553-8. doi: 10.1002/lsm.20896.
- Yu H, Chang K, Yu C, Chen J, Chen G: Low-energy helium-neon laser irradiation stimulates interleukin-1 alpha and interleukin-8 release from cultured human keratinocytes. Journal of investigative Dermatology. 1996; 107:593-596.
- Zhou J. Chinesische Medizin. OZV Bad Pyrmont - Beijing: 1. Auflage 2004.

Vascular Diseases

- Asford R et al: Low intensity laser therapy for chronic venous leg ulcers. Nurs Stand, 1999 Oct 6- 12;14(3):66-70, 72.
- Abergel RP et al: Biostimulation of wound healing by lasers: Experimental approaches in animal models and in fibroblast cultures. In: J Dermatol Surg Oncol 1987, 13:127-33.
- Adghimolaev TA et al: To the mechanism of action of laser radiation on structure and function of a nervous cell. In: Problems of bio-energetic of an organism and stimulation by laser radiation. Alma-Ata, 1976.
- Alekseeva AV, Ivanov AV, Minaev P et al: Research of action of laser radiation on blood cells. In: Mathematical models of biological systems. Moscow, 1971, p. 102-103.
- Ananchenko VG, Khanin AG, Gostishcheva O: Cytological parameters of bronchoalveolar lavage in patients with chronic obstructive bronchitis exposed to laser radiation of blood. Terapevticheskii arkhiv, 1999; 71(11): 65-67.
- Baynozarova BJ: Influence monochromatic polarized red light on activity NAD-depending dehydrogenase of cycle Krebs. Biological action of laser radiation. Alma-Ata, 1977, p. 70-74.
- Belousov SS at al: Analgesic effect of intravascular He-Ne laser therapy in patients with stable and unstable angina pectoris. In: New in laser medicine and surgery, 1990, Moscow, part.1, p.101-103.
- Berki T, Nemeth P, Hegedus J: Effect of low power, continuous wave He-Ne laser irradiation on in vivo cultured lymphatic cell lines and macrophages. Stud biophys, 1985, 105, 3, 141-148.
- Braverman B, McCarthy R J, Ivankovich AD: Effect of helium-neon and infrared irradiation on wound healing in rabbits. Laser surg. Med. , 1989, 9, p.50.
- Djugurian MA: Activity of dehydrogenase and citochromokinase of a brain and a cardiac muscle of rats under influence of laser radiation of various wavelengths. Ph.D. Thesis of the biologist sciences. Kiev. 1986.
- Dreval VI at al: Study of the mechanism of action of laser radiation on the activity of enzymes. Comparative biochemistry of metabolism in animals. Kuibyshev, 1982, p.48-52.
- Gorbatenkova EA et al: The effect of endovascular laser irradiation on the parametrs LPO and endotoxication in experimentl peritonitis. New in laser medicine and surgery, 1990, Moscow, part 2, p.33-34.
- Hardy LB , Fine S: Effect of rube laser radiation on mouse fibroblatt culture. Fed Proc 1967, 26, 668.
- Ilyich GK: Medical and biological physics: fluctuations and waves, acoustics, hemodynamics Minsk, 2000 ,206 p.
- Latifullin IA et al: Products of lipid peroxidation, blood enzymes and kinins in myocardial infarction following endovascular laser therapy, Lasers and Medicine, Moscow,1989, part 1, p.100-101.
- Lyone R, Abergel R: Biostimulation of wound healing in vivo by a Helium-Neon laser. Ann. plast.
- Lysenkov NV et al: The application of methods and means of laser technology in biology and medicine. Proceedings of all-Union conference. Kiev, 1981, p.217.
- Meshalkin EN, Sergievsky VS, Kremleva LA: General activity and isopherment spectrum LDG of a myocardium and a liver of animals after irradiation of helium - neon laser. Blood circulation. 1984. N 1, p.3-6.
- Mikhailov V: Intravenous laser blood irradiation, Greece, 2007, 102 p.
- Mikhaylov V: The use of Intravenous Laser Blood Irradiation (ILBI) at 630-640 nm to prevent vascular diseases and to increase life expectancy.
- Mikhailov VA, Skobelkin OK: Application low level laser irradiation in preoperative period in patients with cancer. Book of Abstracts International Congress. Use of lasers in surgery and medicine, Moscow, 1989, part III, p.40-41.

- Mikhailov VA, Lotoshvili VA: Results of use Low-Level Laser Irradiation (LLL) in patients with peripheral atherosclerotic disease. Abstracts XIII international congress of the international Society for laser surgery and medicine. Havana, Cuba, 1999, nov.22-26, p.151-152.
- Moroz A: ATF activity and maintenance ATF in some organs of the rats, after exposed of monochromatic red color. Hygiene and sanitary. 1976. N11, p. 110-111.
- Ohshiro T, Calderhead R: The role of low reactive level laser therapy in revitalising failing grafts and flaps. Laser Surg. Med. 1989. 1 31.
- Sergeyeva LI, Eremina SV: Hemolytic stability of erythrocytes in animals and humans under the action of laser radiation. Kuibishev Univ.,1984, p.98-104.
- Serych MM et al: The effect of low-energy monochromatic radiation on the activity of enzymes in various organs of rats. Biological effects of laser radiation. Kuibyshev, 1984,156 p.
- Stroev E, Larionov V, Grigoreva L, Makarova V, Dubinina I: The treatment of diabetic angiopathies by endo-vascular low-intensity laser irradiation. Probl-Endokrinol-Mosk. 1990; 36, 6:23-5.
- Smotrin SM: Influence of laser radiation on an exchange of serotonin at patients with trophic ulcers of the bottom finitenesses. Application of laser radiation and a magnetic field in biology and medicine Minsk, 1982, p. 18-19.
- Zubkova SM: About the mechanism of biological action of radiation of the helium - neon laser. Biological sciences of M, 1978, N 7, p. 30-37.

Diabetes:

- Brill G, Gasparyan L, Makela A (2003): Modification in relationships in the system endothelial cell-blood platelet by low level laser radiation. Laser Florence meeting.
- Chung H, Dai T, Sharma SK, Huang YY, Carroll JD, et al. (2012): The nuts and bolts of low-level laser (light) therapy. Ann Biomed Eng 40: 516-533.
- DeFronzo RA, Ratner RE, Han J, Kim DD, Fineman MS, et al. (2005): Effects of exenatide (exendin-4) on glycemic control and weight over 30 weeks in metformin-treated patients with type 2 diabetes. Diabetes Care 28: 1092-1100.
- Gasparyan L (2003): Laser Irradiation of the blood. Laser Partner- Clinixperience 1-4.
- Grossman N, Schneid N, Reuveni H, Halevy S, Lubart R (1998): 780 nm low power diode laser irradiation stimulates proliferation of keratinocyte cultures: involvement of reactive oxygen species, Lasers in surgery and medicine 22: 212-218.
- Hawkins D, Houreld N, Abrahamse H (2005): Low level laser therapy (LLLT) as an effective therapeutic modality for delayed wound healing. Ann N Y Acad Sci 1056: 486-493.
- Kazemikhoo N, Ansari F and Nilforoushzadeh: The Hypoglycemic Effect of Intravenous Laser Therapy in Diabetic Mellitus Type 2 Patients; A Systematic Review and Meta-analyses. iMedPub Journals, 2015, Vol. 1, No 1:7.
- KazemiKhoo N, Ansari F (2015): Blue or red: which intravascular laser light has more effects in diabetic patients? Lasers Med Sci 30: 363-366.
- Kovalyova T: Ambulatorische Applikation von kombinierter Lasertherapie an Patienten mit Diabetes mellitus und Dyslipidämie. Übersetzung Prof. Dr. Peter Marti, Institut für LLLT & Naturheilkunde, Internet: www.marti-inst.ch/IntLF_Diabetes_mellitus.asp.
- Kazemi-Khoo N (2006): Successful treatment of diabetic foot ulcers with low-level laser therapy. The Foot 16: 184-187.
- Kazemi-Khoo N, Shokrgozar MA, Kashani IR, Amanzadeh A, Mostafavi E, et al. (2014): In vitro therapeutic effects of low level laser at Mrna level on the release of skin growth factors from fibroblasts in diabetic mice. Avicenna journal of medical biotechnology 6: 113.
- Khamseh ME, Kazemikhoo N, Aghili R, Forough B, Lajevardi M, et al. (2011): Diabetic distal symmetric polyneuropathy: effect of lowintensity laser therapy. Lasers Med Sci 26: 831-835.

- Kovalyova T, Pimenov L, Denisov S: Die Dynamik der Hyperlipidaemie und des peripheren Blutflusses bei Patienten mit Diabetes mellitus nach Behandlung mit kombinierter Laser-Therapie bei ambulant-poliklinischen Bedingungen. Der 2. internationale Kongress „Laser und Gesundheit-99“, Moskau, 1999: 313. (deutsche Übersetzung von Marti: www.marti-institut.ch).
- Lubart R, Wollman Y, Friedmann H, Rochkind S, Laulicht I (1992): Effects of visible and near-infrared lasers on cell cultures. JPhotochem Photobiol B 12: 305-310.
- Maiya GA, Kumar P, Rao L (2005): Effect of low intensity heliumneon (He-Ne) laser irradiation on diabetic wound healing dynamics. Photomed Laser Surg 23: 187-190.
- Makela A (2004): Theoretical backgrounds for light application in diabetes, Laser, Florence.
- Makela A (2005): Role of L-arginine in the biological effects of blue light [5968-06]. Proceedings-Spie The International Society For Optical Engineering.
- Moshkovska T, Mayberry J (2005): It is time to test low level laser therapy in Great Britain. Postgrad Med J 81: 436-441.m.
- Passarella S, Casamassima E, Molinari S, Pastore D, Quagliariello E, et al. (1984): Increase of proton electrochemical potential and ATP synthesis in rat liver mitochondria irradiated in vitro by helium-neon laser. FEBS letters 175: 95-99.
- Ramdawon P (1999): Bioresonance information laser therapy of diabetes mellituse a first clinical experience of the hypoglycemic effect of low level laser terapy and its perspectives, Paper presented at the North American Laser Therapy Association Conference.
- Schindl A, Schindl M, Schön H, Knobler R, Havelec L, et al. (1998): Low-intensity laser irradiation improves skin circulation in patients with diabetic microangiopathy. Diabetes Care 21: 580-584.
- Tiedan W (1992): Effects of low-energy He-Ne laser irradiation of extracorporeally circulatory blood on ATPase activities of erythrocyte membrane in patients with IDDM [J]. Laser Journal 6: 011.
- Turner RC, Cull CA, Frighi V, Holman RR (1999): Glycemic control with diet, sulfonylurea, metformin, or insulin in patients with type 2 diabetes mellitus: progressive requirement for multiple therapies (UKPDS 49). UK Prospective Diabetes Study (UKPDS) Group. JAMA. 281: 2005-2012.
- Yu W, Naim J, Lanzafame R (1994): The effects of photo-irradiation on the secretion of TGF and PDGF from fibroblasts in vitro. Lasers Surg Med Suppl 6.
- Zinman LH, Ngo M, Ng ET, Nwe KT, Gogov S, et al. (2004): Lowintensity laser therapy for painful symptoms of diabetic sensorimotor polyneuropathy: a controlled trial. Diabetes Care 27: 921-924.

Allergies

- C. Ailioiae, Ailioiae L: Low Level Laser Therapy in Children's Allergic Purpura.

Fibromyalgia

- Ashendorf D: The Ability of Low Level Laser Therapy to Mitigate Fibromyalgic Pain.The CFIDS Chronicle Physician's Forum. Fall 1993.
- Gur A, Karokok M, Nas K, et al: Efficiency of Low Power Laser Therapy in Fibromyalgia: A Single-Blind Placebo Controlled Trial. Lasers Med Sci. 2002. 17(1): 57-61.
- Gur A, Karokok M, Nas K, et al: Effects of Low Power Laser and Low Dose Amitriptyline Therapy on Clinical Symptoms and Quality of Life in Fibromyalgia: A Single-Blind Placebo Controlled Trial. Rheumatol Int. 2002. 2(5): 188-193.
- Gür A, Karacoc M, Nas K, Cevik R, Sarac A, Ataoglu S: Effects of low power laser and low dose amitryptiline therapy on clinical symptoms and quality of life in fibromyalgia: a single-blind, placebo-controlled trial. Rheumatology International 2002; 22, 5:188-193.

- Longo L et al.: Laser Therapy for Fibromyositic Rheumatism. *J Clin Las Med Surg.* 1997; 15(5): 217-220.
- Momenzadeh S, Abbasi M, Ebadifar A, Aryani M, Bayrami J, Nematollahi F: The Intravenous Laser Blood Irradiation in Chronic Pain and Fibromyalgia. *J Lasers Med Sci* 2015;6(1):6-9.
- Wieden T: Schmerztherapie der Fibromyalgie. *Schmerz & Akupunktur* 3/2008; 34:130-136.

Infectious Diseases

- Baptista M.S., Wainwright M: Photodynamic antimicrobial chemotherapy (PACT) for the treatment of malaria, leishmaniasis and trypanosomiasis. *Braz J Med Biol Res*, January 2011, Volume 44(1) 1-10.
- Hamblin, MR., Hasan T (2004): Photodynamic therapy: a new antimicrobial approach to infectious disease? *Photochem Photobiol Sci* 3(5): 436–450. doi:10.1039/b311900a.PMC 3071049. PMID 15122361.
- Hamblin, MR: Antimicrobial photodynamic inactivation: a bright new technique to kill resistant microbes. *Current opinion in microbiology* · July 2016.
- Jori G, Fabris C, Soncin M, Ferro S, Coppelotti O, Dei D, Fantetti L, Chiti G, Roncucci G: Photodynamic Therapy in the Treatment of Microbial Infections: Basic Principles and Perspective Applications. *Lasers in Surgery and Medicine* 38:468–481 (2006).
- Wainwright M, Maisch T, Nonell S, Plaetzer K, Almeida A, Tegos G, Hamblin M: Photoantimicrobials—are we afraid of the light?. *Lancet Infect Dis* 2016.

Multiple Sclerosis

- Jeri-Anne, Janis and Chukuka: LLLT for Multiple sclerosis (MS).
- Schumm N: Intravasale Laser-Blutbestrahlung des Blutes. *Schmerz & Akupunktur* 2006; 32,4:211-215.
- Schumm N: Komplement. *Integr. Med. KIM*-11-12/2008.

Silent inflammation

- De Moraes NC, Barbosa AM, Vale ML, Villaverde AB, de Lima CJ, Cogo JC, Zamuner SR: Anti-inflammatory effect of low-level laser and light-emitting diode in zymosan-induced arthritis. *Photomed Laser Surg.* 2010 Apr;28(2):227-32. doi: 10.1089/pho.2008.2.
- Shnitkind E, Yaping E, Geen S, Shalita AR, Lee WL: Anti-inflammatory properties of narrow-band blue light. *J Drugs Dermatol.* 2006 Jul-Aug;5(7):605-10.
- Xavier M, David DR, de Souza RA, Arrieiro AN, Miranda H, Santana ET, Silva JA Jr, Salgado MA, Aimbre F, Albertini R : Anti-inflammatory effects of low-level light emitting diode therapy on Achilles tendinitis in rats. *Lasers Surg Med.* 2010 Aug;42(6):553-8. doi: 10.1002/lsm.20896. 422.

Photodynamic Cancer Therapy

- Agostinis P, Berg K, Cengel K, Foster T, Girotti A, O. Gollnick, Hahn S, Hamblin M, Juzeniene A, Kessel D, Korbelik M, Moan J, Mroz P, Nowis D, Piette J, Wilson B, Golab J: Photodynamic Therapy of Cancer: An Update. *CA Cancer J Clin.* 2011 ; 61(4): 250–281. doi:10.3322/caac.20114.
- Paiva M., Palumbo M., Greggio B., Sercarz J. Laser Photo Chemotherapy: An Alternative Treatment for Cancer In: Current Cancer Treatment – Novel Beyond Conventional Approaches.
- Weber M: Intravenous and interstitial photodynamic laser therapy: New options in oncology.

Sonodynamic Cancer Therapy

- Mcewan C, Fowley C, McHale A, Nomikou N: Treating cancer with sonodynamic therapy: A review. In: International Journal of Hyperthermia · January 2015.

2) External application

Acne

- Avci P, Gupta A, Sadasivam M, Vecchio D, Pam Z, Pam N, Hamblin MR: Low-level laser (light) therapy (LLLT) in skin: stimulating, healing, restoring. Semin Cutan Med Surg. 2013 Mar;32(1):41-52.
- Gold Skin Care Center, Tennessee Clinical Research Center, Nashville, TN, USA: Efficacy of lasers and PDT for the treatment of acne vulgaris. Skin Therapy Lett. 2007 Dec-2008 Jan;12(10):1-6, 9.
- Sami NA, Attia AT, Badawi AM: Phototherapy in the treatment of acne vulgaris. J Drugs Dermatol. 2008 Jul;7(7):627-32.
- Shnitkind E, Yaping E, Geen S, Shalita AR, Lee WL: Anti-inflammatory properties of narrow-band blue light. J Drugs Dermatol. 2006 Jul-Aug;5(7):605-10.

Actinic Keratosis

- Angell-Petersen E, Sorensen R, Warloe T, et al: Porphyrin formation in actinic keratosis and basal cell carcinoma after topical application of methyl 5-aminolevulinate. J Invest Dermatol. 2006;126:265-71.
- Braathen LR, Szeimies RM, Basset-Seguin N, et al: Guidelines on the use of photodynamic therapy for nonmelanoma skin cancer: An international consensus. J Am Acad Dermatol. 2007;56:125-43.
- Clark C, Bryden A, Dawe R, et al: Topical 5-aminolaevulinic acid photodynamic therapy for cutaneous lesions: outcome and comparison of light sources. Photodermatol Photoimmunol Photomed. 2003;19:134-41.
- Dragieva G, Hafner J, Dummer R, et al: Topical photodynamic therapy in the treatment of actinic keratoses and Bowen's disease in transplant recipients. Transplantation. 2004;77:115-21.
- Ericson M, Wennberg A, Larkö O: Review of photodynamic therapy in actinic keratosis and basal cell carcinoma. Ther Clin Risk Manag. 2008 Feb; 4(1): 1-9.

Addiction Diseases

- Billy T. Chen, Hau-Jie Yau, Christina Hatch, Ikue Kusumoto-Yoshida, Saemi L. Cho, et al.: "Rescuing cocaine-induced prefrontal cortex hypoactivity prevents compulsive cocaine seeking". Nature doi:10.1038/nature12024.
- Kim YH, Schiff E, Waalen J, Hovell M: Efficacy of acupuncture for treating cocaine addiction: a review paper. J Addict Dis. 2005;24(4):115-32.
- Na Young Shin, Young Jin Lim, Chae Ha Yang, Cheongtag Kim: Acupuncture for Alcohol Use Disorder: A Meta-Analysis. Evid Based Complement Alternat Med. 2017; 2017: 7823278.
- Zalewska-Kaszubska J, Obzejta D: Use of low-energy laser as adjunct treatment of alcohol addiction. Lasers Med Sci 2004;19:100-104.

Allergies

- Caffier PP, Scherer H, Neumann K, Lück S, Enzmann H, Haisch A: Diode laser treatment in therapy-resistant allergic rhinitis: impact on nasal obstruction and associated symptoms. *Lasers Med Sci.* 2011 Jan;26(1):57-67. doi: 10.1007/s10103-010-0813-x. Epub 2010 Jul 10.
- Wang XY, Ma WJ, Liu CS, Li YX: Effect of low-level laser therapy on allergic asthma in rats. *Lasers Med Sci.* 2014 May;29(3):1043-50. doi: 10.1007/s10103-013-1456-5. Epub 2013 Oct 26.

Alopecia/Hair loss

- Khatu S, More Y, Gokhale N, Chavhan D, Bendsure N: Platelet-Rich Plasma in Androgenic Alopecia: Myth or an Effective Tool. *J Cutan Aesthet Surg.* 2014 Apr-Jun; 7(2): 107–110.
- Leavitt M, Charles G, Heyman E, Michaels D: HairMax LaserComb laser phototherapy device in the treatment of male androgenetic alopecia: A randomized, double-blind, sham device-controlled, multicentre trial. *Clin Drug Investig.* 2009; 29(5):283-92.
- Pinar Avci, MD, Gaurav K. Gupta, MD, PhD, Jason Clark, MD, Norbert Wikonkal, MD, PhD and Michael R. Hamblin: Low- Level Laser (Light) Therapy (LLLT) for Treatment of Hair Loss. *Lasers Surg Med.* 2014 Feb; 46(2): 144–151.
- Wikramanayake TC, Rodriguez R, Choudhary S, Mauro LM, Nouri K, Schachner LA, Jimenez JJ: Effects of the Lexington LaserComb on hair regrowth in the C3H/HeJ mouse model of alopecia areata. *Lasers Med Sci.* 2012;27(2):431–436.

Alzheimer's

- Barrett DW, Gonzalez-Lima F: Transcranial infrared laser stimulation produces beneficial cognitive and emotional effects in humans. *Neuroscience.* 2013 Jan 29; 230():13-23.
- Hamblin M: Shining light on the head: Photobiomodulation for brain disorders. *Biochimica et Biophysica Acta - Clinical* · October 2016.
- Johnstone D, Moro C, Stone J, Benabid A, Mitrofanis J: Turning On Lights to Stop Neurodegeneration: The Potential of Near Infrared Light Therapy in Alzheimer's and Parkinson's Disease. *Front Neurosci.* 2015; 9: 500.
- Litscher D, Litscher G: Laser Therapy and Dementia: A Database Analysis and Future Aspects on LED-Based Systems. *International Journal of Photoenergy,* Volume 2014 (2014), Article ID 268354, 5 pages <http://dx.doi.org/10.1155/2014/268354>
- Meng C, He Z, Xing D: Low-Level Laser Therapy Rescues Dendrite Atrophy via Upregulating BDNF Expression: Implications for Alzheimer's Disease. *Journal of Neuroscience* 14 August 2013, 33 (33) 13505-13517; DOI: <https://doi.org/10.1523/JNEUROSCI.0918-13.2013>.

Arthritis

- Alves A et al: Low-level laser therapy in different stages of rheumatoid arthritis: a histological study. *Lasers in Medical Science,* February 2013, Volume 28, Issue 2, pp 529–53.
- Bjordal JM, Coupe C, Chow RT, Tuner J, Ljunggren EA. *Aust J Physiother* [2003]: A systematic review of low level laser therapy with location-specific doses for pain from chronic joint disorders. (PMID:12775206).
- Brosseau L, Welch V, Wells GA, de Bie R, Gam A, Harman K, Morin M, Shea B, Tugwell P: Low level laser therapy (Classes I, II and III) for treating rheumatoid arthritis. *Cochrane Database of Systematic Reviews* 2005, Issue 4. Art. No.: CD002049. DOI: <10.1002/14651858.CD002049.pub2>.

- Brosseau L, Welch V, Wells GA, de Bie R, Gam A, Harman K, Morin M, Shea B: Low level laser therapy for osteoarthritis and rheumatoid arthritis: a metaanalysis. *The Journal of Rheumatology* [2000, 27(8):1961-1969].

Carpal Tunnel Syndrome

- Naeser, M. et al : Photobiomodulation of pain in carpal tunnel syndrome: review of seven laser therapy studies. *Photomedicine and Laser Surgery* [2006, 24(2):101-110].
- Zhi-Jun Li, Yao Wang, Hua-Feng Zhang, MD, Xin-Long Ma, Peng Tian, Yuting Huang: Effectiveness of low-level laser on carpal tunnel syndrome. A meta-analysis of previously reported randomized trials. *Medicine* (2016) 95:31(e4424).

Depressive Disorders

- Byrnes, K.R., Waynant, R.W., Ilev, I.K., Wu, X., Barna, L., Smith, K; Heckert, R., Gerst, H., and Anders, J.J. (2005): Light promotes regeneration and functional recovery and alters the immune response after spinal cord injury. *Lasers Surg. Med.* 36, 171–185.
- Cassano, P., Petrie, S.R., Hamblin, M.R., Henderson, T.A., and Iosifescu, D.V. (2016): Review of transcranial photobiomodulation for major depressive disorder: targeting brain metabolism, inflammation, oxidative stress, and neurogenesis. *Neurophotonics* 3, 031404.
- Salehpour, Farzad et al: The potential of transcranial photobiomodulation therapy for treatment of major depressive disorder. *Reviews in the neurosciences* - January 2017.
- Schiffer, F., Johnston, A.L., Ravichandran, C., Polcari, A., Teicher, M.H., Webb, R.H., and Hamblin, M.R. (2009): Psychological benefits 2 and 4 weeks after a single treatment with near infrared light to the forehead: a pilot study of 10 patients with major depression and anxiety. *Behav. Brain Funct.* 5, 1.
- Uccelli, A, Benvenuto F, Laroni, A, Giunti, D (2011): Neuroprotective features of mesenchymal stem cells. *Best. Pract. Res. Clin. Haematol.* 24, 59–64.

Dental Applications

- Asnaashari M, Safavi N: Application of Low level Lasers in Dentistry (Endodontic). *J Lasers Med Sci* 2013; 4(2):57-66.
- Eghbali F, Fekrazad R: Applying low level laser therapy in dentistry. Tehran:Shayan nemoodar; 2009.
- Elson N, Foran D: Low Level Laser Therapy in Modern Dentistry. *Periodon Prosthodon*. 2015, 1: 1.
- Gerschman JA, Ruben J, Gebart-Eaglemont J: Low level laser therapy for dentinal tooth hypersensitivity. *Australian Dental Journal*. 1994;39(6):353–7.
- Gursoy H, Ozcakir-Tomruk C, Tanalp J, Yilmaz S: Photodynamic therapy in dentistry: a literature review. *Clin Oral Investig*. 2013 May;17(4):1113-25. doi: 10.1007/s00784-012-0845-7. Epub 2012 Sep 27.

Dermatitis (Eczema)

- Baltas et al: Treatment of atopic dermatitis with the xenon chloride excimer laser. *JEADV*. Volume 20, Issue 6 July 2006 Pages 657–660.
- Bensadoun René-Jean and Nair Raj G. : Low-Level Laser Therapy in the Management of Mucositis and Dermatitis Induced by Cancer Therapy. *Photomedicine and Laser Surgery*. October 2015, 33(10): 487-491. doi:10.1089/pho.2015.4022.
- De Land et al: Treatment of radiation-induced dermatitis with light-emitting diode (LED) photomodulation Lasers in Surgery and Medicine. Volume 39, Issue 2 February 2007 Pages 164–168.

- Moskvin S.V., Utz S.R., Schneider D.A., Guskova O.P: The efficiency of combined laser therapy in complex treatment of patients with atopic dermatitis. Saratov Journal of Medical Scientific Research. Year: 2015, volume 11 Issue: №3 Pages: 396-400.
- Wong J, MS, V. Nguyen T, Park K, Y.M. Koo J: The Use Of 308 Nm Excimer Laser For The Treatment Of Atopic Dermatitis. The Dermatologist: Volume 20 - Issue 7 - July 2012.

Fractures

- Chang Wen-Dien, Wu Jih-Huah, Wang Hui-Ju, and Jiang Joe-Air: Therapeutic Outcomes of Low-Level Laser Therapy for Closed Bone Fracture in the Human Wrist and Hand. Photomedicine and Laser Surgery. April 2014, 32(4): 212-218.
- Dos Santos Santinoni et al: Influence of low-level laser therapy on the healing of human bone maxillofacial defects: A systematic review. Journal of Photochemistry and Photobiology B: Biology Volume 169, April 2017, Pages 83–89.
- Sella, V.R.G., do Bomfim, F.R.C., Machado, P.C.D. et al: Effect of low-level laser therapy on bone repair: a randomized controlled experimental study. Lasers Med Sci (2015) 30: 1061.
- Simman R, Hoffmann A, Bohinc RJ, Peterson WC, Russ AJ.: Role of platelet-rich plasma in acceleration of bone fracture healing. Ann Plast Surg. 2008 Sep;61(3):337-44.
- Tim, C.R., Pinto, K.N.Z., Rossi, B.R.O. et al: Low-level laser therapy enhances the expression of osteogenic factors during bone repair in rats. Lasers Med Sci (2014) 29: 147.

Hearing loss

- Chung-Ku Rhee ; Peijie He; Jae Yun Jung; Jin-Chul Ahn; Phil-Sang Chung; Min Young Lee Myung-Whan Suh: Effect of low-level laser treatment on cochlea hair-cell recovery after ototoxic hearing loss. J. Biomed. Opt. 18(12), 128003 (Dec 16, 2013).
- Jae-Hun Lee, So-Young Chang, Wesley J. Moy, Connie Oh, Se-Hyung Kim, Chung-Ku Rhee, Jin-Chul Ahn, Phil-Sang Chung, Jae Yun Jung, Min Young Lee: Simultaneous bilateral laser therapy accelerates recovery after noise-induced hearing loss in a rat model. Published July 21, 2016, PubMed 27547558.
- Tamura A, Matsunobu T, Tamura R, Kawauchi S, Sato S, Shiotani A: Photobiomodulation rescues the cochlea from noise-induced hearing loss via upregulating nuclear factor κB expression in rats. Brain Research, Volume 1646, 1 September 2016, Pages 467–474.

Liver Diseases

- Manoel Carneiro Oliveira-Junior et al: Low-level Laser Therapy Ameliorates CCl₄-induced Liver Cirrhosis in Rats. Photochemistry and Photobiology 89(1) · July 2012.
- Oron U., Maltz L., Tubby H., Sorin V., Czerniak A: Enhanced liver regeneration following acute hepatectomy by low-level laser therapy. Photomed Laser Surg. 2010 Oct; 28 (5) :675-8.
- Tubby H, Maltz L, Oron U: Induction of Autologous Bone-Marrow Stem Cells by Low-Level Laser Therapy Has Beneficial Effects on the Kidneys Post-Ischemia-Reperfusion Injury in the Rat. Journal of Biomedical Science and Engineering (2014), 7, 453-463.

Neuroprotection

- Antal A, Chaieb L, Masurat F, Jofrry S, Paulus W: Neuroplastic effects of transcranial near-infrared stimulation (tNIRS) on the motor cortex.
- M. Johnstone D, Moro C, Stone J, Benabid A, Mitrofanis J: Turning On Lights to Stop Neurodegeneration: The Potential of Near Infrared Light Therapy in Alzheimer's and Parkinson's Disease. Front Neurosci. 2015; 9: 500.

- M. Johnstone D, Mitrofanis J, Stone J: Targeting the body to protect the brain: inducing neuroprotection with remotely-applied near infrared light. *Neural Regen Res.* 2015 Mar; 10(3):349-51.
- Taylor RC, Berendzen KM, Dillin A: Systemic stress signalling: understanding the cell non-autonomous control of proteostasis. *Nat Rev Mol Cell Biol.* 2014 Mar; 15(3):211-7.
- Xuan W, Vatansever F, Huang L, Hamblin MR: Transcranial low-level laser therapy enhances learning, memory, and neuroprogenitor cells after traumatic brain injury in mice. *J Biomed Opt.* 2014; 19(10):108003.
- Xuan W, Vatansever F, Huang L, Wu Q, Xuan Y, Dai T, Ando T, Xu T, Huang YY, Hamblin MR: Transcranial low-level laser therapy improves neurological performance in traumatic brain injury in mice: effect of treatment repetition regimen. *PLoS One.* 2013; 8(1):e53454.

Pain Management

- Andia I, Maffulli N: Platelet-rich plasma for managing pain and inflammation in osteoarthritis. *Nature Reviews Rheumatology* 9, 721–730 (2013).
- Chow RT, Johnson MI, Lopes-Martins RA, Bjordal JM: Efficacy of low-level laser therapy in the management of neck pain: a systematic review and meta-analysis of randomised placebo or active-treatment controlled trials. *Lancet.* 2009 Dec 5; 374(9705):1897-908.
- Fulop AM, Dheimer S, Deluca JR, Johanson DD, Lenz RV, Patel KB, Douris PC, Enwemeka CS: A meta-analysis of the efficacy of laser phototherapy on pain relief. *Clin J Pain.* 2010 Oct; 26(8):729-36.
- Henry B.H, Sherry N. Fanous: Knee Pain Management using Ultrasound- Guided Weberneedle Endolaser in Comparison to Fluoroscopy- Guided Continuous Radio-Frequency.
- Leal-Junior EC, Johnson DS, Saltmarche A, Demchak T: Adjunctive use of combination of super-pulsed laser and light-emitting diodes phototherapy on nonspecific knee pain: double-blinded randomized placebo-controlled trial. *Lasers Med Sci.* 2014 Nov; 29(6):1839-47.
- Prodromos C, Finkle S, Dawesa A, Dizon A: Intra-articular Laser Treatment Plus Platelet Rich Plasma (PRP) Significantly Reduces Pain in Many Patients Who Had Failed Prior PRP Treatment.

Parkinson's

- Hamblin M: Shining light on the head: Photobiomodulation for brain disorders. *Biochimica et Biophysica Acta - Clinical* · October 2016.
- Johnstone D, Coleman K, Moro C, Torres N, Eells J, Baker G. E., et al. (2014a): The potential of light therapy in Parkinson's disease. *ChronoPhysiology Ther.* 4, 1–14. 10.2147/CPT.S57180.
- M. Johnstone D, Moro C, Stone J, Benabid A, Mitrofanis J: Turning On Lights to Stop Neurodegeneration: The Potential of Near Infrared Light Therapy in Alzheimer's and Parkinson's Disease. *Front Neurosci.* 2015; 9: 500.
- Purushothuman S, Nandasena C, Johnstone DM, Stone J, Mitrofanis J: The impact of near-infrared light on dopaminergic cell survival in a transgenic mouse model of parkinsonism. *Brain Res.* 2013 Oct 16; 1535():61-70.
- Shaw VE, Peoples C, Spana S, Ashkan K, Benabid AL, Stone J, Baker GE, Mitrofanis J: Patterns of Cell Activity in the Subthalamic Region Associated with the Neuroprotective Action of Near-Infrared Light Treatment in MPTP-Treated Mice. *Parkinsons Dis.* 2012; 2012():296875.

Psoriasis

- Almutawa et al: Efficacy of localized phototherapy and photodynamic therapy for psoriasis: a systematic review and meta-analysis. Photodermatology, Photoimmunology & Photomedicine: Volume 31, Issue 1, January 2015, Pages 5–14.
- Choi YM, Adelzadeh L, Wu JJ: Photodynamic therapy for psoriasis. J Dermatolog Treat. 2015 Jun;26(3):202-7. doi: 10.3109/09546634.2014.927816. Epub 2014 Jun 17.
- Tandon YK, Yang MF, Baron ED: Role of photodynamic therapy in psoriasis: a brief review. Photodermatol Photoimmunol Photomed. 2008 Oct;24(5):222-30. doi: 10.1111/j.1600-0781.2008.00376.x.

Skin Cancer

- Baldea I, A.G. Filip: Photodynamic Therapy in Melanoma – An Update. Journal of Physiology and Pharmacology 2012, 63, 2, 109-118.
- Blume JE, Oseroff AR: Aminolevulinic acid photodynamic therapy for skin cancers. Dermatol Clin 2007;25:5—14.
- Brown SB, Brown EA, Walker I: The present and future role of photodynamic therapy in cancer treatment. Lancet Oncol 2004;5:497—508.
- Daniell MD, Hill JS: A history of photodynamic therapy. Aust NZ, J Surg 1991;61:340—8.
- Davids LM, B. Kleemann: Combating melanoma: The use of photodynamic therapy as a novel, adjuvant therapeutic tool. Cancer treatment reviews, Volume 37, Issue 6, Pages 465–475.
- Dougherty TJ, Gomer CG, Henderson BW, et al: Photodynamic therapy. J Natl Cancer Inst 1998;90:889—905.
- Svanberg K. et al: Photodynamic therapy of non-melanoma malignant tumours of the skin using topical δ-amino levulinic acid sensitization and laser irradiation. BJD, Volume 130, Issue 6, June 1994, Pages 743–75.

Ulcers

- Conlan M.J: Biostimulation of wound healing by low-energy laser irradiation: a review. Journal of Clinical Periodontology, vol. 23, no. 5, pp. 492–496, 1996.
- Enwemeka C.S, Parker J.C, Dowdy D.S, Harkness E.E, Sanford L.E, and Woodruff L.D: The efficacy of low-power lasers in tissue repair and pain control: a meta-analysis study". Photomedicine and Laser Surgery, vol. 22, no. 4, pp. 323–329, 2004.
- H. Beckmann K, Meyer-Hamme G, and Schröder S: Low Level Laser Therapy for the Treatment of Diabetic Foot Ulcers: A Critical Survey. Evidence-Based Complementary and Alternative Medicine Volume 2014, Article ID 626127, 9 pages.
- Lucas C, R.W. Stanborough, Freeman C.L, and de Haan R.J: Efficacy of low-level laser therapy on wound healing in human subjects: a systematic review. Lasers in Medical Science, vol. 15, no. 2, pp. 84–93, 2000.
- Posten W, Wrone D.A, Dover J.S, Arndt K.A, Silapunt S and M. Alam: Low-level laser therapy for wound healing: mechanism and efficacy. Dermatologic Surgery, vol. 31, no. 3, pp. 334–340, 2005.

Wound healing

- Al-Watban, F.A. and X. Zhang: The comparison of effects between pulsed and CW lasers on wound healing. Journal of clinical laser medicine & surgery, 2004; 22(1): p. 15-18.
- Chaves, M.E.d.A., et al: Effects of low-power light therapy on wound healing: LASER x LED. Anais brasileiros de dermatologia, 2014; 89(4): p. 616-623.

- Dyson, M: Primary, secondary and tertiary effects of phototherapy: a review. in Proc. SPIE. 2006.
- Karu, T: Primary and secondary mechanisms of action of visible to near-IR radiation on cells. *Journal of Photochemistry and photobiology B: Biology*, 1999; 49(1): p. 1-17.
- Medrado, A.R., et al: Influence of low level laser therapy on wound healing and its biological action upon myofibroblasts. *Lasers in surgery and medicine*, 2003; 32(3): p. 239-244.
- Samaneh R, Ali Y, Mostafa J, Mahmud N.A and Zohre R: Laser Therapy for Wound Healing: A Review of Current Techniques and Mechanisms of Action. *BIOSCIENCES BIOTECHNOLOGY RESEARCH ASIA*, March 2015. Vol. 12(Spl. Edn. 1), p. 217-223.
- Woodruff, L.D., et al: The efficacy of laser therapy in wound repair: a meta-analysis of the literature. *Photomedicine and laser surgery*, 2004; 22(3): p. 241-247.