SciVision Biotech Inc.

Inventor Conference
2018

Dr. Chun Chang Chen
Project Manager | R&D Dept

Disclaimer

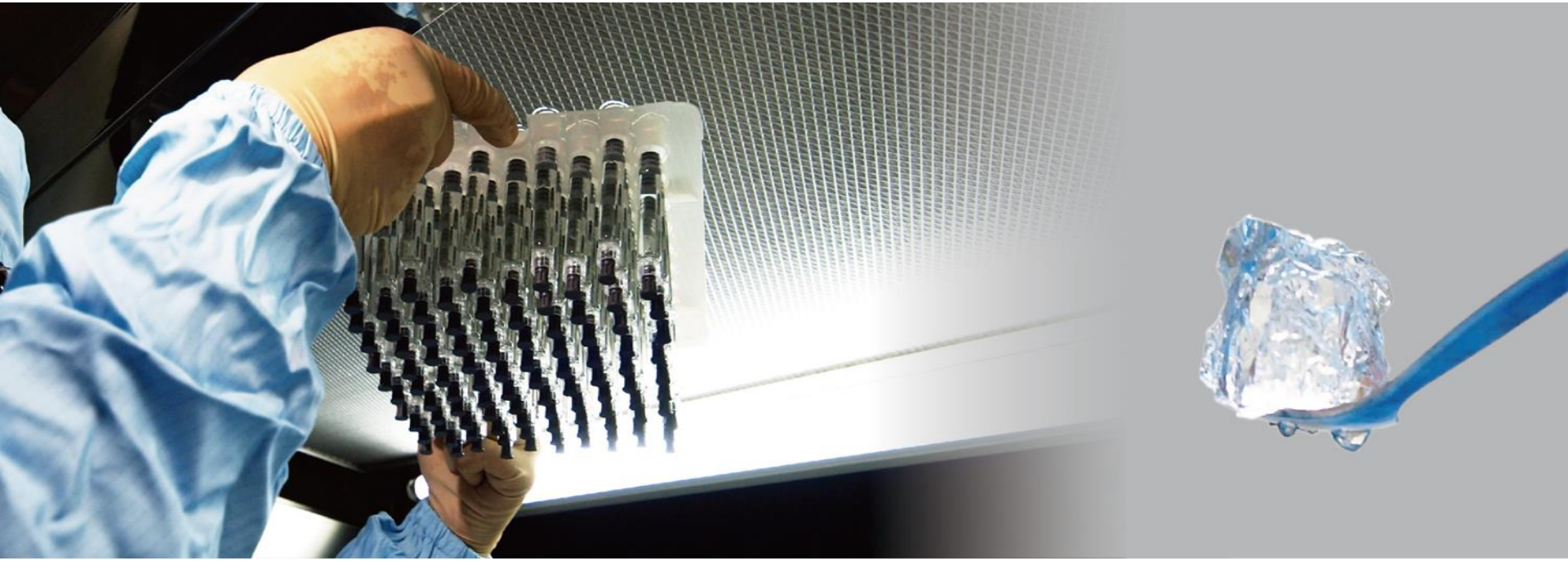
This slide contains our business prospect, financial condition and sales prognosis which are derived from our existing internal/external data analysis. The actual result of operations may differ from the expressed or implied in these forward-looking statements due to various reasons, including but not limited to price fluctuation, competition, global economic condition, exchange rate fluctuation, market demand or other risks that beyond our control. The forward-looking statement in this release reflect the current belief of SciVision at this point and SciVision undertakes no obligation to update these statements with new information or future events.

Outline

1. Company & Product &Technology Overview

2. Business Operation

SciVision Biotech Inc.



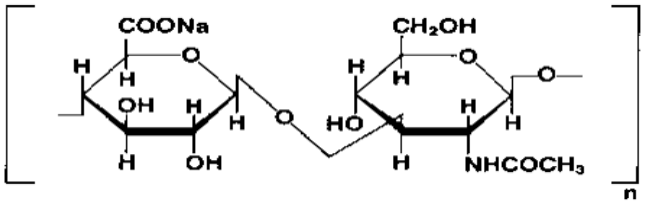
The Leading Technology
of Hyaluronic Acid ~

Since 2001

About SciVision

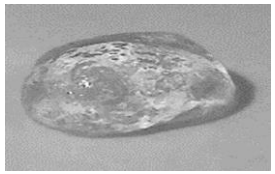
- **Listed on TSE on 12th November 2013 (Code: 1786)**
- **Oriented as Professional in pharmaceutical grade Hyaluronic Acid production**
- **Located at No.6, South Sixth Rd. & No.6, South First Rd. in Kaohsiung Export Processing Zone, Taiwan**
- **Factory covers an area of 19,781.85 ㎡ (5,984 Taiwanese ping)**
- **Factory facilities & equipment conforms to ISO 13485, cGMP, US FDA and PIC/s GMP standards**
- **Produces 12 million syringes of medical device (including dermal filler, synovial fluid supplement and adhesion barrier) annually**

Core Technology of SciVision

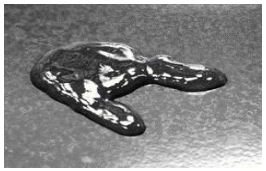


(Crosslinked Hyaluronic Acid Platform, CHAP®)

CHAP technology can be widely used on various products

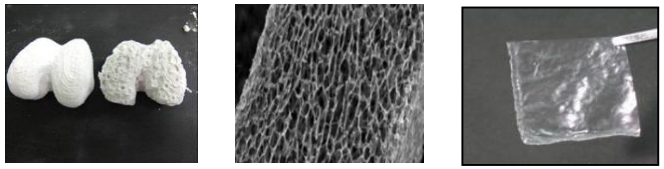


Absorbable adhesion barrier



Single injection viscosuppl-ement

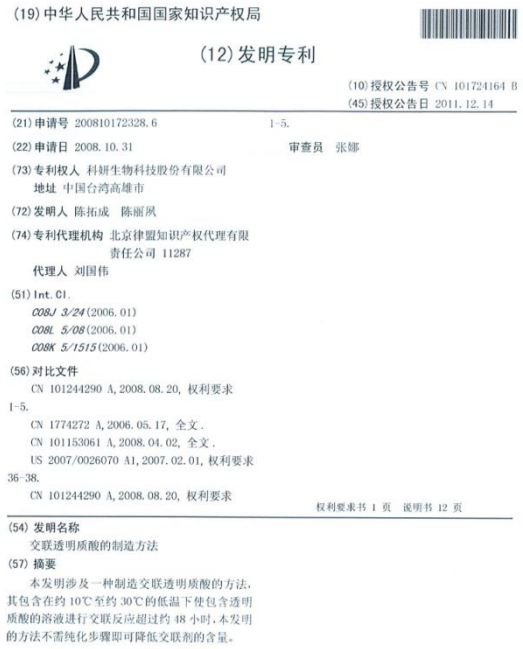
Dermal filler



Other novel applications

CHAP® Patents cover the top five markets worldwide

SciVision Biotech Inc.



(19)中华人民共和国国家知识产权局

(12)发明专利

(10)授权公告号 CN 101724164 B
(45)授权公告日 2011.12.14

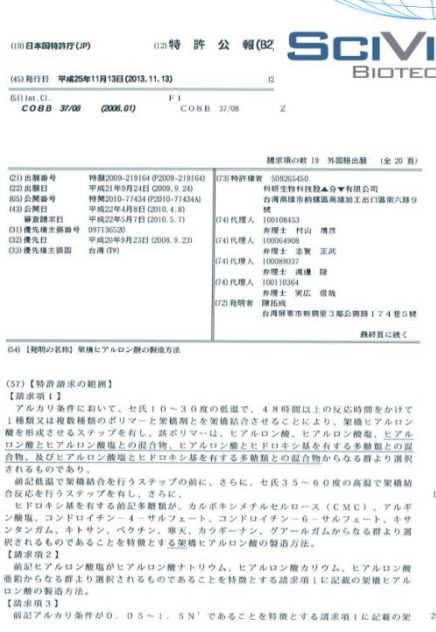
(21)申请号 200810172328.6 1-5.
(22)申请日 2008.10.31 审查员 张娜
(73)专利权人 科妍生物科技股份有限公司
地址 中国台湾高雄市
(72)发明人 陈拓成 陈丽凤
(74)专利代理机构 北京律盟知识产权代理有限责任公司 11287
代理人 刘国伟
(51)Int.Cl.
C08J 3/24(2006.01)
C08L 5/08(2006.01)
C08K 5/1515(2006.01)
(56)对比文件
CN 101244290 A,2008.08.20, 权利要求 1-5.
CN 1774272 A,2006.05.17, 全文.
CN 101153061 A,2008.04.02, 全文.
US 2007/0026070 A1,2007.02.01, 权利要求 36-38.
CN 101244290 A,2008.08.20, 权利要求
权利要求书 1 页 说明书 12 页
(54)发明名称
交联透明质酸的制造方法
(57)摘要
本发明涉及一种制造交联透明质酸的方法，其包含在约10℃至约30℃的低温下使包含透明质酸的溶液进行交联反应超过约48小时，本发明的方法不需纯化步骤即可降低交联剂的含量。

China

發明專利說明書 公告本

（本說明書格式、順序及粗體字，請勿任意更動，※記號部分請勿填寫）
※申請案號：97136520 C08J3/24 (2006.01)
※申請日期：97.09.23 ※IPC分類：C08B C08L5/08 (2006.01)
一、發明名稱：(中文/英文)
交聯透明質酸之製造方法
METHOD FOR PRODUCING CROSS-LINKED HYALURONIC ACID
二、申請人：(共1人)
姓名或名稱：(中文/英文)
科妍生物科技股份有限公司
SCIVISION BIOTECH INC.
代表人：(中文/英文)
韓開程
HAN, KAI-CHENG
住居所或營業所地址：(中文/英文)
高雄市806前鎮區高雄加工出口區南六路9號
9, SOUTH 6TH RD., K.E.P.Z., TAIWAN, R.O.C.
國籍：(中文/英文)
中華民國 R.O.C.

Taiwan



(19)日本国特許庁(JP) (12)特許公報(B2
(45)発行日 平成25年11月13日(2013.11.13)
(51)Int.Cl. C08B 37/08 (2006.01) FI C08B 37/08 Z
請求項の数 19 外国語出願 (全 20 頁)
(21)出願番号 特願2009-219164(P2009-219164)
(22)出願日 平成21年9月24日(2009.9.24)
(65)公開番号 特開2010-77434(P2010-77434A)
(43)公開日 平成22年4月8日(2010.4.8)
審査請求日 平成22年5月7日(2010.5.7)
(31)優先権主張番号 097136520
(32)優先日 平成20年9月23日(2008.9.23)
(33)優先権主張国 台湾(TW)
(73)特許権者 509265450
科妍生物科技股▲分▼有限公司
台湾高雄市前鎮區高雄加工出口區南六路9號
(74)代理人 100108453
弁理士 村山 靖彦
(74)代理人 100064908
弁理士 志賀 正武
(74)代理人 100089037
弁理士 渡邊 隆
(74)代理人 100110364
弁理士 実広 信哉
(72)発明者 陳拓成
台湾屏東市新興里３鄰公園路１７４巷５號
最終頁に続く
(54)【発明の名称】架橋ヒアルロン酸の製造方法
(57)【特許請求の範囲】
【請求項１】
アルカリ条件において、セ氏１０～３０度の低温で、４８時間以上の反応時間をかけて１種類又は複数種類のポリマーと架橋剤とを架橋結合させることにより、架橋ヒアルロン酸を形成させるステップを有し、該ポリマーは、ヒアルロン酸、ヒアルロン酸塩、ヒアルロン酸とヒアルロン酸塩との混合物、ヒアルロン酸とヒドロキシ基を有する多糖類との混合物、及びヒアルロン酸塩とヒドロキシ基を有する多糖類との混合物からなる群より選択されるものであり、
前記低温で架橋結合を行うステップの前に、さらに、セ氏３５～６０度の高温で架橋結合反応を行うステップを有し、さらに、
ヒドロキシ基を有する前記多糖類が、カルボキシメチルセルロース（ＣＭＣ）、アルギン酸塩、コンドロイチン－４－サルフェート、コンドロイチン－６－サルフェート、キサンタンガム、キトサン、ペクチン、寒天、カラギーナン、グアールガムからなる群より選択されるものであることを特徴とする架橋ヒアルロン酸の製造方法。
【請求項２】
前記ヒアルロン酸塩がヒアルロン酸ナトリウム、ヒアルロン酸カリウム、ヒアルロン酸亜鉛からなる群より選択されるものであることを特徴とする請求項１に記載の架橋ヒアルロン酸の製造方法。
【請求項３】
前記アルカリ条件が０．０５～１．５Ｎ’であることを特徴とする請求項１に記載の架

Japan

US009371402B2

(12) **United States Patent**
Chen et al.
(10) **Patent No.: US 9,371,402 B2**
(45) **Date of Patent: Jun. 21, 2016**

(54) **METHOD FOR PRODUCING CROSS-LINKED HYALURONIC ACID**
(75) Inventors: **Tor-Chern Chen**, Kaohsiung (TW); **Li-Su Chen**, Kaohsiung (TW)
(73) Assignee: **SCIVISION BIOTECH INC.**, K.E.P.Z. (TW)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 351 days.
(21) Appl. No.: **13/316,840**
(22) Filed: **Dec. 12, 2011**
(65) **Prior Publication Data**
US 2012/0095206 A1 Apr. 19, 2012
Related U.S. Application Data
(63) Continuation-in-part of application No. 12/385,502, filed on Apr. 9, 2009, now abandoned.
(51) **Int. Cl.**
C08B 37/08 (2006.01)
(52) **U.S. Cl.**
CPC ***C08B 37/0072*** (2013.01)
(58) **Field of Classification Search**
CPC C08B 37/00; C08B 15/00; A61K 8/73; A61K 31/715
See application file for complete search history.
(56) **References Cited**
U.S. PATENT DOCUMENTS

Tezel, A., & Fredrickson, G. H. (2008). The science of hyaluronic acid dermal fillers. Journal of Cosmetic and Laser Therapy, 10(1), 35-42.*
US 5,808,050, 9/1998, Marco-Guia (withdrawn).
Y. Tokita et al., Hydrolytic degradation of hyaluronic acid, Polymer Degradation and Stability, 1995, pp. 269-273, vol. 48.
Hans J.C.F. Nelis et al., A Sensitive Fluorimetric Procedure for the Determination of Aliphatic Epoxides under Physiological Conditions, Analytical Biochemistry, 1981, pp. 151-157, vol. 115.
European Search Report for 09004561.8-2115, which is a corresponding application, that cites US2002/049281, and U.S. Pat. No. 4,716,154, EP 1818344, US 2006/246137, EP 0939086, Jinghua et al., Characteristics of hyaluronic acid derivative films cross-linked by polyethylene glycol of low water content, Journal of Medical Colleges of PLA, Shanghai, CN, Feb. 1, 2008, pp. 15-19, vol. 23, No. 1, and Tomihata K. et al., Preparation of cross-linked hyaluronic acid films of low water content, Biomaterials, Feb. 1, 1997, pp. 189-195, vol. 18, No. 3.
European Office Action for 09004561.8-2115, which is a corresponding European application.
Chinese Office Action dated Jan. 30, 2011 for 200810172328.6, which is a corresponding Chinese application, that cites CN 101244290, and US 2007/0026070.
Chinese Office Action dated Jul. 1, 2011 for 200810172328.6, which is a corresponding Chinese application.
Jinghua et al., Characteristics of hyaluronic acid derivative films cross-linked by polyethylene glycol of low water content, Journal of Medical Colleges of PLA, Shanghai, CN, Feb. 1, 2008, pp. 15-19, vol. 23, No. 1.
Tomihata K. et al., Preparation of cross-linked hyaluronic acid films of low water content, Biomaterials, Feb. 1, 1997, pp. 189-195, vol. 18, No. 3.
Office Action issued on Oct. 23, 2012 of the corresponding JP patent application No. 2009-219164 cites WO 2006-051950, JP 60-233101, JP H07-102002, and JP H02-138346.
English abstract of Office Action issued on Oct. 23, 2012 of the corresponding JP patent application No. 2009-219164.

United States

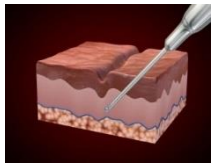
(19) Europäisches Patentamt / European Patent Office / Office européen des brevets
(11) **EP 2 236 523 B1**
(12) **EUROPEAN PATENT SPECIFICATION**
(45) Date of publication and mention of the grant of the patent: **21.02.2018 Bulletin 2018/08**
(51) Int Cl.: ***C08B 37/00*** (2006.01) ***C08B 37/08*** (2006.01) ***C08L 5/08*** (2006.01)
(21) Application number: **09004561.8**
(22) Date of filing: **30.03.2009**
(54) **Method for producing cross-linked hyaluronic acid**
Verfahren zur Herstellung vernetzter Hyaluronsäure
Procédé de production d'acide hyaluronique réticulé
(84) Designated Contracting States: **AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR**
(43) Date of publication of application: **06.10.2010 Bulletin 2010/40**
(73) Proprietor: **Scivision Biotech Inc.**
Qianzhen D Kaohsiung (TW)
(72) Inventors:
• **Chen, Tor-Chern**
Pingtung City
Pingtung Hsien (TW)
• **Chen, Li-Su**
Nanzi District (TW)
(74) Representative: **Straus, Alexander**
Patentanwälte
Becker, Kurig, Straus
Bavariastrasse 7
80336 München (DE)
(56) References cited:
EP-A1- 0 939 086 EP-A1- 1 818 344
US-A- 4 716 154 US-A1- 2002 049 281
US-A1- 2006 246 137
• **JINGHUA ET AL: "Characteristic of hyaluronic acid derivative films cross-linked by polyethylene glycol of low water content" JOURNAL OF MEDICAL COLLEGES OF PLA, SHANGHAI, CN, vol. 23, no. 1, 1 February 2008 (2008-02-01), pages 15-19, XP022535643 ISSN: 1000-1948**
• **TOMIHATA K ET AL: "Preparation of cross-linked hyaluronic acid films of low water content" BIOMATERIALS, ELSEVIER SCIENCE PUBLISHERS BV., BARKING, GB, vol. 18, no. 3, 1 February 1997 (1997-02-01), pages 189-195, XP004015286 ISSN: 0142-9612**

EU

Core Products of SciVision

Facial Aesthetics

1.4 billion of global market value In 2017



HA Dermal Filler

CAGR: 12%

Geriatrics care

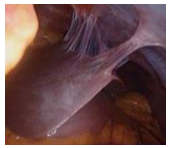
2.7 billion of global market value In 2017

Viscosupplement

CAGR: 7.5%

Surgery

16.0 billion of global market value In 2017



Absorbable Adhesion Barrier

CAGR: 8.9%

Facial Aesthetics

HYADERMIS/ FACILLE

HA Dermal Filler

Advantage

- ✓ High safety performance
- ✓ Strong structural support
- ✓ Lasting effect
- ✓ Excellent viscosity
- ✓ High proportion of active ingredient
- ✓ Superior degradation resistance

Product license TW、 CE 、CFDA

Geriatrics care

HYAJOINT

Three Injection Viscosupplement

Single Injection Viscosupplement

Advantage

- ✓ Single Injection
- ✓ High Security Performance
- ✓ Long Lasting Effect
- ✓ High Comfort
- ✓ Needless of Excessive Injection

Product license TW、 CE

JBJS America, impact factor=5.163
Top international journal in Orthopedics

COPYRIGHT © 2017 BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED

Comparison of Single Intra-Articular Injection of Novel Hyaluronan (HYA-JOINT Plus) with Synvisc-One for Knee Osteoarthritis

A Randomized, Controlled, Double-Blind Trial of Efficacy and Safety

Shu-Fen Sun, MD, Chien-Wei Hsu, MD, Huey-Shyan Lin, PhD, I-Hsiu Liou, MD, Yin-Han Chen, MD, and Chia-Ling Hung, MD

Investigation performed at the Kaohsiung Veterans General Hospital, Kaohsiung City, Taiwan

Background: Viscosupplementation has been widely used for the treatment of knee osteoarthritis. Because we found no well-controlled trial comparing single-injection regimens of hyaluronan for knee osteoarthritis, we compared the efficacy and safety of a single intra-articular injection of a novel cross-linked hyaluronan (HYA-JOINT Plus) with a single injection of Synvisc-One in patients with knee osteoarthritis.

Methods: In a prospective, randomized, controlled, double-blind trial with a 6-month follow-up, 132 patients with knee osteoarthritis (Kellgren-Lawrence grade 2 or 3) were randomized to receive 1 intra-articular injection of 3 mL of HYA-JOINT Plus (20 mg/mL) (n = 66) or 6 mL of Synvisc-One (8 mg/mL) (n = 66). The primary outcome was the change from baseline in the visual analog scale (VAS) (0 to 100 mm) pain score at 6 months. Secondary outcome measures included the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC, Likert scale), Lequesne index, timed "Up & Go" (TUG) test, single-limb stance (SLS) test, use of rescue analgesics, and patient satisfaction.

Results: A total of 121 patients were available for the intention-to-treat analysis at 6 months. Both groups had a significant improvement in the VAS, WOMAC, and Lequesne index scores at each follow-up visit ($p < 0.001$). Patients who received HYA-JOINT Plus experienced a significantly greater improvement in the VAS pain score at 1, 3, and 6 months compared with those treated with Synvisc-One (adjusted mean difference: −12.0, −8.5, and −6.6; $p = 0.001$, 0.033, and 0.045, respectively). There were no significant between-group differences in any of the secondary outcomes except the WOMAC stiffness scores at 6 months, which favored HYA-JOINT Plus treatment ($p = 0.043$). The TUG time did not change significantly in either group during the study ($p > 0.05$), but the SLS time improved significantly in both the HYA-JOINT Plus and the Synvisc-One group ($p = 0.004$ and $p = 0.022$, respectively). No significant between-group differences were observed with respect to patient satisfaction or consumption of analgesics. No serious adverse events occurred following the injections.

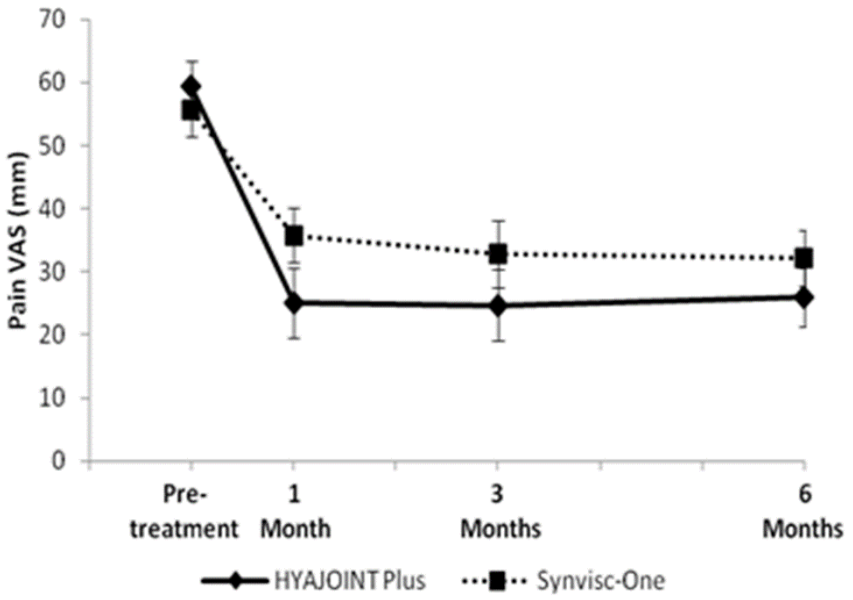
Conclusions: A single injection of either HYA-JOINT Plus or Synvisc-One is safe and effective for 6 months in patients with knee osteoarthritis. HYA-JOINT Plus is superior to Synvisc-One in terms of reducing the VAS pain score at 1, 3, and 6 months and the WOMAC stiffness score at 6 months, with similar safety.

Level of Evidence: Therapeutic Level I. See Instructions for Authors for a complete description of levels of evidence.

Peer Review: This article was reviewed by the Editor-in-Chief and one Deputy Editor, and it underwent blinded review by two or more outside experts. It was also reviewed by an expert in methodology and statistics. The Deputy Editor reviewed each revision of the article, and it underwent a final review by the Editor-in-Chief prior to publication. Final corrections and clarifications occurred during one or more exchanges between the author(s) and copyeditors.

Viscosupplementation with hyaluronan is a well-established treatment option for knee osteoarthritis. The goal of viscosupplementation is to reduce pain and improve viscoelasticity of synovial fluid[1,2]. Hyaluronan may provide biological actions, including anti-inflammatory, antinociceptive, and anabolic effects[3-6]. Moreover, it has been known to

Disclosure: The study was sponsored by SciVision Biotech Corporation, the manufacturer of HYA-JOINT Plus. One author (S.-F.S.) received funding from the SciVision Biotech Corporation. Funds were used to pay for consultancy in study planning, and realization. The funding source was not involved in patient enrollment, data collection, data analysis, or manuscript preparation. The **Disclosure of Potential Conflicts of Interest** forms are provided with the online version of the article (http://links.lww.com/JBJS/A147).



Gynecologic pelvic surgery

PROTAHERE

Absorbable Adhesion Barrier

Advantage

- ✓ High Biocompatibility
- ✓ Easy to apply
- ✓ High viscosity

Product license TW (license in 2017, product launch in 2018)

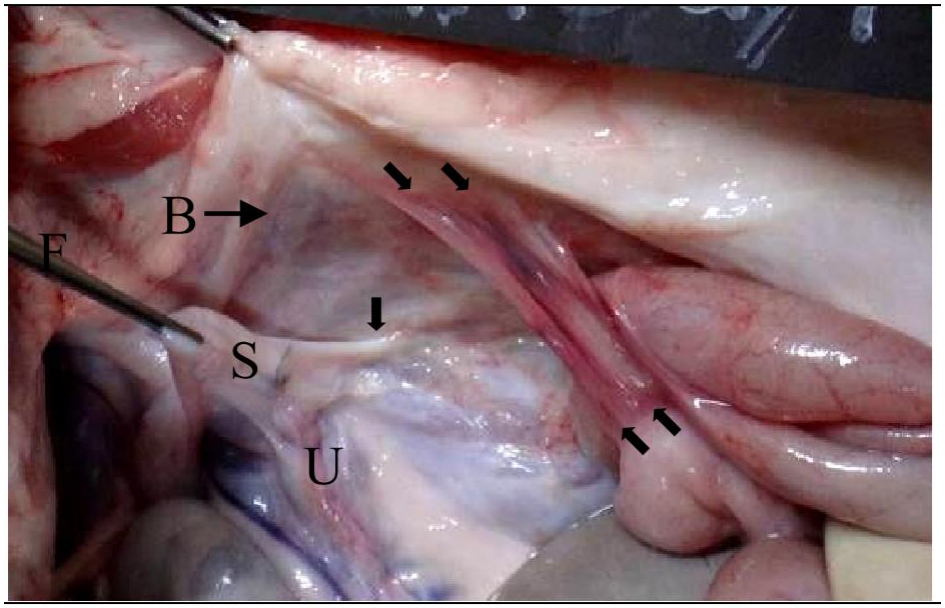
Gynecologic pelvic surgery
The trend of Adhesion Barrier

Product	P Brand	S Brand	I Brand	S Brand	H Brand	PROTAHERE
Company	G company	M company	J company	S company	F company	SCIVISION
Material	ePTFE	polylactic acid	ORC	HA-CMC	cross-linked HA	cross-linked HA
Type	Film	Film	Film	Film	gel	gel Win
Absorbability	-	☼	☼☼	☼☼☼	☼☼☼☼	☼☼☼☼ Win
Usability	☼	☼☼	☼☼	☼☼☼	☼☼☼☼	☼☼☼☼ Win
Shift resistance	☼	☼	☼	☼☼	☼☼☼	☼☼☼☼ Win
Note	1.Suture in place 2.Non-resorbable 3.Needed to be removed for the second surgery	1.Suture in place 2.Non-resorbable	Suture in place	Not easy to use in laparoscopy	1.Resorbable 2.Convenient to use 3.Mediocre sticky	1.Resorbable 2.Convenient to use 3.Excellent sticky

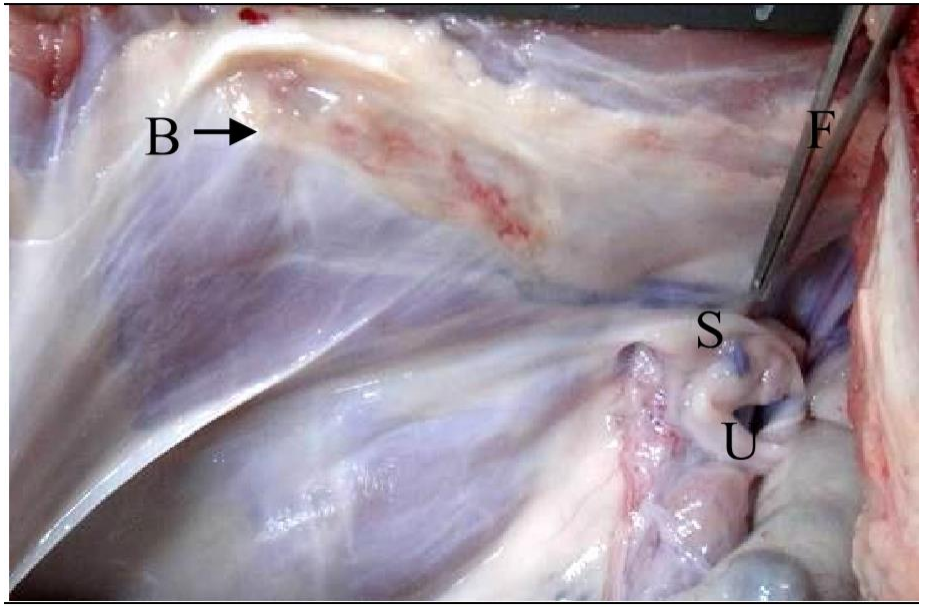
PROTAHERE has significant anti-adhesion properties

SciVision Biotech Inc.

Control group (Unused)



Use PROTAHERE



Tendon, peripheral nerve, joint surgery

SciVision Biotech Inc.

DEFEHERE

Absorbable Adhesion Barrier

Advantage

- ✓ High Biocompatibility
- ✓ Easy to apply
- ✓ High viscosity
- ✓ Long effective protection time

Product license TW (license in 2018, product will be available soon)

Tendon, peripheral nerve, joint surgery
The trend of Adhesion Barrier

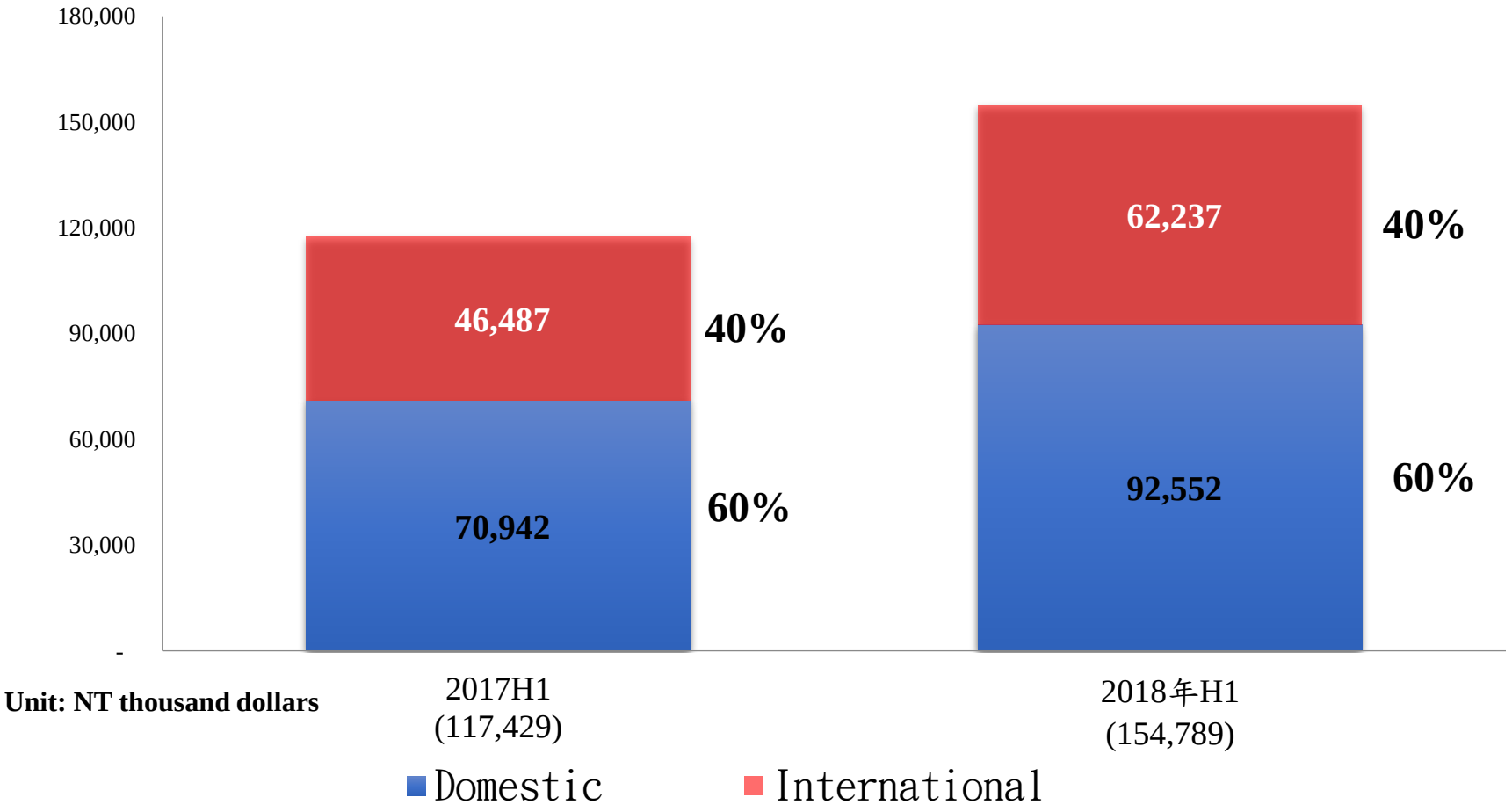
Product	F Brand	H Brand	DEFEHERE
Company	M company	A company	SCIVISION
Material	PEO and CMC	cross-linked HA	cross-linked HA
Type	gel	gel	gel
Biocompatibility	☼☼	☼☼☼☼	☼☼☼☼ Win
Anti-degradation ability	☼☼☼☼ Win	☼☼	☼☼☼
Indication	☼	☼☼☼☼	☼☼☼☼ Win

Profit & Loss-Consolidated

Unit:NT thousand dollars (except for EPS)	H1,'18 (Reviewed)		H1,'17 (Reviewed)		年成長
Revenue	154,789	100%	117,429	100%	31.8%
Cost of Goods Sold	(48,374)	-31%	(51,720)	-44%	-6.5%
Gross Profit	106,415	69%	65,709	56%	61.9%
Operating Expense	(65,829)	-43%	(60,290)	-51%	9.2%
Operating Income	40,586	26%	5,419	5%	649.0%
Non-operating Income, Net	2,872	2%	(6,617)	-6%	143.4%
Income before Tax	43,458	28%	(1,198)	-1%	3727.5%
Net Income	39,196	25%	(1,198)	-1%	3371.8%
EPS(NT$)	0.76		(0.02)		

Domestic and International Sales Ratio

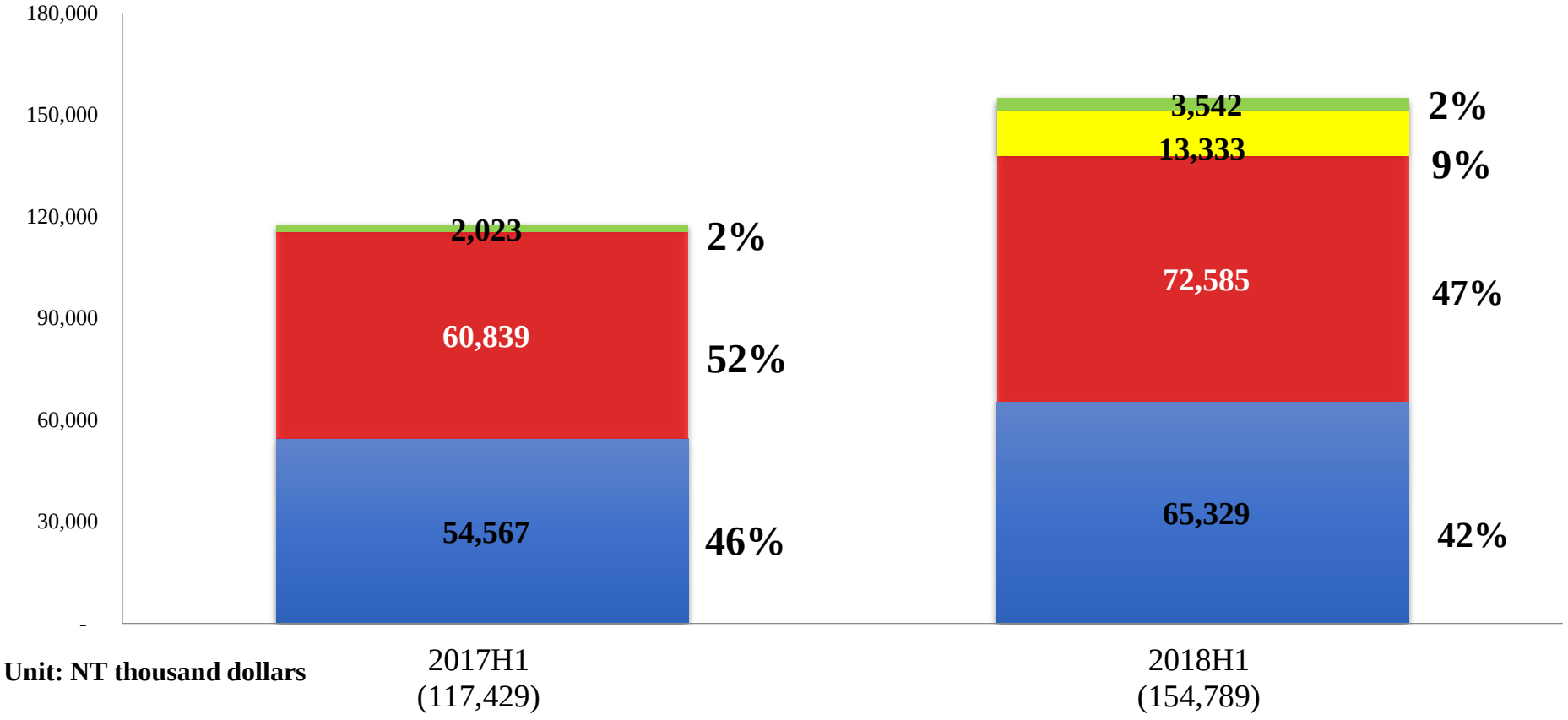
2017H1&2018H1



Unit: NT thousand dollars

Product Portfolio Sales Ratio

2017H1&2018H1



Unit: NT thousand dollars

Key customers of SciVision

Balance Sheet-Consolidated

Unit:NT thousand dollars	2018/6/30 (Reviewed)		2017/6/30 (Reviewed)	
Cash and Cash Equivalents	396,584	24%	419,827	28%
Accounts Receivable	35,163	2%	41,443	3%
Inventories	34,165	2%	39,966	3%
Financial asset measured at fair value through other comprehensive income	3,650	0%	3,801	0%
Financial assets carried at cost	-	0%	8,925	1%
Property,Plant & Equipment	1,022,699	63%	863,955	57%
Other Current/Non-Current Assets	128,662	8%	132,487	9%
Total Assets	1,620,923	100%	1,510,404	100%
Current Liabilities	227,617	14%	225,345	15%
Long-Term & Other Liabilities	451,321	28%	392,817	26%
Total Liabilities	678,938	42%	618,162	41%
Total Shareholders' Equities	941,985	58%	892,242	59%
Key Indices				
A/R Turnover (Days)	50.95		68.34	
Inventory Turnover (Days)	125.97		130.75	
Current Ratio(x)	221.09		238.15	
ROE(%)	4.22%		-0.13%	

Cash Flows-Consolidated

Unit:NT thousand dollars	H1,'18 (Reviewed)	H1,'17 (Reviewed)
From Operating Activities	74,692	(9,987)
Profit before tax	43,458	(1,198)
Depreciation & Amortisation	9,626	9,979
Net change in working capital	21,608	(18,768)
From Investing Activities	(7,746)	(66,095)
Financial asset measured at amortised cost	6,811	127,512
Capital expenditure	(14,557)	(189,481)
From Financing Activities	(470)	162,952
Short-term loans	0	40,405
Long-term loans	(470)	122,547
Net Change in Cash	66,496	85,630
Beginning Balance	330,088	334,197
Ending Balance	396,584	419,827
Free Cash Flow	60,135	(199,468)

Vision & Prospect

Vision

Science Creates Better Visions

Prospect

Leading HA brand in the world

The best in global market

Thank You