September 26, 2019

Company Report

Industry: Medical Technology

PETVIVO HOLDINGS, INC.

Multiple Shots on Goal Should Lead PETV to New Highs

Analyst: Rob Goldman rob@marblearchusa.com

PETVIVO HOLDINGS, INC. (OTC – PETV - $0.35)	
Rating: Speculative Buy	Price Target: $3.00

COMPANY SUMMARY

PetVivo is an emerging biomedical device company focused on the licensing and commercialization of innovative medical devices for pets and pet therapeutics. PetVivo is leveraging investments made in the human medical device industry to commercialize therapeutics for 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.

KEY STATISTICS

Price as of 9/25/19	$0.35
52 Week High – Low	$1.27 - $0.125
Est. FD Shares Out.	22.1M
Market Capitalization	$7.7M
Average Volume	1,885
Primary Exchange	OTCQB
Fiscal Year	March 31

CORPORATE INFORMATION

PetVivo Holdings, Inc.
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Email: info1@petvivo.com

INVESTMENT HIGHLIGHTS

PetVivo Holdings is well-positioned to emerge as the standard of care for the treatment of osteoarthritis in dogs and horses, an unmet need representing an estimated $3.2 billion combined annual market.

The platform directly improves activity, and has a strong safety profile. Given its efficacy, affordability, and the emergence of new, revenue streams for veterinarians PetVivo offers a compelling, therapy.

PetVivo has a deep IP portfolio. With $15M invested in R&D including $7M from NIH, PetVivo has a 17 product-deep human and pet therapy portfolio.

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, a market slated to reach $20B in sales by 2024.

Sales are forecast to enjoy huge growth. We project sales will leap from $3M in FY20 to $12M in FY21 and $20.5M in FY22. This excludes potential contribution from what could be a highly profitable license revenue stream via its CBD delivery technology arrangement with Emerald Organic Products.

Trading at a huge discount to its peers, our target price is $3.00. Our target is based upon a 5.5x sales P/S multiple, similar to its peer group, and affirmed by a Net Present Value (NPV) calculation. Thus, we rate PETV Speculative Buy.

COMPANY OVERVIEW

The View From 30,000 Feet

Minnesota-based **PetVivo Holdings, Inc. (OTC – PETV - Speculative Buy)** is a biomedical device company primed to emerge as the new standard of care for the treatment of osteoarthritis (OA) in canines with *Kush™,* its proprietary and proven therapy for canines and equines. OA is a condition with degenerating cartilage that creates joint stiffness from mechanical stress, resulting in pain and inflammation. With full-scale commercialization around the corner, PetVivo should begin to generate meaningful revenue beginning in 2020.

There is no cure for lameness caused by OA and current therapies treat the symptoms and not the cause. Moreover, they typically do not carry a favorable risk profile. Conversely, the PetVivo approach directly improves activity, and is characterized by a strong safety profile.

In a recent report, the American Pet Products Association (APPA) estimated that the 2019 pet therapeutics market for vet care alone will reach over $18 billion, 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, and the emergence of new, profitable revenue streams for veterinarians, PetVivo estimates that the size of the canine OA treatment markets in the U.S. and EU alone are $2.6 billion annually. Thus, PetVivo both fulfills a significant unmet need and ensures its own success by aiding the veterinary channel actively seeking additional revenue streams.

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 – NR)**, a competitive advantage. Given the licensing arrangement and Emerald's target market, PetVivo could generate significant licensing revenue which would flow directly to the operating income line.

The Backstory

PetVivo's strategy is to commercialize proprietary products from human medical device companies specifically for the companion animal market. To that end, after spending $15M on R&D and product launch preparation the Company's is rapidly

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building up inventory for a full-scale launch in the early part of 2020. Plus, the Company has seventeen animal and human therapeutics in varying stages of development.

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 board member 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.

Today, PetVivo boasts a strong and deep IP portfolio with 20 patents protects the Company's products, production processes and biomaterials. These include patents directed to the Company's signature products: protein-based biomaterials used for various beneficial medical applications, including drug delivery devices, coated medical devices (e.g., stents and valves), and tubular/vascular grafts. While its flagship product, *Kush™ Canine* is a joint injection, it is actually categorized as a medical device with a demonstrated history of human safety and efficacy as well as efficacy and safety in canines.

Going forward, the Company will also be seeking licensing partners to commercialize its portfolio of proprietary human clinical therapeutics in large market sectors, including cardiovascular, orthopedic, urology and aesthetics.

Prepping for the Opportunity

PetVivo is a transformed entity with respect to its leadership and multiple large-scale opportunities in diversified, high growth categories: Veterinary care, CBD technology licensing, and human therapeutics, with orthopedics as the first likely target. While the Company has rather quietly set itself up for a substantial migration to a revenue-generating entity, the current stock price has yet to reflect these changes. As a result, in our view, current prices offer unique entry point for opportunistic investors.

The Company has added tremendous muscle and experience in key C-level and board level areas, including CEO, revenue, sales, manufacturing, operations, etc. The new team has re-configured processes, procedures, manufacturing and the operating model, thus positioning PetVivo as an emerging leader in this space, Moreover, these changes set the stage for future stock price increases in our view, as the "success bar" has been raised.

It should be noted that following the broad market introduction the Company's canine OA treatment, PetVivo plans to introduce a similar product to treat OA in horses, which represents a $600 million annual market. With over $15 million invested in R&D

including $7 million from the National Institutes of Health (NIH), PetVivo boasts a deep human product pipeline to match its pet/veterinary efforts. The Company's lead human product is a dermal filler for wrinkles that targets the cosmetic market. A successful Pivotal FDA Human Trial has been completed but an FDA Premarket Approval (PMA) submission will be deferred for another 12-18 months, following the Kush™ commercialization launch.

With a number of competitive advantages in the space, a deep product pipeline and IP portfolio, combined with a clever financial model, we believe that the Company can enjoy hockey-stick type sales growth in the next 2-3 years. In the short term, investors can expect PetVivo to complete an additional financing in the next 12 months or so to fully fund R&D and sales efforts. This event would likely coincide with a stock up-listing to NASDAQ or the NYSE**.** As meaningful revenue occurs in multiple product categories, we expect PETV to emerge as a takeover candidate.

At current levels, PetVivo trades at a substantial discount to its peer group on a price/sales basis. The stock trades roughly .5x FY21E projected sales, as compared with an estimated P/S metric of roughly 5x for the peer group, which includes Heska, Idexx and Zoetis. Our $3.00 price target is based upon a 5.5x sales multiple on FY21E revenue of $12M and affirmed by a Net Present Value (NPV) calculation derived from our projected FY22 revenue of $20.5M, utilizing a 15% discount rate. Plus, since this valuation is based upon the canine veterinary products only, investors are essentially getting future animal and human products---and the prospective CBD licensing revenue for free. Thus, we rate these shares Speculative Buy.

INDUSTRY OVERVIEW

According to the American Pet Products Association (APPA), U.S. pet owners will spend over $75 billion on their pets in 2019, up from $45 billion just ten years ago. The APPA projects over $18 billion, or roughly 25% of all expenditures, will be spent on veterinary care, which happens to be one of the segment's primary growth drivers. Clearly, our love affair with Fido has taken on a life of its own, as we are willing to spend more and more on our pets to extend their lives and quality of life.

At present more than two-thirds of all U.S. households have at least one pet, and 3 out of 5 millennials own pets as well. Millennials now represent the nation's primary pet owner demographic and have integrated them into the family unit at a degree even greater than predecessor generations, driving dollars to the pet care industry

Today there are an estimated 86 million cats, 78 million dogs and more than 8 million horses owned by U.S. households. In our view, the Company 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.

OA and the OA Treatment Market

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. 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.

Table I: PetVivo vs. The Competition

Treatment	Kush	NSAID	Galliprant	Joint Injection	Joint Replacement
Pros	Joint Protection; Activity Increase; Pain Reduction; Safety Profile	Temporary Relief; Delivery Form	Temporary Relief	Temporary Relief; Safety Profile	Joint Replacement
Cons	New Treatment	Treats Symptoms, Gastric/Kidney Risks	Treats Pain Only	Declining Efficacy; Vet-Only Treatment	Invasive Procedure; Cost
Treatment Frequency	Annual Injection	1x-2x Daily	Once Daily	Monthly Injection	Surgery & Rehab
Estimated Cost	$600 - $800/joint	$0.90 - $2.40	TBD	$150 - $250/joint	$2000 - $4000/joint
Est. Annual Cost	Same as Above	$400 - $700	TBD	$1800 - $3000	Same as Above

Sources: Company websites, Marble Arch Research

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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. Unfortunately, the current treatments offered for OA largely included only palliative pain therapy or joint replacement, which only treat OA's symptoms. Furthermore, as illustrated in Table I above, they also carry their own sets of issues. Conversely, PetVivo's flagship product offers significant competitive advantages over these therapies.

NSAIDs (Nonsteroidal anti-inflammatory drugs), are currently the most common treatment for OA in canines as they are relatively inexpensive and can be administered by pet owners. However, these drugs do not carry the most favorable safety profile. After prolonged use NSAIDs have been found to cause gastrointestinal issues and could raise renal risk as well in canines (as well as humans.) Most important, NSAIDS do not treat the cartilage degeneration issue to halt or slow the progression of the osteoarthritis condition. Other treatments include joint injection and joint replacement. Both can be very costly and are vet-only treatments and procedures with that demonstrate varying degrees of efficacy.

It should be noted that one of the Company's most direct competitors in this category is the **Elanco Animal Health (NASDAQ – ELAN – NR)** 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 $2.6 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)
- As many as 20% dogs with arthritis remain undiagnosed

The market for equines, while much smaller, offers an extremely attractive opportunity. After all, there is no current reparative treatment for equine joint lameness. Moreover, OA lameness worsens with time from ongoing loss of protective cushion and lubricity (i.e., loss of slippery padding). The estimated annual market for the 1 million potential horses diagnosed with lameness is $600 million.

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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.

THE PETVIVO APPROACH

PetVivo Holdings, Inc. is an emerging biomedical device company focused on the licensing and commercialization of innovative medical devices for pets, or pet therapeutics. PetVivo believes that it can leverage the investments in the human biomaterials and medical device industries to commercialize therapeutics to pets in a capital and time efficient way. PetVivo's strategy is to in-license proprietary products from human medical device companies specifically for use in pets.

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. PetVivo has secured exclusive rights to its first product, an osteoarthritis medical device, which has been shown to be both safe and efficacious. PetVivo believes the administration of its initial therapeutic devices exceeds the benefits of those found in current remedies. Therefore, the pending commercialization of PetVivo's initial therapeutic devices will provide veterinarians and pet owners safe, effective, and long-lasting treatments to improve the pet's quality of life.

Kush: A Disruptive and Effective OA Therapy

The Company's lead animal product is VD-01 "*Kush™ Canine"* for osteoarthritis indication in canines. The Company is planning to aggressively launch *Kush™ Canine* in fiscal 4Q19 (CY1Q20). *Kush™ Canine* 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 *Kush™ Canine* is a superior treatment that safely improves joint function.

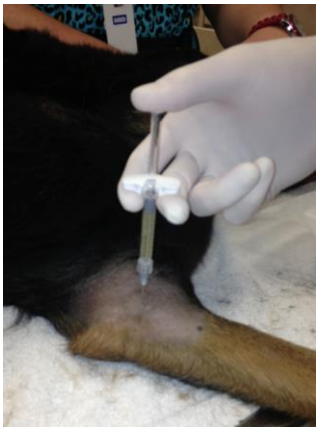

Figure 1: Sample Kush Injection

The reparative *Kush™ Canine* 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™ Canine particles protect the joint as an artificial cartilage.

The Kush System not only provides immediate treatment for cartilage damage, it also provides long-term joint reinforcement and protection from regular stress and strain, allowing a longer "Running is Life" 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 *Kush™ Canine* increases walking/running/activity and eliminates the need for pain medications such as NSAIDs.

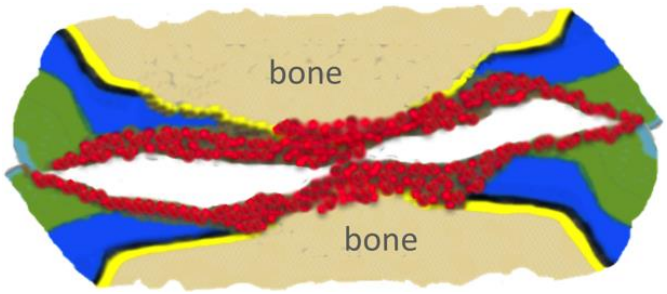

Figure 2: Inflamed Joint

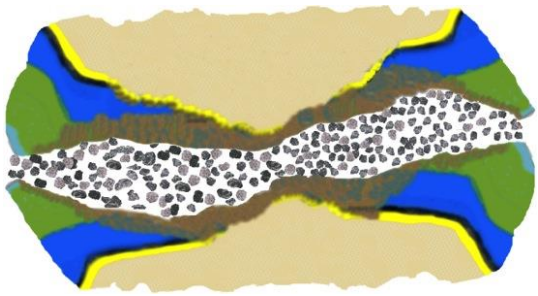

Figure 3: Kush™ Treated Joint

The Company's core technology traces its roots to the acquisition of Gel-Del Technologies, Inc. for 4.15 million shares of PetVivo. 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

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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.

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) is both classified as a medical device by the FDA since there are no chemical reactions with Kush™ 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 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. As a result, considerable upside exists in this segment for PetVivo that we have not yet factored into our forecasts, pending a 2020 Emerald product launch.

Looking Ahead

Unlike other companies of PetVivo's size and standing, the Company has an FDA validated manufacturing process for human clinical trial production with single line, scalable, consistent lot-to-lot production with a method that eliminates cleaning steps, reduces infrastructure and increases capacity. One major sleeper characteristic of the product is the fact that it is room temperature stable beyond 24 months, which is a major advantage and plus for distributors and veterinarians alike.

It should be noted that most veterinarians in the U.S. buy a majority of their equipment and supplies from one of six veterinary products distributors. In fact, three distributors (MWI, Patterson Veterinary, Butler Schein) deliver 75% of the products sold to companion animal veterinarians in the U.S. The product distribution will leverage the existing supply chain and veterinary clinic and clinician relationships already established by these large distributors. This distribution channel will be supported with regional sales representatives who in turn will support distributors and the veterinary clinics and hospitals. PetVivo will also target pet owners with product education and treatment awareness campaigns utilizing a variety of social media tools. The unique

nature and the anticipated benefits provided by the products are expected to generate significant consumer response.

Importantly, in-clinic, new, effective treatments can quickly grow veterinary practice revenues and accelerate product adoption. Kush can offer significantly higher margin opportunity at the same price point as existing OA medicines while providing better outcomes with less side effects for animals.

The PetVivo product launch schedule includes first major shipments. *Kush™ Equine* device for the treatment of equine lameness related to or impacting synovial joints is currently scheduled for launch later in 2020. The *Kush™ Equine* product has similar features and benefits as to *Kush™ Canine* device. In addition to serving as a treatment for osteoarthritis, the joint cushioning and lubricity effects of our devices have shown an ability to treat equine lameness that is due to navicular disease (a problem associated with misalignment of joints and bones in the hoof and digits).

Our current forecast assumes $3M in FY20 sales with an operating loss of ($1.3M), given the timing of commercialization. However, we believe revenue will jump markedly higher in FY21, with sales projected to reach $12M with EBITDA of $2.9M. At this time, while we expect the equine product to commence sales in FY20, and R&D progress on the human device front, we have modeled only canine sales in our preliminary forecast of $20.5M in sales and $7.8M in EBITDA.

The Company's current pipeline includes 17 therapeutic devices for both veterinary and human clinical applications in various stages of development from safety tests to FDA submission. This includes HD-05, the dermal filler for wrinkles highlighted in tests above. A successful Pivotal FDA Human Trial has been completed but an FDA Premarket Approval (PMA) submission will be deferred until FY21, following the *Kush™* commercialization launch. To fully fund the Company's R&D and sales efforts, we anticipate a financing round in the next 12 months or so, coinciding with an up-listing of PetVivo's stock to NASDAQ or the NYSE.

In addition to commercializing its own products in strategic market sectors and in view of the Company's vast proprietary product pipeline, the Company anticipates establishing strategic out-licensing partnerships to provide secondary revenues. As material revenue in multiple product categories occurs, we believe that PetVivo could emerge as a takeover candidate.

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THE PETVIVO LEADERSHIP TEAM

John Lai, Co-founder, CEO, President , Director

Mr. Lai has been a director and senior executive officer since March 2014, including being our President since March 2014 and our Chief Financial Officer since April 2018, and serving as our Chief Executive Officer from March 2014 to May 2017. 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.

John Carruth, Chief Financial Officer

Mr. Carruth has spent several years in the accounting field with continually progressing responsibilities. His areas of expertise include internal controls over financial reporting, SEC reporting, and GAAP compliance. He holds three degrees in accounting, including a Master of Accountancy degree from the University of Minnesota (2016) where the coursework surrounded navigating the SEC, SOX and the Dodd Frank Act. He has been employed at Merrill Corporation, where he worked on SEC reporting; at Prime Therapeutics, where he worked to fix major discrepancies within their accounts; and most recently, at Supervalu as a Senior Accountant focusing on GAAP compliance and special projects.

David Deming, Independent Director

Mr. Deming has thirty years of commitment in the institutional Asset Management Industry focusing on business development, client service, compliance and operations management in institutional firm formations and establishing operations, compliance, business development, and client service. He has also established and launched a mutual fund, commingled funds and LP's. Mr. Deming is currently a Partner at Asymmetric Capital Management, LLC and also serves as the acting CEO, Treasurer and a Director at Wildfire 5G, Inc.

David B. Masters, Ph.D., Director and the Founder of Gel-Del Technologies, Inc.

Dr. Masters is an entrepreneur, biochemist, biomaterials expert and inventor with credentials from Rutgers, Harvard, University of Minnesota and the Mayo Clinic. Dr. Masters has over 30 years of experience, including over 50 publications. A successful FDA clinical trial, 36 issued or pending patents and more than $7 million in NIH grant awards.

Randall A. Meyer, Director

Mr. Meyer has over 25 years of leadership experience in medical device development and commercialization including expertise in successfully growing medical device companies from concept to profitability. He has served as CEO at Tactile Medical (TCMD) and as COO at Gel-Del Technologies

John F. Dolan, Secretary, Director

Mr. Dolan has been 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 (IP) counsel for KILO, Inc., an alternative energy company. 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 technology field includes serving as a patent examiner with the U.S. Patent and Trademark Office (USPTO).

Robert Rudelius, Director

Mr. Rudelius is the CEO 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. From April 1999 through May 2001, when it was acquired by StarNet L.P., Mr. Rudelius was the founder, Chairman 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.

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From April 1998 to April 1999, Mr. Rudelius was the President and COO 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; Solution's Media, Entertainment &; Communications industry group.

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 has served as a member of the Axogen, Inc. (AXGN) Board of Directors since September 2010, where he is chairman of the audit committee and a member of the compensation committee.

Board of Advisors

Tracy Turner, DVM, MS, Dipl. ACVS, Dipl. ACVSMR

Mr. Turner began his professional career as a farrier and used those skills to help finance his education. He received his DVM degree from Colorado State University in 1978. He completed an internship at the University of Georgia and a surgical residency as well as a Master of Science degree at Purdue University in 1981. His Master's thesis was "Thermography of the Lower Limb of the Horse." He served on the faculty of the Universities of Illinois, Florida and Minnesota. At Minnesota, he was Head of Large Animal Surgery and attained the rank of full Professor before leaving academics to join Anoka Equine Clinic in 2004.

In 2016, he started his own practice dedicated to Sports Medicine and Surgery. In 2004, Turner was inducted into the International Equine Veterinarian's Hall of Fame.

Turner's primary research efforts have focused on equine lameness with particular interest in equine podiatry, back issues in horses, rehabilitation and thermography. His podiatry research has evaluated the radiographic and morphologic characteristics of hoof imbalance, as well as the differential diagnosis of palmar foot pain (PFP) and the development of PFP treatment strategies. Turner has researched the use of diagnostic imaging techniques for evaluation of equine back problems (including saddle fit) and developed epidemiological data on overriding spinous processes in horses. He pioneered the use of thermography as a diagnostic aid in lameness evaluation, as well as its use in horse welfare regulation. Turner has extensively published on these topics and been invited to lecture nationally and internationally.

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Turner is a Diplomate of the American College of Veterinary Surgeons, a Diplomate of the American College of Sports Medicine and Rehabilitation, and a Fellow of the American Academy of Thermology. He is an active member of the AVMA, AAEP and the American Horse Council. Turner has served as chairman of the AAEP's Farrier Liaison Committee, served on the AAEP Foundation Advisory Council and the AAEP Educational Programs Committee. Presently, he is on the AAEP Board of Directors. He is a past president of the Minnesota Association of Equine Practitioners and a member of the Minnesota Veterinary Medical Association. He is a member of the board of directors of the Minnesota Horse Council and is currently the Minnesota Horse Council vice-president and chair for the Legislative and Horse Welfare committees. He is currently president of the American Academy of Thermology. He has consulted for United States Equestrian Federation, The USDA Horse Protection and Federation Equestrienne International (FEI). He has participated as an instructor at Equitarian Workshops in Mexico, Nicaragua and Costa Rica. He has participated in the Equitarian projects in Honduras and Costa Rica. He is married to veterinarian Julia Wilson and has two sons.

Dr. Michael Sterns, DVM

After graduating from the UC Davis School of Veterinary Medicine in 1984, Dr. Sterns began his career as a mobile Equine Veterinarian in his current practice area. He earned his MBA from the Haas School of Business at UC Berkeley in 1990, and spent the next twenty-three years raising equity, negotiating licensing deals, building start-ups, and running sales and marketing teams in human therapeutics, medical devices and research tools.

Dr. Sterns returned to small animal clinical practice in 2012 and has been actively engaged in developing a small animal house call practice on The Peninsula and South Bay. Dr. Sterns is also a part time Associate Veterinarian, practicing general small animal medicine and surgery at Alta View Animal Hospital in Mountain View, California, and a Relief Veterinarian for Banfield.

He has a special interest in giant breeds, having owned and raised a Newfoundland, a Leonberger and a very large Maine Coon Cat. Dr. Sterns has also been performing weekend mobile vaccine clinics and working in local Wellness Clinics for VIP Petcare and its predecessor for the last 27 years.

While continuing to consult with small companies as a product development and marketing consultant, he travels throughout The Peninsula and Silicon Valley and can often be found at Maverick’s Beach and the local brewery -- where he shamelessly hands out business cards and offers veterinary advice to anyone who will listen.

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In his leisure time, Dr. Sterns trains for triathlons by swimming US Masters, biking with his team (the Alpine Chain Gang) and running (when he absolutely must) to survive the last leg of his races.

Robin Young, Advisor

Robin Young is the Chief Executive Officer of Pearl Diver Technologies and Publisher of “Orthopedics This Week." Pearl Diver Technologies provides and consults on Medical Data Analytics, which he has been CEO of for over eleven years. He is the Founder of “Orthopedics This Week," a publication that goes out weekly to over 100,000 Orthopedic doctors in the United States. Mr. Young has been involved with various companies, having Founded the “New York Stem Cell Summit, NYC” with stem cell research and development.

He has been a guest speaker at Foundation for Orthopedic Research, International Society for Advancement Spine Surgery, Laser Spine Institute, Johnson & Johnson Global R&D Congress, The Vatican, Cedars Sinai surgeon Conference, and others. His subject topics have included Spine Surgery, Future of Orthopedics, Stem Cells and Regenerative Medicine, and Allograft Surgical Product, to name a few. Historically he has had Executive positions as Partner and Director of Research for Healthpoint Capital, Sr. Vice President of Life Sciences for Stephens, Inc. and VP of Equity Research at Piper, Jaffray & Hopwood, Inc. He has a wealth of knowledge that PetVivo hopes will be a great contribution to its research in the human arena.

Thomas Yezzi, Advisor

With over 20 years’ experience in the food ingredient and biotech industry, Mr. Yezzi has developed a broad network of venture partners, investors, and research scientists. His entrepreneurial focus has been on start-up and early stage companies. He is currently the President and Founder of Nu-Tek Products, a business incubator for wellness foods and life sciences ventures. He also serves as the President of two portfolio companies, Nu-Tek BioSciences and Nu-Tek Fibers.

John Wagoner, Advisor

Mr. Wagnoner is co-founder of Boomerang Vet, a data-based client communications service for Veterinary Hospitals located in Columbus, Ohio. In 2003, John founded, managed and grew CSC South Veterinary Supplies into the second largest veterinary distribution company in the Southeast region. In 2008, he sold CSC South Veterinary Supplies to Patterson Companies, Inc. He has an extensive veterinary distribution management expertise.

Brad J. Gordon, DVM, MS, Advisor

A lifetime member and graduate from Bath Pony Club in Ohio, Brad is best known to the Pony Club world as an outstanding Chief Horse Management Judge. He is seen in the Anatomy Room at many Annual Meetings. He has also been on the Combined Training Committee and served on the Board of Governors. Earning his DVM at Ohio State, he did his internship at the University of Minnesota, earned a master's degree in Applied Surgical Physiology, and did several residencies in Equine Medicine and Surgery. Dr. Gordon has been in private practice in Minnesota and has served as the Minnesota Racing Commission State Regulatory Veterinarian. He currently owns and practices at the Prairie Meadows Racetrack in Altoona, Iowa. Brad was recognized as a National Instructions Legend at the 2004 Jubilee Celebration during the 2004 USPC Annual Meeting for his service to the United States Pony Clubs, Inc.

FINANCIALS

Our current forecast assumes $3M in FY20 sales with an operating loss of ($1.3M), given the timing of commercialization. However, we believe revenue will jump markedly higher in FY21, with sales projected to reach $12M with EBITDA of $2.9M. At this time, while we expect the equine product to commence sales in FY21, and R&D progress on the human device front, we have modeled only canine sales in our preliminary forecast of $20.5M in sales and $7.8M in EBITDA for FY22. We note that our forecasts assume essentially veterinary product sales only, to remain conservative. Investors can expect above industry-average operating margins of 20-30% beginning sometime in 2020-2021 as PetVivo enjoys a critical mass of sales.

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PetVivo Holdings, Inc.
Projected Income Statement
($, thousands)

	FY19E	FY20E	FY21E	FY22P
TOTAL REVENUE	**$0**	**$3,000**	**$12,000**	**$20,500**
Cost of Sales	$0	$750	$3,000	$5,125
Gross Profit	$0	$2,250	$9,000	$15,375
Gross Margin	*N/A*	*75%*	*75%*	*75%*
Operating Expenses				
Research & Development	$125	$450	$1,200	$1,640
Sales & Marketing	$600	$1,200	$2,520	$3,075
General & Administrative	$1,400	$1,860	$2,400	$2,870
TOTAL OPERATING EXPENSES	**$2,125**	**$3,510**	**$6,120**	**$7,585**
Opex as a Perc of Rev	N/A	117%	51%	37%
EBITDA	**($2,125)**	**($1,260)**	**$2,880**	**$7,790**
EBITDA Margin	*N/A*	*-42%*	*24%*	*38%*

NOTES:

"P' represents preliminary.
Source: Marble Arch Research estimates

RISK FACTORS

Although PetVivo is on the cusp of full-scale product commercialization, a number of hurdles exists, including business development, financial, and production. For example, while its capex requirements are relatively low, delays could occur, which would affect the timeline outlined above. Other risks include a slow sales build of key products or competition from current or new entrants into the field. Given the Company's current standing, battle-tested approach, major competitive advantages, and enviable leadership team, we do not believe that funding timing or sales growth are meaningful risks. Separately, any potential dilutive effect from a future equity funding would be nullified by a related increase in overall market value. In any event, these risk factors are commensurate with companies of PetVivo's size and standing.

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Volatility and liquidity are typical concerns for newly listed microcap stocks that trade on the over the counter market. As a result, the stock is subject to sharp swings. Moreover, there is limited current available financial data at this time. But, as the year goes on, we expect the income statement to accurately reflect revenue generation and future potential. We should note that the shares outstanding could increase due to potential capital needs. However, since the proceeds of any future funding would likely be used in part to close on M&A,

CONCLUSION

PetVivo Holdings is well-positioned to emerge as the standard of care for the treatment of osteoarthritis in dogs and horses, an unmet need representing an estimated $3.2 billion combined annual market. The platform directly improves activity, and has a strong safety profile. Given its efficacy, affordability, and the emergence of new, revenue streams for veterinarians PetVivo offers a compelling, therapy. Plus, PetVivo has a deep IP portfolio. With $15M invested in R&D including $7M from NIH, PetVivo has a 17 product-deep human and pet therapy portfolio.

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, a market slated to reach $20B in sales by 2024. We believe this is a huge sleeper for the Company and major success could warrant a re-valuation.

Currently, sales are forecast to enjoy huge growth. We project sales will leap from $3M in FY20 to $12M in FY21 and $20.5M in FY22. This excludes potential contribution from what could be a highly profitable license revenue stream via its CBD delivery technology arrangement with Emerald Organic Products.

Trading at a huge discount to its peers, our target price is $3.00. Our target is based upon a 5.5x sales P/S multiple, similar to its peer group, and affirmed by a Net Present Value (NPV) calculation. Thus, we rate PETV Speculative Buy.

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SENIOR ANALYST: ROBERT GOLDMAN

Rob Goldman joined Marble Arch Research in 2016. He founded and has operated Goldman Small Cap Research Inc. since 2009. Rob has over 20 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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