

Mesenchymal Stem Cells (MSCs) or Platelet-Rich Plasma (PRP) for Vitiligo

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In stable nonsegmental vitiligo, a prospective randomized controlled study looked at the efficacy of PRP alone or combined with fractional CO₂ laser. **The lesions treated by PRP alone showed significant improvement**, whereas lesions treated with fractional CO₂ laser only or with natural sunlight only did not ([Kadry et al., 2018](#)).

1. Zhou et al. 2013: Dermal Mesenchymal Stem Cells (DMSCs) Inhibit Skin-Homing CD8+ T Cell Activity, a Determining Factor of Vitiligo Patients' Autologous Melanocytes Transplantation Efficiency

We here investigated the efficiency of autologous melanocyte transplantation of 23 vitiligo patients by focusing on perilesional skin homing CD8+ T lymphocytes, and studied the potential effect of dermal mesenchymal stem cells (DMSCs) on CD8+ T cell activities *in vitro*. Out of 23 patients with the autologous melanocyte transplantation, 12 patients (52.17%) had an excellent re-pigmentation, 6 patients (26.09%) had a good re-pigmentation, 5 patients (21.74%) had a fair or poor re-pigmentation. CD8+ T cells infiltrating was observed in the perilesional vitiligo area

of all patients. Importantly, the efficiency of the transplantation was closely associated with skin-homing CD8+ T cell activities. The patients with high number of perilesional CD8+ T cells or high level of cytokines/chemokines were associated with poor re-pigmentation efficiency. For *in-vitro* experiments, we successfully isolated and characterized human DMSCs and skin-homing CD8+ T cells. We established DMSCs and CD8+ T cell co-culture system, where DMSCs possessed significant inhibitory effects against skin homing CD8+ T lymphocytes. DMSCs inhibited CD8+ T cells proliferation, induced them apoptosis and regulated their

References:

1. Barbulescu CC, Goldstein NB, Roop DR, Norris DA, Birlea SA. Harnessing the Power of Regenerative Therapy for Vitiligo and Alopecia Areata. *J Invest Dermatol.* 2020;140(1):29-37. doi:10.1016/j.jid.2019.03.1142
2. Zhou MN, Zhang ZQ, Wu JL, et al. Dermal mesenchymal stem cells (DMSCs) inhibit skin-homing CD8+ T cell activity, a determining factor of vitiligo patients' autologous melanocytes transplantation efficiency. *PLoS One.* 2013;8(4):e60254. doi:10.1371/journal.pone.0060254