

# Syndecan-4 is Increased in Osteoarthritic Knee, but not Hip or Shoulder, Articular Hypertrophic Chondrocytes

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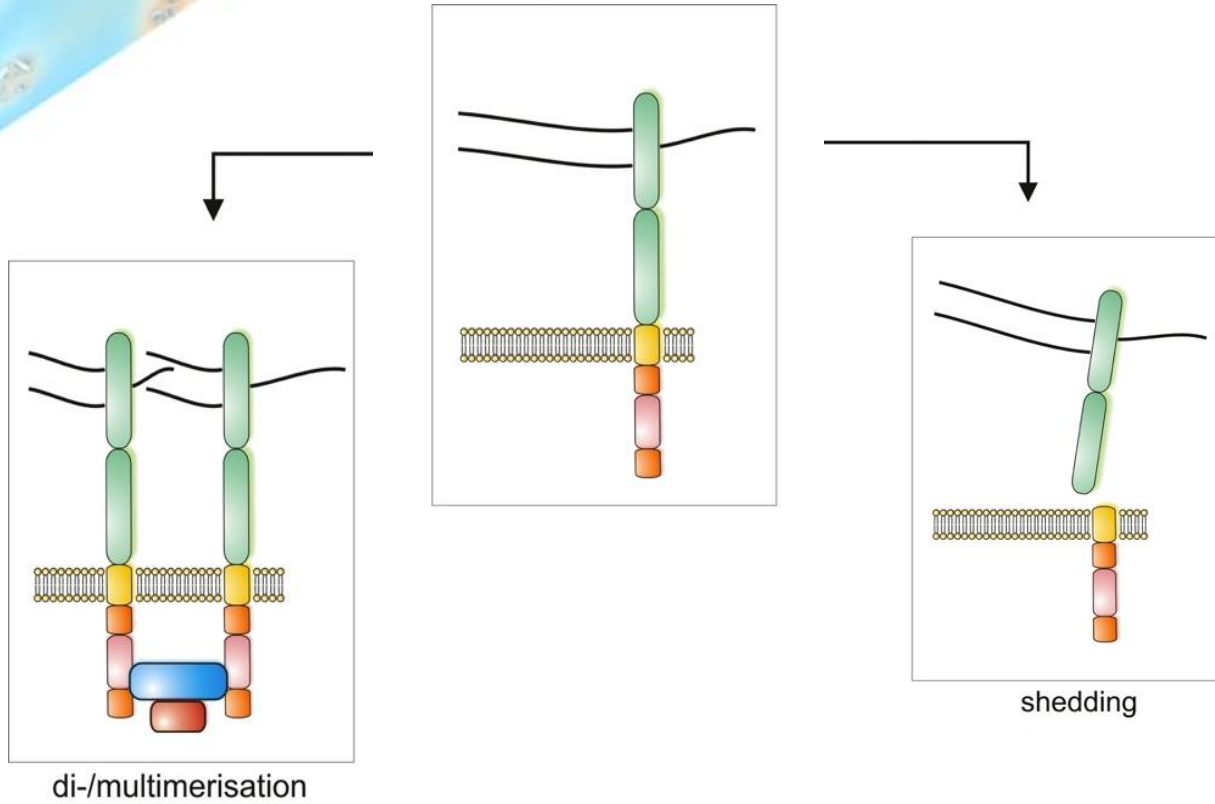
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# Rationnal

## Syndecan-4 : a transmembrane proteoglycan



- Regulates **cell-matrix interactions**
- Interacts /binds cytokines and growth factors
- Modulate cellular signaling

### Role in OA

- **Overexpressed in OA chondrocytes** (knee)
- Co-expressed with **type X collagen**
- **Activate ADAMTS-5**
- **Enhance MMP-3 expression** by chondrocytes

KO mice or injected with neutralizing antibody



No cartilage degradation in DMM model  
(same as observed in ADAMTS5 KO mice)

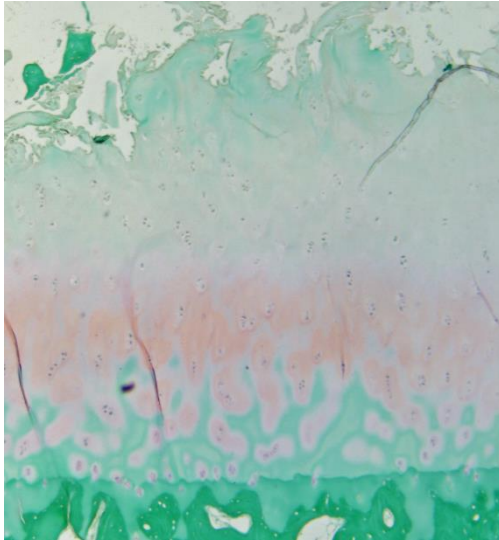


# Objectives

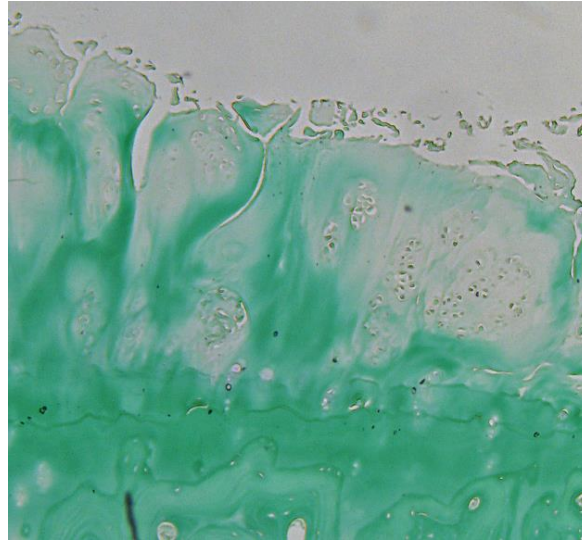
- 1) **Localization by immunohistochemistry in knee, hip or shoulder OA bone/cartilage biopsies**
- 2) **Study of the expression/production in several in vitro models:**
  - **Hypertrophic differentiation of chondrocytes**
  - **Sclerotic vs non-sclerotic subchondral osteoblasts**
  - **Inflamed vs normal/reactive synoviocytes**

# SDC4 Immunohistochemistry

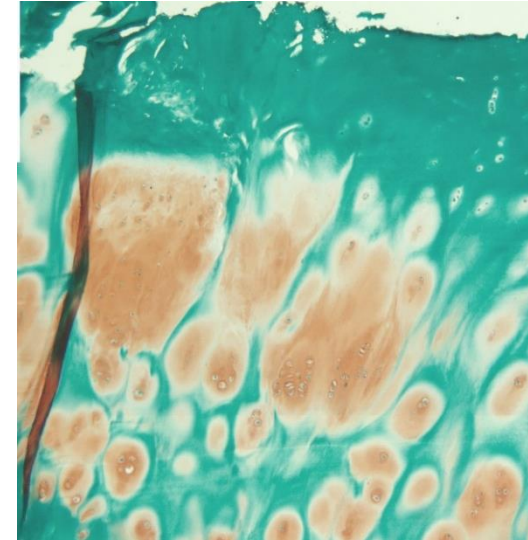
KNEE



HIP

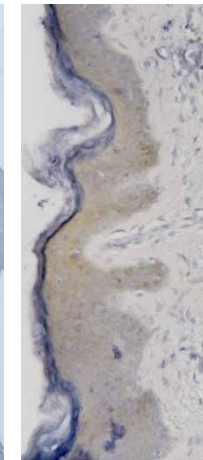


SHOULDER

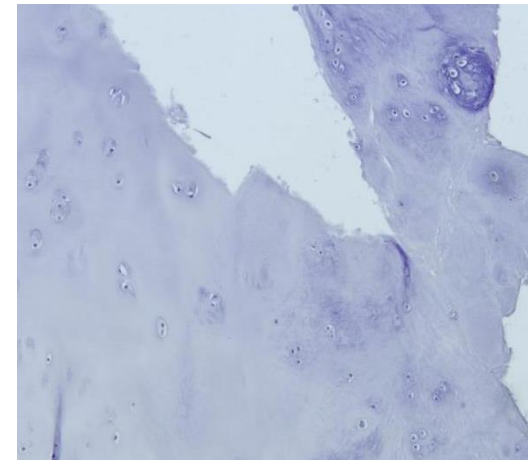
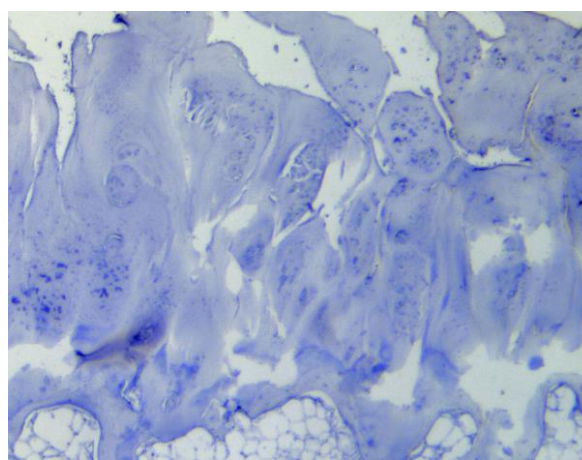
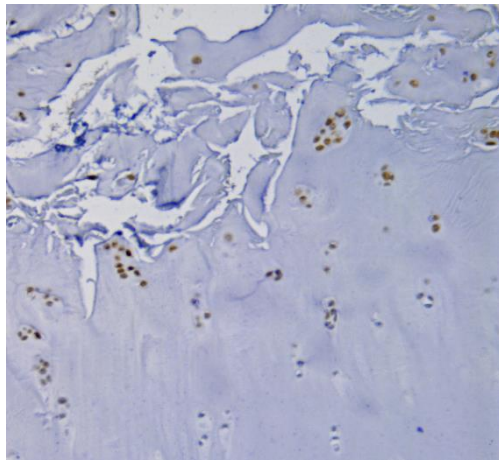


Safranin-O  
Fast green

SKIN (C+)

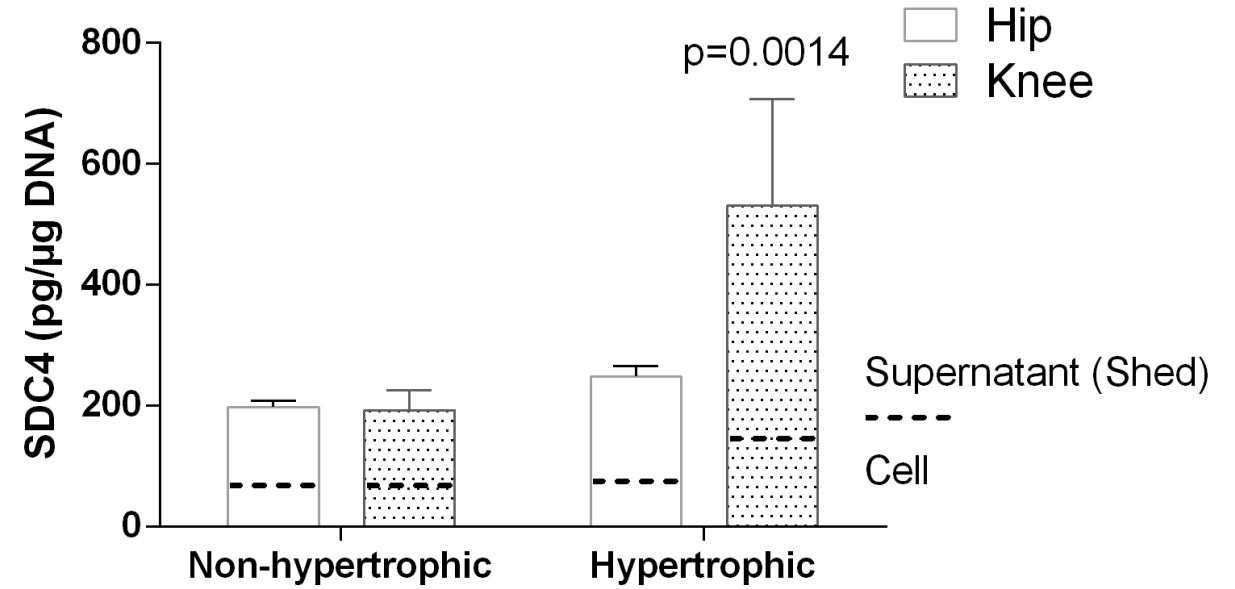
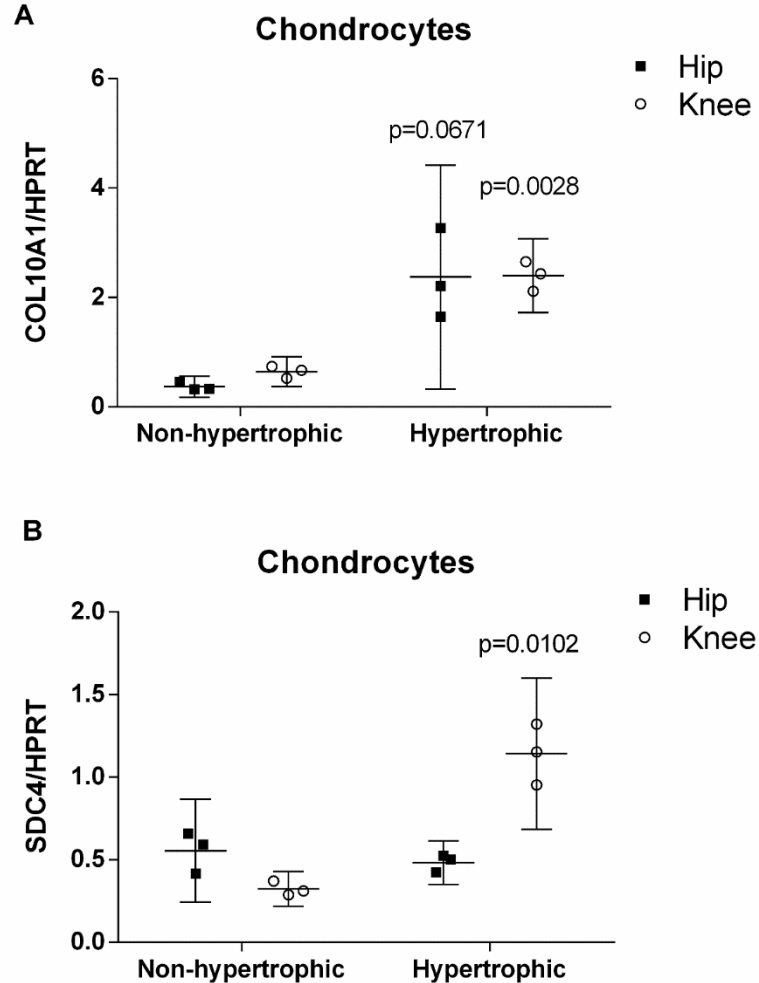


Syndecan-4  
Hematoxyline



# SDC4 expression and production

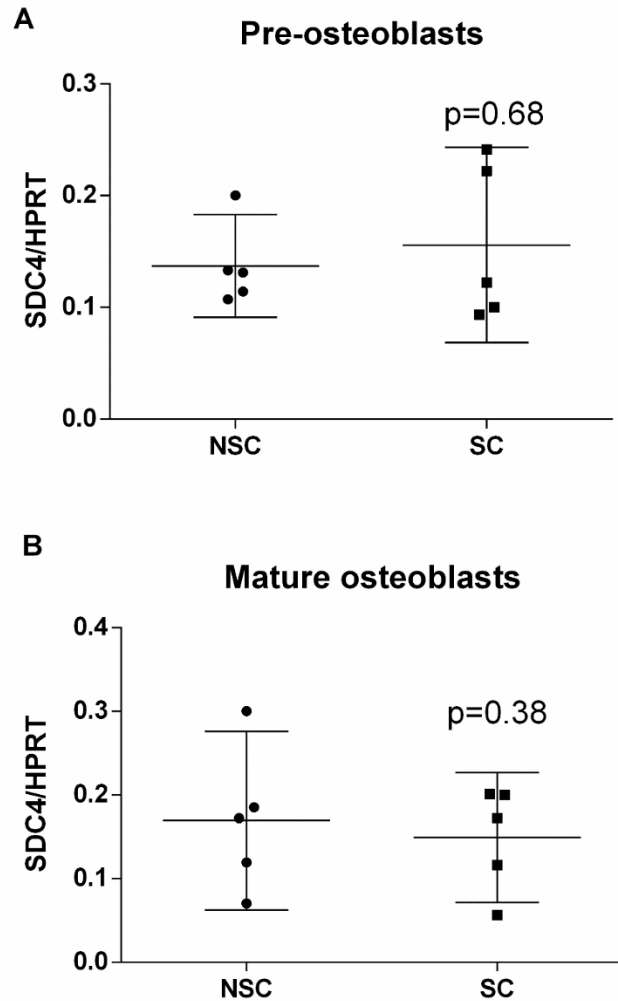
## By chondrocytes hypertrophiques



**2/3 shed**  
**1/3 forme transmembranaire**

# SCD4 expression and production

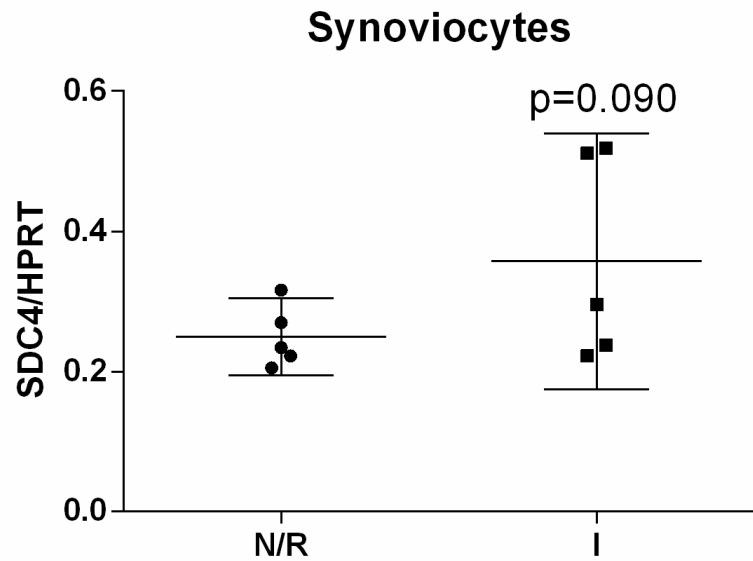
## By subchondral osteoblasts



NSC = non-sclerotic  
SC = sclerotic

N=5

# SCD4 expression and production by synoviocytes



N/R = normal/reactional  
I = inflamed areas

N=5

# Conclusions

**Syndecan-4 is only seen in knee OA chondrocytes**

⇒ **Not in hip or shoulder**

**Syndecan-4 expression in *in vitro* models:**

- **Hypertrophic differentiation of chondrocytes**
  - **Increase with hypertrophy but only in knee**
- **Subchondral osteoblasts**
  - **Weak expression, similar in sclerotic or not sclerotic**
- **Synoviocytes**
  - **Weak expression, more important in inflamed area (but not significant)**



# THANKS!

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