DAWSONJAMES SECURITIES

Member FINRA/SIPC

INSTITUTIONAL RESEARCH

Healthcare & Biotechnology

INITIATION REPORT

Toll Free: 561-391-5555 ♦ www.DawsonJames.com ♦ 1 N. Federal Highway, 5th Floor ♦ Boca Raton, FL 33432

May 24, 2016

Parnell Pharmaceuticals Holdings Ltd.

(Nasdaq GM/PARN)

Sherry Grisewood, CFA
Managing Partner,
Life Science Research
561-208-2943
sgrisewood@dawsonjames.com

BUY

Parnell is an international veterinary pharmaceuticals and services company

Current Price $1.56
(PARNELL LISTED ON NASDAQ JUNE 2014)

Summary and Investment Highlights

We believe Parnell Pharmaceuticals Holdings (Parnell) represents an excellent example of the emerging leadership of biotech companies in the evolution and revolution underway in veterinary medicine. Furthermore, Parnell exemplifies our view of the merging of veterinary and human biotech as analogs of its lead canine drug are approved in both human and vet indications. The Company has leveraged its long history in drug development to become an international veterinary biotech with strong formulation, clinical development and clinical trial expertise that has contributed to success in operating commercially across 14 countries. Parnell's business strategy focuses on areas of significant need in companion pets (dogs, cats and horses) and performance horses, and in (primarily) dairy cattle, where there is opportunity to be a first mover.

Parnell stands apart from its competitors with highly differentiated products that are integrated with complementary digital technologies designed to assist animal owners in maximizing the performance and application of its products. **FETCH™** for dog owners, **FETCH Pro™** for small animal vets and **mySYNCH®**, for production animal customers, are unique proprietary personalized mobile apps software solutions that have proven to accelerate Parnell's pharmaceuticals' market penetration. Parnell currently manufactures and markets five products for companion/performance animals and production animals and has an exciting pipeline of novel products addressing orthopedics, dermatology, anesthesiology, nutraceuticals and metabolic disorders for companion animals as well as breeding management and mastitis for cattle. We are initiating coverage with **BUY**, based in part on the Company's strong double digit growth prospects, first-mover product opportunities and modest market cap relative to direct competitors.

FY Ended Dec 31 unless otherwise specified

Estimates (MM's)*	CY2014A	FY 2015A	FY 2016E
Revenues(AUD$)	**$8.52**	**$13.10** A	**$20.70** E
1H	$4.26	$4.93 A	$9.77 E
2H	$3.65	$8.42 A	$10.99 E
2017 Preliminary Revenue Estimate			$31.20 E
Prev. Rev. Estimate ($ mil.)			**NA**
EPS(loss)	**($2.18)**	**($1.03)** A	**($2.06)** E
1H	($1.54)	($0.22) A	($0.97) E
2H	($0.68)	($0.81) A	($1.09) E
2017 Preliminiary EPS(loss) Estimate			($2.03) E
Price/Sales		**2.01X**	**1.0X** E
P/E (x)	NA	NA	NA
REV/Share	$0.92	$0.78	$1.34 E
EV/EBITDA (x)	NA	NA	NA
Stock Data			
52-Week Range			$1.34-$5.98
Shares Outstanding (mil.)			13.92
Market Capitalization			$21.92MM
Enterprise Value			$29.46MM
Current Ratio (12/15)			1.63X
Book Value/Share (12/15)			$1.11
Price/Book			1.41X
Average Trading Volume (3-Month)			143,648
Insider Ownership			NA
Institutional Ownership			NA
Short interest (Million shares)			0.0
Dividend / Yield			$0.00/0.0%

*Some numbers may not add due to rounding

Highlights

1) Core products address the largest unmet needs in companion and performance animal health. According to Nationwide Insurance, within this largest US pet insurance provider's database of 550,000 insured pets, skin allergies and infections and arthritis represent three of the top five medical conditions for which dog owners seek vet treatment for their animals. Bladder and urinary diseases and skin allergies were the top most common reasons for cats to visit the vet. Osteoarthritis (OA) is the single most important cause of lameness in horses. Degenerative joint disease is the number one reason for premature performance horse retirement.

2) Proprietary innovation in animal "telehealth" applications promotes a distinct marketing advantage. Parnell has developed a stand-out marketing tool in the form of proprietary telemedicine apps designed to improve the animal owner's interface with the health of his animal and with communication with the attending veterinarian, thus strengthening the customer/provider relationship.

Please find Important Disclosures beginning on Page 15.

3) Business strategy leverages an extensive drug development and formulation expertise that will support the commercialization and launch of up to seven new products, addressing up to 12 indications, over the next three+ years, and further expand the Company's pipeline through targeted development and in-licensing opportunities. In-house cGMP sterile manufacturing contributes to high product profitability with product-specific gross margins in Q1 2016 reaching over 80%. The expected addition of contract manufacturing business from two multinational pharma partners in 2016 will not only more fully utilize the Company's cGMP/FDA inspected sterile manufacturing facility but rapidly contribute to high quality revenue growth.

Company Business

Parnell is a company rooted in the practice of veterinary medicine, having started as a private compounder of veterinary drugs in Australia some 50 years ago. Today, Parnell is a fully integrated international veterinary pharmaceuticals business with drug development, formulation, multi-national clinical development and operations/manufacturing expertise. It develops products via both internal development and the acquisition of licenses to novel technologies. The Company currently operates in three primary veterinary segments: companion veterinary, reproductive veterinary and equine performance in both US and ex-US markets. The company sells products in 14 countries. The primary ex-US markets are Australia, New Zealand, Asia, the Middle East and Canada. Parnell has direct marketing and sales presence in the US, Australia and New Zealand and utilizes a range of multi-national and local marketing partners in other markets, such as Vetoquinol SA (VETO.PA/EU36.50/Not rated) in Canada. Parnell will continue to seek additional marketing partners for those geographies where the Company does not expect to establish a direct presence including Europe, Asia and Latin America. An announcement of a European marketing partner is expected in Q2 2016.

Until 2009, Parnell largely sold its products in Australia and New Zealand. In 2009, the Company made its initial US market entry with reproductive products for dairy herd breeding management. In 2013 it received its first FDA/CVM regulatory approval for **GONAbreed™**, one of its breeding management products and formally established a US presence with the move of its headquarters to Overland Park, Kansas that year. Parnell continues to expand its US presence and is now conducting all of its drug development and drug commercialization functions from its headquarters in Overland Park. With its presence in the Animal Health Corridor in Kansas, the location of a highest concentration of US and multi-national animal health companies in the country, Parnell is also in direct proximity to explore a variety of licensing opportunities with its neighbors in the animal health and biotechnology industries.

Parnell has leveraged its growing US presence in dairy reproductive health and in 2015, added infrastructure to initiate and expand a US companion animal veterinary franchise, initially targeting companion animal osteoarthritis. To that end, over the last two years, Parnell has built a companion animal direct sales organization, now reaching 55 personnel distributed over 40 of the largest metropolitan areas (encompassing some 12,000 small animal vet clinics), that supported the US launch of **Glyde®**, its nutraceutical based anti-inflammatory osteoarthritis chewable product for dogs in the fall of 2015. To complement market penetration of **Glyde**, and to seed vet and owner interest in forthcoming clinical-trial backed, FDA approved products, Parnell has also developed a complementary technology-based platform whose "telemedicine"-like products are aimed to educate pet owners concerning, in this case, osteoarthritis, and to provide a basis for communication between vet and owner concerning the pet's progress and overall health. Employing this complementary technology marketing approach for the US follows success in Australia, where the mobile apps-based technology led to rapid adoption of Parnell's pharmaceutical osteoarthritis drug, **Zydax®**. In 2014, about 250 vet clinics in Australia were tied into the initial mobile-apps Australian system, **iKAM™**, that drove a high rate of conversion from **Glyde** to the higher value, prescription **Zydax**. Parnell believes the same will hold true using the latest mobile apps version, **FETCH™**, to drive the migration of **Glyde** users in the US to **Zydax** upon FDA approval, expected late 2016.

Company Background

Parnell was incorporated as a proprietary limited shares company in Australia on June 25, 2009. As part of corporate restructuring that was completed on July 10, 2009, pursuant to a Share Exchange Agreement, Parnell Pharmaceuticals Holdings Ltd. acquired all of the outstanding share capital of Parnell Laboratories (Aust) Pty Ltd, a company beneficially owned by Dr. Alan Bell, current Chairman of Parnell's Board of Directors. On June 18, 2014, Parnell completed its US initial public offering on the NASDAQ Global Market, led by Jefferies and Piper Jaffray.

Parnell Laboratories' predecessor business was operated as an Australian private pharmaceutical compounding company of veterinary pharmaceuticals. The business was acquired by Dr. Bell, an equine racehorse veterinarian/owner in 1986, upon retirement of the original founder. Dr. Bell heavily supported investment in R&D, commercialized the Company's first products and in the early 1990's, positioned Parnell to enter the New Zealand and Middle East markets. Current management became involved with Parnell during the mid 2000's and continued to develop company core competencies across an integrated pharmaceuticals business model, and particularly, in R&D, clinical trial and regulatory experience. The Company has conducted over 31 clinical trials across six countries at 70 trial sites during the last ten years and so has built a large network of academic institutions, veterinary clinics and veterinary research organizations that separates the Company from most, if not all, of its similarly-sized competitors. As of December 31, 2015, Parnell had 126 employees, of which 89 are based in the US. Parnell's headquarters are located at 7015 College Blvd, Overland Park, KS 66211. The Company's telephone number is 913-274-2100 and the website is www.parnell.com.

Multiple Commercial Products Address Growing Vet Biotech Market

As we have discussed in prior reports concerning the companion animal market, there are a number of macro factors particularly driving an accelerated rate of growth for veterinary biotech products compared to historical industry performance. Foremost is a growing number of pets. According to the American Pet Products Association (APPA) 2015-2016 survey, 65% of US households or 79.7 million households own pets, of which there are 77.8 million dogs, 85.8 million cats and 7.5 million horses. There are nearly as many pet dogs in Europe (including the UK and Scandinavia) as the US, and according to the Australian Veterinary Association, there are 4.2 million pet dogs in Australia in 2013. Other potential markets for Parnell's companion animal products, such as Japan with 13 million pet dogs, also have high dog ownership.

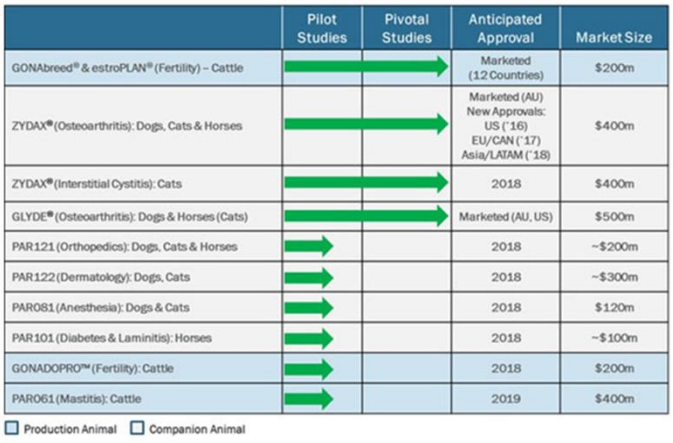
- Increasing pet ownership, and dog ownership in particular, has been attributed in part to young people (especially city-dwellers) putting off child-bearing, and to generally lower number of children per household in the US (CNBC.com July 10, 2013). The CDC reported in Jan. 2016, that among all groups, the average age of a woman at her first birth is 26.4 years, up from 21 years old in 1970, and among white, non-Hispanic women, the average age is now over 27 years. For many "Millennials" and "Gen Y'ers", their pets are their children.

- Pets are increasing being viewed as "family members". With rising disposable income and fewer children, pet owners are more willing to spend on care and treatment for their pets. Total US Pet industry spending has risen from $38.5 billion in 2006 to over $60 billion in 2015 (Source: APPA 2015-2016 Nat. Pet Owners Survey). According to the APPA survey, basic annual expenses per dog are approximately $1,641.

- Companion animals are seeing the same "disease demographics" as humans, as pet longevity continues to improve. On the whole, companion animals experience many of the same medical conditions seen in older humans including osteoarthritis, cancer, metabolic and eye diseases and other common elderly human chronic diseases.

- Veterinary medicine has historically lagged human medicine in terms of the development and adoption of new therapies. As we have described previously, animal health is now rapidly evolving into veterinary biotech and there is now an acceleration of the blurring between human and veterinary treatments as vet biotech takes a leap forward. Parnell's current pipeline includes two human FDA-approved class of drugs being developed for companion animals, while several of its back pipeline products may have human therapeutic applications.

As the accompanying chart from Parnell's March 2016 Jefferies Animal Health Conference presentation depicts, Parnell has a robust product set extending across areas of significant unmet needs in the treatment of osteoarthritis, dermatological conditions and metabolic diseases as well as in production animal reproductive products and tools. Nationwide's Veterinary Pet Insurance subsidiary reports on their website (www.petinsurance.com) that in 2014 alone, there were 38,000 claims for the treatment of canine osteoarthritis.



	Pilot Studies	Pivotal Studies	Anticipated Approval	Market Size
GONAbreed® & estroPLAN® (Fertility) – Cattle	→	→	Marketed (12 Countries)	$200m
ZYDAX® (Osteoarthritis): Dogs, Cats & Horses	→	→	Marketed (AU) New Approvals: US ('16) EU/CAN ('17) Asia/LATAM ('18)	$400m
ZYDAX® (Interstitial Cystitis): Cats	→	→	2018	$400m
GLYDE® (Osteoarthritis): Dogs & Horses (Cats)	→	→	Marketed (AU, US)	$500m
PAR121 (Orthopedics): Dogs, Cats & Horses	→		2018	~$200m
PAR122 (Dermatology): Dogs, Cats	→		2018	~$300m
PAR081 (Anesthesia): Dogs & Cats	→		2018	$120m
PAR101 (Diabetes & Laminitis): Horses	→		2018	~$100m
GONADOPRO™ (Fertility): Cattle	→		2018	$200m
PAR061 (Mastitis): Cattle	→		2019	$400m

Production Animal Companion Animal

Production Animal Reproductive Management

Parnell established its US presence in 2013 with the launch of its reproductive hormone products, **estroPLAN®** (cloprostenol sodium; a prostaglandin F2α (PG) drug) and **GONAbreed®** (GONAbreed (gonadorelin acetate; a Gonadotropin Releasing Hormone, (GnRH) drug). The Company was the first to achieve FDA approval for the indication of estrous synchronization in lactating dairy and beef cows. These products are used in breeding programs which are aimed at increasing pregnancy rates and improving herd quality in dairy and beef cows. Improving pregnancy rates for dairy cows is critical: a cow only produces milk so long as she has a calf each year. PG and GnRH drugs are given as a sequence of three injections over nine days to cause a cow to ovulate (Ovsynch programs) which allows for artificial insemination, or AI, to be used. Parnell markets its reproductive hormone products in conjunction with proprietary software platform, **mySYNCH**, described below, in order to deliver superior breeding outcomes. Parnell typically enjoys a top three market share position in these products in many of the other countries where these products are sold.

Managing Herd Breeding: Market Importance

There are approximately 271 million dairy cows in the world according to the Food & Agricultural Organization of the United Nations (FAO) report of Jan 18, 2015, with about 9.2 million dairy cows residing in the US Parnell estimates that as many as 100 million dairy cows globally are milked in industrialized countries, including 20 million in Europe and six million in Australia and

New Zealand. The dairy business largely depends upon artificial insemination in order to maintain a steady supply of milk. Artificial insemination technique (AI) was introduced to the US through the New Jersey Agricultural College in 1938 from practice in Russia and is now used nearly universally in the dairy business. Cows must be bred continuously in order to maintain lactation and reliance upon natural breeding has a number of significant drawbacks for commercial dairy farms, among which are unpredictability of achieving pregnancy, timing of pregnancy and risk of infection. Furthermore, according to the University of Georgia, studies have shown daughters of sires available through artificial insemination produce more milk than daughters of sires used in natural service. Cows fathered by proven AI sires have been shown to be more economically productive in the fluid milk market during their lifetimes. These daughters on average live one month longer and produce more than 1,400 kg more lifetime milk. Other advantages of AI include:

- the ability to use sires of superior genetic merit (the best bulls of the breed);
- improving production traits in cattle operation;
- the ability to mate specific sires to individual cows;
- reducing the number of herd bulls needed in cattle operation;
- increased genetics for replacement heifers (young cows); and when combined with estrous synchronization, a shorter calving season can be achieved, resulting in a more consistent, uniform calf crop.

(Source: University of GA –Ag. Extension 2013)

Early AI practice relied on the administration of prostaglandins to cause a cow to commence a new ovulatory cycle that leads to the release of an ovum (or egg). After injecting a PG drug, a farmer had to physically observe the cows for signs that the cow was ready to be artificially inseminated (called heat display) and be prepared to inseminate the cow, a manual process, in a fairly narrow time window of some 13 hours. In the last decade, combining the use of PG products with GnRH products in Ovulation Synchrony (Ovsynch) programs has led to more accurate breeding programs that allow for fixed-time artificial insemination (FTAI) that avoids the need for observing individual cows for heat display during the specific hours for breeding, thus improving farm labor efficiency and also increasing pregnancy rates. Breeding timing across a dairy herd is critical to the economic success of the dairy farm. Every day a cow is not pregnant following calving, milk production in the next lactation is reduced. Despite advances in Ovsynch methods, no new injectable drugs have been developed for cattle reproduction in several decades.

Market Dynamic-Parnell's Differentiated Strategy

Parnell estimates the global reproductive hormone market to be over $200 million. In the US, approximately 50 million doses of GnRH and PG drugs are sold annually generating approximately $80 million in product sales. The prostaglandin and gonadotropin-hormone releasing drug products used for production animal breeding are generic equivalents to the natural hormones. All of the large animal health companies, including Zoetis, Merial, Merck and Bayer, sell their own branded hormone generics. Smaller local pharmaceuticals companies may also compete in selected non-US geographies with their own generic versions of these hormones. Therefore, product differentiation and service is required to effectively compete in this market.

Parnell's approach to market differentiation builds on introducing innovative products and enhancing the partnership between veterinarians and diary/beef producers by facilitating the veterinarian in becoming a consultant in the improvement of reproductive efficiency. Although the active ingredients in Parnell's products are generic, the Company is exploring novel combinations of the generic drugs and recently filed a method of use patent for a new breeding program, **PROCEPT™**, which is intended to increase conception rates from AI programs compared to traditional Ovsynch programs. The development of **PROCEPT** is being undertaken in conjunction with Dr. Milo Wiltbank, University of Wisconsin, who was also the lead investigator of the Ovsynch method and subsequent adaptations of that original synchronized breeding program. A successful launch of the **PROCEPT** breeding program would solidify Parnell as a leader in clinical reproductive science, as the Company would be both the first to bring a new indication to the market for dairy and beef cows in over ten years (**GONAbreed** in January 2013) and the first company to launch a new clinically-proven breeding program in the US.

Parnell is also currently developing **GONADOPRO™** for enhanced cattle fertility. **GONADOPRO** is a novel combination formulation of gonadorelin acetate (the active ingredient in **GONAbreed**) and progesterone. This combination product would be used in the same Ovsynch programs as **estroPLAN** and **GONAbreed**, but is expected to improve pregnancy rates to fixed-time artificial insemination by approximately 15% to 30%. Hormone profile and dose determination studies are being conducted in anticipation of a 2018 launch.

mySYNCH

Parnell provides its proprietary **mySYNCH** hand-held mobile-apps technology to its production animal customers for free. The mobile app was developed to complement the use of **estroPLAN** and **GONAbreed**. **mySYNCH** provides breeding customers with mobile education, data analytics and reporting to facilitate maximizing pregnancy rates in their cows when using **estroPLAN** and **GONAbreed** ovulation inducers. **mySYNCH** has been instrumental in differentiating Parnell and facilitating the penetration of the

US market by helping dairy customers manage reproduction activities on the farm while encouraging the implementation of Parnell's hormone products. Placing this kind of technology into its dairy customers has resulted in quantifiable success. For example, a large dairy farm in North America switched from a competitor's product to Parnell's' breeding program, which resulted in a 25% increase in pregnancy outcomes. Parnell anticipates launching a new version of **mySYNCH** in 2016 that will provide "point of care" functionality for monitoring key health informatics at the point of contact with the individual cow. Parnell also believes that its 'technology + breeding program' approach will enable dairy farmers to increase efficiencies even in environments of low milk prices, a problem of the last couple of years in Australia and New Zealand.

While the dairy business in the US, Canada, Europe and other developed regions has nearly universally adopted AI to manage herd breeding, the beef market is relatively underpenetrated. Various sources as well as Parnell's own market assessment suggest that the practice of AI has only penetrated about 10% the beef industry, but that there is a trend of increasing use of AI for beef cattle to increase the genetic worth of herds. Thus, penetration of the beef cattle industry represents a significant market expansion opportunity for Parnell.

Companion Animal and Performance Horse

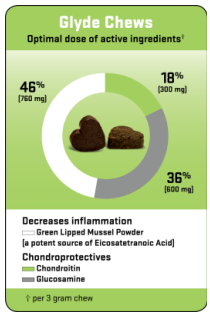
Parnell's companion animal and performance horse products are derived from the company's roots in equine performance horse health, where degenerative joint disease and osteoarthritis are the primary reasons for lameness and sub-par performance leading to early retirement. Although horse racing is perhaps the most well-known equine sport horse activity, OA and joint disease also significantly impact other disciplines of the performance sport horse world, such as show jumping and dressage horses, cutting, barrel racing and roping horses and endurance performance horses where the nature of the horse's activity places extreme stress on joints.

Parnell's osteoarthritis products are based on the treatment philosophy of *together* reducing pain and inflammation, and promoting chondroprotection by targeting the cause of OA. By targeting both symptoms of inflammation and chondroprotection, Parnell's' products potentially enable sufficient disease modification to slow or reduce the likelihood of progression to disabling degenerative joint disease. The company's commercial products address both parts of the treatment need: **Glyde®**, a nutraceutical formulation of glucosamine and chondroitin sulfate is combined with the clinically proven anti-inflammatory properties of the marine extract of New Zealand green-lipped mussel and **Zydax®**, a proprietary prescription formulation of Pentosan Polysulfate Sodium or PPS, is a well-studied chondroprotective agent.

Source: top right: **The Horse**, 9/1/09, left: Northwind Racing Stable, lower right: Aachen Germany Rolex Grand Prix

Glyde

Glyde, is a proprietary formulation of glycosaminoglycans (chondroitin sulfate and glucosamine which are building blocks for cartilage) and ecoisatetranoic acid (ETA) powder, a unique Omega-3 fatty acid derived from the green-lipped mussel. ETA is a potent and well-recognized anti-inflammatory agent that, in contrast to traditional pharmaceutical NSAIDs, has a benign gastrointestinal side effect profile. Omega-3 inhibits the inflammatory process and beneficially effects cartilage metabolism by reducing the breakdown of cartilage by destructive enzymes. **Glyde**'s anti-inflammatory mode of action can obviate the use of NSAIDs, which as discussed later in this report, can have severe limiting GI, liver and kidney adverse effects for animals. Furthermore, in most countries where there is sport horse activity, the use of NSAID's in competition is illegal. For horses, **Glyde** is administered as a paste daily via bolus syringe while for dogs, Glyde is administered as a soft chew. Equine **Glyde** is currently marketed in countries where **Zydax** is currently approved for equine use.



Source: Parnell company marketing

Glyde for dogs is a canine-specific chew formulation combining rosemary and bacon flavors with the same active ingredients as equine **Glyde**: New Zealand green-lipped mussel (GLM), glucosamine, and chondroitin. In addition to the all-natural ingredients **Glyde** has a unique "cold pressed technology" that maximizes it active ingredients to their full potential. Parnell's Companion Animal team is currently selling **Glyde**, in advance of **Zydax,** as part of the two-pronged sales strategy where **Glyde** supports healthy joints while **Zydax** is indicated to treat clinical signs of osteoarthritis. Following the successful use of a complementary digital mobile

technology in Australia, the US version, **FETCH** and **FETCH pro** were rolled out to the US market when **Glyde** was launched in September 2015. **FETCH** for pet owners and **FETCH pro** for veterinarians, (www.parnell.com/products/companion/fetch/) are interactive applications for the diagnosis and monitoring of the dog's osteoarthritis. The companion animal mobile app contributed to a 51% increase in sales of Parnell's companion animal products in 2015. As of February 2016, nearly 300 US vet clinics have installed **FETCH** and over 1,300 dogs have been enrolled since launch. Parnell has expanded the marketing effort in Q1 2016 and **Glyde/FETCH** is now backed by 55 person sales and marketing organization targeting 12,000 vet clinics. Parnell expects that by the end of 2016, a little over a year from launch, over 20,000 dogs will be enrolled and some 1,500 vet clinics will be participating in the **FETCH** program. As demonstrated by experience in the Australian market, **FETCH** gives Parnell a valuable pre-market launch positioning tool, and important insights into pre-identifying dogs that might benefit and seeding interest in 'by prescription' **Zydax**.

Zydax

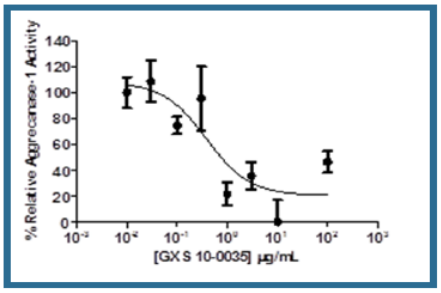
The most common treatments for OA, such as NSAIDs, are anti-inflammatory drugs that alleviate symptoms but do not address the underlying disease process. **Zydax** is Parnell's patented formulation of a Pentosan Polysulfate Sodium (PPS), a semi-synthetic hemicellulose polymer extract derived from the European beech wood tree. **Zydax** is marketed as an intramuscular injectable drug for the treatment of OA in horses and is approved for equine use in Australia, New Zealand, Hong Kong, Singapore and Dubai. The Company is completing FDA and EMA-compliant safety and efficacy equine studies to allow for marketing in the US and Europe. Parnell expects to further expand the market for **Zydax** to Japan and China where horse racing is also popular. Parnell has completed filing both the Target Animal Efficacy and Chemistry & Manufacturing Control sections with the FDA in October 2015 for canine **Zydax** and expects to have US approval by the fourth quarter 2016. Approval in Europe, where the Company expects to announce a marketing partner in 2016, and in Canada, is expected in Q1 2017. **Zydax** is already approved in Australia and New Zealand for the treatment of OA in dogs.

Disease-modifying Drug, A Significant Product Differentiator

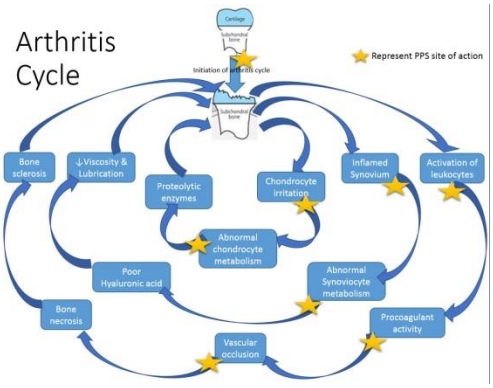
In general, PPS is a mild anticoagulant, and has anti-inflammatory, fibrinolytic and hypolipidemic properties which protect from catabolic events in the joint by reducing the levels of cytokines and inflammatory mediators within the cartilage matrix and synovial fluid. PPS is an FDA-approved human therapeutic under brand names such as **Elmiron** (IVAX, 1996) for the treatment of interstitial cystitis (IC) a condition characterized by painful, urgent urination, and **Elmiron** is the only oral medication FDA-approved for IC. It is also a known anti-clotting or thrombolytic agent. It has been widely used in a variety of human and animal conditions across the world. Coinciding with the publication of number of canine-based OA studies and its approval as an injectable treatment for OA in dogs in Australia in 1996, PPS began to be used off-label for equine OA before more recent equine regulatory approvals. PPS also received Scandinavian and EU regulatory approval for human joint conditions following a number of published canine OA studies.

Because of its PPS's "protective coating" mechanism of in treating the damaged bladder wall in IC, and inhibition of bladder cell response to inflammatory mediators such as NK-κB and histamine, Swedish and Australian researchers published follow-on reports elucidating its potential as a chondroprotective molecule for joint osteoarthritis. Despite not having any direct analgesic effect, generally speaking, **Zydax** and other PPS compounds are classified as Disease-modifying Osteoarthritis Drugs (DMOD) because of:

- The stimulation of proteoglycans synthesis in the cartilage matrix. The slow loss of proteoglycans occurs in joint wear and tear, weakens the joint's structure and leads to lameness.
- Stimulation of synovial fibroblasts to produce increased amounts of high molecular weight hyaluronic acid in the joint capsule that improves the viscosity and volume of joint fluid for lubrication and joint stability.
- Inhibition and modulation of inflammatory molecules including histamine, serotonin, superoxide free radicals and inflammatory cytokines. **Zydax** specifically reduces Aggrecanase-1 enzyme activity, a primary driver of degenerative joint disease, as the accompanying chart to the right from Parnell's March 2016 Jefferies Animal Health Conference presentation depicts.
- Improves blood flow into the joint by the disruption of fibrin microclots and lipids in joint-related blood vessels caused by performance stress or trauma.
- Supports chondrocyte anabolic activities and attenuates catabolic events through altered matrix metalloproteinases gene expression.



Although PPS has a long safety history, this family of sulfate esters, including heparin, dextran sulfate and PPS, are still manufactured only semi-synthetically. Their extraction and synthesis from natural sources has long proved to be very challenging, with production outcomes being highly variable. This has translated to inconsistent clinical outcomes and highly variable efficacy which is a primary reason why PPS has not gained wide use for OA and other indications. Parnell has patented its active ingredient formulation, GXS, a PPS analog, that differentiates **Zydax** from other PPS formulations.



Source: Wikipedia

As data in recent years has further revealed their mechanism of action, the use of PPS compounds for equine and canine OA has been increasing. However, different forms (calcium derivative or sodium salt), specific formulation and route of administration can significantly affect efficacy. Current formulations of PPS vary in both molecular weight and the content and position of sulfate groups. This has led to inconsistent efficacy across various commercial PPS formulations. GXS is a low molecular weight, highly sulfated pentosan, glucuronoxylan sulfate, that Parnell has optimized for higher and more consistent efficacy by controlling the molecular weight, sulfate content and homogeneity of molecular structure.

Unlike other injectable joint treatments, such as hyaluronic acid, researchers at the University of Bristol, England, and the Orthopedic Center at Colorado State University, among others, have demonstrated that PPS can be efficacious when administered as a series of *intramuscular* injections, a significant advantage over invasive joint or systemic intravenous injections. Even though intramuscularly administered, PPS compounds concentrate in the joint synovial fluid and exert their therapeutic effect on synoviocyte metabolism, provided dosage is sufficient. **Zydax** is also delivered by IM injection and has an excellent efficacy and safety profile, with over one million doses sold during the past 7 years. **Zydax**'s excellent record is indicative of the drug class and is supported by statistics released from Biopharm Australia Pty Ltd in 2007 for its branded PPS (Cartrophen Equine Forte), which showed that after 14 years of commercial sales, there were fewer than 0.01 percent adverse responses, of which most were from injection site irritation. Importantly, Parnell's **Zydax** long-term administration canine studies confirmed there were no effects on liver, kidney or signs of GI ulceration which typically occur with NSAIDs.

Glyde and Zydax for Canine OA Address A Major Unmet Need as NSAIDs are Largely Unsuitable for Animals

Like humans and horses, dogs are also subject to developing osteoarthritis and degenerative joint disease. According to research conducted by the University of Missouri, around 20% of young dogs may be susceptible to developing OA due to breed, genetic conditions and/or trauma, and as many as 90% of "elderly" dogs will eventually develop OA. Nationwide's Veterinary Pet Insurance subsidiary reports on their website (www.petinsurance.com) that in 2014 alone, there were 38,000 claims for canine osteoarthritis, amounting to $4.6 million in claims paid for this single indication. Until **Zydax** and Aratana Therapeutics's (PETX/$6.36/Not rated) **Galliprant®**, that recently won FDA approval for the canine OA pain indication, the majority of OA treatment options for companion animals are NSAIDs. Stem cell infusions and other regenerative medicine approaches are being used in an attempt to fill the "safe and effective" treatment gap, but these are very costly and not widely available among smaller companion animal vet practices.

Table 1
Treatments for Canine OA and Inflammatory Pain

Company	Product Name	Class	Target/technology	Clinical Status	Disease-Modifying
Parnell	**Zydax**	**PPS**	**cartilage matrix synthesis**	**Aprroved x-US, US approval Q4'16**	**yes**
NexVet Biopharma	NV-01 (Ranevetmab)	mAb	anti-NGF antibody	Field trials, safety/efficacy complete	No-Pain management
Aratana	**Galliprant®**	Biologic	anti-EP4 receptor	FDA Approved	No-pain management
Regeneus	**CyroShot Canine™**	Cells	allogenic stem cells	pre-pivotal study	Possibly
Dechra Pharmaceuticals	**Pardale V®**	Opioid	Paracetamol and codeine	commercial	No-Pain management
VetCell Therapeutics		Cells	PRP or growth factors	commercial	Possibly
PetVivo	PetVivo	device	collagen matrix	pre-commercial	Unknown
Bayer	**Quellin™**	NSAID	COX inhibitor	commercial-FDA -appvd	No-pain management
	carprofen	(carprofen)			
Ceva	**Meloxidyl™**	NSAID	COX inhibitor	commercial-FDA-appvd	No-pain management
	(meloxicam)	generic			
VetMedica (BI)	**Metacam™**	NSAID	COX inhibitor	commercial-FDA -appvd	No-pain management
	(meloxicam)				
Novartis Animal Health	**Deramaxx™**	NSAID	COX inhibitor	commercial-FDA-appvd	No-pain management
	(deracoxib)				
Pfizer	**Rimadyl™**	NSAID	COX inhibitor	commercial-FDA-appvd	No-pain management
	(carprofen)				
Boehringer Ingelheim	**Surpass®** topical cream	NSAID	diclofenac	commercial-FDA -appvd	No-pain management

Source: Company websites, CVM, DJ

The lack of pharmaceutical treatment options is clearly apparent as the FDA's current list of approved canine anti-inflammatory treatments is dominated by NSAIDs produced by Big Pharma's animal health divisions, as Table 1 indicates. Of 11 marketed NSAIDs, four are melaoxicam, and five are carprofen of which, **Rimadyl™**, is the best known brand. **Galliprant** is indicated to treat the pain associated with osteoarthritis in dogs and is being positioned to compete head-to-head with **Rimadyl**. **Rimadyl**, a

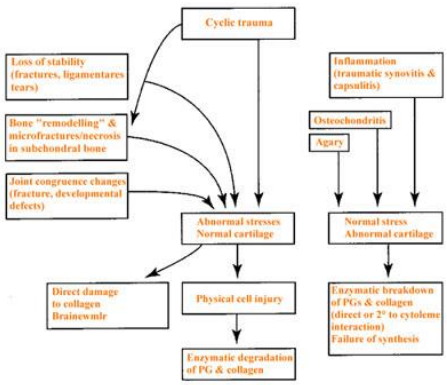
COX-2 selective NSAID (ibuprofen is a non-selective NSAID and very dangerous to dogs and cats) was a breakthrough treatment for canine OA, but tolerability has been a continuing and major concern as **Rimadyl** has set a record in the number of adverse event reports for a pet drug, according to data from the CVM. The most common adverse events associated with NSAID use in veterinary patients are vomiting, loss of appetite, depression, and diarrhea that usually resolve with discontinuation of the drug and appropriate treatment. Not uncommon more serious side effects include stomach/intestinal ulcers with possible perforation, kidney and liver failure, and death (Source: FDA/CVM website)..

Despite its adverse event profile, since 2000, more than 4 million pets have been treated with **Rimadyl** or other COX2-selective NSAIDs because of the lack of safer alternatives. Aratana estimates the US market for **Rimadyl** and similar compounds is now approximately $300 million per year. Considering the popularity of **Rimadyl**, Parnell conducted, as part of its safety submission to the FDA, a concomitant-use safety study in mixed breed dogs using **Zydax** with **Rimadyl**. The combination was administered according to recommended dose rates for their usual treatment periods. There were no safety issues noted in the trial, indicating that **Zydax** could be safely administered with **Rimadyl** or similar NSAID in order to maintain what might be the vet's normal treatment protocol. *Most significantly, however, is the fact that none of the pharmaceuticals currently approved for canine OA pain are disease-modifying as is Zydax* which we believe will be the key attribute of Zydax's primary differentiation from competitors' drugs.

There are also species-specific concerns with respect to the use of NSAIDs in animals. For example, cats lack the enzyme systems to efficiently break down NSAIDs, and thus are at a much higher risk of developing potentially serious side effects when given these drugs over extended periods of time. As an example, a single acetaminophen tablet may kill an average-sized cat. In the USA, no veterinary NSAIDs are approved for long-term use (over four days) in cats, although there are a few countries have NSAID products approved for use in cats.

Osteoarthritis Primer

The core problems of osteoarthritis are caused by a reduced anabolic activity (production of cartilage and synovial fluid) and an increase in catabolic activity (an increase in cartilage degradation). The causes of OA are multifactorial and include genetics, developmental abnormalities and prior joint injury or cyclic trauma (repetitive stress) that effectively reduces anabolic activity that promotes the production of cartilage and synovial fluid while increasing catabolic activity that leads to cartilage degradation



Source: McIllwraith et al, Bone Joint Res. 2012 Nov; 1(11): 297–309

OA disease is characterized by progressive loss of cartilage on the articulating surface of bones and subsequent development of painful and motion-limiting bone spurs. Over time, cartilage loses its ability to cushion and protect the joint from forces applied during normal joint movement. Once the degradation of cartilage has started to occur, fragments of broken cartilage are released into the joint space triggering the release of various inflammatory agents including such enzymes as matrix metalloproteinases (MMPs) which also degrade healthy cartilage. As OA continues to progress, cartilage erosion exposes the underlying bone which in turn causes the formation of bone cysts and spurs. To counter inflammation, mediators in the joints attempt to regenerate the damaged cartilage. But because cartilage has a poor blood supply, it regenerates slowly and typically ends up being replaced with fibrotic tissue. In fact, once the process is underway, the rate of degeneration usually exceeds the rate of regeneration. Consequently, cartilage continues to erode over time, leaving the ends of the bones exposed, creating the OA hallmark chronic pain and inflammation.

OA Market Opportunity and Competition

Parnell estimates that the current prescription drug market for OA treatment in animals in the US and the EU is over $410 million in annual sales. The global market for alternative treatments, some of which are described below, is at least another $500 million in annual sales. There are currently no FDA-approved pharmaceutical curative treatments for OA or degenerative joint disease for either animal or humans.

For the equine OA market, standard treatment alternatives primarily include the use NSAIDs such as the mainstay, phenylbutzone ("Bute") or diclofenac, rest, nutraceutical feed supplements and joint injections. The use of NSAIDs is largely illegal in performance horses, so owners and vets turn to nutraceutical supplements and joint injections. Generally, nutraceuticals' efficacy varies substantially from product to product. In a 2006 survey conducted by the Ontario Veterinary College, Canada, related to oral joint health supplements, of 23 oral joint health supplements evaluated, only 14 products contained the amount of glucosamine listed on the manufacturer's product label, or put another way, 40% of the studied products did not contain the expected amount of glucosamine, including one product that did not contain any glucosamine at all. A market has also developed for drug-like supplements and drug injections that are purported (but not rigorously proven by clinical trial) to be disease-modifying in their nature,

including **Legend**® (intravenous injection) marketed by Bayer and **Adequan**® marketed by Luitpold Animal Health, a subsidiary of Luitpold Pharmaceuticals. Additionally, because of the attractiveness of the large US market, multiple "grey market drugs" have emerged and are supplied either by compounding chemists under state-based licensing laws or on-line. There are a few medical devices used to treat equine OA, one of which is supposed to only be used as a post-surgical lavage. In general, there is limited or no enforcement by the relevant regulators (e.g., the state pharmacy boards, FDA/CVM) of these and the FDA currently has limited jurisdiction over the grey market. Further, at present, veterinary medical devices do not need to be approved by regulatory authorities.

Market demand for equine OA treatment has been steadily increasing as owners have become highly aware of joint supplements and treatments over the last 5-7 years and joint injections have become a common procedure for treating equine athletes. In a 2009 survey of 831 American Association of Equine Practitioners veterinarians, over 50% said they performed joint injections on at least 10 horses a month and 14% said they injected more than 50 horses' joints per month. (Source: The Horse, 12/9/2009). Equine veterinarians are now routinely injecting with steroids, anti-inflammatories and hyaluronic acid, or various combinations thereof, and in fact, some reports indicate more joint injections are performed in horses than in humans. Corticosteroid injections have been use since the 1950s as the use of steroids injected directly into the synovial fluid of the joint has been well documented to alleviate active inflammation within the joint. If the joint has progressed towards arthritis, vets will use steroids combined with hyaluronic acid as a first line of treatment. This type of joint injection is administered every three to 12 months, and will often alleviate sufficient pain for the horse's lameness or stiffness to subside and a more normal range of motion return in the joint.

Hyaluronic acid (HA) itself, such as Anika Therapeutics' (ANIK/$46.03/Not rated) **HyVisc®,** FDA-approved for equine use and sold in the US through Boehringer Ingelheim Vetmedica Inc, is also used as a joint injection treatment. Hyaluronic acid (HA) is a normal component of synovial fluid as well as articular cartilage. It has been injected directly into the arthritic joints of horses since the 1970s. Legend as an intravenous injection has been available since the 1980s. Both injectable forms have an anti-inflammatory effect, and are proposed to stimulate the body to produce more HA, which thickens the synovial fluid and increases its cushioning ability within the joint. However, as is the case with human HA injections, clinical evidence of efficacy is limited as response is highly variable.

Joint injections are only recently becoming more commonplace in treating canine OA and inflammation. One of the primary reasons is that unlike equine vets, who routinely receive training in joint injections, small animal vets don't necessarily receive such training and many do not feel sufficiently skilled to insure accurate delivery into the small joints of dogs. (Source: Veterinary Orthopedic & Sports Medicine Group (VOSM), Annapolis, MD, personal communication, www.vosm.com). The vacuum of treatment options for canine OA has provided the market opportunity for veterinary biotech companies to develop new drug products, such as those being developed by Aratana and NexVet Biopharma Plc (NVET/$2.93/Not rated). These new products are aimed at providing safer and more effective OA pain relief than current non-steroidal anti-inflammatory drugs. By contrast, Parnell's **Zydax** is designed to enable veterinarians and animal owners to safely and effectively *manage the cause of OA*. Further, **Zydax** has the flexibility of being used as an adjunctive or a first-line therapy and as a result, veterinarians do not have to replace their favored incumbent therapies but rather could use NSAIDs or other drugs to alleviate the short-term symptoms of pain and inflammation while commencing a long-term course of treatment with **Zydax**. Parnell intends to market the use of "**Glyde + Zydax**" for a "holisitic" approach to joint care. Parnell intends to add to its pain management products with **Tergive®,** an improved and optimized generic carprofen formulation, following **Zydax** approval.

In addition to Parnell's direct sales force that focuses on partnering with larger veterinary clinics, typically those which employ three or more veterinarians, Parnell sells its companion animal products in the US through major distributors such as Animal Health International and MWI Veterinary Supply, an Idaho-based, international animal health products supplier to veterinarians. MWI was a public company until its acquisition in January 2015 by AmeriSourceBergen for $2.5 billion. As of March 31, 2016, Parnell has 55 Companion Animal sales reps covering the 40 largest metropolitan areas encompassing vet clinics representing about 80% of veterinary drug sales.

New Product Pipeline Focuses on Companion Animals

Parnell's growth strategy relies on commercializing both in-house originated and in-licensed products, as well as expanding indications for existing products where the Company already has established a marketing presence. In addition to advancing **Zydax** towards regulatory approval for equine and feline markets during the course of 2016 and 2017, Parnell is expecting to launch two new companion animal products this year. The Company's back pipeline of seven additional drug products address therapeutic need in orthopedics, dermatology, anesthesiology, nutraceuticals and metabolic disorders. Parnell will also be adding production animal products for reproduction and the treatment of mastitis in cattle. Near-term, Parnell is expecting to add these products:

1. **New products launching in 2016**. Parnell's business strategy is to launch at least one new product a year. 2016 is expected to see the launch of two new products in addition to the expected Q4 approval/launch for canine **Zydax**. **Luminous™**, an innovative nutraceutical product targeting atopic dermatitis in dogs, was developed internally by Parnell and is expected to launch during the current quarter (Q2 2016) and dovetail with **Glyde** and **FETCH**. Atopic dermatitis typically results from specific and non-specific allergies to food, dust mites, flea bites and many other causes. With constant inflammation and itching, the dog's hair thins and often

is lost as the condition of the underlying skin becomes compromised. Atopic dermatitis does not have a cure and it is often very difficult to ascertain its exact cause except by the process of elimination. Most often, it is treated with shampoos, skin conditioners, supplements, and when severe, with corticosteroids and antibiotics, both of which may add unintended side effects. This category is rapidly expanding as demonstrated by dermatitis reaching the top of the list of indications for which owners seek veterinarian help.

The second product Parnell announced it would be launching in 2016 is an in-licensed novel liquid bandage product with antimicrobial properties, branded as **Reviderm™**. For many animals, bandages are a source of irritation and frequently, either they are dislodged by natural movement or actively chewed away, which can lead to further wound damage and delayed healing. **Reviderm** offers a more elegant solution, combining antimicrobial properties that support wound healing with an impervious elasto-polymer that wears off naturally over time. The product is similar to the **Nuvavet Animal Healthcare Liquid Bandage,** a product marketed by Beeken Biomedical, Inc., a human healthcare company focused on hemostasis products for trauma.

2. **Expansion of the Zydax franchise**. Parnell is pursuing regulatory approval for **Zydax** in both horses and cats for osteoarthritis. The feline market osteoarthritis opportunity may be one in which Parnell can gain a significant market share as there are virtually no treatment options for cats because of their intolerance of NSAIDs. In addition, as mentioned previously, a member of the pentosan polysulfate class of drugs is already approved in humans for the treatment of interstitial cystitis (IC). A similar urinary condition frequently occurs in house cats. Parnell expects to complete a development plan for feline **Zydax** and commence pilot and pivotal studies in the US in 2016. If successful, the Company expects that feline indications for **Zydax** could be approved in early 2018.

3. **PAR121 and PAR122**. In 2014, Parnell entered into a worldwide, irrevocable license agreement for proprietary botanical compounds from CIMTECH (Cook Islands Medical Technologies) Pty Ltd., an Australian-based company researching and developing compounds derived from Cook Islander traditional botanical medicinals derived from such plants as hibiscus, beach pea and coconut palm. Parnell has licensed certain of these compounds for orthopedic and skincare/wound healing applications. The Company has received a grant for up to $1 million in matching funds from the United Nations under the Nagoya Protocol to enable the establishment of sustainable plant cultivation and the building of an extraction facility in the Cook Islands to supply the active botanical compounds. Parnell has identified two compounds for active development: PAR 121, for canine and equine orthopedics, and PAR 122 for feline and canine dermatological conditions.

Parnell is continuing early pre-clinical proof-of-concept work on PAR121, originally conducted by CIMTECH in conjunction with University of New South Wales Surgical and the Orthopaedic Research Laboratories (Australia), that has demonstrated accelerated natural healing and regeneration of bone. During 2016, Parnell hopes to isolate and identify the specific active components of the botanical extracts so as to commence development of a semi-synthetic or synthetic manufacturing process. Concurrently, Parnell is studying additional pre-clinical models of canine bone growth to elucidate the mechanism of action and develop clinical evidence of efficacy.

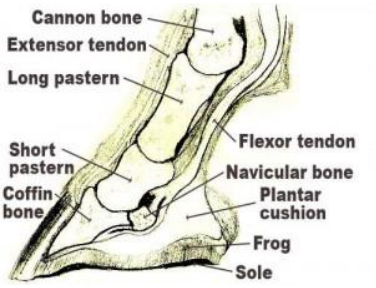
PAR122 is a compound that Parnell is developing for canine and feline dermatitis, and in particular, dermatitis associated with flea allergies (FAD). Flea bites can be highly pathogenic as it is known that as over 15 different antigens exist in the saliva of the flea. Any one antigen is capable of causing an allergic response in a sensitive dog or cat and FAD is one of the major causes of feline miliary dermatitis. More importantly, dogs and cats rarely become desensitized to flea bites once they develop an allergy. Despite recent advances in flea control, flea bite allergies and flea bite dermatitis still continue to be common pet problems. The botanical compound Parnell has licensed is associated with increasing skin thickness. Increasing epidermal thickness may help heal the skin faster and reduce irritation and possible infection from constant itching. As with PAR121, Parnell is currently isolating the specific active components of the botanical extracts during this year in order to development of a semi-synthetic or synthetic manufacturing process.

Selected Back Pipeline Products

PAR081 is a novel formulation of the widely used anesthetic, propofol, for companion animal (and human) sedation and is marketed by Zoetis as **PropoFlo™**. Propofol is relatively insoluble in water. It is currently formulated as an oil-in-water lipid cloudy emulsion with excipient and buffering ingredients such as soybean oil, glycerol, egg lecithin and oleic acid with sodium hydroxide to bring into a physiological pH range. One problem with these formulations is contamination due to microbial growth in the presence of egg and soybean lipids. PAR081's clear, aqueous formulation is intended to avoid the disadvantages of current lipid-based formulations.

PAR101 is Parnell's entry product for the treatment of companion animal metabolic disorders, and will specifically address laminitis (founder) in horses. PAR101 is being developed as an optimized formulation of pioglitazone, which is marketed as **Actos™** by Takeda Pharmaceuticals for treating Type 2 diabetes in humans. Laminitis is a painful and debilitating swelling condition that affects a horse's hoof. It is believed to originate as an autoimmune inflammatory condition initially triggered by insulin dysfunction in response to stress. It is a leading cause of death in horses, second only to colic(gastrointestinal disease-twisted gut). While the disease is not always fatal, it impacts a large number of animals (horses and cattle). Approximately, 15% of all horses will suffer a bout of laminitis in their lifetimes.

In the simplest terms, laminitis is the inflammation of the laminae inside of the horse's hoof. Each hoof includes 550 to 600 primary laminae, each with 150 to 200 secondary laminae. These tissues offer shock absorption during locomotion surrounding and holding the coffin bone in place, and supporting the horse's entire body weight against gravity during movement. When the laminae become inflamed, they fail to support the coffin bone. The horse's continued weight-bearing and movement can cause the coffin bone to rotate within the hoof or to sink toward the ground and protrude through the hoof's sole. Regardless of whether the coffin bone remains in the hoof capsule or penetrates the sole, laminitis causes a painful, debilitating, and potentially deadly failure of basic hoof function. If the coffin bone penetrates the sole, it is likely the horse would have to be euthanized. Laminitis is currently treated primarily with NSAID's or acepromazine in order to reduce swelling and inflammation as quickly as possible, before there is severe and permanent damage to the hoof.



Source: www.ironfreehorse.com

Animal Health Market Competition

In general, Parnell's potential competitors include virtually all of the large animal health companies, such as Zoetis, Inc., Merck Animal Health, the animal health division of Merck & Co., Inc., Merial, the animal health division of Sanofi S.A., Elanco, the animal health division of Eli Lilly and Company, Bayer Animal Health, the animal health division of Bayer AG; Boehringer Ingelheim Animal Health, BI Vetmedica, animal health divisions of Boehringer Ingelheim GmbH, Novartis Animal Health, the animal health division of Novartis AG; Virbac Group; Ceva Animal Health; Vetoquinol SA and Dechra Pharmaceuticals PLC. In addition, Parnell will see increased competition from smaller, early stage companies such as Aratana, NexVet Biopharma and Kindred Biosciences, looking to fill similar market needs as veterinary biotech and higher value products enter and penetrate the animal health market.

Manufacturing

Unlike many of its competitors, Parnell is a fully integrated pharmaceuticals manufacturer. Its primary manufacturing operations are located in Alexandria, a suburb of Sydney, Australia, where the Company maintains 11,550 square feet of office space and 20,161 square feet of manufacturing space under a long-term lease held by Helion Properties Pty Ltd, an entity is controlled by Alan R. Bell, Parnell's Chairman. The manufacturing site was inspected by the US FDA in 2013 and by the EMA in 2015. As there are limited cGMP sterile manufacturing facilities in Australia, Parnell is pursuing the development of contract manufacturing partnerships with biotech and Big Pharma since the facility is capable of producing pilot or research and development batch runs for biotechnology companies for use in clinical trials. The first contract manufacturing partnership is expected to be announced during Q2 2016. In late 2014, Parnell moved its corporate headquarters to Overland Park, Kansas, where it houses its primary operational activities in a 20,026 square feet office facility. Part of the cost of Kansas location build-out and leasehold improvement to the space was defrayed with grant incentives by the State of Kansas, which provided USD$700,000 in cash incentives to date.

Intellectual Property

Parnell has filed patent applications to cover various aspects of GXS, the active pharmaceutical ingredient in **Zydax**, including composition of matter patent and method of manufacture. Three patents have been issued in Australia and one in New Zealand. Additional applications are pending in multiple jurisdictions. The US patent application is currently under review. If all are granted, they would provide patent protection until at least 2028. The US patent application, US 9120877 B2, published in September 2015.

Product Group	Description/Indications	Patent Term	Patent Expiration	Patent Type	Major Jurisdictions
Zydax	Low molecular weight sulfated xylans/osteoarthritis in dogs and horses	20 years	October 8, 2028	Standard	Australia, New Zealand, Hong Kong, Europe, US*
GONADOPRO	Fertility in cattle	20 years	December 1, 2026	Standard	New Zealand
PAR121	Orthopedics in dogs, cats and horses	20 years	December 10, 2030	Standard	Australia, Brazil, China, Europe, Singapore, US, India
PAR122	Dermatology in dogs	20 years	May 4, 2030	Standard	Australia, Brazil, Canada, China, Europe, Japan, Korea, Singapore, US, India

Business Strategy and Drivers of Future Growth

Parnell differentiates itself from other animal health companies by the extent of its clinical development expertise in its selected therapeutic areas and with the integration of digital technologies with use of its animal health products. The Company intends to remain focused on long-term therapies for conditions with a high prevalence rate and high propensity for treatment by animal owners in the companion animal and production animal markets. Many segments of the veterinary market still have significant unmet need for which Parnell can be competitive in accessing, by leveraging its established drug development infrastructure and its drug commercialization capabilities that uniquely integrate digital technologies. Furthermore, by intention, Parnell has looked at some of

its product candidates, such as **Zydax**, PAR081, PAR121 and PAR122, as having potential when applied to human health. Assuming successful development of each of these product candidates for the animal health market, Parnell would seek to partner with human therapeutics companies to assessing the potential development of these product candidates for human applications.

Financial Overview; Q1 2016 Results and Outlook

(Note: Parnell reports all financial results in Australian dollars, (AUSD/USD conversions are at AUD$1=USD$0.72. As a Foreign issuer, Parnell currently files only semi-annual financial reports under 6-F filings)

Parnell has reported substantial double digit growth for the four past semi-annual reporting periods, culminating in a 74% increase in revenue in fiscal 2015 of AUD$13.1 million (USD$9.8 million) compared to fiscal year ended June 30, 2014 of AUD$7.5 million. Prior to 2015, Parnell reported financial results based upon a June 30 fiscal year. The six months ended December 31, 2014 was reported as a stub period for the conversion to the December fiscal year beginning in 2015. Revenue growth in 2015 was driven by the Company's addition of sales and marketing resources to its US Production and Companion Animal business segments. Production animal revenue in 2015 benefited specifically from Parnell adding four new territories to its production animal direct sales force, bringing the total territories to 10, which covers the top 20 states, or 80%, of the dairy cow population and the launch **mySYNCH**. Nearly all of the Companion Animal sales growth was attributable to the fall 2015 launch of **Glyde** and **FETCH** in the US market.

The trend continued for the first quarter of 2016. Parnell reported strong Q1 2016 results on April 22nd wherein top line revenue for the quarter grew 43% over Q1 2015 to AUD$2.2 million (USD $1.59 million). Segment results as were reported as follows: US Production Animal, sales for the March quarter rose to AUD$1.4 million, a 10% increase over the corresponding 2015 quarter which Parnell attributes to continued success in the roll-out of **mySYNCH**; Production Animal-Ex US, sales reached AUD$300,000, an 83% increase over 2015, driven by year-over-year differences in orders from marketing partners outside of Australia and New Zealand and Companion Animal sales for the quarter rose 164% over 2015, led by the second full quarter following market launch of **Glyde** chews and **FETCH** in the US.

Other key activities during the March quarter included the completion of negotiations of a contract manufacturing agreement with a multi-national pharmaceutical company and the progression of contract manufacturing discussions with other parties, announcements of which could come during the current quarter. In addition, Parnell announced Will Hunsinger was elected to the Board of Directors on April 20, 2016 as part of the Company's strategy to evolve into a US-centric company. Mr. Hunsinger is well-known in technology and was responsible for the re-launching of the e-commerce businesses of Gap Stores, Banana Republic and Old Navy retailers. He has also been a TPG Capital Advisor. Mr. Hunsinger was the founder of SportStream, a social mobile app company that he sold to Facebook Inc.

As March 31, 2016, Parnell had cash and cash equivalents of AUD$3.9 million, supported by an $15 million equity line commitment from Lincoln Park Capital Fund LLC which included the sale of 175,000 shares at $3.50 per share and 150,000 warrants to purchase shares at $5.00. During the quarter, Parnell entered into new senior debt facility discussions for a AUD$30 million line that is expected to close in upcoming months, and on May 17, 2016, the Company completed an underwritten public offering of 2,550,000 ordinary shares for $4,207,500, led by Ladenburg Thalmann & Co. Inc. The offering contains the customary optional 30-day underwriter over allotment purchase rights.

Outlook

Looking forward, we believe Parnell has a number of revenue "drivers" that set it apart from its near peer group: an already functioning sales and marketing organization, new products to add to its companion animal franchise while awaiting for the **Zydax** approval and its highly differentiated vet/animal owner integrated mobile apps to support and influence customers in both the companion and production animal segment. 2016 is the first full year for the US Companion Animal salesforce to "run on all cylinders" plus the Company will be adding contract pharmaceutical manufacturing business which will more fully rationalize its manufacturing facility (thus lowering overhead burden) and contribute to operating margin.

On Parnell's yearend call and reiterated on the Q1 2016 update call, management provided 2016 revenue guidance of AUD$20-22 million (USD$14-15 million), up from AUD$13.1 million in 2015. Our 2016 revenue estimate of AUD$20.7 million (excluding other income) is mid-range and reflects disproportionate strong growth in Parnell's Companion Animal segment and revenue from the addition of two contract manufacturing partners. Management also guided revenue to be back-ended to the second half, and therefore, due to seasonal and other factors such as a lack of transparency on the composition of "other income", we are conservatively forecasting the six months ended June 30, 2016 product revenue to rise over 60% 1H 2016 over 1H 2015. On the expense side, we are assuming that like its competitors, Parnell will be spending heavily on sales and marketing such that the loss from operations for the 1H of 2016 at AUD($0.97) will approximate the AUD($1.03) full year 2015 net loss. Our estimate of AUD($2.06) for the full 2016 year is based on an average of 16.4 million shares. For 2017, we are conservatively estimating revenue of AUD$31.2 million (USD$24.5 million), for a revenue growth rate of nearly 60%. 2017 net loss should improve over 2016 and we are forecasting AUD($2.03) for the full year at the junction. We expect this preliminary estimate will be revised following 1H 2016 results.

Near-term Parnell Revenue Growth Drivers and Catalyts

- Accelerating penetration of **mySYNCH** with the 2016 release of "cow-side care" functionality and the patent-pending **PROCEPT** breeding program into the North American production animal market
- Expansion of **Glyde/FETCH** franchise from Q4 2015's 300 vets to a 2016 goal of 1,500 clinics among US vet clinics, in anticipation of **Zydax** launch. Parnell hopes to eventually have 3,600 vet clinics enrolled in the **FETCH** program.
- Launch of **Luminous** and **Reviderm** products
- Initiation of pharmaceutical contract manufacturing

Event	Timing	Impact
Debt facility + secondary financing closed	May 2016	Financial flexibility, growth capital for product launch
Completion of response to CVM/FDA for Zydax submission	Q2 2016	Supports Zydax late Q4 approval for dogs
First Contract Manufacturer agmnt	Q2 2016	Adds topline revenue, better mfg. facility utilization
Zydax European Partner	Q2 2016	Distribution of **Zydax** in Europe
Completion of pilot manufacturing for for PAR121 and PAR122	Q2 2016	Enable efficacy studies to begin later in 2016
Initial EMA review of **Zydax** filing	Q3 2016	Supports EU **Zydax** approval for dogs Q1 2017
Initiation of safety and efficacy studies for the use of **Zydax** in cats	2H 2016	Indication expansion strategy for **Zydax**
Zydax regulatory EU and Canadian approvals	Q1 2017	Geographic market expansion for **Zydax**

Table 2
Parnell Financial Results and Estimates

As reported in Australian Dollars	As Reported					Estimates			
	Year Ended June 30		Year Ended December 31*			Year Ended December 31			
	2013	2014	6 Mo End 6/30	6 Mo End 12/31	2015 Year	6 Mo End 6/30	6 Mo End 12/31	2016 Year	2017E
Revenues:									
Sales of goods	$9,538,161	$ 7,542,600	$ 4,927,965	$ 8,241,788	$ 13,169,753	$ 9,767,823	$ 10,988,801	$ 20,756,624	$ 31,151,070
Other income	2,203,355	2,248,195	4,742,229	$ 1,982,913	6,725,142	1,200,000	1,200,000	2,400,000	2,400,000
Total Revenue	11,741,516	9,790,795	9,670,194	10,224,701	19,894,895	$ 10,967,823	$ 12,188,801	$ 23,156,624	$ 33,551,070
Cost of Goods Sold	5,641,732	6,417,593	3,140,067	4,605,798	7,745,865	4,387,129	4,509,856	8,896,986	$ 9,394,300
Gross Profit	6,099,784	3,373,202	6,530,127	5,618,903	12,149,030	6,580,694	7,678,945	14,259,639	24,156,771
Gross Margin Percentage					61.07	60.00	63.00	61.50	72.00
Expenses:									
Research and development, regulatory expense	138,915	586,149	564,904	317,005	881,909	427,957	577,742	1,005,698	$ 1,106,268
Less research tax credits and grants	0.00	0.00	0.00	0.00	0.00				0.00
									1,106,268
General and administrative	1,903,573	$ 3,018,782	5,165,879	$ 6,774,367	11,940,246	$ 8,129,240	$ 8,942,164	$ 17,071,405	$ 15,364,264
Sales & Marketing	3,341,341	$ 5,474,826	3,431,718	$ 8,345,774	11,777,492	$ 12,101,372	$ 15,126,715	$ 27,228,088	$ 24,505,279
									$ -
Total Operating Expenses	(5,383,829)	$ (9,079,757)	$ (9,162,501)	$ (15,437,146)	$ (24,599,647)	$ (20,658,569)	$ (24,646,621)	$ (45,305,191)	$ 42,082,080
Results from operating activities	$ 715,955	$ (5,706,555)	$ (2,632,374)	$ (9,818,243)	$ (12,450,617)	$ (14,077,876)	$ (16,967,677)	$ (31,045,552)	$ (32,687,780)
Net finance income (costs):									
Net foreign exchange losses on borrowings	(2,027,404)	(1,384,335)	0.00	0.00	0.00				
Finance costs	(2,839,595)	(7,262,020)	(350,964)	(933,838)	(1,284,802)	(1,000,000)	$ (1,000,000)		(1,500,000)
Loss Before Income Taxes	$ (4,151,044)	$ (14,352,910)	$ (2,983,338)	$ (10,752,081)	$ (13,735,419)	$ (15,077,876)	$ (17,967,677)	$ (33,045,552)	$ (34,187,780)
Income (expense) benefit	672,989	$ (2,980,412)	(2,106.00)	$ (7)	(2,113)	(1,000)	$ (1,000)	$ (2,000)	$ (2,200)
Income (Loss)	$ (3,478,055)	$ (17,333,322)	$ (2,985,444)	$ (10,752,088)	$ (13,737,532)	(15,078,876)	$ (17,968,677)	$ (33,047,552)	$ (34,189,980)
Foreign Currency translation	(32,084)	$ (517,525)	(808,664)	$ (820,859)	$ (1,629,523)	$ (800,000)	$ (700,000)	$ (1,500,000)	$ (1,380,000)
Total Comprehensive Loss for the Year	$ (3,510,139.00)	$ (17,850,847.00)	$ (3,794,108)	$ (11,572,947.00)	$ (15,367,055)	$ (15,878,876)	$ (18,668,677)	$ (34,547,552)	$ (35,569,979.93)
Net Loss per share (AUD$)	$ (0.46)	$ (2.18)	$ (0.22)	$ (0.81)	$ (1.03)	$ (0.97)	$ (1.09)	$ (2.06)	$ (2.03)
Weighted average number of common shares outstanding	7,630,737	8,188,461	13,245,945	13,283,722	14,919,471	16,385,721	17,118,559	$ 16,385,721	$ 17,500,000

*Parnell changed from fiscal to calendar year in 2015
As a Foreign issuer, Parnell currently reports semiannually

Source: Company SEC filings, press releases, quarterly call transcripts, DJ estimates

Table 3
Parnell Balance Sheet for FY 2015, 2014 Stub Year and FY2014

Period Ending	12/31/2015	12/31/2014	6/30/2014
Assets			
Current Assets			
Cash And Cash Equivalents	4,123	12,946	19,636
Short Term Investments	-	-	-
Net Receivables	5,287	3,949	3,220
Inventory	2,493	2,255	1,897
Other Current Assets	387	385	107
Total Current Assets	**12,290**	**19,535**	**24,860**
Long Term Investments	49	41	29
Property Plant and Equipment	9,215	9,738	10,581
Goodwill	-	-	-
Intangible Assets	12,065	10,164	9,594
Accumulated Amortization	-	-	-
Other Assets	-	-	-
Deferred Long Term Asset Charges	-	-	-
Total Assets	**33,620**	**39,477**	**45,063**
Liabilities			
Current Liabilities			
Accounts Payable	5,252	7,360	5,693
Short/Current Long Term Debt	2,272	3,757	3,903
Other Current Liabilities	-	-	-
Total Current Liabilities	**7,524**	**11,117**	**9,596**
Long Term Debt	11,248	547	644
Other Liabilities	112	61	111
Deferred Long Term Liability Charges	-	-	-
Minority Interest	-	-	-
Negative Goodwill	-	-	-
Total Liabilities	**18,883**	**11,724**	**10,352**
Stockholders' Equity			
Misc Stocks Options Warrants	-	-	-
Redeemable Preferred Stock	-	-	-
Preferred Stock	-	-	-
Common Stock	40,265	45,290	52,236
Retained Earnings	-	-	-
Treasury Stock	-	-	-
Capital Surplus	-	-	-
Other Stockholder Equity	-25,529	-17,537	-17,525
Total Stockholder Equity	**14,736**	**27,753**	**34,711**
Net Tangible Assets	**2,671**	**17,590**	**25,117**

Source: CapIQ

Stock Valuation/Comparables

As shown in Table 4 below, determining an appropriate set of valuation metrics in this emerging veterinary biotech universe is challenging. We have chosen to look at a universe of comparables separated into the large cap, established companies and the emerging small/micro vet biotechs. Across this universe and considering the nascent stage of the vet biotech companies with none having an earnings history, we believe the most relevant valuation metric is price-to-sales. The higher growth large cap animal health companies in our universe are trading at a trailing twelve month (TTM) P/S multiple of 4-5X, which is below many comparable human pharmaceuticals companies. Regeneus, Ltd., a fellow Australian company, trades at a TTM P/S multiple of 6.2X. At current prices, Parnell is trading at approximately 2.4X trailing twelve month revenue. A 6-7X TTM price-to-sales multiple applied to Parnell implies its market value should be in the range of USD$55-64 million, or nearly three times its current value. Therefore, we are rating the stock a BUY for speculative and growth-oriented investors at its current levels.

Table 4
Peer Group Financial Metrics Analysis

Symbol	Company Name	Recent Price	Mkt Cap $MM's	EV/Rev	TTM Rev $MM's	TTM EPS	TTM PE	1Y PE	PEG	Price/Sales	Price/BK	Current Ratio	ROA	ROE	Gross Margin %
	Large Cap														
ORINY.PK	Orion Oyj ADR	40.69	5,087.00	4.08X	1,002.00	$1.48	20.15X			4.18X	7.14X	2.89X	16.30%	3.73%	60.88
DPH.L	Dechra Pharmaceuticals PLC*	16.77	1,562.00	4.60	307.20	57.52	47.8	22.1		4.55	4.75	2.60		4.75	57.80
PAHC.O	Phibro Animal Health Corp	18.41	725.46	1.45	751.34	1.89	10.88	11.18	2.37	1.1	15.39	2.71	11.23	191.00	31.46
VETO.PA	Vetoquinol SA	40.59	435.50	1.22	333.70	2.35	15.51			1.3	1.53	2.42	5.70	10.60	52.14
	AVERAGE			**2.42**			**24.73**			**2.32**	**7.22**				
	Small/Micro Cap														
PETX.O	Aratana Therapeutics Inc	5.41	191.23	271.5X	0.86	-2.38	NMF	NMF	NMF	313X	1.73	13.98	NMF	NMF	36.27
OASM.O	Oasmia Pharmaceutical AB	4.61	162.91	72.74	2.21	-0.54	NMF	NMF	NMF	67.75	3.30	1.18	NMF	NMF	0.61
KIN.O	Kindred Biosciences Inc	4.07	80.76	NMF	0.00	-1.39	NMF	NMF	NMF	NMF	0.81	28.27	NMF	NMF	NMF
NVET.O	Nexvet Biopharma plc	2.82	32.02	NMF	0.00	-1.62	NMF	NMF	NMF	NMF	0.71	10.2	NMF	NMF	0.00
ICCC.O	ImmuCell Corp	6.62	29.71	1.66	10.23	0.38	17.08			1.81	1.80	NMF	NMF	12.41	61.09
RGS.AX	Regeneus Ltd	0.16	34.47	17.29	1.68	0.02	NMF	0.82		19.32	6.20	3.89	NMF	NMF	7.14
JAGX.O	Jaguar Animal Health Inc	1.40	14.34	47.17	0.20	-2.23	NMF	NMF	NMF	60.20	1.78	2.91	NMF	NMF	66.01
GNVC.O	GenVec Inc	0.64	14.25	0.68	4.25	0.19	NMF	NMF	NMF	2.80	1.32	6.21	NMF	NMF	20.82
	AVERAGE**									**30.38**	**2.21**				
PARN.O	Parnell Pharmaceuticals Holdings Ltd	**1.56**	**22.53**	**3.24**	**9.81**	**-0.79**	**NMF**	**NMF**	**NMF**	**2.50**	**1.62**	**1.63**	**NMF**	**NMF**	**40.27**

*DPH reports in GBP, converted to USD@$1.44. Euro@$1.12
Small/Micro Cap Price/Sales AVG excludes Aratana
Data: Cap IQ

Conclusion

We believe Parnell will become a premier player in the vet biotech arena due to the Company holding significant near-term advantages compared to its peers that we believe are under-appreciated by investors. Parnell is currently the only player in both companion and primary production animal health with highly differentiated products backed by established clinically-backed product track records and most importantly, in-house manufacturing expertise and capability that is already producing product. The integration of mobile apps to seed and support the sales and marketing of its highly differentiated products adds a unique "telemedicine" element to Parnell, unmatched by rivals. Finally, there are several product opportunities with both current and future products which may find value in human health. We believe that as the Company becomes more US-centric, it will garner the investor interest we believe the Company deserves. *SG*

Appendix

Key Management

Dr. Alan Bell – Chairman

Dr Alan Bell completed his degree in Veterinary Science in 1979 and practiced Equine Veterinarian medicine for the horseracing industry in Sydney, Australia, after completing initial appointments in mixed large animals practice in New South Wales, Australia. Dr. Bell purchased Parnell from its retiring founder/owner Dr Richard Boon in 1986. Over the ensuing years Dr. Bell has become a well-known horse breeder, racehorse owner and syndicate owner as he built the foundation for Parnell Pharmaceuticals.

Mr. Robert Joseph – President and Chief Executive Officer

Mr. Joseph joined Parnell in 2006 as an equity partner and assumed the role of President and Chief Executive Officer. Mr. Joseph has been responsible for raising over $35 million to develop two of Parnell's technology platforms in osteoarthritis and cattle reproduction. Mr. Joseph has a broad international experience in finance, strategic marketing, scientific and legal regulatory affairs. Subsequent to his tenure at Allergan's Sydney office as the Financial Planning and Analysis Manager, Mr. Joseph joined the commercial operations of Eli Lilly, first as the Strategic Marketing Manager, then at Lilly's Indianapolis global headquarters where he was part of the Global Diabetes Marketing team responsible for the highly successful launch of Lilly's insulin products and drug delivery devices. Mr. Joseph has undergraduate degrees in Medicine, Finance and Marketing and is a qualified CPA.

Mr. Bradley McCarthy - Chief Financial Officer

Mr. McCarthy joined Parnell as CFO in January 2010, and in 2012 assumed the additional role of Chief Operating Officer of Parnell Manufacturing overseeing the successful FDA approval of Parnell's new manufacturing facility in 2013. Mr. McCarthy commenced his career as one of the first employees to join Volkswagen Group Australia in the finance team. Mr. McCarthy then moved to London and commenced a six year stint at SIRVA Inc., the largest removals and relocation organization in the world. As VP of Forecasting Planning and Analysis; Europe, Mr. McCarthy was responsible for 13 European countries with a turnover of $US350m. In 2007, Brad led SIRVA's divestment of its European operations, running multiple M&A transactions valued at over $US100m. Mr. McCarthy then became CFO of the SIRVA subsidiary Pickfords Removals and led the transition of the finance back-office from London to Kuala Lumpur.

Risk Factors

In addition to normal economic and market risk factors that impact most equities and the common risks shared by Parnell Pharmaceuticals Holdings with other companies in the industry, we believe an investment in PARN involves the following risks:

- **FDA, CVM and regulatory risks** – Parnell is subject to regulatory review for its ongoing research and development activities, commercial marketing approval as well as laboratory facilities, principally with the US Food and Drug Administration Center for Veterinary Medicine but also with the EMA and other international regulatory agencies as well.
- **Need to defend patents, trade secrets and other intellectual property** – At present, Parnell holds a limited number of patents relating to its products, methods and manufacturing and depends in part on trade secrets. The Company may need to defend its intellectual property in the US and overseas in the future. Further, Parnell currently has limited patent protection for some of its pipeline product candidates. The Company, or our licensing partners, have made various applications which may never result in effective patents, as there is already an existing array of prior art that may preclude granting of patents.
- **Need to raise additional capital –** Although Parnell has historically successfully raised funds in the public markets, there can be no guarantee of such success in the future. Currently, the Company has limited cash on hand to fund ongoing research and development programs, ongoing clinical trials and product commercialization and launch activities. Until such time as cash flows from product sales surmount R&D, clinical and operational activities, Parnell will need to seek additional funding

as the Company does not have a history of profitable operations. Unforeseen events including potential delays in product sales, clinical programs and regulatory approvals could require Parnell to raise additional capital through the sale of equity, therefore potentially diluting current shareholders.

- **Limited stock liquidity** – Trading volume in Parnell has been comparatively light compared to other stocks in its industry, and as such, news regarding Parnell, its target markets, partners and/or competitors could lead to significant volatility in the stock price.
- **Competitive Markets** – The Company competes in its companion and production animal health markets with a number of other manufacturers, marketers and service companies, many of whom represent much larger companies with substantial resources. There can be no assurance that the Company will be able to successfully launch new products into these competitive markets in the future.
- **Currency Risk-** Parnell reports financial information and revenue in Australian dollars, yet the majority of revenues are derived in US dollars and to a lesser extent in New Zealand dollars. A significant appreciation of the Australian dollar would negatively impact revenues and profits. As such the Company is heavily exposed to foreign currency fluctuations. Parnell does not maintain structured hedging positions to protect from currency movements.
- **Pricing risk**- Changes in distribution channels for pet therapeutics could negatively impact market share, margins and distribution of Parnell's products. Historically, animal owners (companion animals and production animals) have purchased animal health pharmaceuticals through their veterinarians. There have been changes in regulations in many countries that have allowed non-veterinary practices to supply pharmaceuticals directly to the public on the prescription of a veterinarian. Both these trends have seen downward price pressure exerted on pharmaceutical companies as the distribution channel seeks to offer increasingly attractive pricing to consumers.

Important Disclosures:

Price Chart:

Price target and ratings changes over the past 3 years:
Initiated – May 24, 2016– Price Target- No price target published.

Dawson James Securities, Inc. (the "Firm") is a member of the Financial Industry Regulatory Authority ("FINRA") and the Securities Investor Protection Corporation ("SIPC").

The Firm does not make a market in the securities of the profiled company. The Firm has not received investment banking compensation from this company (PARN) in the past but may seek compensation for investment banking services in the future. The Firm has not received any other compensation from the profiled company in the last 12 months.

Neither the research analyst(s) whose name appears on this report nor any member of his (their) household is an officer, director or advisory board member of these companies. The Firm and/or its directors and employees may own securities of the company(s) in this report and may increase or decrease holdings in the future. As of April 30, 2016, the firm as a whole, however, did not beneficially own 1% or more of any class of common equity securities of the subject company.

The Firm, its officers, directors, analysts or employees may effect transactions in and have long or short positions in the securities (or options or warrants related to those securities) of the companies subject to this report. The Firm may effect transactions as principal or agent in those securities.

Analysts receive no direct compensation in connection with the Firm's investment banking business. All Firm employees, including the analyst(s) responsible for preparing this report, may be eligible to receive non-product or service specific monetary bonus compensation that is based upon various factors, including total revenues of the Firm and its affiliates as well as a portion of the proceeds from a broad pool of investment vehicles consisting of components of the compensation generated by investment banking activities, including but not limited to shares of stock and/or warrants, which may or may not include the securities referenced in this report.

Although the statements in this report have been obtained from and are based upon recognized statistical services, issuer reports or communications, or other sources that the Firm believes to be reliable, we cannot guarantee their accuracy. All opinions and estimates included in this report constitute the analyst's judgment as of the date of this report and are subject to change without notice.

Information about valuation methods and risks can be found in the "STOCK VALUATION" and "RISK FACTORS" sections of this report.

The securities of the company discussed in this report may be unsuitable for investors depending on their specific investment objectives and financial position. This report is offered for informational purposes only, and does not constitute an offer or solicitation to buy or sell any securities discussed herein in any jurisdiction where such would be prohibited. Additional information is available upon request.

Ratings Definitions:

1) **Buy**: the analyst believes the price of the stock will appreciate and produce a total return of at least 20% over the next 12-18 months;
2) **Neutra**l: the analyst believes the price of the stock is fairly valued for the next 12-18 months;
3) **Sel**l: the analyst believes the price of the stock will decline by at least 20% over the next 12-18 months and should be sold.

The following chart reflects the range of current research report ratings for all companies followed by the analysts of the Firm. The chart also reflects the research report ratings relating to those companies for which the Firm has performed investment banking services.

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	12	71%	9	75%
Market Perform (Neutral)	5	29%	4	80%
Market Underperform (Sell)	0	0%	0	0%
Total	17	100%	13	76%

Analyst Certification:

The analyst(s) whose name appears on this research report certifies that 1) all of the views expressed in this report accurately reflect his (their) personal views about any and all of the subject securities or issuers discussed; and 2) no part of the research analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst in this research report; and 3) all Dawson James employees, including the analyst(s) responsible for preparing this research report, may be eligible to receive non-product or service specific monetary bonus compensation that is based upon various factors, including total revenues of Dawson James and its affiliates as well as a portion of the proceeds from a broad pool of investment vehicles consisting of components of the compensation generated by investment banking activities, including but not limited to shares of stock and/or warrants, which may or may not include the securities referenced in this report.