

In The Name of GOD

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Intra-articular human deciduous dental pulp stem cell administration *vs.* pharmacological therapy in experimental osteoarthritis rat model

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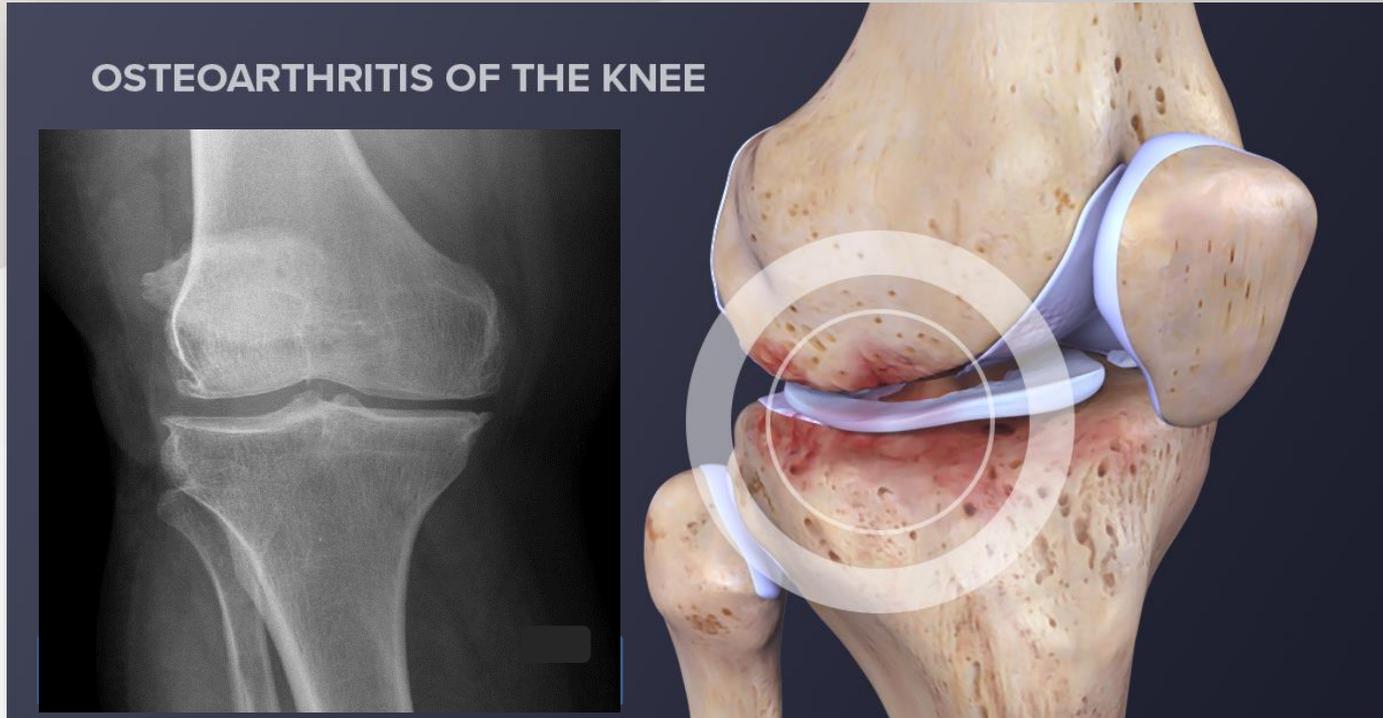
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education 2

Introduction

Osteoarthritis or “wear and tear” arthritis



education 3

Transcription factors that are involved in the formation and maintenance of a healthy articular cartilage:

- SOX gene family(5,6,9)
- Indian hedgehog (IHH)



Pharmacological therapy

Diacerein

- Anti-inflammatory
- Analgesic
- 1(IL-1), nitric oxide and MMPs inhibition

Glucosamine-Chondroitin

- Synthesis of glycosaminoglycans
- Inhibit MMPs synthesis
- Anti-inflammatory
- Stimulating the synthesis of hyaluronic acid and proteoglycans
- Inhibiting the synthesis of proteolytic enzymes and nitric oxide

Stem Cell Therapy

- Differentiate into chondrogenic line cells
- Promote new cartilage formation
- Inflammatory control



Materials and Methods

- *OA Induction*



- *H&E Staining*



Materials and Methods

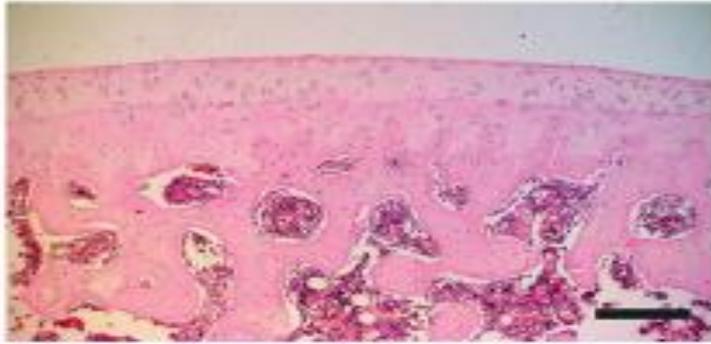
- *Immunohistochemistry*
- *Statistical Analysis*



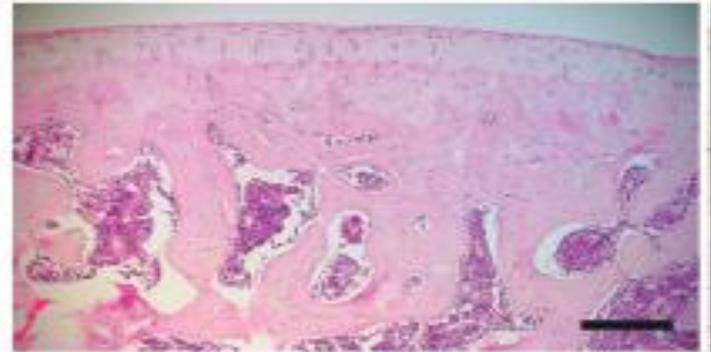
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Results

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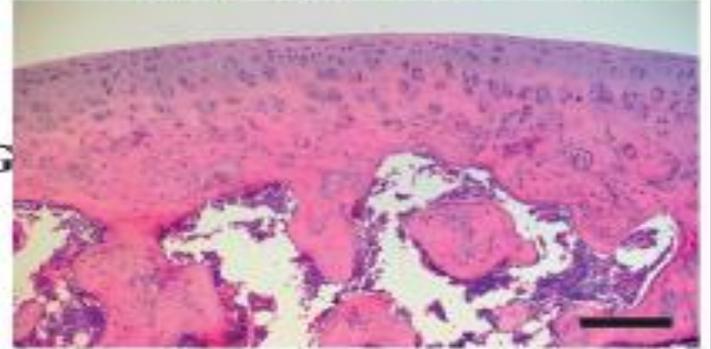
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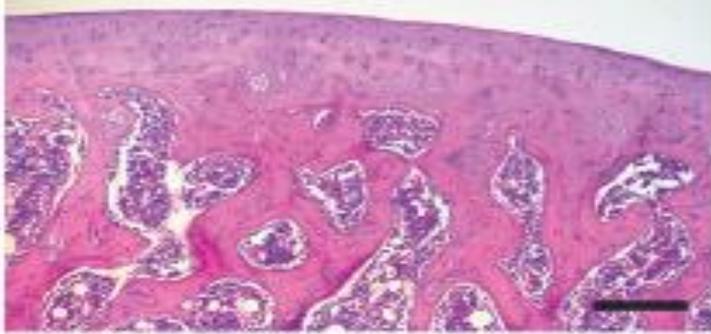
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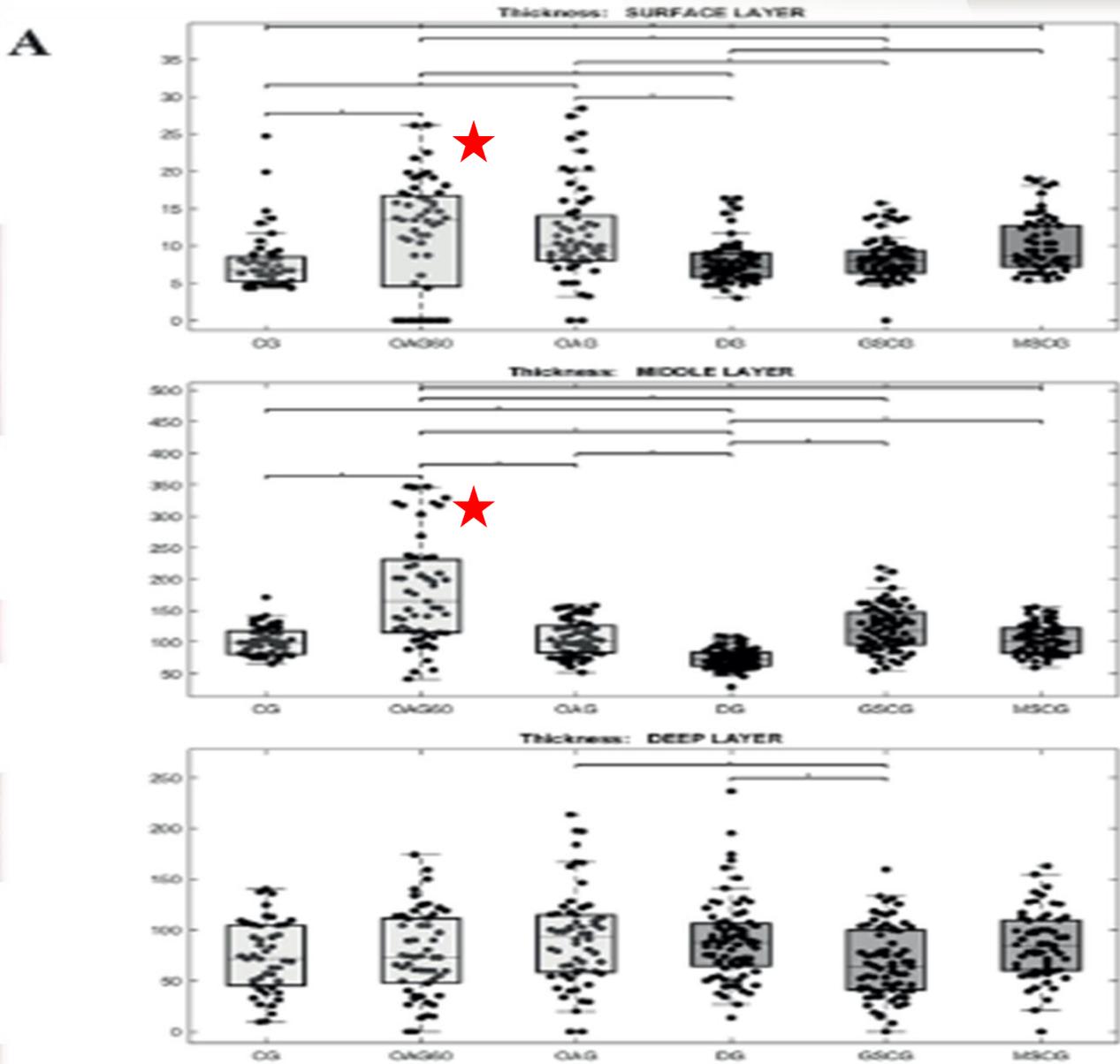
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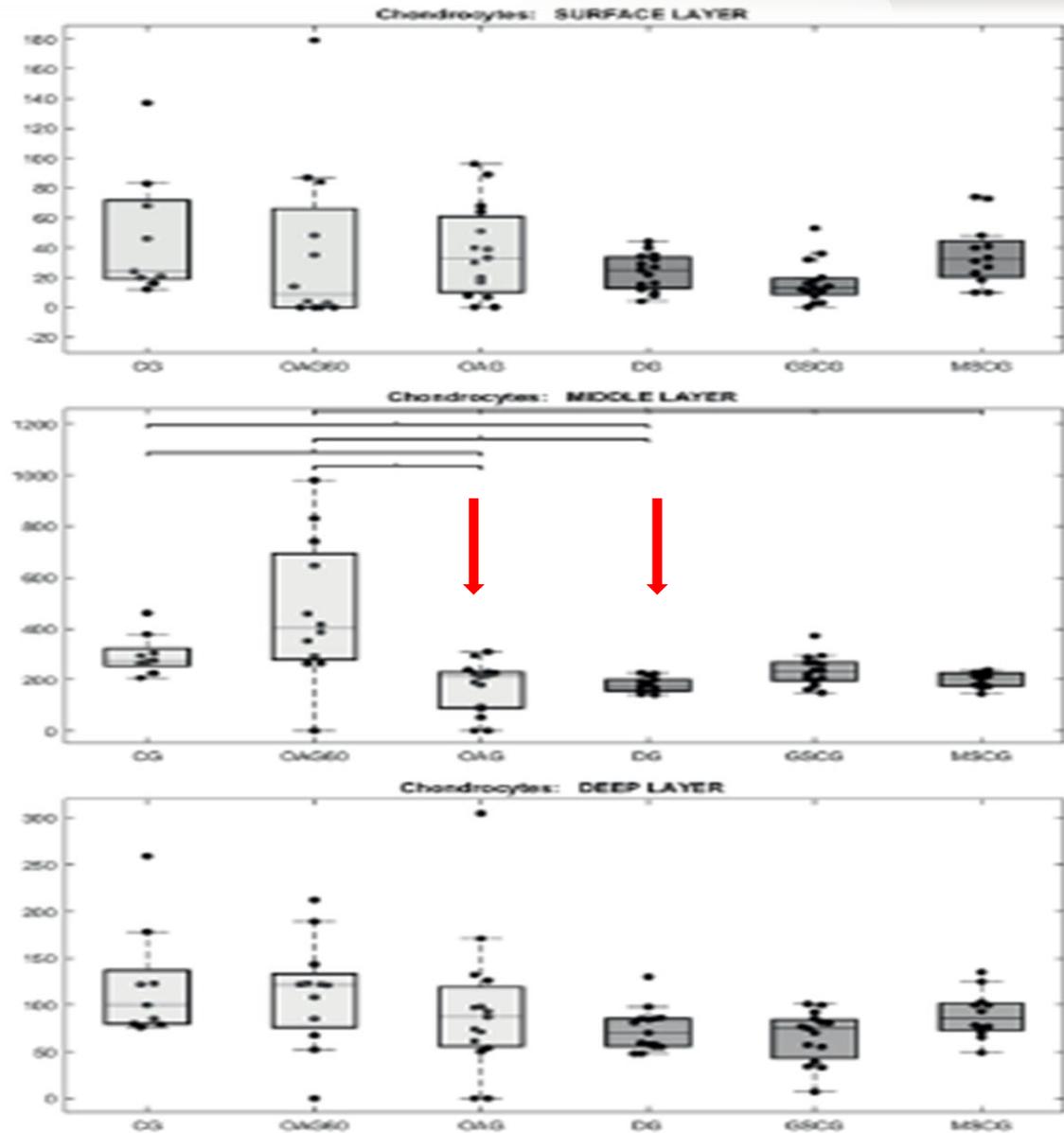
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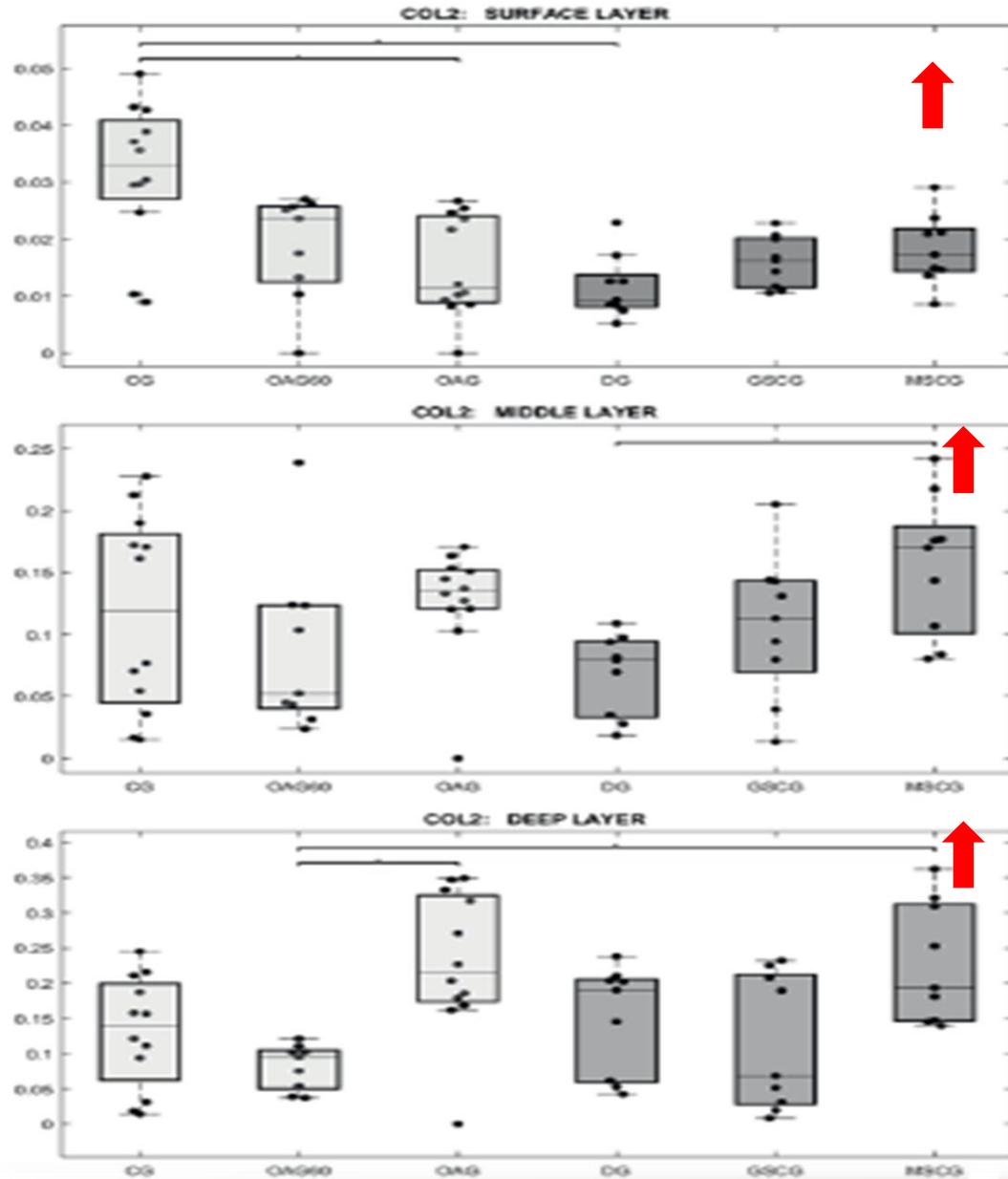


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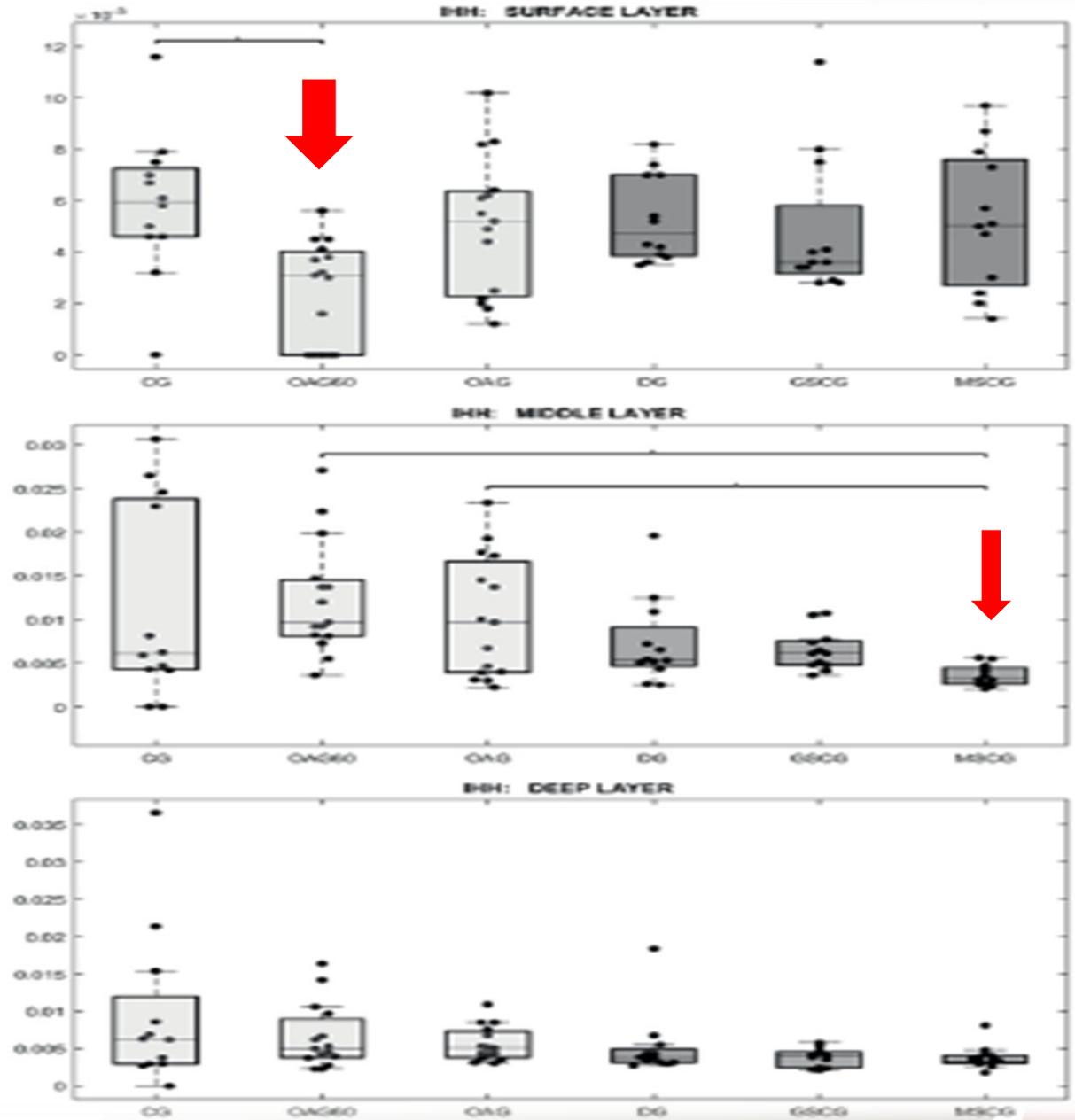


Results

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Results



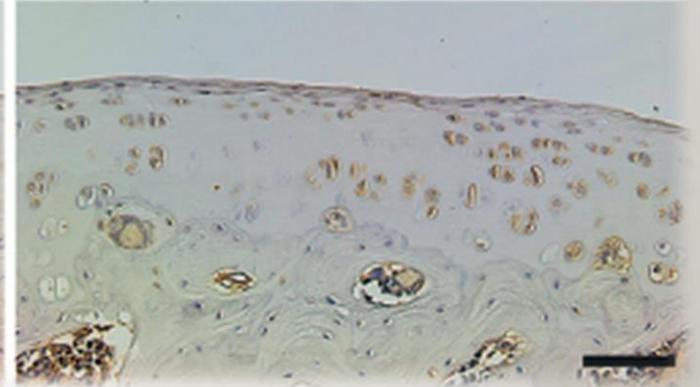
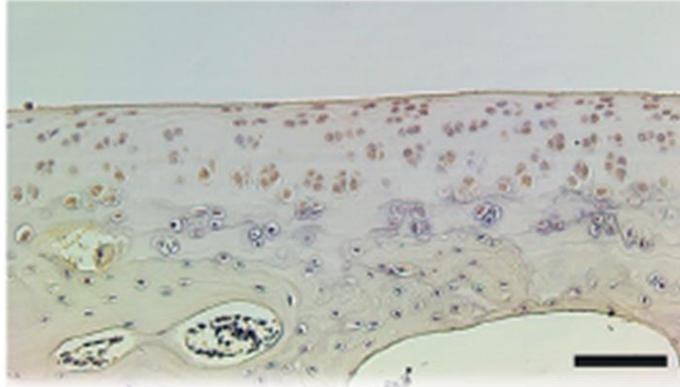
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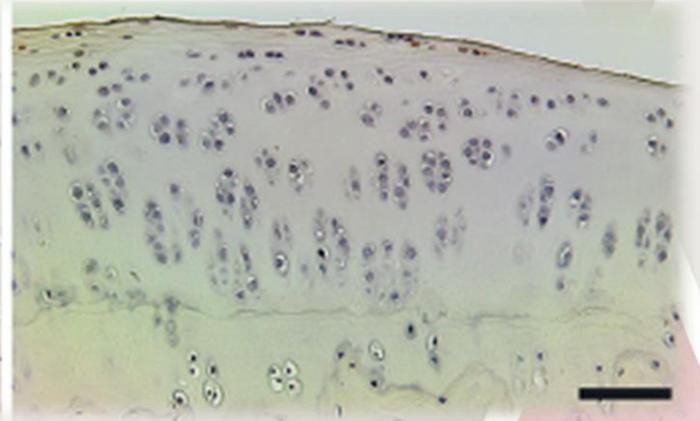
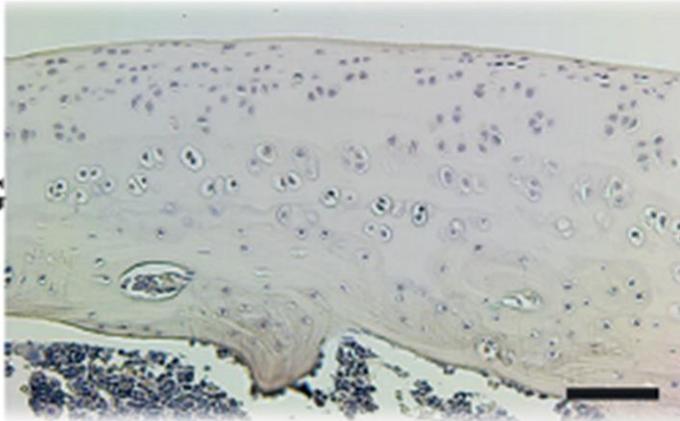
**MMP
8**

**MMP
13**

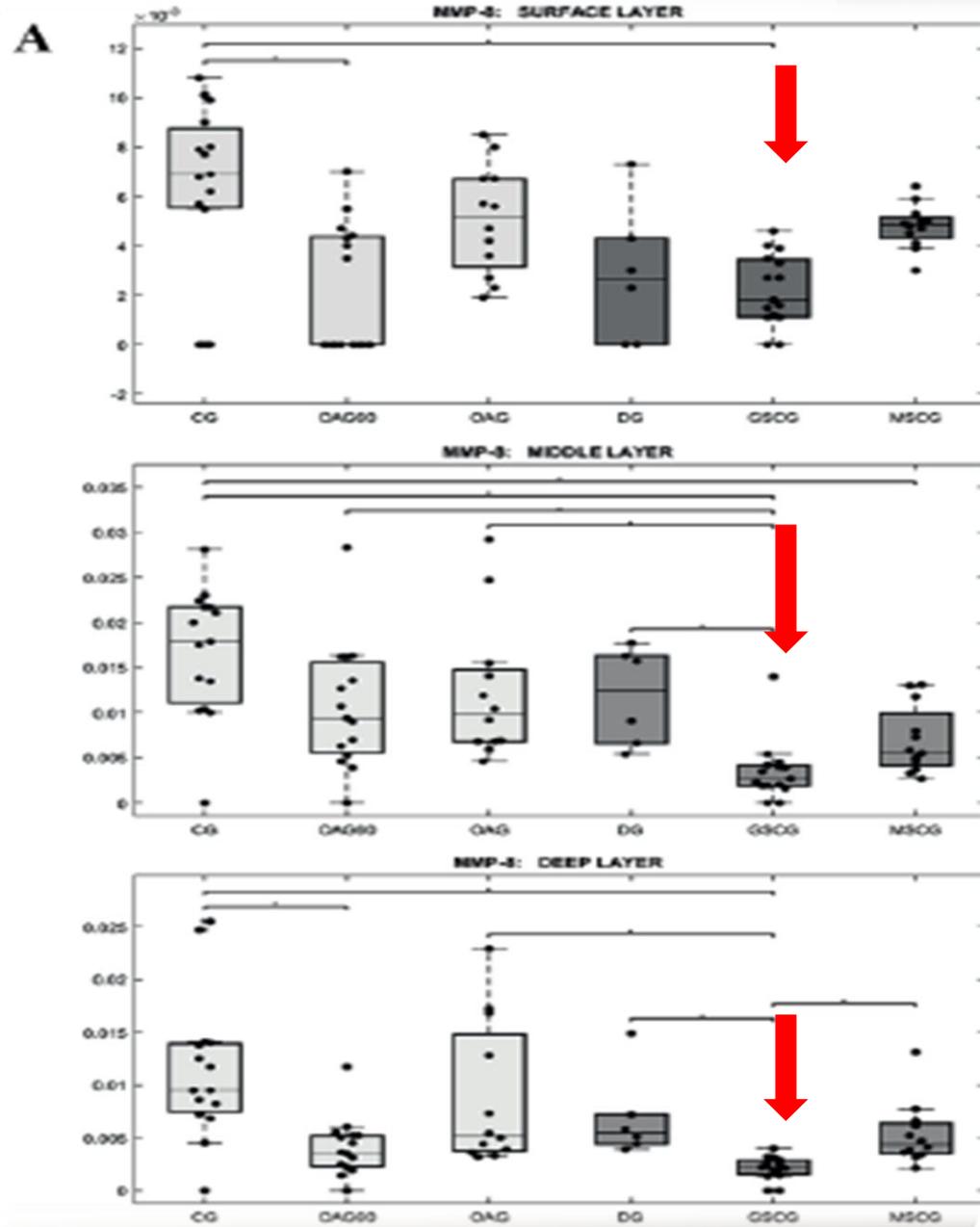
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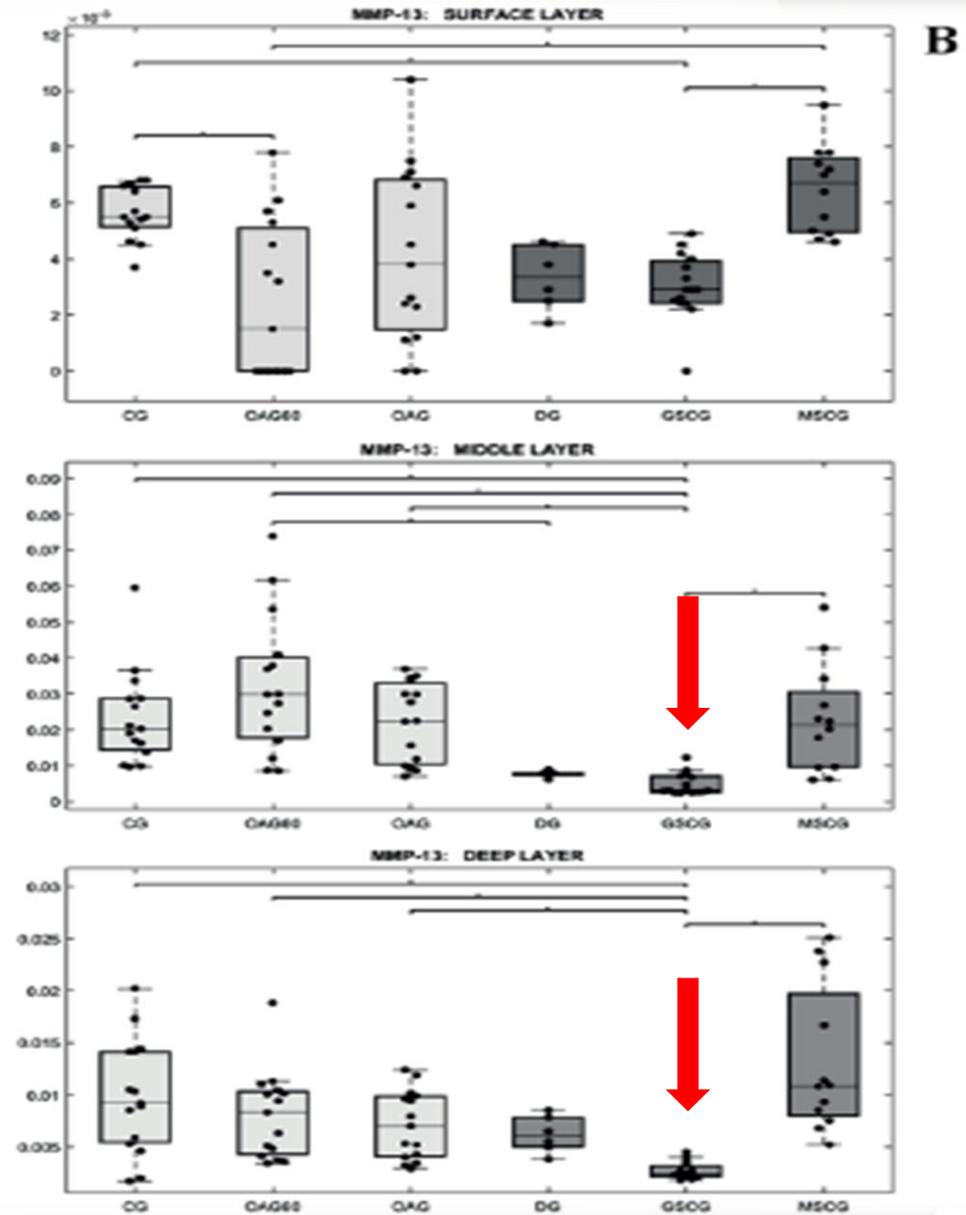
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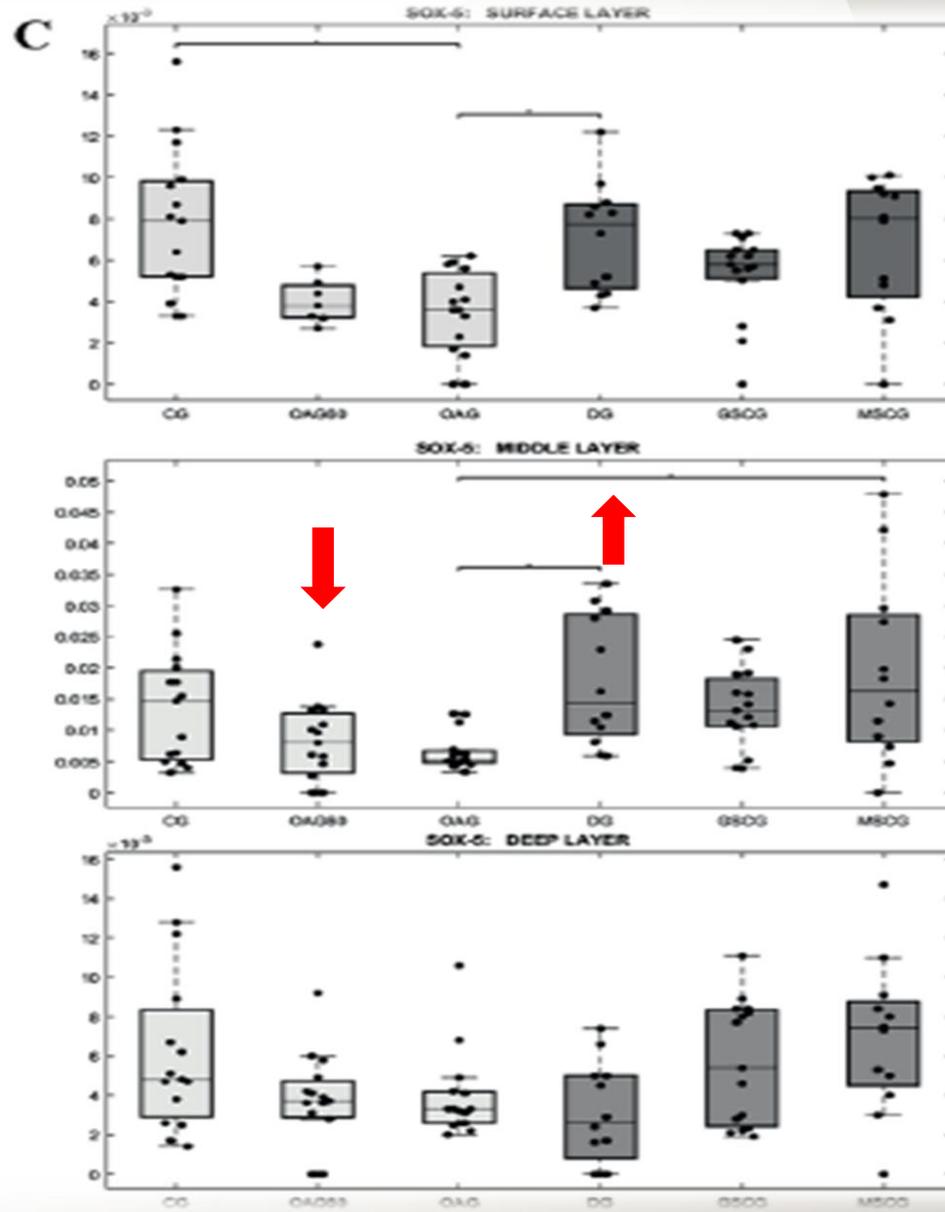
Results



Results



Results



Discussion

Cellular therapy

- ✓ MSCs differentiate
- ✓ paracrine affect
- ✓ hDPSC they have not ethical problems
- ✓ Embriological stem cells
- ✓ Induced pluripotent stem cells



Discussion



Diacerein

- ✓ MMP-13 expression was reduced
- ✓ stimulating effect in the production of Col2
- ✓ Significant pain control effect
- ✓ Efficacy in articular function

Glucosamine-Chondroitin

- ✓ Efficacy in articular function
- ✓ decrease in MMPs

Conclusions

- Analysis of restoring structural (Col2)
- Morphological features
- cellular hypertrophy (IHH)
- articular thickness
- Chondrocyte count

- Inflammatory Mcontrol (MMP-8 and MMP-13)

- maintenance of primordial cartilage (SOX-5)

DPSC

Glucosamine-Chondroitin

Diacerein

DPSC

education

If you're looking for beauty
you'll find it in nature

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Thanks for your Attention