

I když jsou tyto výsledky velice slibné, bude nutné vyčkat hodnocení na větším souboru pacientů, a především při dlouhodobém sledování. Další významným faktorem bude

i zhodnocení efektu v léčbě metastazujícího, neresekovatelného melanomu. Zásadním pokrokem této léčby je možnost personalizované medicíny, a navíc klíč k překonání

jednoho mechanismu rezistence na terapii *checkpoint* inhibitory, a to nízkou schopnost nádoru stimulovat imunitní systém nádorovými neoantigeny (22).

LITERATURA

1. Garbe C, Amaral T, Peris K, et al. European consensus-based interdisciplinary guideline for melanoma. Part 2: Treatment – Update 2019. Eur J Cancer [Internet]. 2020;126:159–177.
2. Long GV, Luke JJ, Khattak MA, et al. Pembrolizumab versus placebo as adjuvant therapy in resected stage IIB or IIC melanoma (KEYNOTE-716): distant metastasis-free survival results of a multicentre, double-blind, randomised, phase 3 trial. Lancet Oncol [Internet]. 2022;23(11):1378–1388.
3. Luke JJ, Rutkowski P, Queirolo P, et al. Pembrolizumab versus placebo as adjuvant therapy in completely resected stage IIB or IIC melanoma (KEYNOTE-716): a randomised, double-blind, phase 3 trial. Lancet (London, England) [Internet]. 2022;399(10336):1718–1729.
4. Versluis JM, Menzies AM, Sikorska K, et al. Survival update of neoadjuvant ipilimumab plus nivolumab in macroscopic stage III melanoma in the OpACIN and OpACIN-neo trials. Ann Oncol. 2023;34(4):420–430. doi: 10.1016/j.annonc.2023.01.004. Epub 2023 Jan 18. PMID: 36681299.
5. Wolchok JD, Chiarion-Sileni V, Gonzalez R, et al. Long-Term Outcomes With Nivolumab Plus Ipilimumab or Nivolumab Alone Versus Ipilimumab in Patients With Advanced Melanoma. J Clin Oncol [Internet]. 2022;40(2):127.
6. Updated Data for First-Line Immunotherapy Combinations Reinforce Their Value in Metastatic Melanoma | ASCO Daily News [Internet]. Available from: <https://dailynews.ascopubs.org/doi/updated-data-first-line-immunotherapy-combinations-reinforce-their-value-metastatic>.
7. Payandeh Z, Yarahmadi M, Nariman-Saleh-Fam Z, et al. Im-

- mune therapy of melanoma: Overview of therapeutic vaccines. J Cell Physiol [Internet]. 2019;234(9):14612–14621.
8. Van Hoecke L, Verbeke R, Dewitte H, Lentacker I, Vermaelen K, Breckpot K, et al. mRNA in cancer immunotherapy: beyond a source of antigen. Mol Cancer [Internet]. 2021 Dec 1 [cited 2024 Apr 20];20(1). Available from: <https://pubmed.ncbi.nlm.nih.gov/33658037/>.
9. Pardi N, Hogan MJ, Porter FW, et al. mRNA vaccines – a new era in vaccinology. Nat Rev Drug Discov [Internet]. 2018;17(4):261–279.
10. Gjerstorff MF, Kock K, Nielsen O, et al. MAGE-A1, GAGE and NY-ESO-1 cancer/testis antigen expression during human gonadal development. Hum Reprod [Internet]. 2007;22(4):953–960.
11. Niemi JVL, Sokolov AV, Schiöth HB. Neoantigen Vaccines; Clinical Trials, Classes, Indications, Adjuvants and Combinatorial Treatments. Cancers (Basel) [Internet]. 2022;14(20).
12. Hu Z, Leet DE, Allesøe RL, et al. Personal neoantigen vaccines induce persistent memory T cell responses and epitope spreading in patients with melanoma. Nat Med [Internet]. 2021;27(3):515–525.
13. Reichmuth AM, Oberli MA, Jeklenec A, et al. mRNA vaccine delivery using lipid nanoparticles. Ther Deliv [Internet]. 2016;7(5):319–334.
14. Oberli MA, Reichmuth AM, Dorkin JR, et al. Lipid Nanoparticle Assisted mRNA Delivery for Potent Cancer Immunotherapy. Nano Lett [Internet]. 2017;17(3):1326–1335.
15. Wang Y, Zhang L, Xu Z, et al. mRNA Vaccine with Antigen-Specific Checkpoint Blockade Induces an Enhanced Immu-

- ne Response against Established Melanoma. Mol Ther [Internet]. 2018;26(2):420–434.
16. He M, Huang L, Hou X, et al. Efficient ovalbumin delivery using a novel multifunctional micellar platform for targeted melanoma immunotherapy. Int J Pharm [Internet]. 2019;560:1–10.
17. Kyte JA, Mu L, Aamdal S, et al. Phase I/II trial of melanoma therapy with dendritic cells transfected with autologous tumor-mRNA. Cancer Gene Ther [Internet]. 2006;13(10):905–918.
18. Weide B, Pascolo S, Scheel B, et al. Direct injection of protamine-protected mRNA: results of a phase 1/2 vaccination trial in metastatic melanoma patients. J Immunother [Internet]. 2009;32(5):498–507.
19. Wilgenhof S, Van Nuffel AMT, Corthals J, et al. Therapeutic vaccination with an autologous mRNA electroporated dendritic cell vaccine in patients with advanced melanoma. J Immunother [Internet]. 2011;34(5):448–456.
20. Ping H, Yu W, Gong X, et al. Analysis of melanoma tumor antigens and immune subtypes for the development of mRNA vaccine. Invest New Drugs [Internet]. 2022;40(6):1173–1184.
21. Weber JS, Carlino MS, Khattak A, et al. Individualised neoantigen therapy mRNA-4157 (V940) plus pembrolizumab versus pembrolizumab monotherapy in resected melanoma (KEYNOTE-942): a randomised, phase 2b study. Lancet (London, England) [Internet]. 2024;403(10427):632–644.
22. Bafaloukos D, Gazouli I, Koutserimpas C, et al. Evolution and Progress of mRNA Vaccines in the Treatment of Melanoma: Future Prospects. Vaccines [Internet]. 2023;11(3).



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