# Obtaining supernatant from Wharton's jelly stem cells stimulated with different concentrations of IL17

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## Introduction

Mesenchymal cells derived from Wharton's jelly (WJ-MSCs) constitute a multipotent cell population that originates in the mucous tissue of the umbilical cord.

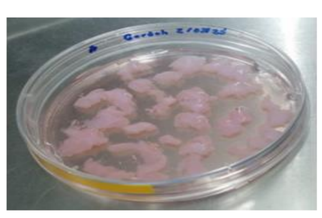
Interleukin 17 (IL-17) is a group of proinflammatory cytokines primarily synthesized by Th17 lymphocytes. Its role in regulating cellular processes goes beyond inflammation, including the proliferation and differentiation of mesenchymal cells.

The aim of understanding the potential interaction between WJ-MSCs and IL-17, this study evaluated the effect of different concentrations of 25 ng/mL, 50 ng/mL, 75 ng/mL, 100 ng/mL, and 125 ng/mL IL-17 on WJ-MSCs and the collection of their supernatant.

## Materials and methods



Umbilical Cord



Explant Method

DMEM-F12/SFB 10%/Ab 1%



**Experiments in triplicate**

Stimulation cycles with IL-17 for 48 hours:

**25ng/mL**
**50ng/mL**
**75ng/mL**
**100ng/mL**
**125ng/mL**
**Control without stimulus**

**DMEM-F12 plain**

**Mesenchymal supernatant**



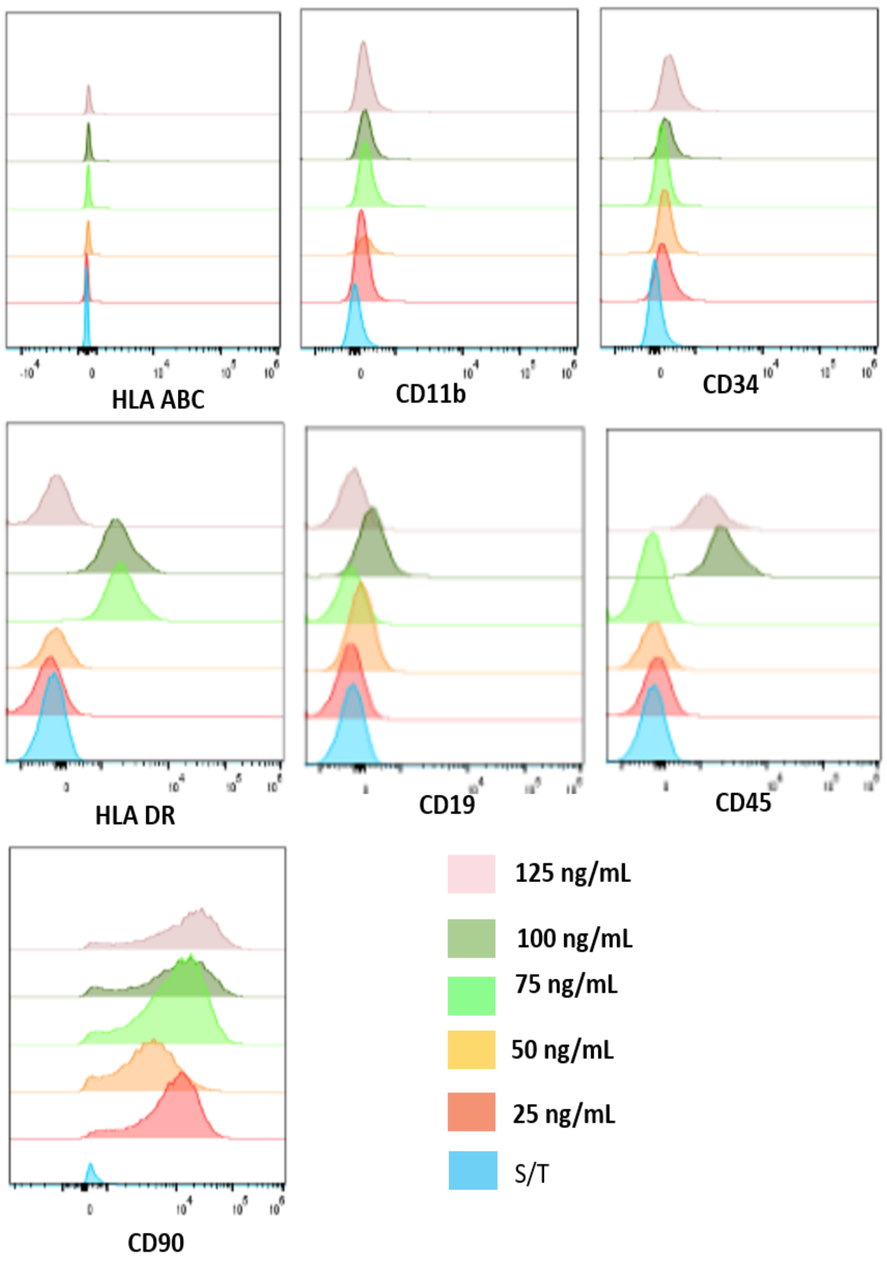
**Markers (+):** CD90, CD73, CD105, CD44, HLA-ABC
**Markers (-):** CD45, CD34, CD11b, CD19, HLA-DR

**WJ-MSC**
Phenotype analysis
at the end of stimulation

Multiple analysis of LEGENDplex.**IL-1β, INF-α2, INF-γ, TNF-α, MCP-1, IL-6, IL-8, IL-10, IL-12p70, IL-17A, IL-18, IL-23, IL-33**

## Results

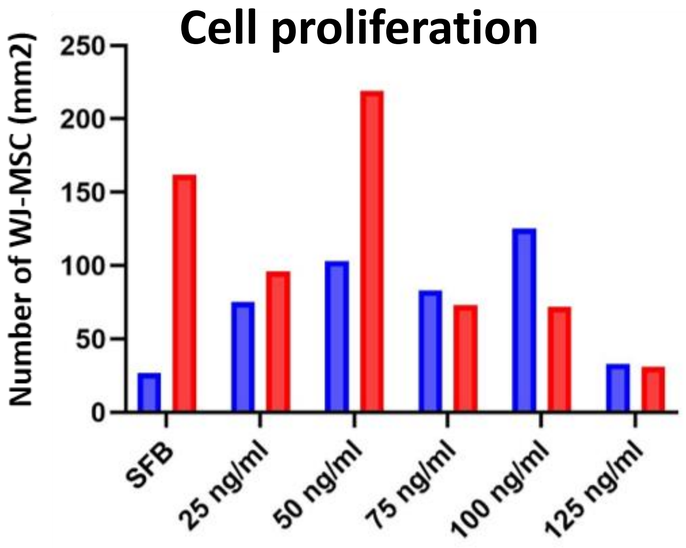
### Histograms of the phenotype of WJ-MSC




### Table of cytokine quantification (pg/mL ) in Mesenchymal supernatant

| | IL-1β | INF-α2 | INF-γ, | TNF-α | MCP-1 | IL-6 | IL-8 | IL-10 | IL-12p70 | IL-17A | IL-18 | IL-23 | IL-33 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Without Stimulus | 1706.5 | 944 | 391 | 333 | 229747 | 106158 | 72459 | 45 | 859 | 420 | 805 | 596 | 483 |
| 25 ng/mL | 1170.72 | 105.85 | 266.67 | <119.33 | >13000 | >11000 | >12000 | 88.84 | 97.64 | 938.948 | 565.62 | 156.04 | 504.86 |
| 50 ng/mL | 549.28 | <93.71 | 93.95 | <119.33 | >13000 | >11000 | 8069.41 | <40.94 | <38.79 | 17.773 | 158.19 | 71.16 | 436.55 |
| 75 ng/mL | 659.18 | <93.71 | 241.44 | 157.13 | >13000 | >11000 | >12000 | 88.24 | 71.59 | 325.921 | 358.01 | 134.95 | 680.39 |
| 100 ng/mL | 819.62 | 127.42 | 368.80 | 131.22 | >13000 | >11000 | >12000 | 94.36 | 141.16 | 1744.294 | 613.02 | 196.79 | 571.44 |
| 125 ng/mL | 2520.5 | 805.5 | 387 | 325.5 | 228785 | 177143 | 36756 | 475 | 755 | 1930 | 729.5 | 534 | 433 |

### Cell proliferation




**Conclusions:** The supernatant of stimulated and non-stimulated WJ-MSCs was obtained, finding that the concentration of 1.25 mg/ml stimulated with the concentration of 25 ng/mL IL-17 is the ideal concentration for carrying out the in vivo phase of the project.

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