

## LITERATURA

1. Fitzpatrick TB, Breathnach AS. The Epidermal Melanin Unit System. *Dermatol Wochenschr.* 1963;147:481-489.
2. Slominski A, Tobin DJ, Shibahara S, et al. Melanin pigmentation in mammalian skin and its hormonal regulation. *Physiol Rev.* 2004;84:11551-1228.
3. Lin JY, Fisher DE. Melanocyte biology and skin pigmentation. *Nature.* 2007;445:843-850.
4. Valverde P, Healy E, Jackson I, et al. Variants of the melanocyte-stimulating hormone receptor gene are associated with red hair and fair skin in humans. 1995 Nov;11(3):328-30. doi: 10.1038/ng1195-328.
5. Robbins LS, Nadeau JH, Johnson KR, et al. Pigmentation phenotypes of variant extension locus alleles result from point mutations that alter MSH receptor function. *Cell.* 1993;72:827-834.
6. Rana BK, Hewett-Emmett D, Jin L, et al. High polymorphism at the human melanocortin 1 receptor locus. *Genetics.* 1999;151:1547-1557.
7. D'Orazio JA, Nobuhisa T, Cui R, et al. Topical drug rescue strategy and skin protection based on the role of MC1r in UV-induced tanning. *Nature.* 2006;443:340-344.
8. Cui R, Widlund HR, Feige E, et al. Central role of p53 in the suntan response and pathologic hyperpigmentation. *Cell.* 2007;128:853-864.
9. Bertolotto C, Abbe P, Hemesath TJ, et al. Microphthalmia gene product as a signal transducer in cAMP-induced differentiation of melanocytes. *J Cell Biol.* 1998;148:827-835.
10. Price ER, Horstmann MA, Wells AG, et al. Alpha-Melanocyte-stimulating hormone signaling regulates expression of microphthalmia, a gene deficient in Waardenburg syndrome. *J Biol Chem.* 1998;273:33042-33047.
11. Esposito ACC, Brianezi G, de Souza NP, et al. Exploring pathways for sustained melanogenesis in facial melasma: an immunofluorescence study. *Int J Cosmet Sci.* 2018;40:420-424.
12. Im S, Kim J, On WY, et al. Increased expression of alpha-melanocyte-stimulating hormone in the lesional skin of melasma. *Br J Dermatol.* 2002;146:165-167.
13. Miot LD, Miot HA, Poletini J, et al. Morphologic changes and the expression of alpha-melanocyte stimulating hormone and melanocortin-1 receptor in melasma lesions: a comparative study. *Am J Dermatopathol.* 2010;32:676-682.
14. Ortonne JP, Bissett DL. Latest insights into skin hyperpigmentation. *J Investig Dermatol Symp Proc.* 2008;13:10-14.
15. Park JY, Park JH, Kim SJ, et al. Two histopathological patterns of postinflammatory hyperpigmentation: epidermal and dermal. *J Cutan Pathol.* 2017;44:118-124.
16. Baranska A, Shavket A, Jouve M, et al. Unveiling skin macrophage dynamics explains both tattoo persistence and strenuous removal. *J Exp Med.* 2018;215:1115-1133.
17. Weiss JS, James WD, Cooper KD. Melanophages in inflammatory skin disease demonstrate the surface phenotype of OKM5+ antigen-presenting cells and activated macrophages. *J Am Acad Dermatol.* 1988;19:633-641.
18. Weismann K, Lorentzen HF. Dermoscopic color perspective. *Arch Dermatol.* 2006;142:1250.
19. Praetorius C, Sturm RA, Steingrimsson E. Sun-induced freckling: ephelides and solar lentigines. *Pigment Cell Melanoma Res.* 2014;27:339-350.
20. Gilchrist BA, Blog FB, Szabo G. Effects of aging and chronic sun exposure on melanocytes in human skin. *J Invest Dermatol.* 1979;73:141-143.
21. Wester RC, Melendres J, Hui X, et al. Human in vivo and in vitro hydroquinone topical bioavailability, metabolism, and disposition. *J Toxicol Environ Health A.* 1998;54:301-317.
22. Kerscher M, Buntrock H. Topische Behandlung von Pigmentstörungen mit kosmetischen und pharmazeutischen Wirkstoffen [Topical treatment of pigmentation disorders with cosmetic and pharmaceutical agents]. *Hautarzt.* 2020 Dec;71(12):944-949. German. doi: 10.1007/s00105-020-04719-8. PMID: 33146766.
23. Palumbo A, d'Ischia M, Misuraca G, et al. Mechanism of inhibition of melanogenesis by hydroquinone. *Biochim Biophys Acta.* 1991;1073:85-90.
24. Sakuma K, Ogawa M, Sugibayashi K, et al. Relationship between tyrosinase inhibitory action and oxidation-reduction potential of cosmetic whitening ingredients and phenol derivatives. *Arch Pharm Res.* 1999;22:335-339.
25. Stratford MR, Ramsden CA, Riley PA. The influence of hydroquinone on tyrosinase kinetics. *Bioorg Med Chem.* 2012;20:4364-4370.
26. Smith CJ, O'Hare KB, Allen JC. Selective cytotoxicity of hydroquinone for melanocyte-derived cells is mediated by tyrosinase activity but independent of melanin content. *Pigment Cell Res.* 1988;1:386-389.
27. Jimbow K, Obata H, Pathak MA, et al. Mechanism of depigmentation by hydroquinone. *J Invest Dermatol.* 1974;62:436-449.
28. Gupta AK, Gover MD, Nouri K, et al. The treatment of melasma: a review of clinical trials. *J Am Acad Dermatol.* 2006;55:1048-1065.
29. Hsieh PW, Al-Suwayeh SA, Fang CL, et al. The co-drug of conjugated hydroquinone and azelaic acid to enhance topical skin targeting and decrease penetration through the skin. *Eur J Pharm Biopharm.* 2012;81:369-378.
30. Hsieh PW, Aljuffali IA, Fang CL, et al. Hydroquinone-salicylic acid conjugates as novel anti-melasma actives show superior skin targeting compared to the parent drugs. *J Dermatol Sci.* 2014;76:120-131.
31. Hsieh PW, Chen WY, Aljuffali IA, et al. Co-drug strategy for promoting skin targeting and minimizing the transdermal diffusion of hydroquinone and tranexamic acid. *Curr Med Chem.* 2013;20:4080-4092.
32. Maeda K, Fukuda M. Arbutin: mechanism of its depigmenting action in human melanocyte culture. *J Pharmacol Exp Ther.* 1996;276:765-769.
33. Chawla S, deLong MA, Visscher MO, et al. Mechanism of tyrosinase inhibition by deoxyArbutin and its second-generation derivatives. *Br J Dermatol.* 2008;159:1267-1274.
34. Nakajima M, Shinoda I, Fukuwatari Y, et al. Arbutin increases the pigmentation of cultured human melanocytes through mechanisms other than the induction of tyrosinase activity. *Pigment Cell Res.* 1998 Feb;11(1):12-7. doi: 10.1111/j.1600-0749.1998.tb00705.x. PMID: 9523330.
35. Schallreuter KU, Wood JW. A possible mechanism of action for azelaic acid in the human epidermis. *Arch Dermatol Res.* 1990;282:168-171.
36. Breathnach AS. Melanin hyperpigmentation of skin: melasma, topical treatment with azelaic acid, and other therapies. *Cutis.* 1996;57:36-45.
37. Verallero-Rowell VM, Verallero V, Graupe K, et al. Double-blind comparison of azelaic acid and hydroquinone in the treatment of melasma. *Acta Derm Venereol Suppl (Stockh).* 1989;143:58-61.
38. Balina LM, Graupe K. The treatment of melasma. 20% azelaic acid versus 4% hydroquinone cream. *Int J Dermatol.* 1991;30:893-895.
39. Yun CY, Mi Ko S, Pyo Choi Y, et al. Alpha-Viniferin Improves Facial Hyperpigmentation via Accelerating Feedback Termination of cAMP/PKA-Signaled Phosphorylation Circuit in Facultative Melanogenesis. *Theranostics.* 2018;8:2031-2043.
40. Lee KT, Kim BJ, Kim JH, et al. Biological screening of 100 plant extracts for cosmetic use (I): inhibitory activities of tyrosinase and DOPA auto-oxidation. *Int J Cosmet Sci.* 1997;19:291-298.
41. Jo H, Choi M, Sim J, et al. Synthesis and biological evaluation of caffeic acid derivatives as potent inhibitors of alpha-MSH-stimulated melanogenesis. *Bioorg Med Chem Lett.* 2017;27:3374-3377.
42. Yun CY, Hong SD, Lee YH, et al. Nuclear Entry of CRTCL1 as Druggable Target of Acquired Pigmentary Disorder. *Theranostics.* 2019;9:646-660.
43. Del Rosario E, Florez-Pollack S, Zapata L Jr, et al. Randomized, placebo-controlled, double-blind study of oral tranexamic acid in the treatment of moderate-to-severe melasma. *J Am Acad Dermatol.* 2018;78:363-369.
44. Lee HC, Thng TG, Goh CL. Oral tranexamic acid (TA) in the treatment of melasma: A retrospective analysis. *J Am Acad Dermatol.* 2016;75:385-392.
45. Lajevardi V, Ghayoumi A, Abedini R, et al. Comparison of the therapeutic efficacy and safety of combined oral tranexamic acid and topical hydroquinone 4% treatment vs. topical hydroquinone 4% alone in melasma: a parallel-group, assessor- and analyst-blinded, randomized controlled trial with a short-term follow-up. *J Cosmet Dermatol.* 2017;16:235-242.
46. Lee HC, Thng TG, Goh CL. Oral tranexamic acid (TA) in the treatment of melasma: A retrospective analysis. *J Am Acad Dermatol.* 2016;75(2):385-392.
47. Battaini G, Monzani E, Casella L, et al. Inhibition of the catecholase activity of biomimetic dinuclear copper complexes by kojic acid. *J Biol Inorg Chem.* 2000;5:262-268.
48. Lim JT. Treatment of melasma using kojic acid in a gel containing hydroquinone and glycolic acid. *Dermatol Surg.* 1999;25:282-284.
49. Ellis CN, Weiss JS, Hamilton TA, et al. Sustained improvement with prolonged topical tretinoin (retinoic acid) for photoaged skin. *J Am Acad Dermatol.* 1990;23:629-637.
50. Ebrahimi B, Naeini FF. Topical tranexamic acid as a promising treatment for melasma. *J Res Med Sci.* 2014;19(8):753-757.
51. Weinstein GD, Nigra TP, Pochi PE, et al. Topical tretinoin for treatment of photodamaged skin. A multicenter study. *Arch Dermatol.* 1991;127:659-665.
52. Nguyen NT, Fisher DE. MITF and UV responses in skin: From pigmentation to addiction. *Pigment Cell Melanoma Res.* 2019;32:224-236.
53. Vachiramon V, Kositkuljorn C, Leerunyakul K, et al. Isobutylamido thiazolyl resorcinol for prevention of UVB-induced hyperpigmentation. *J. Cosmet. Dermatol.* 2021;20:987-992. doi: 10.1111/jocd.13615.
54. Lima P, Dias J, Cassiano D, et al. Efficacy and safety of topical isobutylamido thiazolyl resorcinol (Thiamidol) vs. 4% hydroquinone cream for facial melasma: An evaluator-blinded, randomized controlled trial. *J. Eur. Acad. Dermatol. Venereol.* 2021;35:1881-1887. doi: 10.1111/jdv.17344.]
55. Arrowitz C, Schoelermann AM, Mann T, et al. Effective Tyrosinase Inhibition by Thiamidol Results in Significant Improvement of Mild to Moderate Melasma. *J. Investig. Dermatol.* 2019;139:1691-1698.e6. doi: 10.1016/j.jid.2019.02.013.
56. Roggenkamp D, Sammain A, Fürstenau M, et al. Thiamidol \* in moderate-to-severe melasma: 24-week, randomized, double-blind, vehicle-controlled clinical study with subsequent regression phase. *J. Dermatol.* 2021;48:1871-1876. doi: 10.1111/1346-8138.16080.
57. Sarkar R, Garg V, Chugh S. Newer and upcoming therapies for melasma. *Indian J. Dermatol. Venereol. Leprol.* 2012;78:417-428. doi: 10.4103/0378-6323.98071.
58. Yousefi A, Khoozani ZK, Forooshani SZ, et al. Is Topical Zinc Effective in the Treatment of Melasma? A Double-Blind Randomized Comparative Study. *Dermatol. Surg.* 2014;40:33-37. doi: 10.1111/dsu.12296.
59. Sarkar R, Arora P, Garg KV. Cosmeceuticals for hyperpigmentation: What is available? *J. Cutan. Aesthetic Surg.* 2013;6:4-11. doi: 10.4103/0974-2077.110089.
60. Hwang SW, Oh DJ, Lee D, et al. Clinical Efficacy of 25% L-Ascorbic Acid (Censil) in the Treatment of Melasma. *J. Cutan. Med. Surg.* 2009;13:74-81. doi: 10.2310/7750.2008.07092.
61. Breathnach AC, Nazzaro-Porro M, Passi S, Zina G. Azelaic acid therapy in disorders of pigmentation. *Clin Dermatol.* 1989 Apr-Jun;7(2):106-19. doi: 10.1016/0738-081x(89)90061-8. PMID: 2667735.
62. Song M, Mun JH, Ko HC, et al. Korean Red Ginseng Powder in the Treatment of Melasma: An Uncontrolled Observational Study. *J. Ginseng Res.* 2011;35:170-175. doi: 10.5142/jgr.2011.35.2.170.