


# A Comparative Study on Adipose-Derived Mesenchymal Stem Cells Secretome Delivery Using Microneedling and Fractional CO<sub>2</sub> Laser for Facial Skin Rejuvenation [Letter]

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## Dear editor

Mesenchymal stem cell/MSC secretome are used in dermatology to treat skin problems such as wound healing, alopecia, psoriasis, antimicrobial, and photoprotection.<sup>1</sup> Secretome can be used to treat skin rejuvenation as well as degenerative diseases. The research was carried out by Yusharyahya et al, which performed insightful novelty in the administration secretome for skin rejuvenation.<sup>2</sup> However, some insights were discussed and suggestions for future research in this field were made.

The route of administration of the secretome is critical to the treatment's success. Secretome has been administered topically and subcutaneously and has been shown to increase skin regeneration, blood vessel formation, and be anti-inflammatory in the skin lesions.<sup>3,4</sup> Yusharyahya et al recently reported that secretome administration for skin rejuvenation using microneedling (MN) and fractional CO<sub>2</sub> laser (FL) could significantly improve total dermoscopy photoaging scale (DPAS and Janus-III measurement system).<sup>2</sup>

Previous research has shown that secretome derived from bone marrow-derived mesenchymal stem cells/BMMSCs can protect dermal fibroblasts from oxidative stress and UVB.<sup>5</sup> Balasubramanian et al use base array antibodies to analyze cytokines, growth factors, and chemokines in treatment secretions.<sup>5</sup> Knowing the protein level and profile in the secretome can be used as a reference for further research in determining the dose of the secretome.

This study only reports on the proteins studied and excludes protein levels in the secretome. This is a clinical trial designed to demonstrate the safety and efficacy of secretome therapy in skin rejuvenation in a dose-dependent manner. The protein concentrations examined in this publication, in our opinion, are important in paying doses. Similarly, the characterization of adipose derived mesenchymal stem cells/ADMSC, which is not covered in this article, is lacking. Future research will focus on dosage and source characterization.

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## Author Contributions

RR wrote the original version of manuscript and revised the letter manuscript accordingly.

## Disclosure

The author stated that there is no conflict of interest regarding this communication.

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