



# ViscoPhil

A Prototype Injectable Hydrogel for Joint Lubrication

## Problem & Background

- Thailand's aging population is seeing a sharp rise in osteoarthritis (OA)
- Current treatments are imported and expensive (150–600 USD per dose)
- Local innovation is key to improving access and affordability
- Osteoarthritis causes joint pain due to the loss of synovial fluid cushioning

*From Animal-Free Innovation to Global Therapeutic Potential*

## What is ViscoPhil?

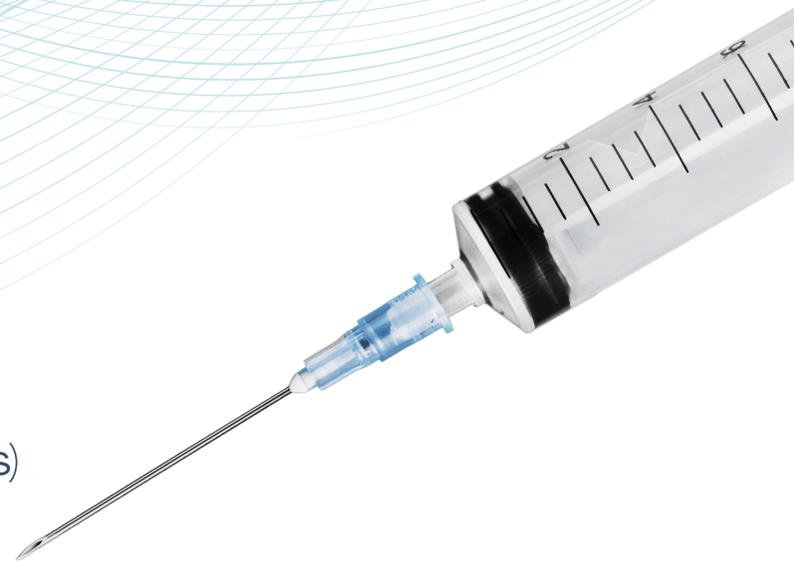
- **A pre-clinical** prototype injectable hydrogel that mimics natural joint fluid
- **Animal-free & GMP-compliance** ingredients :
  1. Sodium hyaluronate (**HA** Biofermentation) : MW. 2,100 kDa
  2. Sodium alginate (**Alginate** Seaweed) : High Stiffness Gelation
- **Crosslinked** HA-Alginate system via Schiff's base reaction  
(US Patent Publication No.: US 2025/0002659 A1)
- **Shear-thinning** and Injectable
- **Viscosity** customizable

## The Safety

- Passed ISO 10993 Biocompatibility Tests (9 tests)
- Safe in animal studies
- No cytotoxicity
- Non-genotoxic

## Potential Applications

- 1. Primary Target:** Early-stage knee osteoarthritis treatment
- 2. Exploratory Use-Cases**
  - Growth factor delivery
  - Stem cell carrier
  - Binder for demineralized bone matrix



ViscoPhil

## Long-term vision

**safe, effective, and locally made joint therapy accessible in global markets**

### United Nations Sustainable Development Goals (SDGs)

- Health
- Innovation
- Equitable access

Truc Thanh Nguyen . Sonthikan Sitthisang  
 Pensuda Somphunga . Chris Charoenlap  
 Thun Itthipanichpong . Ratchaneekorn Tammachote  
 Chenphop Sawangmake . **Supansa Yodmuang**

contact: [supansa.y@chula.ac.th](mailto:supansa.y@chula.ac.th)

Faculty of Medicine, Chulalongkorn University, Bangkok, THAILAND

