



August 19, 2021

PETVIVO HOLDINGS, INC.

(NASDAQ – PETV)

Industry: Medical Technology

Price Target: \$11.75

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Emerging Animal Health Firm Could Generate Biggest Share Price Gains

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COMPANY SNAPSHOT

PetVivo Holdings Inc. is an emerging biomedical device company currently focused on the manufacturing, commercialization and licensing of innovative medical devices and therapeutics for companion animals. PetVivo has a pipeline of seventeen products for the treatment of animals and people. A portfolio of 21 patents protects the Company's biomaterials, products, production processes and methods of use. The Company's lead product Kush, a veterinarian-administered, intra-articular injection for the treatment of osteoarthritis in dogs and horses, is scheduled for expanded commercial sale later this year.

KEY STATISTICS

| | |
|-------------------------|-------------------|
| Price as of 8/18/21 | \$3.11 |
| 52 Week High – Low | \$17.00 - \$1.408 |
| Est. Shares Outstanding | 7.85M |
| Market Capitalization | \$21.9M |
| Average Volume | 31,154 |
| Exchange | NASDAQ |

COMPANY INFORMATION

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INVESTMENT HIGHLIGHTS

PetVivo Holdings is well-positioned to emerge as the standard of care for the treatment of osteoarthritis in dogs and horses and other companion animals. This unmet need represents an estimated \$4.4B combined annual market.

PETV's flagship platform has a long history of success, addresses the underlying cause of OA, and has a strong safety profile. Given its efficacy, affordability, and the emergence of new revenue streams for vets, PETV offers a compelling therapy.

The pet health market is enjoying enviable growth as pet owners are spending large sums for pet medical care, serving as a major driver for PETV. Plus, the recent broad adoption of pet insurance has also emerged as a key catalyst.

Following a major funding and up-list to NASDAQ, PETV is set to commence a full-scale sales and marketing effort to accelerate sales growth. Management has already attracted key KOLs and influencers, aided by therapeutic success with over 100 dogs and horses.

Our model suggests PETV could be the fastest growing animal health stock. We project revenue will grow from \$252K in FY22 to \$11.5M in fiscal FY24.

Trading at a discount to the peer group's average price/sales multiple, our 12-month \$11.75 price target is a 278% jump from current levels. Given the expected growth rate, PETV could eventually trade at a premium to the group.

COMPANY OVERVIEW

The View from 30,000 Feet

In our view, Minnesota-based **PetVivo Holdings, Inc. (NASDAQ – PETV)** not only offers the greatest upside in the animal health segment, but PETV may also offer investors the industry’s greatest risk/reward opportunity. PETV is a biomedical device company primarily engaged in the business of commercializing and licensing products in the veterinary market to treat companion animals. Interestingly, most of the technology was developed for human biomedical applications, and management’s strategy is to leverage the investments already expended in their development to commercialize treatments for pets in a capital and time-efficient manner. To date, PETV’s platform boasts \$15M invested in R&D including \$7M from NIH. Moreover, PetVivo has a 17 product-deep human and pet therapy portfolio and a total of 21 patents in the US and abroad—a huge advantage.

Already used in over 100 dogs and horses with great success, we believe that PETV is poised to emerge as the new standard of care for the treatment of osteoarthritis (OA) in canines and equines with Kush™, its proprietary and proven therapy. OA is a chronic, progressive condition with degenerating cartilage that creates joint stiffness from mechanical stress, resulting in pain and inflammation. Last week, the Company closed a public offering raising gross proceeds of \$11.25M, in conjunction with an up-listing of its shares to NASDAQ. With the funds in its coffers available to fund its ambitious sales and marketing strategy, PETV is set to generate meaningful revenue beginning in fiscal 2023 (April 2022).



Industry Snapshot

It should be noted that there is no cure for lameness caused by OA and current therapies treat the symptoms rather than the cause. Moreover, these therapies typically do not carry a favorable risk profile. Conversely, the PETV approach directly improves activity, and is characterized by a strong safety profile. This profile is enhanced by its basic construction. The core product comprises the same components & structure as natural cartilage to provide additional support and functionality to protect the joint from pain

According to the American Pet Products Association (“APPA”) 2019-2020 National Pet Owners Survey, in 2020, U.S. pet spending was \$103.6B, with veterinary care and products accounting for \$31.4B of these sales. These figures are clearly driven by the love affair we have with our pets, especially dogs and cats. After all, we increasingly treat them as family members rather than just domesticated animals and we actively endeavor to keep them healthy and extend their lives as much as we can.

Given the efficacy of its treatment, affordable cost, once per year treatment, and the emergence of new, profitable revenue streams for veterinarians, PetVivo estimates that the size of the canine and equine OA treatment markets in the U.S. and EU alone are \$3.2B annually, jumping to \$4.4B when including other companion animals such as felines.

Thus, PetVivo both fulfills a significant unmet need and ensures its own success by aiding the veterinary channel actively seeking additional revenue streams. Moreover, the substantial increases in pet health care spending to extend quality of life for pets has been aided in part by the proliferation of pet insurance, which further bolsters adoption of the Company's flagship product.

Separately, PetVivo has struck a license agreement for its patented muco-adhesion technology for use in the rapidly expanding CBD market. It is important to note that the PetVivo technology may significantly improve the bioavailability of CBD. As a result, end-products require much less CBD per efficacious dose giving the Company its strategic partner, **Emerald Organic Products, Inc. (OTC – EMOR)**, a competitive advantage. Given the licensing arrangement and Emerald's target market, PetVivo could generate meaningful licensing revenue which would flow directly to the operating income line.

Milestones and Forecasts

PETV is currently focused on building its sales and marketing foundation by expanding the sales force, increasing KOL adoption, increasing market awareness, and attracting distributor to drive sales. To that end, management plans to initially launch in key regional markets such as MN, CO and TX, followed by establishing alliances with 3-4 of the top national distributors in the space. Once these steps commence and are concluded, PETV plans to develop and launch a full national roll-out to deliver products to veterinarians during the early the first quarter of fiscal 2023.

Against this backdrop, we project nominal revenue for FY22 of \$252,000, with net loss of (\$4.6M), or a loss per share of (\$0.58). As this period reflects the formative sales and marketing period for the Company, investors should not view FY22's performance as a benchmark for future growth and results. Our model assumes meaningful revenue generation will occur in FY23, with revenue of \$3M and a loss per share of (\$1.05), reflecting a big expense in sales and marketing. During this period, we believe that reorder rates by customers (veterinarians) will be a solid harbinger of outsized growth rates. Thus, we estimate revenue of \$11.5M for FY24, with the year potentially ending at an annual revenue run-rate of \$20M, and gross margin of 70% or greater.

It should be noted that considerable revenue upside exists as our model does not take into account any potential revenue from the EMOR licensing relationship in the CBD space, sales of product for other companion animals such as felines, or any license or product sales to the human market---all of which could be viewed as hidden, potentially monetizable assets.

Valuation

Based on our due diligence, the Company's Animal Health peer group consists of **Zoetis (NYSE – ZTS)**, **IDEXX Labs (NASDAQ – IDXX)**, **Elanco (NYSE – ELAN)** and **Kindred Biosciences (NASDAQ – KIN)** which is being acquired by ELAN. At current levels, the group trades at an average price/sales multiple of 10.4x next year's sales. Perhaps not coincidentally, KIN is being acquired at a similar price/sales valuation. By utilizing the same methodology, we arrive at a 12-month price target of \$11.75, since the valuation a year from now would be based on FY24 projected sales of \$11.5M.

Given the expected hyper-growth rate of adoption and sales, it is possible that if PETV matches our forecasts, it trades at a premium multiple rather than one in line with the group.

INDUSTRY OVERVIEW

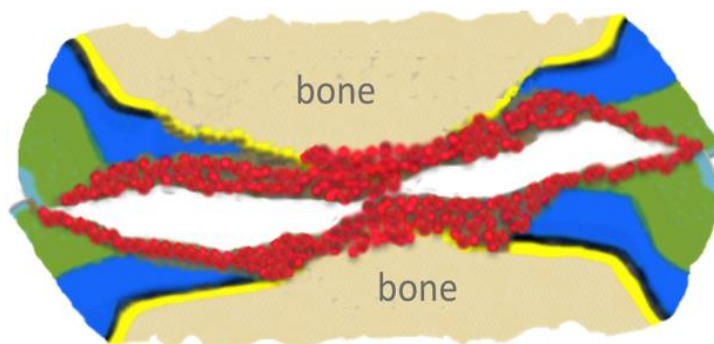
According to the APPA, U.S. pet ownership reached record levels in 2019. Specifically, 68% of all U.S. households (approximately 84.9M) owned a pet in 2019. The APPA also reported that there were 63.4M dogs, 42.7M cats and 7.2M horses held by U.S. households in 2019. As a result, U.S. pet spending was \$103.6B, with veterinary care and products accounting for \$31.4B of these sales. The APPA projects that the global veterinary medicine market is expected to grow from \$22.9B in 2019 to \$29.7B by 2027. Pet spending is primed to continue to grow driven by demand for veterinarian care and pet therapeutics which has been bolstered by pet insurance, and major rise in pet ownership, due in part to the COVID-19 pandemic.

As a result, pets are living longer, with the average lifespan for dogs increasing by half a year to 11 years between 2002 and 2012 according to a study by Banfield Pet Hospital. With pets living longer, consumers are spending more disposable income to give their “family member” a healthier, more comfortable life.

Most veterinary expenditures are paid out of pocket. Even in times of recession, pet owners are less sensitive to the overall price of pet care than to other aspects of their lifestyle. As new innovations emerge, pet owners now have a greater ability to extend the life of their pet by treating chronic diseases and ailments associated with old age. Recent statistics affirm these factors. Dog owners’ average spending levels before they would refuse or stop treatment on their pet has increased exponentially from \$1,704 in 2012 to \$10,725 in 2020. With the number of insured pets rising from 1.8M in 2016 to 3.45M in 2020, pet health insurance increasing at an average annual growth rate of 23.4% over the past five years. Clearly, this segment has emerged as an underlying industry driver.

The OA Treatment Market

A physical examination will usually demonstrate degenerating cartilage creating joint stiffness from mechanical stress resulting in inflammation and pain. Affected dogs may also show signs of irritability and reclusiveness which may accelerate a pet owner’s desire for swift treatment. In our view, PETV is the only firm in the space that will offer a direct OA treatment that truly alleviates the bone-on-bone inflammation and pain associated with OA in canines and equines. Existing therapies treat the symptoms and not the root cause. Thus, the Company’s core technology addresses a critical unmet medical need.



It is estimated that 20 million dogs in the U.S. and EU are diagnosed with osteoarthritis each year, along with 1 million horses diagnosed with “lameness.” According to PetMeds.com, osteoarthritis, also known as degenerative joint disease (DJD), is defined as the progressive and permanent long-term deterioration of the

cartilage surrounding the joints that deals with range of motion. Arthritis is the medical term for inflammation of the joints, while osteoarthritis is the term referring to a form of chronic joint inflammation caused by deterioration of joint cartilage. Older dogs are at the highest risk.

Despite the market size, veterinary clinics and hospitals have very few treatments and/or drugs for use in treating osteoarthritis. As there is no cure for osteoarthritis, the various treatment methods are focused on managing the related symptoms of pain and inflammation. Veterinarians recommend treatments depending on the severity of the disease, including a combination of rest, weight loss, physical rehabilitation, and a regimen of pain and NSAIDs. Non-steroidal anti-inflammatory drugs (NSAIDs and hyaluronic ("HA") injections in the joints) are used to alleviate the pain and inflammation caused by osteoarthritis.

NSAID's are administered once or twice per day in a pill form. Many NSAID's, including *Rimadyl* and Elanco's *Galliprant*, present the potential for gastrointestinal, kidney and liver side effects in the animal and do not treat the underlying condition. Use of NSAID's in dogs may have serious side effects in dogs that limit their long-term use and may require ongoing monitoring by veterinarians. Furthermore, NSAID's do not halt or slow joint degeneration. In addition, the owner may need to pay for toxicity monitoring. The estimated annual cost of treatment with NSAIDs can be from \$350 to \$700 (exclusive of toxicity monitoring which may be implemented).

Another palliative treatment for osteoarthritis is the injection of HA into the joint, which avoids risks of the side effects associated with NSAIDs. However, the HA injections are often slow-acting and/or short lasting. The duration of the treatment may be limited to thirty days or less. Generally, an animal will receive HA injections once a month at the vet, with an estimated cost of \$150 to \$250 per HA injection. On an annual basis, the cost is \$1,800 to \$3,000. Equine OA diagnosis and treatment are also very expensive as it typically costs \$3,000.

Joint replacement is a more extreme treatment and is limited to larger or specialty surgical veterinary practices. While both administration of PETV's therapy and HA injections may involve sedation of the animal, joint replacement involves invasive surgery and rehabilitation. As such there are risks of surgical complications and higher cost, which can be between \$2,000 and \$4,000.

There are other treatments which may have a more regenerative effect, including stem cell and platelet rich plasma therapy. These treatments require painful tissue harvesting and are time-sensitive, time-consuming and expensive. Furthermore, the long-term effects of these treatments are not well known at this time.

It should be noted that one of the Company's most direct competitors in this category is the Elanco Animal Health unit, Aratana Therapeutics, which was awarded FDA approval for its canine OA pain and inflammation treatment, *Galliprant*. According to their website, *Galliprant* is a novel, first in-class type of NSAID that has a unique mechanism of action and appears to still have mild gastrointestinal side effects but have a better safety profile and perhaps greater (albeit temporary) efficacy than other available NSAIDs on the market today. *Galliprant* is a once daily anti-inflammatory sold directly by veterinarians. Elanco sees huge opportunities in this multi-billion therapeutic opportunity in the U.S. and EU and management estimates that the number of pets diagnosed with arthritis has significantly increased over the past five years, including: 13% of all geriatric dogs (22% of geriatric large and giant breed dogs). Plus, as many as 20% dogs with arthritis remain undiagnosed.

THE PETVIVO APPROACH

As evidenced by the Company’s flagship product, PetVivo's strategy is to in-license proprietary products from human medical device companies specifically for use in pets. PetVivo is poised to leverage the investments in the human biomaterials and medical device industries to commercialize therapeutics to pets in a capital and time efficient way. A key component of this strategy is the accelerated timeline to revenues for veterinary medical devices, which enter the market much earlier than the more stringently regulated pharmaceuticals.

In addition, PetVivo solves the vet’s dilemma.

The veterinary business is ever evolving and many veterinarians are struggling in consequence. Historically, drug sales represent up to 30% of total revenues at a typical veterinary practice. Revenues and margins at veterinary practices are being eroded because online, big box and traditional pharmacies recently started filling veterinary prescriptions. Plus, OTC products carry lower margins and availability is now ubiquitous. As a result, beyond traditional examinations, vaccinations, and surgery, vets are actively seeking new revenue streams, along with a differentiating, profitable service to offer its patients.

Kush vs Other Methods

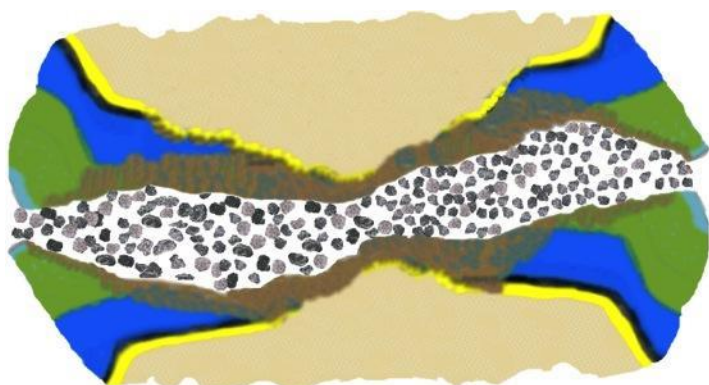
| Treatment | Kush® Canine | NSAIDs | Polysulfated Glycosaminoglycan | Conversion Electron Therapy | Hyaluronic Acid Injections | Polyacrylamide Injections | Joint Replacement |
|-------------------|--|--|--|--|--|---|--|
| Pro | Protects Joint, Increases Activity, Reduces Pain, Excellent Safety Profile | Temporary Pain Relief | Reduces inflammation; Pain Relief | Reduces synovitis and chronic pain | Temporary Pain Relief | Increases Lubricity in the Joint | Total Joint Replaced |
| Con | Minimally invasive | Potential for gastric ulcers and kidney problems; does not treat condition | Minimally invasive; effective for 3-4 days | Minimally invasive; radioactive materials; toxic in other applications | Effectiveness diminishes over 30 days - Minimally invasive | Minimally Invasive | Invasive and expensive surgical procedure requiring rehabilitation |
| Dosing/ Treatment | Typically injected once per year | Once or twice daily by owner | Twice weekly for 4 weeks; repeat as needed | Injected once per year | Monthly injection at vet clinic | Typically injected once per 4 - 12 months | Surgery and Rehab |
| Annual Owner Cost | \$500 - \$700 | \$400 - \$1,440 | \$1,200 - \$1,400 | \$1,995 | \$1,800 - \$3,000 | \$350 - \$1,400 | \$4,000 - \$6,000 |

PETV: Disruptive and Effective OA Therapy

To date, PETV’s platform boasts \$15M invested in R&D including \$7M from NIH. Moreover, PetVivo has a 17 product-deep human and pet therapy portfolio and a total of 21 patents in the US and abroad-a huge advantage. As a result, management believes that Kush™ offers a number of competitive advantages over competing methods including:

- Long history of treating animals with strong outcomes since 2014; over 100 dogs and horses
- Addresses underlying cause of OA
- Easy delivery via single injection
- No known side effects
- Low cost of care

The Company's lead animal product is Kush™ for osteoarthritis indication in canines. Kush™ is a veterinarian-administered joint injection for the treatment of osteoarthritis in dogs. The device is made from natural components that are lubricious and cushioning to perform like cartilage for the treatment of pain and inflammation associated with osteoarthritis. Management believes that this therapy is a superior treatment that safely improves joint function.



The reparative therapy's particles are lubricious, cushioning and long lasting. The spongy protein-based particles mimic the composition and protective function of cartilage (i.e., providing both a slippery cushion and healing scaffolding). Thus, the Kush™ particles protect the joint as an artificial cartilage.

The Kush™ system not only provides immediate treatment for cartilage damage, but it also provides long-term joint reinforcement and protection from regular stress and strain, potentially allowing a longer happy existence for our animals. Made into a strong hydrated material from natural tissue matrix scaffolding components, elastin, collagen and heparin, Kush particles are injected into the synovial space to uniquely reinforce native cartilage by matching its wet, slippery form and cushioning function. These injected sterilized, hydrogel micro-particles are precisely sized to allow easy injection and correct articular spacing for painless joint motion.

The elegance and simplicity of the PetVivo approach is that the particles are injected into the synovial cavity or space, which is the space between bones that has synovial fluid. The injection is a standard intra-articular technique requiring no special training but must be performed in a vet's office. If needed, multiple joints can be treated simultaneously. Not only is there virtually no recovery period, but case studies demonstrate that this approach increases walking/running/activity and eliminates the need for pain medications such as NSAIDs.

The Company's core technology traces its roots to the acquisition of Gel-Del Technologies, Inc. The technology was originally developed by the Company's President Dr. David Masters at the Mayo Clinic and then licensed on a royalty free technology transfer. The core technology produces thermoplastic protein-based biomaterials that mimic the body's tissue to allow integration, tissue repair and regeneration for long-term implantation.

The patented device particles are 75-120 microns in breadth with strong shape-memory and act like micro-sized absorbent sponges within the synovial fluid. These tiny-saturated cushions repeatedly cycle between releasing and absorbing synovial fluid as mechanical forces increase and decrease to deform and reform them. The fluid's inherent physical characteristics combine with each particle's durable structure to provide a

soft springy cushion when force is applied to them, mimicking and augmenting the intrinsic compressive and lubricious properties of healthy natural cartilage.

Platform History

Dr. Masters developed Gel-Del's proprietary biomaterials that simulate a body's cellular tissue and thus can be readily and effectively utilized to manufacture implantable therapeutic medical devices. The chief advantage of Gel-Del biomaterials is their enhanced biocompatibility with living tissues throughout the body.

Notably, Gel-Del Technologies successfully completed a pivotal clinical trial using this novel thermoplastic biomaterial as a dermal filler for human cosmetic applications. Gel-Del Technologies' core competencies are developing and manufacturing medical devices containing its proprietary thermoplastic protein-based biomaterials that mimic the body's tissue to allow integration, tissue repair, and regeneration for long-term implantation. These biomaterials are produced using a patented and scalable self-assembly production process. The inherent thermoplastic properties of these biomaterials are then utilized to manufacture or coat implantable devices.

It should be noted that no FDA PMA or 510(k) approval is required for medical devices to be used in veterinary medicine. The FDA defines a medical device as an apparatus or other item that does not achieve its intended purpose through chemical reaction in the body and is not dependent on being metabolized in the body. The PetVivo flagship platform (and the particles) are both classified as a medical device by the FDA since there are no chemical reactions with the therapy's particles and they are not metabolized in the body.

The platform boasts ten years of safety and efficacy in many species and there are strong precedents of comparable medical devices marketed under this above exemption in the veterinary market.

OraPatch™: Sleeper Product

In August 2019, Emerald Organic Products, Inc. formally entered into an exclusive licensing agreement for the use of OraPatch™, a patented oral delivery method for various substances including caffeine and cannabidiol (CBD) from PetVivo. The patented oral adhesion technology, OraPatch™, is a slowly degradable protein wafer-disc that attaches to and assimilates with the mouth's inner lining. It should be noted that PetVivo is the holder of patents for this unique and cutting-edge method for nutraceutical and supplement delivery.

The fully dissolving wafer-like invention sticks strongly and comfortably to the roof of the mouth, cheeks, or gums. This delivery method provides both a rapid release and greater bioavailability when compared to ingestion. Furthermore, the product only uses materials deemed to be Generally Recognized as Safe ("GRAS") by the United States Food and Drug Administration (FDA). The pending introduction of this technology through the Emerald line of products can change the entire dynamics and approach to Emerald's flagship PURA CBD products, which is projected to grow to \$20B in sales by 2024, according to the Brightfield Group.

Using safe materials, the efficiency afforded by this new patented delivery technology may allow for enhanced bioavailability and efficacy while employing lower and more exact product doses, thereby reducing potential stomach irritations and risks of toxicity. PetVivo believes there is no delivery system like it on the market. The

potential use of this delivery method breakthrough can create a paradigm shift in the way CBD and other cannabinoids are delivered to and ingested by consumers. Emerald believes that OraPatch™ has applications that will uniquely distinguish Emerald as a category leader in the CBD market and it can be integrated into a variety of applications. While upside exists in this non-core segment for PetVivo, we have not factored it into our forecasts.

Production, Clinical Studies, Marketing

The Company manufactures the sterile Kush® particles using a proprietary coacervation and particle production process. Once produced, Kush® is packaged in sterile syringes containing approximately 2 cc of the product and delivered to veterinary clinics and/or veterinarians in protective boxes. Kush® product is manufactured in PetVivo's ISO certified cleanroom. The initial planned batch is 1,000 syringes for marketing and sales with plans to increase to batches of 5,000+ syringes per month within six months. Current production facility annual capacity is approximately 500,000 syringes; cleanroom manufacturing facility can be easily and economically duplicated.

PETV entered into a clinical trial agreement with Colorado State University in November 2020. Many large international and national distributors require a third-party university study prior to including a product in their catalog of products. CSU agreed to conduct a double-blinded study titled "Evaluation of the effect of intra-articular injection of a proprietary extracellular matrix for osteoarthritis-associated pain in dogs."

This Agreement calls for a minimum of 16 dogs to be enrolled in the study for a period of 12 months at a cost of approximately \$150,000. However, the Company has the option to continue enrollment of dogs in the study to 24 or 32 dogs if it so chooses. The cost of the study if the option to enroll 32 dogs is selected will be approximately \$300,000. The clinical study is expected to be completed by the end of 2021.

PETV is currently focusing on marketing Kush® to KOLs and veterinarians for use in the treatment of osteoarthritis in dogs and horses and management plans to commercialize Kush® for use in the United States through use of in-house marketing personnel who will oversee the efforts of independent distributors we engage on a regional or national basis.

Most U.S. veterinarians buy a majority of their equipment and supplies from a preferred distributor. More than 75% of veterinarians name Covetrus, Patterson, MWI Animal Health (a division of AmerisourceBergen), Midwest Veterinary Supply, Inc. or Victor Medical Company as their preferred distributor. Thus, PETV plans to enter alliances with some of these firms to accelerate broad adoption.

To that end, management plans to initially launch in key regional markets such as MN, CO and TX, followed by establishing alliances with 3-4 of the top national distributors in the space. Once these steps commence and are concluded, PETV plans to develop and launch a full national roll-out to deliver products to veterinarians during the early the first quarter of fiscal 2023.

THE PETV LEADERSHIP TEAM

John Lai, Chief Executive Officer, President

John Lai has served as a director and senior executive officer since March 2014, serving in various capacities that include serving as our Chief Financial Officer from May 2018 through December 2018 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 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.

Robert Folkes, Chief Financial Officer

Robert J. Folkes, has served as our Chief Financial Officer since April 14, 2021. Prior to joining us, he served as the Chief Operating Officer from February 2015 until September 2020 and as the Chief Financial Officer from 2005 until April 2016 of Tactile Systems Technology, Inc. (NASDAQ: TCMD), a manufacturer and developer of at-home therapy devices that treat chronic swelling conditions such as lymphedema and chronic venous insufficiency. Since September 2020 through the current date, Mr. Folkes was a financial consultant. Prior to joining TCMD in 2004, Mr. Folkes was the Chief Financial Officer for Advanced Respiratory, a medical device company, from 1997 until its sale in 2003. Prior to joining Advanced Respiratory, Mr. Folkes was an Audit Senior Manager for Ernst & Young LLP. He served as Ernst & Young's Senior Manager of the Entrepreneurial Services Group, and was involved with numerous SEC registrations, mergers and acquisitions. Mr. Folkes is a Certified Public Accountant and earned a B.A. in Accounting from the University of Minnesota – Carlson School of Management.

John Dolan, General Counsel, Director

Mr. Dolan has served as a director since March 2014, and he served as our Chief Financial Officer from March 2014 to November 2017. Since March 2013, Mr. Dolan also has served as corporate and intellectual property counsel for KILO, Inc. and TerraCOH, Inc., both alternative energy companies. Mr. Dolan has also served as general counsel for Traust IP Finance, LLC since June 2019. From June 2000 to July 2012, Mr. Dolan was 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 for various clients including biomaterials technology and products. During the past five years, Mr. Dolan also has 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 the intellectual property field includes serving as a patent examiner with the U.S. Patent and Trademark Office. Mr. Dolan's role as a cofounder of the

Company and his extensive experience in intellectual property, mergers and acquisitions, private equity, corporate governance and general corporate law are material factors which demonstrate his qualifications to serve on our Board of Directors.

David B. Masters, Ph.D., Director

Dr. Masters has served as a director since April 2015 and was appointed to serve as our Director of Science and Technology effective as of September 1, 2020. From April 2015 to December 2017, he served as our Chief Technical Officer. Dr. Masters is the founder of and served as Chief Executive Officer and Chief Technology Officer of Gel-Del Technologies, Inc., from 1999 to December 2017, while for Gel-Del he developed and obtained significant patents for the proprietary biomaterial technology and product applications acquired by us from Gel-Del. Dr. Masters is recognized internationally as a leading expert in biomaterials and local drug delivery, and over the past twenty years he has developed and obtained patents for many novel biomaterials and drug delivery products, including implantable medical devices for neurologic, vascular, orthopedic, urologic and dermal applications. Dr. Masters' former academic career included teaching courses and doing significant research at Harvard Medical School and The Mayo Clinic. He received a B.A. Degree in Biochemistry, a master's degree in Chemistry, and a Ph.D. in Behavioral and Neural Sciences from Rutgers University. Dr. Masters' role as the founder of Gel-Del and his long professional career in developing and obtaining patents for many biomaterials and drug delivery products are material factors regarding his qualifications to serve on our Board of Directors.

Gregory Cash, Director

Mr. Cash has served as a director of the Company since July 2019. He has more than 35 years senior management and/or key sales and marketing executive experience in the life sciences industry, including being Chief Executive Officer or Division President of publicly traded and privately held cardiovascular medical device companies. Since 2011, he has been the Chief Executive Officer and principal owner of Argent International LLC, Minneapolis, MN, a consulting firm he founded to provide management, marketing and financial consulting services to start-up and established companies in the life sciences industry. Prior to founding Argent, Mr. Cash served for over thirty years in senior executive management or marketing roles with leading medical device companies, including five years with Boston Scientific Corporation and over fourteen years with Medtronic, Incorporated. His many industry achievements also feature extensive and high-level overseas experience including being Chief Executive Officer or a senior marketing executive of both start-up and established international medical device companies in European countries including The United Kingdom, France and Italy, as well as serving for several years as the Marketing Manager in Asia for all Medtronic product lines. Mr. Cash's many years of experience as an executive in the medical device industry are material factors regarding his qualification to serve on our Board of Directors.

James Martin, Director

Mr. Martin has served as a director of the Company since July 2019. He is a retired Certified Public Accountant ("CPA") and attorney whose career included his responsibility as Partner in Charge of KPMG's tax practice for its Newport Beach, California office. In that role he provided and oversaw the rendition of tax services for numerous clients in varied industries including those for which KPMG provided a certified audit. He retains his

AICPA membership and holds Accounting and Law Degrees from the University of Washington and, on a Fellowship, received a Master of Laws Degree from New York University. Mr. Martin's extensive accounting expertise is a material factor which demonstrate his qualifications to serve on our Board of Directors.

Scott Johnson, Director

Mr. Johnson has served as a director of the Company since July 2019. He is a licensed professional engineer with over 30 years experience in the life sciences industry. He has been a leader in cross-functional engineering, risk management, design controls, production engineering, quality control, auditing and FDA compliance for numerous manufacturers. Since 2012, he has been the President and principal owner of Stratego, Inc., a life sciences consulting corporation he founded to provide client services for the remediation of significant challenges with the FDA. Significant engagements of Stratego include risk management and post-market surveillance services for defibrillator products at Philips Healthcare, risk management and quality audit services for combination products at Baxter and Hospira, a subsidiary of Pfizer, quality remediation management for implantable medical devices at St. Jude Medical, a product regulatory roadmap for Varuna Biomedical and engineering PMA submissions content at Zimmer Biomet –Biologics. Mr. Johnson's lengthy past employment include five years of employment with SciMed Life Systems, four years systems engineering, testing and compliance liaison for PumpWorks, and Part 11 compliance project manager for automated production and test systems at Boston Scientific. His engineering projects for the production of medical devices include substantial domestic and foreign facility experience. Mr. Johnson's many years of experience as an executive in the life science industries and expertise with medical product design and regulatory issues are material factors which demonstrate his qualifications to serve on our Board of Directors.

Randall A. Meyer, Director

Mr. Meyer has served as a director since April 2015 and served as our Chief Operating Officer from April 2015 to November 2017. From January 2009 to April 2015, Mr. Meyer served as Chief Operating Officer of Gel-Del Technologies, Inc. while being in charge of all operational and marketing activities of Gel-Del. Prior to joining Gel-Del, Mr. Meyer's substantial medical device industry management experience included being Chief Operating Officer of Softscope Medical Technologies, Inc. and being Chief Executive Officer of Tactile Systems Technology, Inc. Mr. Meyer's role as the senior operational officer of Gel-Del for many years and his long experience as an executive officer of several companies in the medical device industry are material factors regarding his qualifications to serve on our Board of Directors.

David Deming, Director

Mr. Deming has served as a director of the Company since September 2017. Mr. Deming has over 35 years of institutional investment management experience with pensions, endowments, family offices and high net worth investors. He is currently serving as the Chief Investment Officer of Onward for Business, a main street business brokerage firm, which he joined in January 2020. He served for over 19 years as the Director of Business Development at Arbor Capital Management, LLC from January 1997 until October 2016. Subsequent thereto, he served as the Director of Marketing and Investor Relations at BCCM Advisors, an alternative investment platform, from August 2018 to March 2020 and as the Director of Business Development, Chief Compliance Officer and Partner at Asymmetric Capital Management from October 2016 until August 2018.

Prior thereto, he held positions with brokerage and trading firms, including, Merrill Lynch, Paine Webber and Leuthold Weeden Capital Management and was a floor trader at the Chicago Board of Trade. Mr. Deming's extensive experience in the finance industry is a material factor which demonstrates his qualifications to serve on our Board of Directors.

Robert Rudelius, Director

Mr. Rudelius has served as a director of the Company since August 2018. Currently, he is the Chief Executive Officer and Managing Director of Noble Ventures, LLC, a company he founded in 2001 that provides advisory and consulting services to early and mid-stage companies in the information technology, communications, medical technology and social e-commerce industries. He is also the co-founder, President & CEO of MedicaMetrix, Inc., a company that is building a commercialization engine that will launch a stream of medical devices aimed at delivering transformative healthcare solutions for unmet medical needs. From April 1999 through May 2001, when it was acquired by StarNet L.P., Mr. Rudelius was the founder and CEO of Media DVX, Inc., a start-up business that provided a satellite-based, IP-multicasting alternative to transmitting television commercials via analog videotapes to television stations, networks and cable television operators throughout North America. From April 1998 to April 1999, Mr. Rudelius was the President and Chief Operating Officer of Control Data Systems, Inc., during which time Mr. Rudelius reorganized and re-positioned the software company as a professional technology services company, resulting in the successful sale of the company to British Telecom. From October 1995 through April 1998, Mr. Rudelius was the founding Managing Partner of AT&T Solutions, Inc., a subsidiary of AT&T Inc. (NYSE: T) and headed the Media, Entertainment & Communications industry practice. From January 1990 through September 1995, Mr. Rudelius was a partner in McKinsey & Company's information, technology and systems practice, during which time he headed the practice in Japan and the United Kingdom. Mr. Rudelius began his career at Arthur Andersen & Co. where he was a leader in the firm's financial accounting systems consulting practice. Mr. Rudelius served as a member of the Axogen, Inc. (NASDAQ: AXGN) Board of Directors for ten years from September 2010 through September 30, 2020, where he served on the audit committee and as a member of the compensation committee. Mr. Rudelius has an M.B.A. from the Kellogg School of Management at Northwestern University and a B.S. in mathematics and economics from Gustavus Adolphus College in St. Peter, Minnesota. Mr. Rudelius' qualifications to serve on our Board of Directors include his extensive executive leadership and financial experience, particularly in connection with rapid growth technology businesses, and his experience as a director of publicly traded companies.

Joseph Jasper, Director

Mr. Jasper has served as a director of the Company since August 20, 2018. He is a CFA who since 2005 has been Chief Executive Officer of Vermillion Capital Management, an institutional investment firm. From 2002 to 2005, Mr. Jasper was Managing Director and Director of Fixed Income Strategy and Marketing for Piper Jaffray Company. Prior to 2002, he spent 20 years managing, structuring and selling fixed income and equity securities at several leading investment banking firms, including U.S. Bancorp Libra and UBS PaineWebber. Mr. Jasper also serves as Vice Chairman of the Board of Directors of MicroNet, Inc. and as a director of GroundCloud, Inc. both privately held companies. He has previously served as a director or principal advisor to many operating and venture-stage companies across a broad range of industries. Mr. Jasper received an MBA degree from the University of St. Thomas, where he also has served as its Adjunct Professor of Finance. Mr.

Jasper's extensive financing and accounting expertise are material factors which demonstrate his qualifications to serve on our Board of Directors.

FINANCIALS SNAPSHOT

(Analyst's Note: The projected revenue and expenses found in this report were produced by the analyst with no guidance from the Company, or its management, with the exception of those figures found in PETV quarterly filings. Thus, future results may differ markedly from these estimates. Future valuation forecasts are also based upon the analyst's estimates for the Company.)

In mid-August 2021, the Company completed a public offering whereby it raised gross proceeds of \$11.25M via the sale of units consisting of one share of PETV and one warrant with an exercise price of \$5.625, enabling the Company to raise additional funds once the warrants are in the money. This funding, in conjunction with an up-listing of its common stock to NASDAQ de-risks the PETV story. However, it will take time to build the sales and marketing team, process, educate the market, etc. along with operating as a manufacturer.

Against this backdrop, we project nominal revenue for FY22 of \$252,000, with net loss of (\$4.6M), or a loss per share of (\$0.58). As this period reflects the formative sales and marketing period for the Company, investors should not view FY22's performance as a benchmark for future growth and results as there may be discounting or other promotions to accelerate broad customer adoption.

Our model assumes meaningful revenue generation will occur in FY23, with revenue of \$3M and a loss per share of (\$1.05), reflecting a big expense in sales and marketing. During this period, we believe that reorder rates by customers (veterinarians) will be a solid harbinger of outsized growth rates and the Company will enjoy solid gross margin of over 40%. Looking ahead, we estimate revenue of \$11.5M for FY24, with the year potentially ending at an annual revenue run-rate of \$20M, and gross margin of 70% or greater.

It should be noted that share count could differ from our model due to warrant conversion, underwriter's green shoe, potential future offerings, etc. Therefore, these figures are more of a guide than an exact share count.

It should be noted that considerable revenue upside exists as our model does not take into account any potential revenue from the EMOR licensing relationship in the CBD space, sales of product for other companion animals such as felines, or any license or product sales to the human market---all of which could be viewed as hidden, potentially monetizable assets.

Based on our due diligence, the Company's Animal Health peer group consists of Zoetis, IDEXX Labs, Elanco and Kindred Biosciences, which is being acquired by ELAN. At current levels, the group trades at an average price/sales multiple of 10.4x next year's sales. Perhaps not coincidentally, KIN is being acquired at a similar price/sales valuation. By utilizing the same methodology, we arrive at a 12-month price target of \$11.75, since the valuation a year from now would be based on FY24 projected sales of \$11.5M. Given the expected hyper-growth rate of adoption and sales, it is possible that if PETV matches our forecasts, it trades at a premium multiple rather than one in line with the group.

Table I. PETV Publicly-Traded Peer Group

| Company Name | Symbol | Price (8/18/21) | Mkt Cap (mil) | FY21E Revs (mil) | FY22E Revs (mil) | 21E - 22E Revs Growth | 2021E Price/Revs | 2022E Price/Revs |
|-------------------------|--------|--------------------|------------------|---------------------|---------------------|-----------------------------|---------------------|---------------------|
| Elanco | ELAN | \$31.49 | \$14,893 | \$4,710 | \$4,888 | 3.8% | 3.2 | 3.0 |
| IDEXX Labs | IDXX | \$676.94 | \$57,591 | \$3,140 | \$3,460 | 10.2% | 18.3 | 16.6 |
| Kindred Biosciences | KIN | \$9.23 | \$419 | \$21 | \$41 | 92.5% | 19.8 | 10.3 |
| Zoetis | ZTS | \$203.33 | \$96,746 | \$7,590 | \$8,189 | 7.9% | 12.7 | 11.8 |
| Average | | | \$42,412 | \$3,865 | \$4,144 | 29% | 13.5 | 10.4 |
| | | | | FY23E | FY24E | | FY23E | FY24E |
| PETV*: Today | | \$3.11 | \$22 | \$3.0 | \$3.0 | | 7.3 | |
| PETV*: 12 Mo Tgt | | \$11.75 | \$120 | \$3.0 | \$11.5 | 283% | | 10.4 |

*March fiscal year

Sources: www.Yahoo! Finance, Company websites, Goldman Small Cap Research

RISK FACTORS

In our view, the Company's biggest risks are related to pure sales execution. These include time to educate the market, managing the growth spend, speed and magnitude of adoption, reorders, and penetration of both canine and equine markets, along with developing and managing distributor alliances. Building out a network of KOLs and influencers may also prove to be critical to PETV's success. Ensuring high quality production as business scales is also paramount to the Company's success.

Competitive risks include new or more effective treatment introductions, lower pricing, more effective sales/marketing, and greater overall business efficacy. Aside from economic concerns which would negatively impact the entire animal health space, the aforementioned risks could come from larger competitors, existing firms, or new entrants. Still, these future concerns are consistent with firms of PETV's size and standing. Moreover, we believe that PETV's deep, seasoned management team is prepared to overcome these hurdles and generate significant top-line growth.

Volatility and liquidity are typical concerns for small cap stocks. Management may seek to raise funds in the next 2-3 years to fund corporate expansion, or initiate potential M&A. An overriding financial benefit as a public company is the favorable access to and the availability of capital to fund product launches, advanced sales and marketing campaigns and other initiatives. Since the proceeds of any future funding would be used in large part to advance major business development and sales, we believe that any dilutive effect from such a funding could be offset by related increases in market value.

CONCLUSION

PetVivo Holdings is well-positioned to emerge as the standard of care for the treatment of osteoarthritis in dogs and horses and other companion animals. This unmet need represents an estimated \$4.4B combined annual market. PETV's flagship platform has a long history of success, addresses the underlying cause of OA, and has a strong safety profile. Given its efficacy, affordability, and the emergence of new revenue streams for vets, PETV offers a compelling therapy.

The pet health market is enjoying enviable growth as pet owners are spending large sums for pet medical care, serving as a major driver for PETV. Plus, the recent broad adoption of pet insurance has also emerged as a key catalyst. Following a major funding and up-list to NASDAQ, PETV is set to commence a full-scale sales and marketing effort to accelerate sales growth. Management has already attracted key KOLs and influencers, aided by therapeutic success with over 100 dogs and horses.

Our model suggests PETV could be the fastest growing animal health stock. We project revenue will grow from \$252K in FY22 to \$11.5M in fiscal FY24. Trading at a discount to the peer group's average price/sales multiple, our 12-month \$11.75 price target is a 278% jump from current levels. Given the expected growth rate, PETV could eventually trade at a premium to the group.

Table II. PetVivo Holdings, Inc.

Pro Forma Income Statement

(\$)

| | <u>FY21A</u> | <u>FY22E</u> | <u>FY23E</u> | <u>FY24E</u> |
|-----------------------------------|----------------------|----------------------|----------------------|----------------------|
| TOTAL REVENUE | \$12,578 | \$252,000 | \$3,000,000 | \$11,500,000 |
| Cost of Sales | <u>\$10,695</u> | <u>\$315,000</u> | <u>\$1,770,000</u> | <u>\$3,450,000</u> |
| Gross Profit | \$1,883 | (\$63,000) | \$1,230,000 | \$8,050,000 |
| <i>Gross Margin</i> | 15.0% | -25.0% | 41.0% | 70.0% |
| General & Administrative | \$1,767,664 | \$3,000,000 | \$4,500,000 | \$5,175,000 |
| Research & Development | \$98,230 | \$300,000 | \$500,000 | \$600,000 |
| Sales & Marketing | \$94,977 | \$1,200,000 | \$5,500,000 | \$7,200,000 |
| Total Operating Expenses | \$1,960,871 | \$4,500,000 | \$10,500,000 | \$12,975,000 |
| Operating Income | (\$1,958,988) | (\$4,563,000) | (\$9,270,000) | (\$4,925,000) |
| <i>Operating Income Margin</i> | N/A | N/A | N/A | N/A |
| Derivative Expense | \$1,702,100 | \$0 | \$0 | \$0 |
| Interest or other expense | \$228,595 | \$25,000 | \$35,000 | \$50,000 |
| Gain on extinguishment of debt | (\$366,903) | | | |
| Total Other Income (Expense) | (\$1,563,792) | \$0 | \$35,000 | \$50,000 |
| Pre-Tax Income (Loss) | (\$3,522,780) | (\$4,563,000) | (\$9,235,000) | (\$4,975,000) |
| Income Taxes | \$0 | \$0 | \$0 | \$0 |
| <i>Tax Rate</i> | N/A | N/A | N/A | N/A |
| Net Income | (\$3,522,780) | (\$4,563,000) | (\$9,235,000) | (\$4,975,000) |
| Diluted Earnings Per Share | (\$0.57) | (\$0.58) | (\$1.05) | (\$0.49) |
| Wtd. Est. Shares Outstanding | 6,198,717 | 7,850,000 | 8,800,000 | 10,200,000 |

Note: PETV is on a March Fiscal Year

Sources: PETV, Yahoo! Finance, and Goldman Small Cap Research

SENIOR ANALYST: ROBERT GOLDMAN

Rob Goldman founded Goldman Small Cap Research in 2009 and has over 25 years of investment and company research experience as a senior research analyst and as a portfolio and mutual fund manager. During his tenure as a sell side analyst, Rob was a senior member of Piper Jaffray's Technology and Communications teams. Prior to joining Piper, Rob led Josephthal & Co.'s Washington-based Emerging Growth Research Group. In addition to his sell-side experience Rob served as Chief Investment Officer of a boutique investment management firm and Blue and White Investment Management, where he managed Small Cap Growth portfolios and *The Blue and White Fund*.

ANALYST CERTIFICATION

I, Robert Goldman, hereby certify that the view expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report.

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