

GLENPHARMA AB

瑞典克能医药公司

GLENPHARMA AB IS A SMALL PRIVATELY OWNED SWEDISH COMPANY FORMED IN 2002 TO EXPLOIT NOVEL TECHNOLOGY PATENTED BY IT'S FOUNDERS ..

瑞典克能医药公司成立 2002 年，创办股东拥有革新技术

THE TECHNOLOGY PLATFORM OF THE COMPANY IS BUILT AROUND **NOVEL THERAPEUTIC INTERACTIONS BETWEEN MEDICAL BIOPOLYMERS PARTICULARLY OLIGO / POLYSACCHARIDES AND GLYCOSAMINOGLYCANS (GAGS)**.

技术平台--**生物聚合物（低聚糖/多糖与糖胺聚糖）** 的新颖相互作用

Glenpharma Product Candidates

What are visco-elastic agents?

- Visco-elastic agents, such as Hyaluronic Acid (HA) and other biopolymers, are both viscous/slimy/slippery and elastic, and are found **naturally throughout the body where lubrication and shock absorbing properties are required**, as in joint fluid, or between the beating heart and its cavity , or within sliding tendon sheaths, etc.
- As the body ages, or in trauma, these polymers are degraded and lose their ability to effectively function as lubricants and shock absorbers.
- Glenpharma's patented visco-elastic biopolymers restore and further re-inforce the natural lubrication and shock absorbing properties of these fluids.

How are Glenpharma's candidates different from Hyaluronic Acid (HA)?

- Glenpharma's novel visco-elastic formulations contain natural, highly viscous HA **PLUS** other polymers which interact synergistically to restore and reinforce the natural lubricating and shock absorbing properties of HA. (i.e. they **interact synergistically** with the body's own endogenous HA to **re-inforce** its natural lubricant and protective properties)

How are Glenpharma's candidates different from just HA? Examples

- In joint disease osteo-arthritis, for example, Glenpharma's GLHII is more effective than competitors based on HA alone, in terms of onset and duration of acute pain relief. To relieve acute pain, only 1 injection of GLHII is required 4 times a year, compared with 3 -4 injections **per month** of HA alone
- In acute tendon injuries, GLVII reduces healing / recovery times in expensive race horses **to < 33% of the time required after HA alone !** Equivalent indications in man include acute tendon / ligament injuries , sprains, etc. in sports medicine and the elderly.
- After major heart surgery, Glenpharma's GLH-AD reduces the risk of catastrophic pericardial adhesions **ca 10 times more effectively than with HA alone.** Similar adhesion complications commonly occur after major thoracic, abdominal and gynecological surgery.

OSTEO-ARTHRITIS

The overall pooled prevalence of symptomatic knee OA in China was 14.6%. (D Li et al, 2020)



How do Glenpharma's products work ?

- They contain 2 main components : specific glycosaminoglycans (GAGs) and polysaccharides .
- The GAGs (mainly Hyaluronic Acid (HA)) **provide visco-elasticity** , - usually 1% is sufficient : 2% = gel
- The polysaccharides are also viscous but they also **suppress inflammation and prevent formation of internal scar tissue** .
- In **combination**, these very specific GAGs and polysaccharides interact **synergistically*** to further reinforce their biological effects..

* **1 + 1 = 3 !!!**

Proof of Concept - Hard Evidence

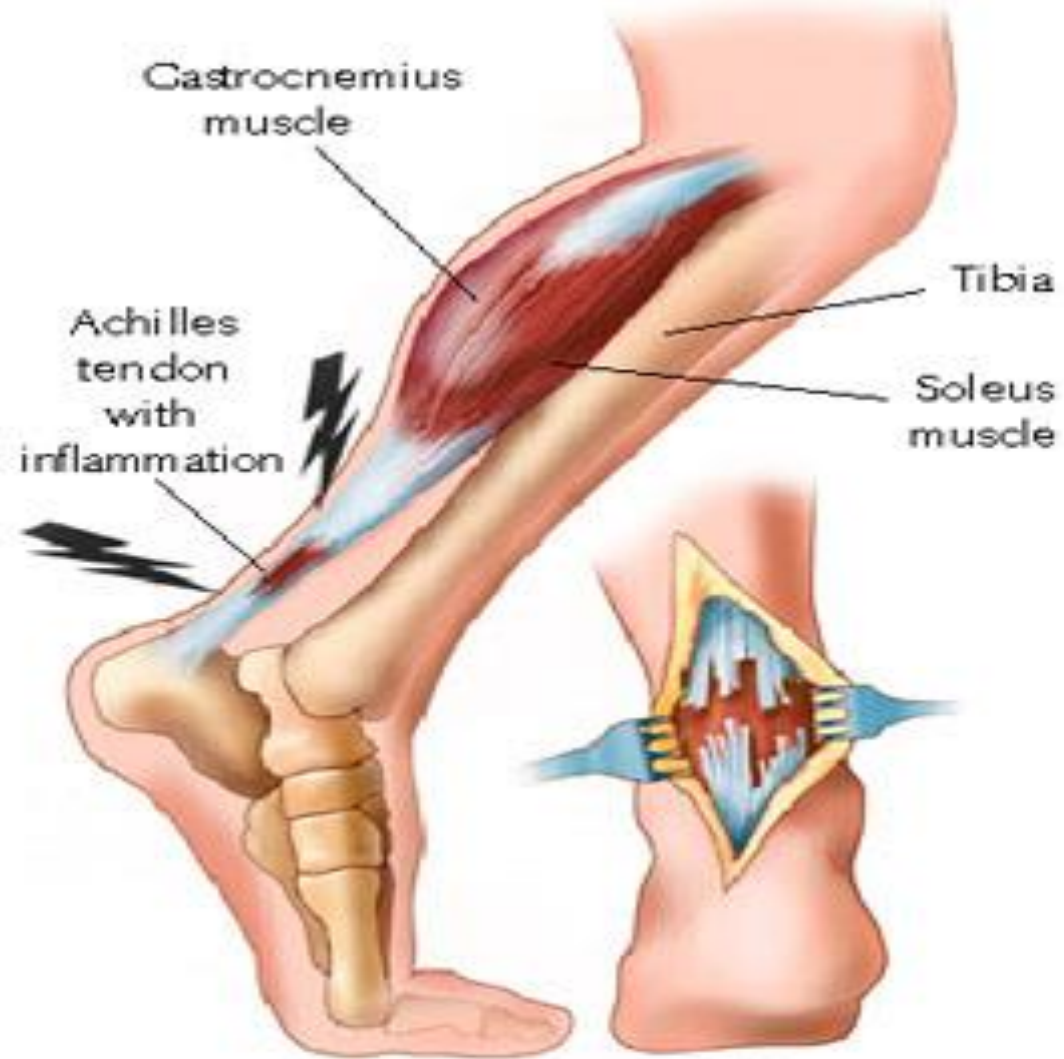
- For **joint pain** : a trial in 100 patients with advanced osteo-arthritis - more rapid onset of pain relief + longer duration of effect, compared with HA.
- For **tendon / ligament injuries** : a trial in 300 expensive racing, high performance horses where non-productive “down-time” was cut from 12 to 4 months . HA alone had no significant effect.
- In animal studies on **major heart surgery**, internal scar formation (adhesions) between heart and other tissue in the chest cavity was reduced to ca 10% of the risk with HA alone.

Visco-supplementation into the knee synovial cavity



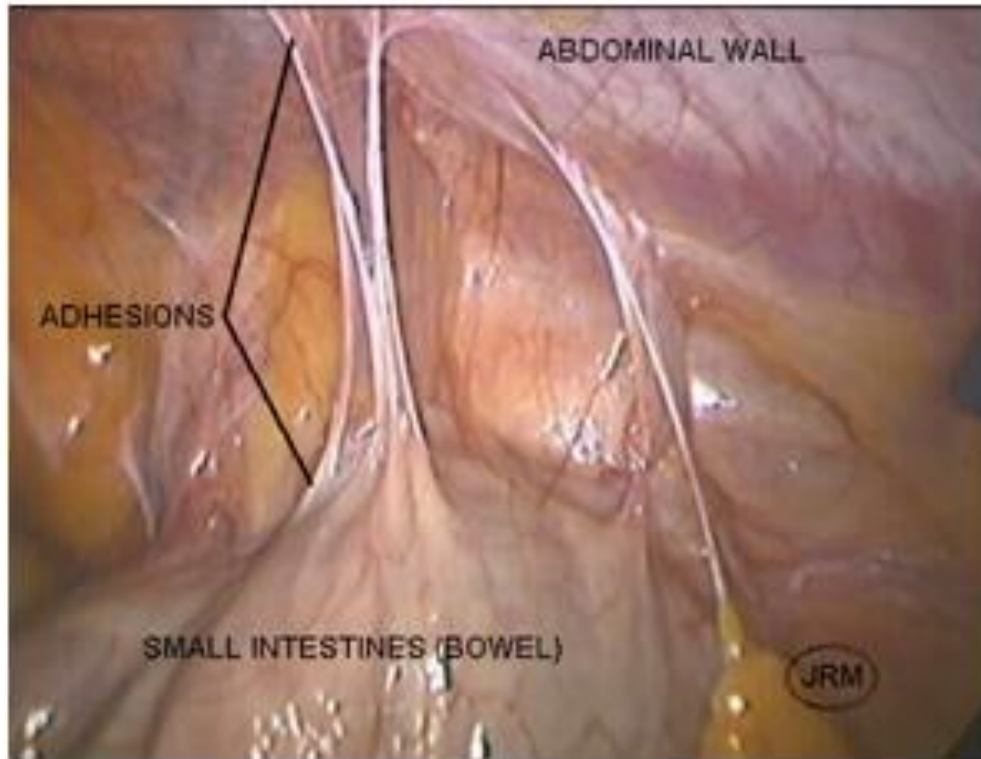
Sports injuries
e.g. Achilles tendon,
Old age, ...

Side view of lower leg



Surgical view of
torn achilles tendon

Prevention of adhesions after major surgery



Bowel Adhesions to Abdominal Wall



Adhesions between Intestines

Regulatory

- All applications in USA & EU are “Medical **Devices” Class III**, mainly because primary mode of action is physical, not pharmacological
Probably same in Hong Kong
- In China HA is registered as Medical Device

GLENPHARMA - CHINA

CHINESE PATENT ZL 2010 8 0051615 7 APPROVED IN MARCH 2015

**COMPOSITION AND METHODS FOR INDUCING OR ENHANCING
CONNECTIVE TISSUE REPAIR**

发明名称：**用于诱导或加强结缔组织修复的组
合物和方法**

INVENTION FOR BOTH HUMAN AND ANIMAL USE.

人畜使用发明

REGISTRATION REQUIREMENTS IN CHINA AS MEDICAL
DEVICE FOR **HUMANS**

中国医疗器械注册要求

CLINICAL TRIAL 临床试验

FUNDING 资金提供

SPONSOR 赞助商

REGISTRATION STATUS IN EU WOULD REINFORCE
REGISTRATION & MARKETING IN CHINA EU注册地位
将加强中国注册和市场营销



PARTNERSHIP OPPORTUNITIES

合作机会

- LICENSE OPPORTUNITY TO DEVELOP AND MARKET PRODUCTS FOR BOTH **VETERINARY AND / OR CLINICAL USE (SPORTS INJURIES, OSTEOARTHRITIS, ETC)** IN MOST MAJOR MARKETS. OFFER INCLUDES AN OPTION TO CONTRACT-MANUFACTURE WITH A WELL ESTABLISHED SPECIALIZED CONTRACTOR IF PREFERRED.
- 在主要市场开发和销售产品用于兽医和/或临床用途（运动损伤，关节炎等）专利使用权转让许可。包括与专业承包商优先建立合同制造生产权。