

PetVivo Holdings, Inc. (OTCQB: PETV)

U.S. EQUITY

Healthcare: Biotherapeutics.

PetVivo Holdings, Inc. (OTCQB: PETV) is an emerging biomedical device company currently focused on the manufacturing, commercialization and licensing of innovative medical devices and therapeutics for companion animals. Focus on estimated \$11B companion animal veterinary care and product sales market

- PetVivo's SPRYNG® with OsteoCushion® a cutting-edge solution for animals suffering from joint-related issues like osteoarthritis and joint instability. The technology behind SPRYNG®, with its intra-articular injectable design and extracellular matrix microparticles, seems promising for promoting joint health and reducing pain. These microparticles appear to work by integrating with the animal's subsynovial tissue, which could help restore proper joint mechanics.
- PetVivo also plans to showcase its innovative product, PrecisePRP®, a first-of-its-kind off-the-shelf platelet-rich plasma (PRP) solution designed for veterinary use. PrecisePRP is a leucoreduced, allogeneic, pooled, freeze-dried PRP that offers a species-specific source of concentrated platelets in plasma, intended for intra-articular injection in dogs and horses. Unlike other PRP kits available, PrecisePRP doesn't require blood collection or centrifugation, making it a truly ready-to-use product that is both convenient and simple. What sets PrecisePRP apart is its consistency and uniformity—each vial contains a precise dose of 4 billion platelets, with a concentration of 500,000 platelets per microliter and fewer than 1,500 white blood cells per microliter.
- PetVivo has formed a transformative strategic partnership with Digital Landia Corp., a trailblazer in Agentic AI technology. The collaboration revolves around Pet AI, Digital Landia's groundbreaking open-source platform that interprets animal behavior by analyzing vocalizations, body language, and physiological signals in real time through smartphone cameras. This technology, which boasts 97% accuracy in decoding animal communication, will integrate PetVivo's veterinary products into an innovative global pet care ecosystem.
- Distribution Agreements with MWI and Covetrus and engagements with wholesale partners, Clipper Distributing Company and Vedco, Inc., who distribute through other national distributors, such as Patterson Veterinary, Midwest Veterinary, Penn Supply.
- Companies at this stage of development are usually valued around US\$50-\$80 million. The current value at \$11.54 million, well below the conservative target cap US \$35 million market cap valuation, which represents a significant near-term upside opportunity for long strategy investors. Based on our WACC approach, we arrive at 18–24-months target price of US \$1.50 per share. The target market capitalization we expect is US \$35 million, representing a significant upside when compared to the current market capitalization of US\$11.54 million.

 PetVivo Holdings, Inc.

<https://www.petvivo.com>

Buyside Valuation

U.S. Equity Research

Analyst: Pranto Gupto, Amarnath

info@kpgcap.com

<http://www.kpgcap.com>

Price (USD)	
Current Price	\$0.50
Price Target *	\$1.50
52-week high	\$1.25
52-week low	\$0.29

Shares Outstanding (millions)	
Basic Shares	23.55
Options & Warrants	14
Fully Diluted	34.2

Capitalization (USD millions)	
Current Market Cap	11.54
Target Market Cap*	35.00

Revenue (USD millions)	
2034E	N/A
2035E	N/A
2036E	N/A
2038E	N/A
2039E	N/A

Our target price and target market cap are aimed at a 12-18-month investment period. For details, please see financial forecasts and analysis.

Osteoarthritis (OA) Opportunity

Osteoarthritis affects approximately 34 million adult dogs, and 1 million horses. Causes pain and inflammation from degenerated cartilage of stressed joints. Mobility worsens with time from ongoing loss of cartilage and the presence of inflammation in the joint. Osteoarthritis (OA) is a common and significant issue in animals, especially in dogs and horses. It's estimated that **20-25% of dogs** suffer from osteoarthritis, with the condition being particularly prevalent in older or larger breeds. In fact, osteoarthritis is often seen in approximately **80% of dogs over the age of 8**. Horses are also affected by OA, especially in performance or older horses, though exact prevalence figures can vary.

Osteoarthritis causes pain and affects the mobility of animals, leading to reduced quality of life. The condition is most seen in the joints of the hips, knees, elbows, and spine, and it can occur due to aging, injury, or congenital abnormalities. This makes OA one of the most widespread chronic conditions in veterinary medicine, with significant implications for both animal health and veterinary care.

Current solutions treat symptoms, but not the cause

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) are commonly used to relieve pain and inflammation in animals with osteoarthritis and other joint issues. However, they are associated with potential side effects, such as **liver and kidney problems**, and they **do not stop or slow joint degeneration**.

Steroid and Hyaluronic Acid injections are another treatment option for pain, inflammation, and joint lubrication. However, they are **slow-acting** and have a **short duration** of effectiveness, often requiring repeated administration.

Stem Cell and Platelet-Rich Plasma (PRP) therapies aim to address joint deterioration. These treatments are **invasive**, requiring **blood draws or painful tissue harvesting**. Additionally, they are **time-sensitive**, **time-consuming**, and often **expensive**, while their effects are typically **limited**.

In light of these limitations, alternative treatments like PetVivo's **SPRYNG® with OsteoCushion® Technology** or **PrecisePRP®** could offer more convenient and consistent options without some of the drawbacks of these traditional methods.

The Optimal OA Solution: Spryng with OsteoCushion Technology

Spryng® provides a **biocompatible, lubricious, and viscoelastic biomaterial** designed to restore joint mechanics and improve joint function. Its composition includes **components similar to those found in natural cartilage**, such as **collagen, elastin, and heparin**, which work together to support the joint.

The **Spryng® particles** are injected into the synovial space using a standard **intra-articular injection technique**, allowing for multiple joints to be treated simultaneously. Case studies have shown that **Spryng® can provide long-lasting improvements**—in some cases, lasting around **12 months or longer**—in reducing lameness and improving mobility.

One of the key benefits of Spryng® is that it **minimizes the need for NSAIDs**, avoiding the potential **liver and kidney side effects** associated with these drugs. Additionally, it presents an **effective and cost-efficient** solution for managing **osteoarthritis (OA)** in animals, offering a more sustainable treatment option compared to traditional therapies.

Spryng Competitive Advantage

Spryng reinforces synovial membrane function, without pharmaceutical, chemical or metabolic action. These spongy reinforcing particles adsorb onto the synovial membrane and are subsequently integrated with the subsynovial tissue to assist in the restoration of proper joint mechanics as the particles integrate with the synovial fluid and resemble natural cartilage in composition, structure, hydration and function.

Distribution Services Agreements:

Cencora (MWI), Covetrus, Clipper and Vedco

1. MWI (Cencora)

- **Agreement Type:** Non-exclusive, with ongoing annual renewal options until terminated by either party.

- **Product:** Spryng with OsteoCusion Technology.
 - **MWI Overview:**
 - One of the largest distributors of veterinary products globally.
 - Over 400 Territory Managers in the U.S.
 - Expanded European distribution after acquiring a veterinary market distributor in Nordic countries.
2. **Covetrus**
- **Agreement Type:** Non-exclusive, automatically renewing one-year term until terminated by either party.
 - **Product:** Spryng with OsteoCusion Technology.
 - **Covetrus Overview:**
 - One of the largest distributors of veterinary products worldwide.
 - More than 5,700 employees.
 - Serves over 100,000 customers across the globe.

Wholesale Partners:

1. **Vedco**
 - **Engagement Type:** Wholesaler relationship to purchase and resell to national distributors for sale to U.S. veterinarians.
 - **Product:** Spryng with OsteoCusion Technology.
 - **Vedco Overview:**
 - Operates 51 distributor locations in the U.S.
 - Distribution partners include MWI, Covetrus, Patterson, Midwest, Penn Supply, etc.
2. **Clipper**
 - **Agreement Type:** Non-exclusive distribution agreement, with an automatically renewed one-year term until terminated by either party.
 - **Product:** Spryng with OsteoCusion Technology.
 - **Clipper Overview:**
 - Operates through a network of at least 10 distributors across the U.S.
 - Distribution partners include Animal Health Intl, MWI, Covetrus, Patterson, Midwest, Penn Supply, etc
3. Patterson Veterinary Supply
4. Midwest Veterinary Supply
5. Penn Veterinary Supply

Changes to Valuation

Based on this approach, we arrive at a 18–24-months target price of US\$ 1.50 per share. The target market capitalization we expect is US \$35 million, represents a significant upside when compared to the current market capitalization of US\$ 11.54 million.

We applied the weighted average cost of capital method with additional risk premium as the company is still in its early stages for each scenario based on the common assumptions given below.

WACC	13%
Additional Risk Premium	5%
Discounting Factor	18%
Terminal Growth Rate	4%

Apart from these assumptions, we adjust Scenario 2 & 3 to reflect lower R&D expenses. Scenario 3 is further adjusted to reflect the revenues scenarios from commercial partnerships on account of profit sharing. We assign a probability of 80% for the company to achieve its goal and necessary approvals in all three scenarios. By assigning a probability of 20% to partnerships, we arrive at cumulative probabilities, respectively.

State-of-the-Art Production Facilities

Manufacturing Process & Facility:

1. **ISO Certified Cleanrooms:**
 - **Standards:** The product is manufactured in cleanrooms certified from **ISO 8 to ISO 5**. These are levels of cleanliness that ensure the high quality of the product by minimizing contamination during the manufacturing process.

2. **Batch Sizes:**
 - **Initial Production:** The initial batch sizes are approximately **500 syringes**.
 - **Future Plans:** Plans are in place to increase production to **5,000+ syringes per month**.
3. **Annual Production Capacity:**
 - The current production facility has an **annual capacity of around 100,000 syringes**.
 - The cleanroom manufacturing facility is designed to be easily duplicated, which could allow for rapid scaling of production if needed.
4. **Batch Scaling Progress:**
 - PetVivo is making progress in scaling up its batch production, which includes increasing automation of both the **upstream processes** and the **filling process** that was previously manual.
5. **Quality System:**
 - PetVivo continues to expand its **ISO 13485** and **cGMP (current Good Manufacturing Practices)** quality systems, which are essential for ensuring that products meet high-quality standards in manufacturing and regulatory compliance.

Comprehensive IP Portfolio

12 US Patents and 9 Foreign Patents with broad claim language - “Comprising” Transitions. They also have detailed proprietary trade secrets around protein & carbohydrate-based thermoplastics, biomaterials of many compositions and medical, drug delivery & Combination Products. In addition, medical & pharmaceutical applications and validated self-assembly production processes. The IP portfolio is extensively cited with over 200 Patent Examiners Citations, and over 300 patent applicant Citations. There are number of patent applications in progress for FY2026

Total addressable Market : Companion Animal/Veterinarian

1. **U.S. Pet Spending:**
 - Pet spending in the U.S. grew significantly, from **\$123.6 billion in 2021** to **\$138.0 billion in 2022**. This growth reflects the increasing demand for pet-related products and services, including veterinary care.
2. **Veterinary Care and Products:**
 - Veterinary care and products were a **leading growth driver**, contributing **\$11 billion in 2021** to the overall pet industry in the U.S. This suggests an expanding market for veterinary medical devices and treatments like **Spryng**.
3. **Pet Ownership:**
 - **63% of U.S. households own a pet**, with approximately **83 million dogs** and **50 million cats**. This represents a large and growing customer base for pet health products and services.
 - There are also **around 7.2 million horses** in the U.S., indicating additional potential for products tailored to horses.

Pet Owner Spending Behavior:

1. **Increased Spending on Pet Health:**
 - Pet owners’ spending on their pets has increased significantly, with the average amount spent on **dogs rising from \$1,704 in 2012 to \$10,725 in 2020**. This indicates that pet owners are willing to invest more in the care and well-being of their pets, especially in advanced medical treatments.

Pet Insurance Market:

1. Rapid Growth of Pet Insurance:

- The pet insurance market has expanded rapidly. The number of insured pets increased from **1.8 million in 2017** to **3.98 million in 2021**.
- **Pet health insurance premiums** grew by **27.7%** from 2020 to 2021, which reflects a growing recognition of the value of insuring pets for health-related expenses.

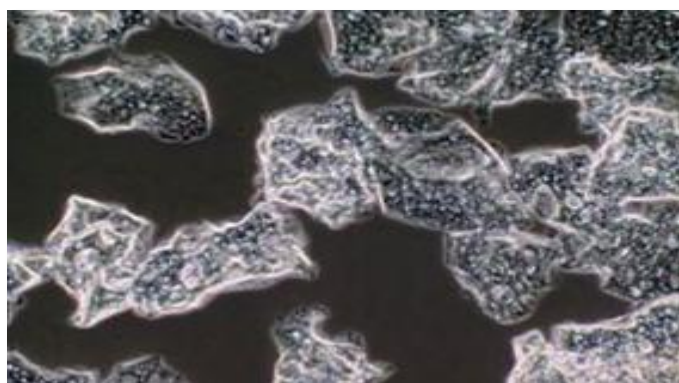
Market Opportunity for New Solutions:

- The increasing **spending on veterinary care**, coupled with the growth in pet insurance, suggests that the market is ripe for more **effective medical devices and therapeutic solutions**.
- **Spryng**, with its innovative veterinary medical technology, is positioned to tap into this growing demand for better, more accessible pet care solutions.

Company Background & Business Strategy

Spryng is a unique new medical device addressing the root cause of the affliction, not just the symptoms of osteoarthritis in pets. The purified natural components self-assemble to form an insoluble, hydrated matrix, which gives the platform uniqueness. Company gets the protein source from bovine tissues (i.e. collagen and elastin) from isolated herds. The Carbohydrate source porcine tissues (i.e. heparin) from isolated herds as well. Due to this autologous nature, it is highly unlikely to trigger an inflammatory or foreign body response to the novel therapy. The companion animal use case is supported by underlying 145 human patient FDA dermal-filler clinical trial, and company established its unique IP portfolio with twelve United States and nine foreign patents.

Figure 1: Spryng Particles in Saline



Source: Petvivo

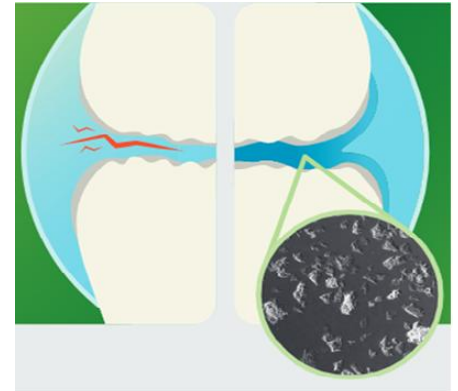
Spryng Mechanism of Action

Spryng is a treatment for osteoarthritis that helps alleviate joint pain and inflammation by addressing damage to cartilage. In osteoarthritis, the loss of cartilage leads to bone-on-bone contact, which causes increased joint pain and inflammation. Unlike

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traditional treatments that rely on pharmaceuticals or chemicals, Spryng works by reinforcing the synovial membrane, the lining of the joint that produces fluid to lubricate it. The biocompatible particles in Spryng act as a cushioning agent, adsorbing onto the synovial membrane and integrating with the subsynovial tissue to help restore proper joint function. These particles mimic the composition, structure, hydration, and function of natural cartilage, providing a natural solution to improving joint mechanics and reducing pain.

Figure 1: Spryng Mechanism of Action



Business Strategy – Partnerships

Expand Sales Force and Distribution as well as add regional sales managers. Distributor/Wholesaler networks will play key role such as Vetcove (Dec. 2021), MWI DSA (June 2022), Covetrus DSA (Dec. 2023), Vedco (Dec. 2024), Clipper (Dec. 2024)

Increase KOL adoption is also key strategy to include veterinarians in more than 800 clinics in 50 states. Which also include podium presentations at conferences.

Clinical studies will continue to play crucial role such as, Ethos (CCL Study) – 40 dogs injected; results of cohort 1 presented at VOS; results of cohort 2 presented at ACVS, Ethos (Hip OA Study) – 9 dogs injected; results presented at VOS Orthobiologic Innovations – Sherman, Canapp (Elbow Study) – 7 dogs Colorado State University – thirty-five dogs injected, Inotiv Canine Tolerance Study – 20 dogs Inotiv Feline Tolerance Study – 10 cats Additional studies for canine, feline and equine.

Increase market awareness through trade shows, digital outreach, Clinical education, white papers

As well as regulatory tailwinds (HISA, FEI...) given the fact that Industry is striving for natural products and reduction in use of drugs for these pets.

Distribution Agreements with MWI and Covetrus and engagements with wholesale partners, Clipper Distributing Company and Vedco, Inc., who distribute through other national distributors, such as Patterson Veterinary, Midwest Veterinary, Penn Supply to name a few.

Lubrication and Cushioning: The Spryng particles provide lubrication and cushioning in the joint synovial space, which can help reduce friction and protect the joint from wear and tear. This is especially beneficial in cases of joint pain or damage, such as in osteoarthritis.

Adsorption onto the Synovial Membrane: These particles attach to the synovial membrane, which is the lining of the joint. This could potentially help with the healing or restoration of joint tissue by providing a supportive structure in the affected area.

Integration with Subsynovial Tissue: The particles don't just remain on the surface—they integrate with the deeper subsynovial tissue, assisting in restoring proper joint function. This integration is important because it helps the joint work more naturally, promoting better movement and less discomfort.

Similarity to Natural Cartilage: The composition, structure, hydration, and function of these particles mimic natural cartilage, which is important because it helps maintain the normal joint mechanics and protects against further damage. This means they can play a role in restoring normal joint function and reducing pain over time.

Industry Overview

Pet Care Market

Pet spending in the United States saw a notable increase, rising from \$123.6 billion in 2021 to \$138.0 billion in 2022. One of the primary factors driving this growth is the demand for veterinary care and products, which accounted for \$11 billion in 2021. In the

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U.S., 63% of households own a pet, with 83 million dogs and 50 million cats. Additionally, there are approximately 7.2 million horses in the country.

Osteoarthritis: A common affliction of the joints, leading cause of immobility

Affects approximately 34 million adult dogs and 1 million horses. The osteoarthritis (OA) market in pets is growing as the awareness of joint health issues in animals, especially in dogs and cats, increases. Osteoarthritis is a common condition in aging pets, leading to joint pain, inflammation, and reduced mobility. This has resulted in an expanding market for treatments and therapies aimed at managing the condition.

Key segments driving the market include:

1. **Veterinary Pharmaceuticals:** This includes pain relief medications, anti-inflammatory drugs, and joint supplements that help manage the symptoms of osteoarthritis. Non-steroidal anti-inflammatory drugs (NSAIDs) and glucosamine supplements are commonly prescribed for pets suffering from OA.
2. **Joint Support Products:** Products like joint supplements, orthopedic beds, and mobility aids are in high demand to improve comfort and quality of life for pets with OA. These products help reduce pain and improve joint function.
3. **Surgical Interventions:** In severe cases, surgical options like joint replacement or arthroscopy are used to address the structural damage caused by osteoarthritis.
4. **Therapies and Rehabilitation:** Non-invasive therapies, such as physical therapy, acupuncture, laser therapy, and stem cell therapy, are becoming increasingly popular as part of a comprehensive treatment plan for OA.
5. **Pet Insurance:** With rising veterinary costs, including treatments for OA, pet insurance is gaining popularity to help offset the high expenses of long-term care.

The growing elderly pet population and increased awareness of osteoarthritis in pets are contributing to the expansion of this market. Advances in veterinary care and the availability of specialized treatments are also driving growth, making osteoarthritis management more accessible to pet owners.

Disruptive Technology / current therapies

Outcomes address affliction/not just symptoms on the other hand current treatments rely on biologic activity to treat symptoms; Spryng provides structural components from all natural materials which facilitates ease of application. In addition to Vet clinic exclusivity and enhanced margins more than 10,000 dogs, cats and horses have been successfully injected with Spryng therapy.

Pet owners' spending has increased

From \$1,704 in 2012 to \$10,725 (dogs) in 2020. Overall, the American Pet Products Association (APPA) reported that total pet industry expenditures reached \$147 billion in 2023, up from \$136.8 billion in 2022. This increase reflects a growing commitment among pet owners to invest in their pets' health and well-being, despite rising costs. This number has grown from \$1,704 in 2012 to \$10,725 (dogs) in 2020 (source company),

Increase in Elderly Pet Population

Senior Dog Ownership: Between 2012 and 2022, the percentage of dog-owning households with at least one dog aged 7 years or older rose from 41.6% to 53.5%. (Pet food processing) **Senior Cat Ownership:** During the same period, cat-owning households with at least one cat aged 7 years or older increased from 46% to 52%. (Pet food processing) **Overall Senior Pet Population**, Studies indicate that at least 28% of dogs and more than 25% of cats in the U.S. are aged 8 years or older, suggesting that over 45 million pets are considered seniors. The aging pet population is becoming a significant trend as pets are living longer due to advancements in veterinary care, improved nutrition, and increased awareness of pet health. These growing elderly pet population presents both opportunities and challenges in the pet care and pet insurance markets.

As pets age, they often develop chronic health issues such as arthritis, dental disease, vision or hearing loss, and organ problems. These conditions require more frequent veterinary visits, specialized care, and in some cases, long-term treatment, leading to increased demand for senior pet care services. The rise in elderly pets has also spurred a demand for specialized products, such as joint supplements, senior pet food, mobility aids, and medical devices designed to improve the quality of life for aging animals. In response to this trend, pet insurance companies are offering more tailored policies that specifically cater to the needs of older pets, covering conditions and treatments commonly associated with aging. Additionally, veterinary clinics are seeing more business

in geriatric care, offering services such as preventive health checks, palliative care, and end-of-life care.

The increase in elderly pets also highlights the need for pet owners to plan for the additional costs of medical care, making pet insurance an essential option for those with aging pets. The shift toward caring for older pets reflects the growing bond between owners and their pets, viewing them as family members, and contributing to the overall growth of the pet care industry.

Pet insurance market growing rapidly

Insured pets have increased from 1.8 million in 2017 to 3.98 million in 2021. Pet health insurance increased 27.7% from 2020 to 2021. The pet insurance market has been growing steadily as pet ownership continues to rise, with more households seeking coverage for their pets' healthcare needs. As veterinary care becomes increasingly expensive, many pet owners are turning to insurance to help manage costs. The market is driven by factors such as the increasing awareness of the benefits of pet insurance, the rising cost of veterinary services, and a growing number of pet owners who view pets as family members.

Pet insurance policies typically cover a range of services, including veterinary visits, surgeries, diagnostics, and sometimes even wellness care. The market is characterized by a variety of policy options, from accident-only coverage to more comprehensive plans that include both accidents and illnesses. Additionally, there is a rise in the number of companies offering customized policies and coverage for specific breeds or health conditions.

The pet insurance market is also seeing technological advancements, such as digital platforms for easy claims processing and policy management. North America, particularly the United States, leads the global market, though the sector is expanding in other regions like Europe and Asia-Pacific. Overall, the pet insurance market is expected to continue its growth due to increasing pet care costs and greater consumer education on the importance of coverage for pets' health.

Competition

1. Librela:

- **Purpose:** Librela is an injectable monoclonal antibody treatment for pain management in dogs with osteoarthritis. It works by targeting and inhibiting a protein called **NGF (Nerve Growth Factor)**, which plays a role in pain signaling in the body. **Mechanism:** By blocking NGF, Librela helps reduce pain and inflammation in the joints, offering pain relief without the need for traditional oral pain medications or NSAIDs. **Administration:** It is administered via subcutaneous injection and provides long-lasting pain relief, with a single injection lasting about a month. **Use:** Librela is particularly beneficial for dogs that may have difficulty with oral medication or experience side effects from NSAIDs.

2. Solensia:

- **Purpose:** Solensia is a monoclonal antibody treatment specifically designed for cats with osteoarthritis. Like Librela, it targets **NGF** to reduce pain and inflammation associated with OA. **Mechanism:** It works in the same way as Librela, blocking NGF to alleviate pain signals and improve joint function in cats. **Administration:** Solensia is given via a subcutaneous injection and provides a month-long duration of pain relief for cats suffering from OA. **Use:** It is ideal for cats that may have difficulty taking oral medications or are sensitive to traditional pain relief treatments.

3. Adequan (polysulfated glycosaminoglycan) is a prescription medication used to treat osteoarthritis (OA) and joint-related conditions in dogs and horses. It works by helping to rebuild damaged cartilage and reduce inflammation in the joints. While Adequan is generally considered safe and effective, like any medication, it can have potential side effects. Some common and rare side effects associated with Adequan include **Injection Site Pain**, swelling, or redness at the site of injection. Some pets may experience mild gastrointestinal symptoms such as diarrhea or vomiting. **Lethargy or Fatigue** pets appear tired or less active following an injection. Some pets may have allergic reactions to Adequan, leading to symptoms like hives, difficulty breathing, or swelling of the face or throat. Adequan can affect the blood's ability to clot, potentially leading to minor bleeding or bruising, especially if the pet has other health issues that affect blood clotting. Long-term use or improper dosing may lead to changes in liver or kidney function. It's important for pets on Adequan to be monitored for any signs of organ stress, particularly if they have preexisting kidney or liver disease.

4. Remadyl (carprofen) and Bemine (also known as *benazepril*, though it is often not marketed for pain treatment in pets and may be referenced in other contexts like kidney function or blood pressure management) are both used in veterinary medicine, but their purposes and potential side effects vary. Let's focus on **Remadyl** and its side effects since it's commonly prescribed for managing pain and inflammation, particularly in dogs.

5. Synovetin (also known as **Synovetin OA**) is an injectable medication used to treat osteoarthritis (OA) in dogs. It contains a radioactive isotope (Rhenium-186) which helps reduce inflammation and pain in affected joints by targeting and providing

localized treatment to the damaged cartilage. Synovetin is primarily used in veterinary medicine to manage symptoms of osteoarthritis, especially when traditional treatments like oral medications or NSAIDs are not effective.

- 6. Noltrex:** Noltrex is a viscosupplement that helps support joint lubrication and is often used in the treatment of OA in pets, particularly when traditional NSAIDs or pain medications have not been effective.

Products Overview

Figure 2: Product Development Plan

Product No.	Particle Based Devices	Species	Safety	Pilot	Efficacy	Commercial Launch
VD-01	Osteoarthritis	Canine (Spryng™)				
VD-02	Osteoarthritis	Equine (Spryng™)				
VD-03	Digital Cushion Lameness	Equine (Brand TDB)				
VD-04	Urinary Incontinence	Canine (Brand TDB)				
VD-05	Osteoarthritis	Feline (Spryng™)				

	Drug Delivery Devices	Species	Safety	Pilot	Efficacy	Commercial Launch
VD-07	Mucoadhesive Devices	Canine, Equine, Feline (Brand TDB)				TBD

No FDA Review or Clearance Required for Commercialization of Animal Products

Source: PetVivo

VD -01 (Canine) & VD -02 (Equine)

Spryng is a biocompatible, lubricious, and viscoelastic biomaterial designed to restore joint mechanics and improve function, making it a promising solution for managing osteoarthritis (OA) and joint dysfunction. The particles are composed of components found in natural cartilage, such as collagen, elastin, and heparin, which help to replicate the properties of healthy cartilage. This biomaterial provides lubrication and cushioning in the synovial space, enhancing the composition and function of synovial fluid. Spryng particles are injected into the synovial space using a standard intra-articular injection technique, allowing for the treatment of multiple joints simultaneously. Case studies have shown that Spryng offers long-lasting improvements in joint function, with effects lasting approximately 12 months or longer. This treatment also minimizes the need for nonsteroidal anti-inflammatory drugs (NSAIDs), thereby reducing the associated side effects, such as gastrointestinal issues, kidney problems, and cardiovascular risks. As an effective and economical solution for managing OA, Spryng presents a promising alternative to more invasive treatments and frequent medication use, providing long-term joint relief and improved quality of life for patients.

Key facts on Spryng:

- **Veterinary Device:** Designed for the management of lameness and joint-related afflictions, including osteoarthritis.
- **Joint Mechanics Restoration:** Promotes the restoration of joint mechanics to improve joint function and reduce pain.
- **Cartilage-Like Components:** Composed of similar components and structures as natural cartilage to provide additional support and protection.
- **Enhanced Joint Support:** Offers lubrication, cushioning, and functionality to protect joints from pain and dysfunction.
- **Distribution Network:** Partnerships with MWI and Covetrus for broader distribution. Engaged with wholesale partners such as Clipper Distributing Company and Vedco, Inc. Distributed through national veterinary distributors like Patterson Veterinary, Midwest Veterinary, and Penn Supply.
- **Strong Intellectual Property (IP):** Twelve U.S. issued patents. Nine foreign-issued patents. **No FDA Premarket Approval Required:** Veterinary medical devices do not require FDA premarket approval or clearance, streamlining

access for veterinary use.

New Spryng Clinical Trials

Canine Study at Colorado State University

Principal investigators: Felix Duerr, DVM, MS, Dr. med. vet., CCRT, DACVS-SA, DECVS, DACVSSMR

Pilot study design: Pilot study evaluating intra-articular injection of a hydrophilic extracellular matrix biomaterial on naturally occurring elbow osteoarthritis-associated pain in dogs.

Data acquisition completed: Q1 2025

Canine Study

Principal investigators:

Jamie Gaynor DVM, MS, DACVA, DAAPM

Supported by Ethos

Study design: Field Study with ~40 canines., Double blinded, placebo-controlled, evaluating efficacy of intra-articular injection of Spryng™ to manage unilateral or bilateral coxofemoral joint osteoarthritis.

Data acquisition completion: Q3 2026

Canine Study

Principal investigators:

Sherman Canapp DVM, MS, CCRT, DACVS-SA, DACVSMR

Debra Canapp, DVM, CCRT, CVA, DACVSMR

Study design: Field Study with ~7 canines. Evaluating efficacy of intra-articular injection of Spryng™ to manage elbow joint osteoarthritis.

Data acquisition completion: Q2 2026

Partnership Benefits:

- The key aspects of the collaborative research are to develop clinical-scale manufacturing of CTH-004 and conduct a Phase I clinical trial. This program will be led at Peter Mac by the Centre of Excellence in Cellular Immunotherapy, with manufacturing being conducted at Peter Mac's manufacturing partners Cell Therapies Pty Ltd.
- The clinical trial will initially enroll 6-12 patients with ovarian cancer who have failed prior treatment with chemotherapy. The primary goal of the clinical trial is to investigate the safety of CTH-004 in this patient population.
- Cartherics and Peter Mac recently announced a collaboration for another Cartherics autologous CAR-T product, CTH-001. Based on pre-clinical data, the collaborators have agreed that Peter Mac will focus its efforts on CTH-004. Cartherics and Peter Mac recently announced a collaboration for another Cartherics autologous CAR-T product, CTH-001. Based on pre-clinical data, the collaborators have agreed that Peter Mac will focus its efforts on CTH-004.

Key Executive

Mr. John Lai, CEO, President & Director

Mr. Lai has been a director and senior executive officer since March 2014, serving in various capacities that include Principal Financial Officer, President and CEO; and serving as our Chief Executive Officer from March 2014 to May 2017 and June 2019 to present. From March 2012 to April 2016, Mr. Lai also was Chief Executive Officer and a director of Blue Earth Resources, Inc., a small public company which acquired and managed working interests in producing oil and gas leases in Louisiana. Mr. Lai has over thirty years of senior executive and operational management and financial experience while holding key executive positions with several public companies in various industries.

In 1992 Mr. Lai founded and until December 2012 was the principal owner and President of Genesis Capital Group, Inc., which provided significant consulting services to many public and private companies in the powersports, technology and other industries, while advising its clients in corporate development, mergers and acquisitions, and private and public capital-raising through equity offerings. Mr. Lai's role as a co-founder of the company and his many years of experience as a chief executive officer of many public or private companies are material factors regarding his qualifications to serve on our Board of Directors.

Mr. Garry Lowenthal, Chief Financial Officer

Mr. Lowenthal has served as PetVivo Chief Financial Officer since March 2024. He has over 25 years of experience in senior operations and key finance management positions, both with private and public companies. He has developed a substantial background with equity capital raising transactions while managing both private placements and public offerings for various corporations. Mr. Lowenthal has vast financial and corporate management experience, including performing the functions as the Managing Partner of Security First International, Inc., a CFO advisory and management consulting firm, and taking on the responsibilities of a director, Executive Vice President and Chief Financial Officer of Fision Corporation (OTCQB: FSSN). Furthermore, Mr. Lowenthal has served on the national board of Financial Executives International (FEI), a premier professional association for CFOs and other senior financial executives. He has also served as President of the Twin Cities Chapter of FEI and, in the past, as chairman of FEI's national technology committee. Mr. Lowenthal has been on the Alumni Advisory Board of the Carlson School of Management at the University of Minnesota where he graduated with a master's degree in taxation and finance and a Bachelor of Science in Business degree in Accounting and an associate's in liberal arts degree from the University of Minnesota. He has also served as a District Chairman for the Boy Scouts of America and serves on the President's Cabinet for the local Council. Mr. Lowenthal is also a past President and Director for Kiwanis International in his local community club. As an operational CFO, along with his financial reporting and regulatory expertise, Mr. Lowenthal further understands the world of corporate governance, through his experiences as a fiduciary director. Finally, Mr. Lowenthal's experience working for two of the largest CPA/Consulting firms, PricewaterhouseCoopers (PwC) and Deloitte, with various client engagements in diverse industries, allows him to bring a unique perspective as an advisor to Boards of Directors of public companies.

Mr. John Dolan, Chief Business Development Officer & General Counsel

Mr. Dolan has been working with the Company as a director and/or an officer since March 2014. He has served as our Chief Financial Officer from March 2014 to November 2017, General Counsel since October 2019 and Chief Business Development Officer since August 2021. Mr. Dolan also has served as a director for a number of early stage companies, such as TERRACOH, Inc. and Traust Structured, LLC. Mr. Dolan was also a shareholder in the intellectual property group of the Minneapolis law firm of Fredrikson & Byron, where he specialized in securing and protecting domestic and foreign patent and other IP rights, as well as providing counsel to various clients involving mergers and acquisitions, private equity and other related corporate matters.

During the past five years, Mr. Dolan has also provided consulting services to several early stage companies on all aspects of IP asset protection as well as new technology and corporate development. His extensive career in intellectual property development and corporate counsel includes serving as a patent examiner with the U.S. Patent and Trademark Office (USPTO).

Mr. Josh Wilhelm, Vice President of R&D and Clinical Trials

Mr. Wilhelm was the Director of Islet Manufacturing and R&D at the Schulze Diabetes Institute ("SDI"), coordinating the islet isolation and research activities of the "Isolation Core". As the Director of Manufacturing at SDI, Mr. Wilhelm supervised all cGMP manufacturing, process engineering, and quality systems. He further assumed the role at SDI of lead supervisor for human clinical islet manufacturing, managed both clinical and pre-clinical activities of the team and pursued research related to understanding and improving islet isolation yields and islet graft function. Mr. Wilhelm obtained his M.S. in Biomedical Engineering from the University of Minnesota in 2004 and entered industry to explore the real-world application of biomaterials and cell, tissue, and gene therapies for Medtronic, Inc and several local medical device and biotechnology start-ups.

Ms. April Boyce, Vice President of Sales & Marketing

Ms. Boyce has over 25 years of leadership experience in consumer-packaged goods (CPG), international marketing, sales, strategic partnerships, and licensing. Before transitioning to the mid-market and start-up sectors, she held significant positions at Procter & Gamble (P&G) and Clorox. In the mid-market, Ms. Boyce led global marketing for the global housewares company Interdesign, Inc., where she served as Vice President of Global Marketing and Branding. Most recently, she served as Chief Commercial Officer for the animal health pet-tech company, Link. Ms. Boyce holds a BS in Advertising from the University of Florida.

Mr. Bryan Monninger , Vice President of Distributor Relations and Corporate accounts

Mr. Monninger has over 20+ years within the animal industry, focused in the areas of Sales and Marketing with growing levels of responsibility. Experiences include Hill's Pet Nutrition Science Diet and Prescription Diet brands, Novus International for large animal feed additives, and Lintbells/YuMOVE in the companion animal joint supplement category. This range of roles has allowed for managing large existing businesses, bringing significant scientific innovation to the profession, as well as building a veterinary business from zero. Bryan has successfully built and developed both veterinary sales and marketing teams delivering market share, revenue, and profit growth to multiple businesses. Bryan has a strong passion for the veterinary profession and the animal industry in its special mission to further the human/animal bond.

Dr. Tom Yarbrough, DVM ,Senior Research Veterinarian

Dr. Yarbrough is a board-certified Equine surgeon with 30 years of experience working on high-level performance horses within all disciplines. He began his career developing a referral base while working in research under the esteemed Dr. Hari Reddi at the Center for Tissue Regeneration and repair at the UC Medical center. His research with Hari centered around an understanding of the changing genetic expression in chondrocytes as they reformed their new nanostructure when suspended in materials for later use in joint resurfacing. Throughout his career he has stayed peripherally involved in research from the bench-top to the clinic. This research has involved projects from the use and development of robotics in surgical applications and advanced imaging to testing and optimization of novel medications and devices for the management of osteoarthritis. Although varied in scope his primary research interests and passion have always involved the arena of management of osteoarthritis. Colleagues that know him know he is an open skeptic very slow to follow the new trends that frequent the veterinary space. He comes on board with PetVivo with excitement to take his knowledge of joint physiology and biology and put it to use as the Company continues to understand the mechanisms of action of Spryng in patients with joint pain.

Dr Kirsty Husby DVM, MS, DACVS(LA) – Senior Technical Services Veterinarian

Dr. Husby received her BS in Animal Science and Doctor of Veterinary Medicine degrees from Iowa State University. She completed an internship and Clinical Fellowship (equine surgery) at the University of Missouri, followed by a large animal surgical residency and Master of Veterinary Science degree at Oregon State University. She achieved Diplomate status, becoming board certified in large animal surgery (DACVS) in 2019. She served as Clinical Instructor and as a large animal emergency clinician at the Oregon State University School of Veterinary Medicine for several years, followed by time as an in-house equine surgeon with a private equine clinic. Dr. Kirsty is currently a locum surgeon in Corvallis, Oregon, following her time as a small animal veterinarian and Medical Director at Cascade Animal Hospital.

Mike Eldred -Commercial and Operations Advisor

Eldred previously served as President of North American Operations at Dechra. He joined Dechra in 2004 and was responsible for Dechra Veterinary Products' North American business. He was Dechra's first employee in the U.S., where he built the North American subsidiary to more than 250 people and sales in excess of \$450M.

He was involved in more than 15 commercial agreements and acquisitions for Dechra, including Pharmaderm, DermaPet, Phycos Animal Health and Putney.

Prior to Dechra, he served as Director of Business Development and Corporate Business Unit at Virbac Corporation, an animal health pharmaceutical company. At Virbac, he directed and coordinated all acquisition, divestiture, licensing agreements, and business alliances strategic to the company. He was involved with such acquisitions as King Pharmaceutical's animal health products and Delmarva Laboratories.

He previously served as Virbac's Director of Supply Chain and Customer Service, where he reduced order turnaround time from five days to one day as well as improved customer fill rate from 70% to 98%.

Earlier, he served as director of Asia Pacific Poultry & North America Planning and Distribution at Fort Dodge Animal Health, a leading global manufacturer of animal health products for the livestock, companion animal, equine, swine, and poultry industries. He also previously held senior positions at Garmin International and Sanofi Animal Health.

Eldred holds a BA in business from the University of Northern Iowa, and an MBA from University of Missouri-Kansas City.

Investment Summary

Spryng™ VD-01, developed by PetVivo, Inc., is a cutting-edge veterinary device designed to address joint-related issues such as osteoarthritis in animals. Utilizing OsteoCushion™ Technology, Spryng mimics the composition and structure of natural cartilage, offering a lubricious and cushioning effect that enhances joint mechanics and improves overall function. This innovative biomaterial is composed of purified proteins like collagen and elastin, along with heparin, which together create a hydrated substance that closely resembles natural cartilage in both composition and function. Unlike traditional treatments that often rely heavily on NSAIDs, Spryng minimizes the need for these medications, helping to avoid the side effects associated with long-term use, such as gastrointestinal or kidney issues. The product is administered via standard intra-articular injections, allowing for the treatment of multiple joints simultaneously, with long-lasting improvements in lameness observed for up to 12 months or more. Additionally, Spryng is backed by a strong intellectual property portfolio, with multiple U.S. and foreign patents protecting its innovative technology. As a veterinary medical device, Spryng VD-01 does not require FDA premarket approval or clearance, ensuring a more streamlined access for veterinary professionals to provide effective joint care. This combination of safety, efficacy, and ease of use makes Spryng VD-01 a competitive alternative to traditional joint treatments in veterinary medicine, offering a promising solution for managing osteoarthritis and improving the quality of life for animals. Companies at this stage of development are usually valued around US\$50-\$80 million. The current value at \$11.54 million, well below the conservative target cap US \$35 million market cap valuation, which represents a significant near-term upside opportunity for long strategy investors. Based on our WACC approach, we arrive at a 18–24-months target price of US \$1.50 per share. The target market capitalization we expect is US \$35 million, representing a significant upside when compared to the current market capitalization of US\$11.54 million.

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