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Mitochondria derived from human embryonic stem cell-derived mesenchymal stem cells alleviate the inflammatory response in human gingival fibroblasts

Key words: **Human embryonic stem cell-derived mesenchymal stem cells (hESC-MSCs), Mitochondrial transfer, Inflammatory response, Mitochondrial dysfunction, Periodontal disease**

Research Summary

This study aimed to explore the therapeutic potential of mitochondria from human embryonic stem cell-derived mesenchymal stem cells (hESC-MSCs) for the treatment of periodontitis.

- **There's mitochondrial dysfunction in gingival tissue of periodontitis patient and LPS-induced HGFs.**
- **Mitochondria can transfer from hESC-MSCs to HGFs.**
- **Mitochondria derived from hESC-MSCs can reduce inflammatory response and mitochondrial dysfunction in HGFs.**
- **Mitochondria injection improve the recovery of experimental periodontitis in mice.**

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Innovation points

- **Certificate** the existence of mitochondrial transfer from hESC-MSCs to HGFs.

- **Detect** the rescue ability of mitochondria derived from hESC-MSCs.

- **Local injection** of Mitochondria derived from hESC-MSCs *in vivo.*

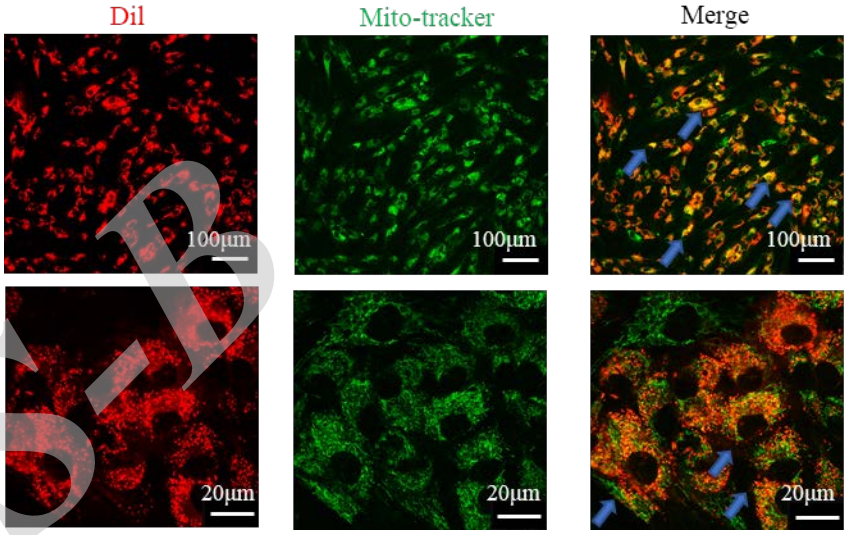
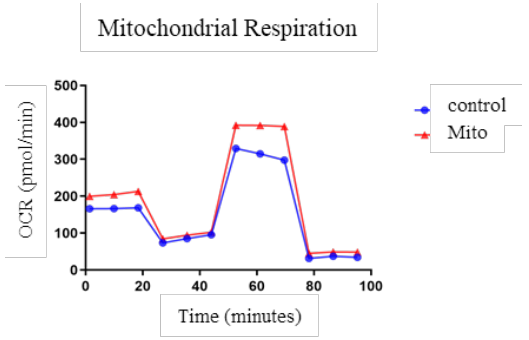


Figure 3



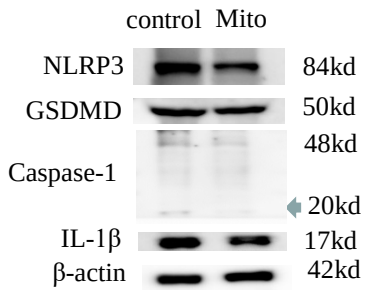


Figure 4

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