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INITIATION REPORT

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Fennec Pharmaceuticals, Inc. (NASDAQ/FENC)

BUY $7.26 **Price Target $17.00**

Fennec Pharmaceuticals is developing PEDMARK ™ to prevent hearing loss in pediatric cancer patients receiving cisplatin for treatment.

October 10, 2018

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Life Sciences Analyst
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PEDMARK™ Prevents Hearing Loss in Pediatric Cancer Patients

- We are initiating coverage on Fennec Pharmaceuticals Inc. with a Buy rating and $17 YE:19 price target. Fennec a specialty pharmaceutical company focused on the development of PEDMARK (a unique formulation of sodium thiosulfate (STS)) for the prevention of platinum-induced hearing loss or ototoxicity in pediatric oncology patients. Two cooperative groups conducted Phase 3 trials that demonstrated a ~50% reduction in risk of hearing loss in solid tumor pediatric patients that received cisplatin and PEDMARK. We expect the NDA (505b2) to be filed 1Q:19 and approved in 2H:19. Also, PEDMARK has a positive opinion on the pediatric investigation plan (PIP) - by the Pediatric Committee (PDCO) at the EMA. Again, we expect approval in 2H:19. We estimate the PEDMARK risk adjusted US market opportunity of $267M and $253M in the EU.
- Pediatric patients are particularly susceptible to hearing loss when treated with cisplatin, which is used in many solid tumors effectively with 80-90% survival rates. The two trials conducted were quite lengthy to demonstrate that there was no negative impact on survival. In the US, PEDMARK has Fast Track and Breakthrough Therapy status. PEDMARK would be the first available agent approved for prevention of hearing loss with the use of cisplatin.
- We have modeled peak PEDMARK revenue to Fennec in 2026 in the US of $156M and in 2028 $122M in the EU. We have Fennec breakeven in 2020, rising to a peak EPS of $3.83 in 2024. In the US, Fennec has 7.5 years of market exclusivity due to Pediatric Orphan Drug Designation. In the EU they will have 10 years of market exclusivity due to Pediatric-use Marketing Authorization (PUMA).
- Fennec is an unusual case with one product, no pipeline, and potential patent issues. We have chosen a multiple of peak sales discounted back and a multiple of sales on a buyout. Using 2026 revenues (peak) of $276M with an 8x multiple and a 15% discount rate we arrive at a YE:19 price target of $21.17/share. Using a 2.2x multiple of peak sales, based on the mean of a range of 0.9 - 4.1x during years 2015-2017 of select late stage companies purchased, we arrive at a price of $13.47/share. The blended result is $17.32/share, which we round to $17.00 at YE:19.
- Risks include the usual challenges in development: 1) regulatory approval with an appropriate label; 2) the need for additional capital; 3) improvement in treatments reducing the need for cisplatin; 4) reimbursement; 5) intellectual property; and 6) manufacturing.

Please find Important Disclosures beginning on Page 21.

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Rating	Buy
Target Price	$17.00
Ticker Symbol	FENC
Market	NASDAQ
Stock Price	$7.26
52 wk High	$14.99
52 wk Low	$7.26
Shares Outstanding:	19.0 M
Public Market Float:	10.3 M
Avg. Daily Volume	84,350 K
Market Capitalization:	$137.7 M
Institutional Holdings:	0.3%
Dividend Yield:	NM

Earnings Per Share	Normalized to exclude unusual items		
FYE - December	**2017A**	**2018E**	**2019E**
1Q - March	($0.06)	($0.09) A	($0.07)
2Q - June	($0.11)	($0.14) A	($0.07)
3Q - September	($0.15)	($0.15)	($0.07)
4Q - December	$0.15	($0.16)	($0.04)
Year	**($0.46)**	**($0.55)**	**($0.24)**
Revenue ($mm)	**$0**	**$0.0**	**$0.5**
EV/Rev	NM	NM	NM
EBITDA ($mm)	NM	NM	NM
EV/EBITDA	NM	NM	NM

Senior Executives	
Rostislav Raykov	CEO
Robert Andrade	CFO
Dr. Marco Brughera	Director
Dr Khalid Islam	Chairman of the board
Adrian Haigh	SVP & general manger of EMEA reg and Asia
Chris Rallis	Director

Common Ownership Profile

Shareholder	Shares ('000)	% of Total
Southpoint Capital	4.2	22.0%
Leadiant Bio	3.6	19.0%
683 Capital	1.1	6.0%
venBio Select advisor	1.1	6.0%
Manchester Mgmt	0.9	5.0%
Opaleye Management	0.9	5.0%
Directors and Officers	1.7	9.0%

Capitalization

Market Value Basis ('000)	10/8/2018	%
Long-Term Debt	$ -	0.0%
Market Value of Equity	$ 137.7	122.8%
Less: cash	$ 25.6	22.8%
Enterprise Value	$112.1	100.0%

Book Value Basis ('000)	6/30/2018	%
Long-Term Debt	$ -	0.0%
Other Liabilities	$ 0.2	0.7%
Book Value of Equity	$ 24.9	99.3%
Total Capital	$25.1	100.0%

Source: Company reports, Factset, Bigcharts.marketwatch and Dawson James Securities estimates.

Company Overview

Adherex went public in Canada in 1999 with 3 product candidates including PEDMARK™. During the next 10 years the company struggled to move the product candidates through the clinic successfully. Rosty Raykov and Robert Andrade took over as CEO and CFO respectively in 2009. The duo was able to turn the company around first by straightening out the balance sheet from $1M cash and $8M debt to $200K cash and no debt. Then capital was raised from the largest shareholder, Southpoint Capital ($6M) and the founder ($1M). In 2010, $2M was raised from friends and family. At that time, the metastatic breast cancer (mBC) product candidate successfully completed Phase 2, however the FDA indicated the Phase 3 would require 600 patients in a head to head trial that could cost $200M. Therefore, the company chose to take PEDMARK forward. Although the trials began in 2007 and 2008, enrollment was slow. Physicians were hesitant to administer a drug to pediatric patients with an 80-90% survival rate without knowing if it would impact survival negatively. Finally, the enrollment picked up and two positive PEDMARK trials were completed. During 2010 through 2015, the company raised $12M and kept the burn rate low.

Fennec has developed PEDMARK, a formulation of sodium thiosulfate (STS), that is water-soluble thiol compound and acts as a chemical reducing agent. When given as an IV bolus for 15 minutes following platinum treatment of between 4 to 8 hours, a high dose PEDMARK (16–20 g/m²) protects against hearing loss. STS is approved in the US and some EU countries for treatment of cyanide poisoning. STS is generally recognized as safe (GRAS in the US). The patent protection is primarily Orphan Drug, 7.5 years in the US and 10 years in the EU.

In 2014, the company changed its name to Fennec Pharmaceuticals. The fennec fox is the smallest of the foxes and uniquely adapted to high temperatures and low water environments since it lives in Saharan North Africa. It has large ears which dissipate heat and provide very sensitive hearing. It is the company's logo. Fennec shares trade in the US on NASDAQ under the trading symbol FENC and in Canada on the TSX under the trading symbol FRX. The company is in Research Triangle Park, North Carolina.

Exhibit 1. Fennec Upcoming Events

Milestone	Timing
Pre-NDA meeting with the FDA	4Q:18
File PEDMARK NDA & EMA	1Q:19
PEDMARK approval US - (label key)	2H19
Posssible Pediatric Voucher (Upside)	2H19
PEDMARK EU approval w/ Mkt Exclusivity for Pediatric Use	2H19
PEDMARK US & EU sales	2020

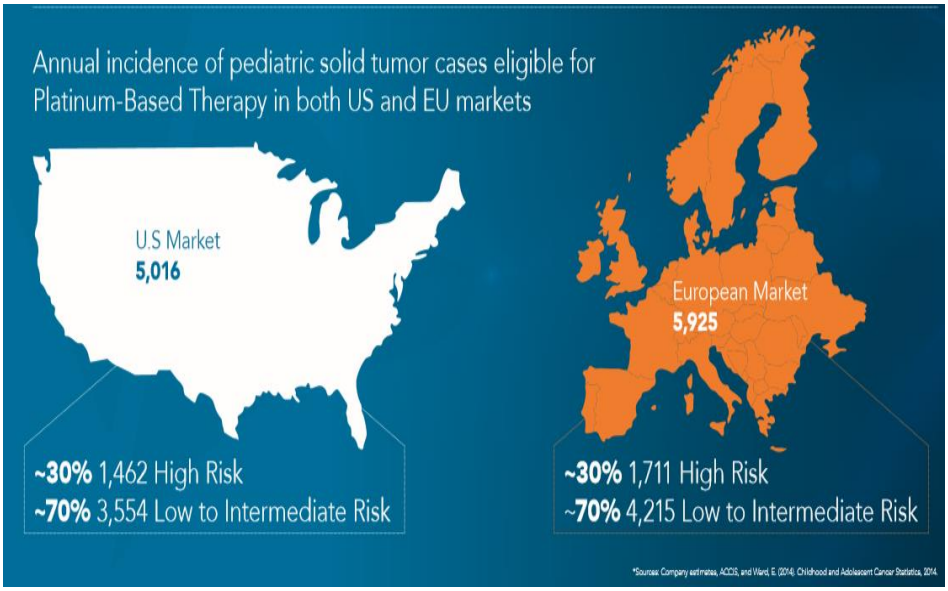
Source: Company reports, Dawson James Securities Research

PEDMARK Targets a Market over $500M

Cisplatin and other platinum compounds are effective chemotherapy agents for many pediatric cancers. In fact, in some cancers 80% to 90% of patients survive. However, these treatments cause ~60% hearing loss in many patients near-term and longer-term. The only treatments for hearing loss include hearing aids and cochlear implants. Which while helpful to a degree, but do not reverse the hearing loss.

In the U.S., it is estimated that over 3,000 children receive platinum-based chemotherapy for localized cancers and globally approximately 10,000. Of these, 40% - 90% develop profound and irreversible ototoxicity. The incidence of hearing loss in these children depends upon the dose and duration of chemotherapy, and many of these children require lifelong hearing aids. There is currently no established preventive agent for this hearing loss and only expensive, technically difficult and sub-optimal cochlear (inner ear) implants have been shown to provide some benefit. Specifically, there is a loss of high frequency hearing sensitivity which includes consonants f, th, p, k, h, and t. Infants and young children at critical stages of development lack speech language development and literacy, and older children and adolescents lack social-emotional development and educational achievement. Children under 5 years old are at 21x the risk for hearing loss compared to adolescents.

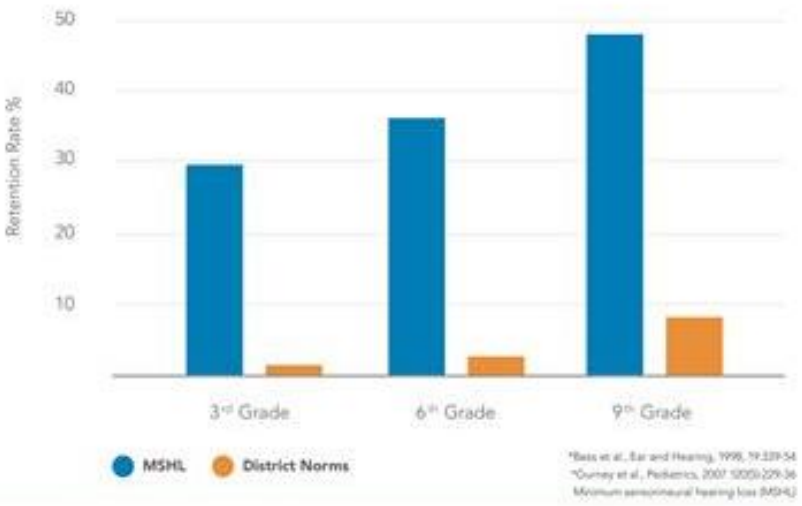
Exhibit. 2. Pediatric Solid Tumors (localized and metastasized) Appropriate for Platinum-based Chemotherapy



Source: Company reports.

Hearing loss has a profound impact on children's learning abilities. Long-term studies of neuroblastoma survivors with hearing loss has shown that the child is at high risk for being held back a grade (37% vs 3%). In addition, parents reported problems with reading, math, attention and need for special education twice as often. Needless to say, that the child's quality of life and school achievements are lower.

Exhibit. 3. Retention Rates by Grade



Source: Company reports.

This was clearly stated by children and parents at the recent Childhood Cancer Hearing Loss meeting in Washington held on September 13th, 2018. This was an externally-led Patient Focused Drug Development Meeting (PFDD) for childhood cancer hearing loss. It was organized by the Children's Cause Cancer Advocacy, the Children's Brain Tumor Foundation, Mattie Miracle Cancer Foundation and Momcology (a live webcast can be found on each of those sites).

At the meeting both hearing aids, cochlear implants, and microphone systems were discussed. Hearing aids work to some degree. They cost approximately $4,600 for two, have annual upkeep costs, and need to be replaced every 5-6 years. Insurance may or may not pay for it. Cochlear implants seem to be the best solution for moderate to severe hearing loss. Cochlear implant surgery can cost between $30,000 and $50,000. In addition, with external pieces and doctors' visits, the cost can rise to between $50,000 to $100,000. These also must be replaced but last longer than hearing aids.

Assuming a median PEDMARK cost of $75,000 in the US and $60,000 in the EU and using the low to intermediate risk populations that equates to a target market of $267M in the US and $253M in the EU.

PEDMARK is a Significant Break Through in the Prevention of Cisplatin Hearing Loss

Most of the anticancer activity of cisplatin occurs in the first 2 hours after administration when the unbound cisplatin goes into the cancer cells. Inactivation of the protein-bound platinum complexes cause ototoxicity in the inner ear. PEDMARK is administered ~6 hours after cisplatin and reacts irreversibly with cisplatin to form $Pt(S_2O_3)$ and is not harmful to the ears and is excreted. PEDMARK remains only in the plasma and does not distribute into the cells where cisplatin produces its anticancer effects, and in trials does not seem to interfere with survival.

Investigators at Oregon Health and Science University (OHSU) have conducted Phase 1 and Phase 2 studies that have shown that STS reduces the hearing loss associated with platinum-based chemotherapy. In one study at OHSU, the need for hearing aids to correct high frequency hearing loss was reduced from about 50% of patients administered platinum-based chemotherapy to less than 5% of patients also receiving STS.

PEDMARK was studied by cooperative groups in two Phase 3 clinical studies of survival and reduction of ototoxicity, The Clinical Oncology Group (COG) Protocol ACCL0431 and SIOPEL 6. The solid tumor cancers studied in the two studies are very rare, though the burden of hearing loss is high. The COG ACCL0431 protocol enrolled one of five childhood cancers typically treated with intensive cisplatin therapy, including newly diagnosed hepatoblastoma, germ cell tumor, osteosarcoma, neuroblastoma, and medulloblastoma. SIOPEL 6 enrolled only standard risk hepatoblastoma (SR-HB) patients with localized tumors. Both trials demonstrated a ~50% reduction in hearing loss without a difference in event free survival (EFS) or overall survival (OS) at 3 years.

Exhibit 4. Summary of PEDMARK's Clinical Trials

Stage	Description	Population	Primary/Secondary endpoints	Results/Safety	Start	End	Trial number
Phase 3	Randomized Parallel assigment	125 pts, ages 1-18	The primary endpoint was to evaluate the efficacy of STS for the prevention of cisplatin-indused ototoxicity in children	Hearing loss was see in 14 patients in the STS group (28.6%; 95% CI 16.6-43.3) versus 31 patients in the placebo group (56.4%; 42.4-69.7) p=0.00022.	Jun 2008	Apr 2015	NCT00716976
ACCL0431	Open-label	newly diagnosed hepatoblastoma, germ cell tumor, osteosarcoma, neuroblastoma, and medulloblastoma	Compare change in mean hearing thresholds; compare the incidence of other Grade 3/4 toxicities (renal and hematological); Monitor event free survival and overall survival	There were 194 severae advers events in 26 patients who received STS, none ere deemed probably or definitely related to STS. The most common serious avers event was decreased neutrophil count: 26 episoldes in 14 pateints.	*Lancet Oncology*	December 2016	
Phase 3	Randomized Parallel assigment	116 liver cancer pts, ages 1-18	Rate of Brock Grade ≥ 1 Hearing loss @ end of txt or at age 3.5 yrs whichever is later	The proportion of hearing loss for STS vs. Control was 28.6% (14/49) vs. 56.4% (31/55), respectively (p=0.004).	Dec 2007	Feb 2018	NCT00652132
SIOPEL6	Open-label	Standard Risk Hepatoblastoma (SR-HB)	Response to preoperative chemotherapy complete resection; complete remission; overall survival up to 5 yrs; toxcity 30 days post txt; LT renal clearnce; feasibility of central audiology review	In a predefined subgroup of patients less than 5 years old with 29 eligible subjects: STS vs. Control was 21.4% (3/14) vs. 73.3% (11/15), respectively (p=0.005). Overall safety was good with primarilly nausea and vomiting. Renal function was acceptable with 4 children have a GFR <60 ml/min.	*NEJM*	June 2018	

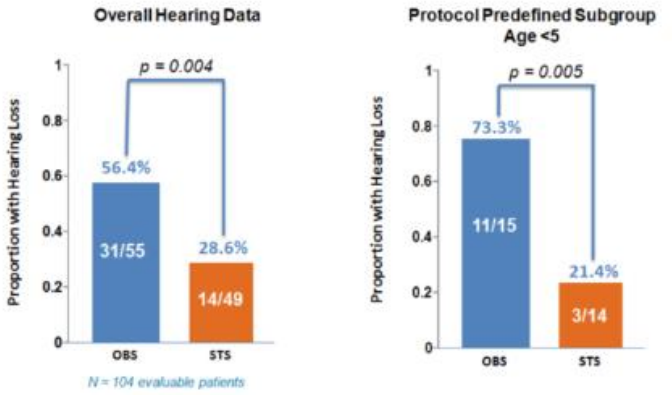
Source: Clinicaltrials.gov Lancet Oncology December 2016, NEJM June 2018.

The Children's Oncology Group (COG) Phase 3 Proof of Concept Study

This open label trial included 104 assessable patients aged 1-18 years. Patients were newly diagnosed and had normal hearing at baseline. Patients were given STS 6 hours following each cisplatin dose – 16 g/m^2 IV over 15 minutes. The hypothesis was to see a 50% relative reduction in hearing loss. This was measured 4 weeks post therapy defined by the American Speech-Language-Hearing loss (ASHA) criteria: >20 dB loss at 1 frequency or > 10 dB at 2 consecutive frequencies (trial design is Appendix 1).

STS protected against cisplatin-induced hearing loss in children, especially for those under 5 years old, a predefined endpoint. The hearing protection was more profound in the under 5 age group.

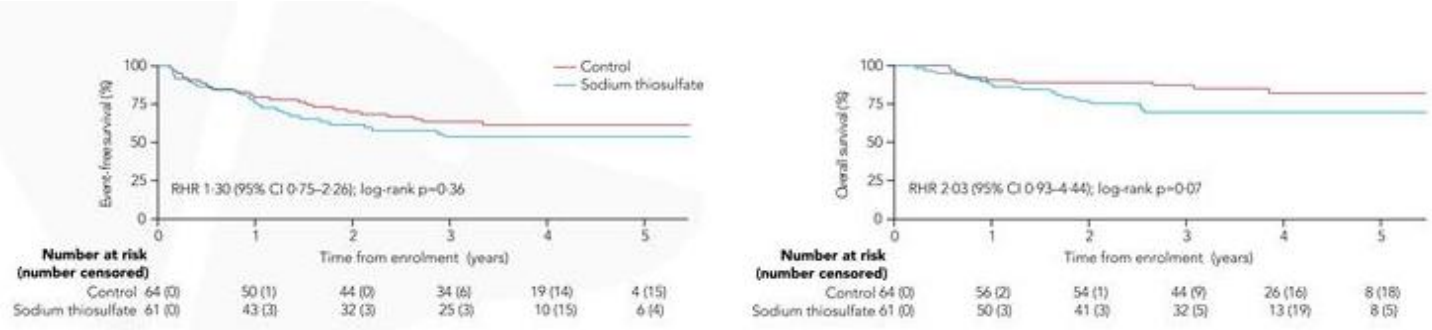
Exhibit. 5 Hearing Loss Randomized by Arm



Source: Company reports.

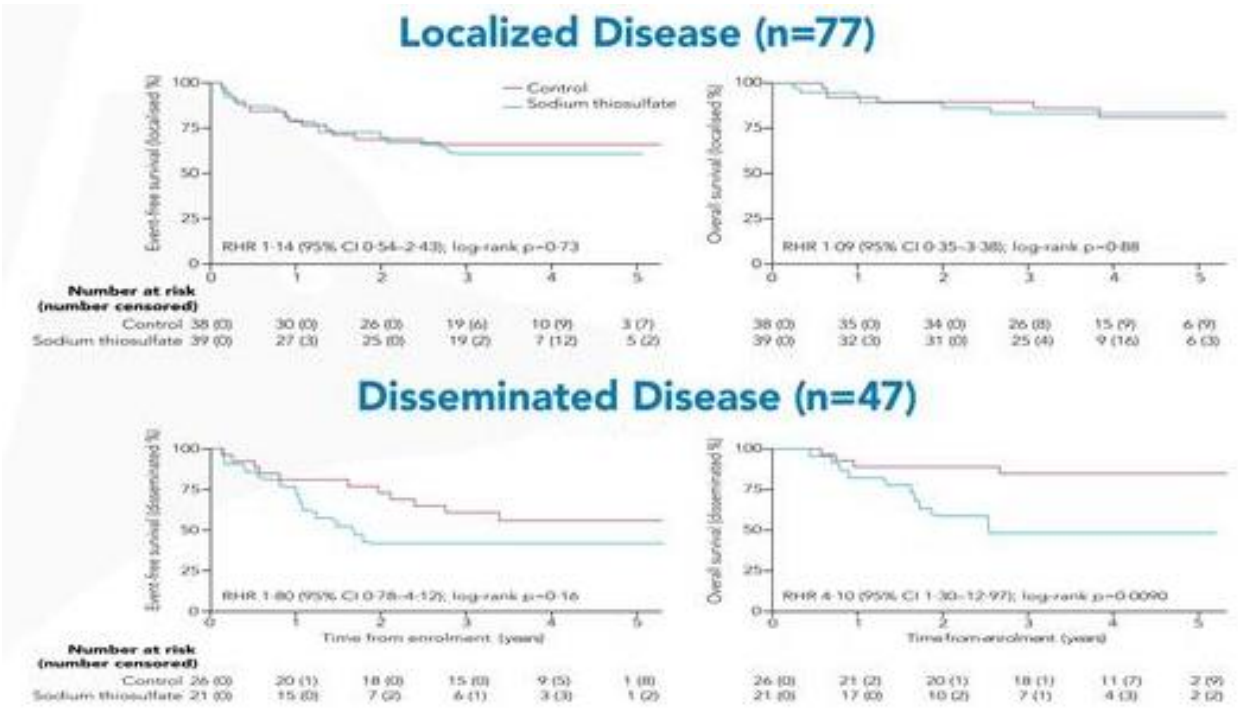
One can clearly see that the event free survival (EFS) is similar in both groups p=0.35. Also, the OS was non-significantly difference of p=0.07.

Exhibit. 6. Event Free Survival and Overall Survival



The event free survival (EFS) and overall survival (OS) analyses were conducted retrospectively in children with local or metastasized tumors. While there was no difference in the localized tumor setting, STS appears to do worse in the metastasized group. The authors of the paper point out that the groups were not randomized according to disease specific key prognostic factors that are important in determining the outcome in disseminated disease, which makes the results difficult to interpret. The editorial in Lancet Oncology found the results concerning. Based on these results, Fennec plans to file for approval for localized disease only. Since hearing loss is so devastating, some clinicians may be willing to use STS regardless of the extent of disease.

Exhibit 7. The Event-free Survival and the Overall Survival: Extent of Disease



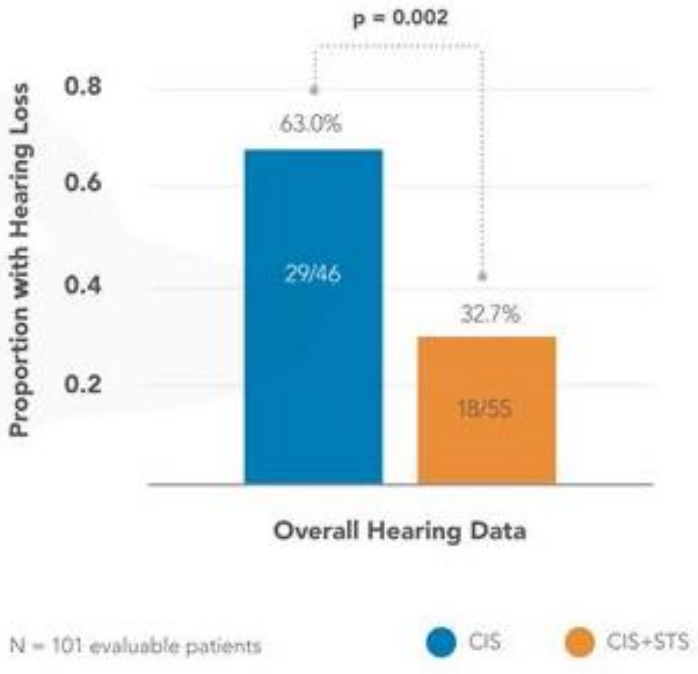
Source: COG ACCL0431 Lancet Oncology 2016

The SIOPEL 6 Pivotal Study
International Childhood Liver Tumors Strategy Group

The purpose of the study was to evaluate the efficacy of STS to reduce the hearing impairment caused by cisplatin in standard risk SR-HB – newly diagnosed hepatoblastoma. (The trial design and detailed side effect profile are in Appendix 2 and 3).

With a follow up time of 52 months for the patients: the 3-year EFS for the cisplatin group was is 78.8%; and 82.1% for the combination of cisplatin and STS. The 3-year OS is 92.3% for cisplatin group and 98.2% for combination group. Treatment failure defined as Progressive Disease at 4 cycles was equivalent in both arms. Among the first 99 evaluable patients, hearing loss occurred in 30/45=67.0% with cisplatin alone versus 20/54=37.0% with the combination of cisplatin and STS, corresponding to a relative risk of 0.56 (P=0.0033). This is a 56% reduction of risk of hearing loss.

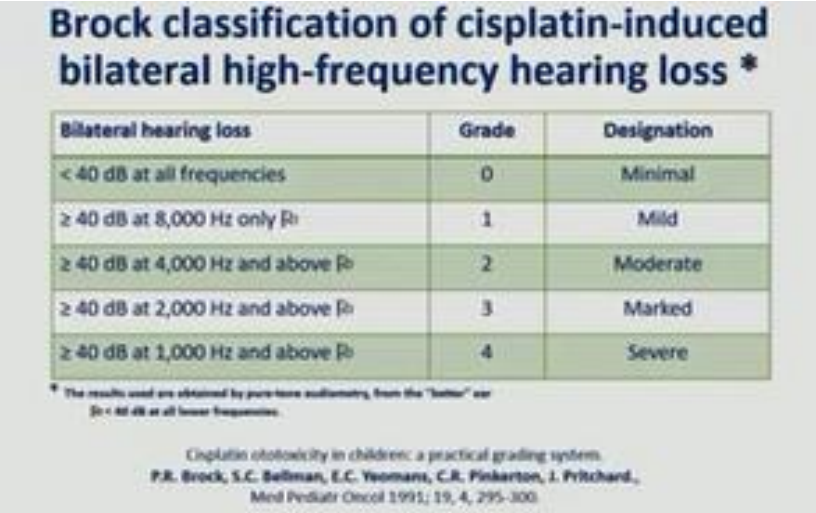
Exhibit 8. Hearing Loss Risk Reduction in SR-HB



Source: NEJM, 378; 25 June 2018.

STS was associated with a trend toward reduced ototoxicity in all the Brock grades (Exhibit 9). Children with hearing of grade 0 may not have completely normal hearing and can manage life with little or no additional help. Children with hearing loss of grade 1 or higher typically receive further intervention with each increasing grade of hearing loss, with children with any grade of hearing loss receiving educational support. In the UK, young children with hearing loss of grade 1 and all children with hearing loss of grade 2 or 3 are offered hearing aids. Children with hearing loss of grade 4 are offered cochlear implants.

Exhibit 9. Brock Classification of Cisplatin Caused Ototoxicity



Brock classification of cisplatin-induced bilateral high-frequency hearing loss *

Bilateral hearing loss	Grade	Designation
< 40 dB at all frequencies	0	Minimal
≥ 40 dB at 8,000 Hz only	1	Mild
≥ 40 dB at 4,000 Hz and above	2	Moderate
≥ 40 dB at 2,000 Hz and above	3	Marked
≥ 40 dB at 1,000 Hz and above	4	Severe

* The results used are obtained by pure-tone audiometry, from the "better" ear (< 40 dB at all lower frequencies).

Cisplatin ototoxicity in children: a practical grading system.
P.R. Brock, S.C. Bellman, E.C. Yeomans, C.R. Pinkerton, J. Pritchard.,
Med Pediatr Oncol 1991; 19, 4, 295-300.

Source: Med Pediatric Oncology 1991

STS caused nausea and vomiting despite the use of prophylactic antiemetic agents and was the most common adverse event. The incidence of acute adverse events was as expected, and an unexpected reaction developed in one child. Neither hypertension nor a high serum sodium level resulted in the discontinuation of STS treatment in any of the children.

In this trial, tumors grew in the same number of children in each group. There was no significant difference in the rates of event-free survival or overall survival between the two groups.

The authors then concluded that use of STS 6 hours following cisplatin treatment resulted in a significantly lower incidence of cisplatin-induced hearing loss, with no evidence of tumor protection.

Patents

Fennec licensed one US and 9 foreign patents from Oregon Health and Science University for STS. All patents expire in 2021. Therefore, we have assumed only 7.5 years in the US under orphan drug status and 10 years in Europe under European Market Exclusivity for Pediatric Use. There are 2 additional formulation patents pending in the US.

Management

Rostislav Raykov. Mr. Raykov has served as a director of Fennec since July 2009 and as CEO since July 2009. From January 2006 to December 2007, Mr. Raykov was a portfolio manager for Alchem Investment Partners and John Levin & Co. He has held various positions at several financial groups. Mr. Raykov earned a B.S. in Business Administration from the University of North Carolina at Chapel Hill.

Robert Andrade. Mr. Andrade has served as CFO since November 2015. Mr. Andrade was previously CFO and Director of Fennec from September 2009 until August 2013. Prior to Fennec, Mr. Andrade held various positions at several financial groups. Mr. Andrade graduated from University of Southern California, where he earned a Master of Arts degree and Bachelor of Arts degree in economics.

Chris A. Rallis. Mr. Rallis has served as a director of Fennec since August 2011. Mr. Rallis has been an executive-in-residence at Pappas Ventures, a life science venture capital firm since January 2008. Previously, Mr. Rallis was the President and CEO of ImmunoBiosciences, Inc. (IBI), a vaccine technology company formerly located in Raleigh, North Carolina from April 2006 through June 2007. Mr. Rallis is the former President and COO and director of Triangle Pharmaceuticals, Inc., which was acquired by Gilead Sciences in January 2003 for approximately $465M. Mr. Rallis received his A.B. degree in economics from Harvard College and a J.D. from Duke University.

Marco Brughera. Serves as a director. Since January 2011, Dr. Brughera has been CEO of Lediant Biosciences SpA and has held several positions for the Sigma-Tau Group, including CEO and Global Head of Sigma Tau Rare Disease, President of Sigma-Tau Research and President of Sigma-Tau Pharmaceuticals. He drove the commercial revival of a lead oncology product line resulting in its successful sale for a total of around $900M. He also successfully out-licensed the Defibrotide US rights to Jazz Pharmaceuticals. Dr. Brughera earned his degree in veterinary medicine from the University of Milan and is a European Registered Toxicologist.

Adrian J. Haigh. Serves as a director. Mr. Adrian Haigh has been SVP and General Manager of EMEA Region and Asia Pacific at PTC Therapeutics, Inc. since September 2014. Previously Mr. Haigh served as Senior Vice President, Commercial Operations and Chief Operating Officer of Gentium GmbH since March 2011. Prior to joining Gentium, Mr. Haigh served as Regional Vice President, Commercial Operations at Biogen Idec where he managed several affiliates and the global distributor business and prior to that was the General Manager of Amgen Nordis and Portugal. He has held several other senior commercial and marketing positions, received a Bachelor of Arts with Honors in Economic History from Huddersfield Polytechnic, West Yorkshire, England and a Diploma in Marketing from the Institute of Marketing. Because of these and other professional experiences, Mr. Haigh has extensive international oncology development expertise which strengthens the Board's collective qualifications, skills and experience.

Commercialization or Acquisition?

There are key issues to consider with an investment in Fennec. The company has tried to keep expectations low regarding a FDA panel, a broad label, a Pediatric Voucher and the possibility that 2 new formulation patents could issue. Though it may appear as though there are many moving parts and risks, in our opinion investors may be over thinking an investment in, and the value of, PEDMARK.

Exhibit 10. Key Risk Factors to Consider with a Fennec Investment

Event	Timing	Implications	Importance
FDA panel meeting	1H:19	May be required if FENC asks for label beyond localized hepatoblastoma and/or FDA wants to discuss any potential survival impact	**
US approval label - narrow or broad/ Pediatric Voucher	3Q:19	A narrow label may slow uptake since reimbursement may be more difficult	***
EU approval - 10 yr Pedatric exclusivity	3Q:19	Exclusivity crucial since patent protection gone in 2021	***
Launch or sell company	4Q;19		***
2 new formulaltion patents issue	unknown	PEDMARK would have protection beyound orphan status in the US	***

Source: Company reports, Dawson James Securities Research.

In our experience a drug appearing this safe and effective with a risk reward so positive, has a high likelihood to be approved in both the US and EU in 2H:19. In fact, according to a BIO survey, the odds are 89% for orphan disease drugs.

Exhibit 11. Clinical Development Success Rates 2006 – 2015

All Diseases

Stage	Probability
Phase I - Approval	9.6%
Phase I - II	63.2%
Phase II - III	30.7%
Phase III - NDA	58.1%
NDA - Approval	85.3%

Rare Diseases

Stage	Probability
Phase I -> Approval	25.3%
Phase I - II	76.0%
Phase II - III	50.6%
Phase III - NDA	73.6%
NDA - Approval	89.2%

Source: Bio.org

- If a panel meeting were to be held, we predict there would be a lot of discussion regarding the COG ACCL0431 trial and the unclear results in the patients with metastases having a lower survival rate. Dividing the patients into the split of localized or metastasized tumors was not planned, and patients were not stratified by disease severity. So the negative impact of PEDMARK in the metastasized group is hard to interpret. To avoid

controversy, the simplest way to get around this is to limit the label to localized solid tumors treated with platinum-based therapies.

- We believe the FDA could approve the broad label for localized tumors based on both trials which includes 4 additional indications all larger than SR-HB. We have rapid penetration that peaks in year 2026 at ~55- 60%. If Fennec receives a label for SR-HB, we would still expect the clinical data from the COG ACCL0431 to be included in the clinical section. With a Lancet Oncology publication and data on the label we expect reimbursement can occur. We expect the same peak sales at a slower pace.
- The Pediatric Voucher we give 50/50 odds and clear upside. The vouchers have significant value as they have been sold to other companies for a range of $67.5M to $350M.
- We think that many investors are looking for a buyout of the company. With just enough cash to launch PEDMARK, we believe Fennec may not get the offer it is looking for. The company is prepared to launch in the US and likely to use a partner and/or distributor in the EU.
- We have no way to know if the additional patents will issue. We have assumed they will not.

Valuation

Normally we would do an EPS sensitively multiple and discount rate based on the growth rate. Since we expect PEDMARK to have rapid penetration, the company has no follow-on product to keep EPS accelerating as the patents expire we did not find this method helpful. Secondly, we would find companies at the same stage of development. Fennec is such an unusual case with one product, no pipeline, and potential patent issues we have chosen a multiple of peak sales discounted back and a multiple of sales on a buyout. Using 2026 revenues (peak) of $276M with an 8x multiple and a 15% discount rate we arrive at a YE:19 price target of $21.17/share. Using a 2.2x multiple of peak sales, based on the mean of a range of 0.9 - 4.1x during years 2015-2017 of select late stage companies purchased, we arrive at a price of $13.47/share. The blended result is $17.32/share, which we round to $17.00.

Model Assumptions

Although we believe investors expect Fennec to be sold, especially with the makeup of the board, we have modeled the company launches in 4Q:19 in the US and receiving a 30% royalty on EU sales beginning in 2020. We have not included sales in metastatic patients or in Japan. We also assume no patent extension, thus only orphan disease protection, and no pediatric voucher.

Revenue - We estimate if Fennec decides to commercialize PEDMARK in the US a sales team of 20 people would be needed to cover the 200 cancer centers. In the EU, there are approximately 200-250 centers we assume will be covered by a partner.

Exhibit 12. Top-Line Revenue Projections ($M)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
$ 54,580	$ 143,023	$ 233,651	$ 260,823	$ 265,914	$ 271,123	$ 276,453	$ 153,045	$ 155,117	$ 85,048

Source: Dawson James Research.

EPS – We have Fennec profitable in 2020 and peak EPS in 2024 of $3.83/share. Earnings rise rapidly and level off as penetration peaks in the US and EU.

Exhibit 13. EPS Projections

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
$ 0.36	$ 2.03	$ 3.76	$ 3.90	$ 3.83	$ 3.76	$ 3.69	$ 1.66	$ 1.56	$ 0.08

Source: Dawson James Research.

Cash Position - Cash was $25.6M at the end of June 2018. During the quarter $0.5M was from options and warrants. In 2017, the cash burn was $4M. The first 6 months of 2018 the cash burn was $6M. The company believes there is enough cash to commercialization or 1Q:20. We assume a $4M raise in 1H:19 and in 2020 to support a sales force and that a Pediatric Voucher is not granted.

Recent Financing history - Fennec sold 2.5M shares at $8.50/share in December 2017. Gross proceeds from the offering was $21.2M. Prior to that, the company completed the closing of a non-brokered private placement of 1.90M shares for gross proceeds of $7.6M at $4.00 in June 2017.

R&D Expenses - R&D expenses were $0.8M for the June quarter and related to manufacturing and regulatory expenses. We have R&D expenses growing 10% annually.

G&A Expenses - G&A expenses were $1.9M. The increase in G&A expenses in 2018 over 2017 primarily relates to an increase in non-cash equity compensation as well as an increase in general corporate and compliance expenses.

Employees. There are 3 employees (CEO, CFO and Controller). The company uses approximately 12 to 24 consultants monthly as needed. We have assumed hiring 20 representatives in 2H:19 with a cost of $8M to launch to 200 sites in the US.

Net Loss - Net loss was $2.6M three months ended June 30, 2018. In the 1H:18 the company had a loss of $4.3M. We expect this to rise as the filings are prepared and the manufactured PEDMARK will be accounted for in the R&D line. We modeled Fennec breakeven in 2020, and profitable in 2021.

Financial Guidance - Fennec believes the $25.6M cash is enough to fund the planned commercial launch of PEDMARK™ in the second half of 2019.

Tax Rate – We are using 28%.

Shares: there are 18.9M shares outstanding. There are 1M warrants outstanding with a $1.50 exercise price. Insiders own 9% fully diluted.

NOL: At the end of June 2018 the NOL was $125.5M.

COGS/Manufacturing: Fennec is using a contract manufacturer. Fennec owes OHSU milestones and royalties. We have modeled a 10% COGS, though this may be high.

Exhibit 14. Historical and Projected Income Statement

Fennec Pharmaceuticals, Inc.
Income Statement
(in $000s except per share values)

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	2017	Mar Q1:18A	Jun Q2:18A	Sep Q3:18E	Dec Q4:18E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E
PEDMARK™																	
US sales - risk adjusted (89%)							$ 539	$ 44,268	$ 90,947	$ 128,459	$ 143,954	$ 147,876	$ 151,904	$ 156,042	$ 31,430	$ 32,286	$ 49,749
EU 30% Royalty - risk adjusted (89%)							-	2,062	37,494	84,154	106,245	118,038	119,218	120,410	121,615	122,831	35,299
Total Revenue (000s)	$ -	$ -	$ -	$ -	$ -	$ -	$ 539	$ 46,330	$ 128,441	$ 212,613	$ 250,199	$ 265,914	$ 271,123	$ 276,453	$ 153,045	$ 155,117	$ 85,048
COGS	-	-	-	-	-	-	$ 54	$ 4,427	$ 9,095	$ 12,846	$ 14,395	$ 14,788	$ 15,190	$ 15,604	$ 3,143	$ 3,229	$ 4,975
Gross Profit	-	-	-	-	-	-	***$ 485***	***$ 41,903***	***$ 119,347***	***$ 199,767***	***$ 235,804***	***$ 251,126***	***$ 255,932***	***$ 260,849***	***$ 149,902***	***$ 151,888***	***$ 80,073***
R&D	$ 1,936	689	798	900	1,000	$ 3,387	$ (5,950)	$ (6,545)	$ (6,872)	$ (7,216)	$ (7,577)	$ (7,955)	$ (8,353)	$ (8,771)	$ (9,209)	$ (9,670)	$ (10,153)
General and administrative	$ 5,015	1,102	1,867	2,000	2,100	$ 7,069	$ (14,700)	$ (25,725)	$ (28,298)	$ (31,127)	$ (34,240)	$ (37,664)	$ (41,430)	$ (45,573)	$ (50,131)	$ (55,144)	$ (60,658)
Total Operating Expenses	6,951	1,791	2,665	2,900	3,100	10,456	(20,704)	(36,697)	(44,264)	(51,189)	(56,212)	(60,407)	(64,974)	(69,949)	(62,483)	(68,042)	(75,787)
Operating Income (loss)	**(6,951)**	**(1,791)**	**(2,665)**	**(2,900)**	**(3,100)**	**(10,456)**	**(20,219)**	**5,206**	**75,082**	**148,578**	**179,592**	**190,719**	**190,958**	**190,900**	**87,418**	**83,846**	**4,287**
Unrealtized gain/(loss)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Enilluracil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other loss	$ (8)	(3)	5	4	(3)	$ 3											
Interest Income	$ 47	59	73	65	59	$ 256	$ 196	350	500	750	1,000	1,500	2,000	2,500	2,750	2,850	3,000
Pre-tax Income	(6,912)	(1,735)	(2,587)	(2,831)	(3,044)	(10,197)	(20,219)	5,206	75,082	148,578	179,592	190,719	190,958	190,900	87,418	83,846	4,287
Taxes	-	-	-	-	-	$ -	$ -	1,458	21,023	41,602	50,286	53,401	53,468	53,452	24,477	23,477	1,200
Tax rate 28%	-	-	-	-	-	-	$ -	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*
Net Income	$ (6,912)	(1,735)	(2,587)	(2,831)	(3,044)	$ (10,197)	$ (20,219)	$ 3,749	$ 54,059	$ 106,976	$ 129,306	$ 137,318	$ 137,490	$ 137,448	$ 62,941	$ 60,369	$ 3,086
GAAP EPS - basic and diluted	**$ (0.46)**	**$ (0.09)**	**$ (0.14)**	**$ (0.15)**	**$ (0.16)**	**$ (0.55)**	**$ (0.24)**	**$ 0.14**	**$ 1.70**	**$ 3.29**	**$ 3.68**	**$ 3.83**	**$ 3.76**	**$ 3.69**	**$ 1.66**	**$ 1.56**	**$ 0.08**
Basic Shares	11,652	18,430	18,585	18,622	18,659	18,574	22,765	27,290	31,836	32,472	35,122	35,824	36,541	37,272	38,017	38,777	39,553
Diluted Shares	4,456	22,255	22,285	22,330	22,374	22,311	26,856	31,476	36,563	37,294	39,667	41,461	43,290	45,156	47,059	49,000	50,980

Source: Factset, Company Reports, Dawson James Research.

Exhibit 15. PEDMARK™ Revenue Projections

Fennec Pharmaceuticals, Inc.
Revenue Model
(in $000s)

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Cisplatin-Induced Hearing Loss

US - PEDMARK™

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Patients txted w/ cisplatin txt	5,016	5,052	5,087	5,124	5,160	5,197	5,234	5,271	5,308	5,346	5,384	5,422
High risk - ~30%	1,455	1,465	1,475	1,486	1,496	1,507	1,518	1,528	1,539	1,550	1,561	1,572
Low to intermediate risk - ~70%	3,561	3,587	3,612	3,638	3,664	3,690	3,716	3,742	3,769	3,796	3,822	3,850
Available pts w/ localized cancer		*3,228*	*3,251*	*3,274*	*3,297*	*3,321*	*3,344*	*3,368*	*3,392*	*3,416*	*3,440*	*3,465*
Penetration		0%	20%	40%	55%	60%	60%	60%	60%	60%	60%	90%
Patients treated		8	650	1,310	1,813	1,992	2,007	2,021	2,035	2,050	2,064	3,118
Price per course of txt		75,000	$ 76,500	$ 78,030	$ 79,591	$ 81,182	$ 82,806	$ 84,462	$ 86,151	$ 17,230	$ 17,575	$ 17,926
Sales		**$ 605**	**$ 49,739**	**$ 102,187**	**$ 144,336**	**$ 161,746**	**$ 166,153**	**$ 170,679**	**$ 175,329**	**$ 35,315**	**$ 36,277**	**$ 55,897**
US sales (Risk Adjusted - 89%)		**$ 539**	**$ 44,268**	**$ 90,947**	**$ 128,459**	**$ 143,954**	**$ 147,876**	**$ 151,904**	**$ 156,042**	**$ 31,430**	**$ 32,286**	**$ 49,749**

EU - PEDMARK™

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Patients txted w/ cisplatin txt	5,925	5,984	6,044	6,105	6,166	6,227	6,290	6,352	6,416	6,480	6,545	6,610
High risk	1,718	1,735	1,753	1,770	1,788	1,806	1,824	1,842	1,861	1,879	1,898	1,917
Low to intermediate risk	4,207	4,249	4,291	4,334	4,378	4,421	4,466	4,510	4,555	4,601	4,647	4,693
Available pts w/ localized tumor		*3,824*	*3,862*	*3,901*	*3,940*	*3,979*	*4,019*	*4,059*	*4,100*	*4,141*	*4,182*	*4,224*
Penetration		0%	1%	18%	40%	50%	55%	55%	55%	55%	55%	55%
Patients treated		-	39	702	1,576	1,990	2,210	2,233	2,255	2,277	2,300	3,305
Price per course of txt			60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	12,000
Sales		**$ -**	**$ 2,317**	**$ 42,129**	**$ 94,555**	**$ 119,376**	**$ 132,627**	**$ 133,953**	**$ 135,293**	**$ 136,646**	**$ 138,012**	**$ 39,662**
EU sales (Risk Adjusted - 89%)		**$ -**	**$ 2,062**	**$ 37,494**	**$ 84,154**	**$ 106,245**	**$ 118,038**	**$ 119,218**	**$ 120,410**	**$ 121,615**	**$ 122,831**	**$ 35,299**
Worldwide Sales		**$ 605**	**$ 52,056**	**$ 144,316**	**$ 238,891**	**$ 281,122**	**$ 298,780**	**$ 304,632**	**$ 310,621**	**$ 171,960**	**$ 174,289**	**$ 95,559**
Risk Adjusted Worldwide Sales - 89%		**$ 539**	**$ 46,330**	**$ 128,441**	**$ 212,613**	**$ 250,199**	**$ 265,914**	**$ 271,123**	**$ 276,453**	**$ 153,045**	**$ 155,117**	**$ 85,048**

Source: Dawson James Securities Research.

Exhibit 16. Historical Balance Sheet

Fennec Pharmaceuticals, Inc.
Balance Sheet
(in $000s except per share values)

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	Dec Q4:16	Mar Q1:17	Jun Q2:17	Sep Q3:17	Dec Q4:17	Mar Q1:18	Jun Q1:18
Current Assets							
Cash and cash equivalents	3,926	3,251	10,232	9,688	28,260	26,719	25,640
Prepaid expenses	-						
Other current assets	46	37	27	200	141	117	64
Total current assets	**3,972**	**3,288**	**10,259**	**9,888**	**28,401**	**26,836**	**25,704**
Property and equipment, net	-						
Goodwill	-						
Other non-current assets	-						
Total Assets	**3,972**	**3,288**	**10,259**	**9,888**	**28,401**	**26,836**	**25,704**
Current liabilities							
Accounts payable and accrued expenses							
Interest payable		0	0	-	-		-
Total current liabilities	**369**	**356**	**390**	**657**	**1,477**	**1,173**	**847**
Devivative liabilities	33	71	190	373	167	-	-
Total long-term liabilities	**33**	**71**	**190**	**373**	**167**	**0**	**0**
Total Liabilities	**402**	**427**	**580**	**1,030**	**1,644**	**1,173**	**847**
Stockholders' equity:							
Common stock	0						
Accumulated deficit	0						
Total stockholders' equity (deficit)	**3,570**	**2,861**	**9,679**	**8,858**	**26,757**	**25,663**	**24,857**
Total liabilites and stockholders' equity	**3,972**	**3,288**	**10,259**	**9,888**	**28,401**	**26,836**	**25,704**

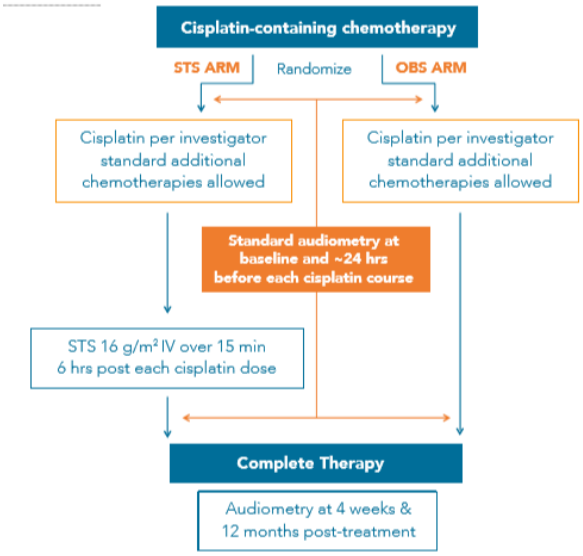
Source: Company Reports.

Risks Factors

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

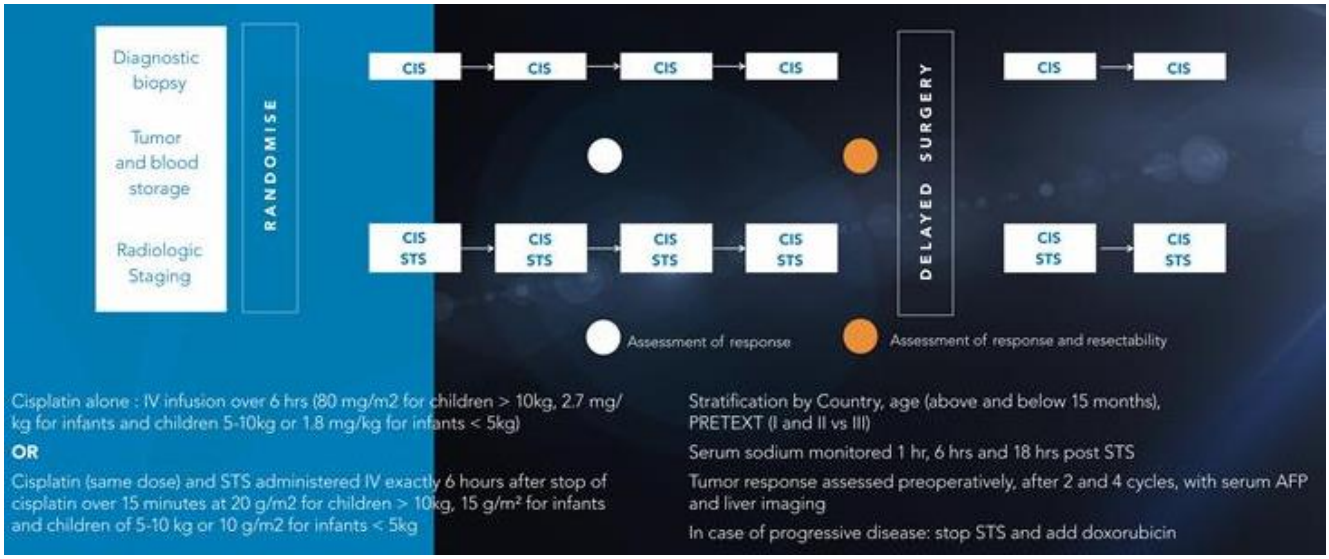
- **FDA and Overseas regulatory risks** – Fennec is subject to regulatory review for its ongoing research and development activities, principally the US FDA's application processes. In addition, the quality assurance and manufacture of the company's pharmaceutical products are subject to ongoing oversight and regulation, and any negative correspondence from the FDA or other regulatory agencies could have an adverse effect on the ongoing operations of the company. If PEDMARK has a broad label the size of the market is likely larger than if the label states its specially for SR-HB. In addition, there is no guarantee the company will receive a Pediatric Voucher.
- **Need to defend patents and other intellectual property** – Fennec currently holds several US and International patents on its products and related technologies. All the patents expire in 2021. The company is dependent on Orphan Drug status in the US and EU, 7.5 years in 2027 and 10 years in 2029, respectively. The company does have patents pending that may issue. The company may be required to defend its patents in the US and overseas in the future, and there can be no assurance these defenses will be successful.
- **Reliance on key management** – At present, Fennec relies on several key members of its management team who either founded the company or have been in key executive positions for an extended period. Should one or more of these key executives leave the company, Fennec could find it difficult to replace their long-standing knowledge of operations and industry expertise.
- **Reliance on partnerships** – Fennec may decide to commercialize PEDMARK on its own and may need partners for overseas distribution. Thus, in the future certain factors related to product commercialization and new product development may be determined by third parties and out of the control of company management. In addition, the company is dependent of a CMO for manufacturing.
- **Limited stock liquidity** – Trading volume in FENC stock is comparatively light and as such, news regarding FENC, its target market, partners and/or competitors could lead to significant volatility in the stock price.
- **Need for additional capital & possible dilution** – If the company decides to sell PEDMARK themselves they will likely need more capital. If a Pediatric Voucher is issued, that may offset the need for capital.
- **Competitive Markets** – There are other companies in the hearing loss space, however, all are early stage and not focused on cisplatin drugs. In addition, if a drug breakthrough occurs where cisplatin is no longer used for children, the market could be wiped out. There can be no assurance that the company will be able to successfully compete and launch new products into these competitive markets in the future.

Appendix 1. COG ACCL0431 Study Design



Source: Company reports.

Appendix 2. SIOPEL-6 Trial Design



Source: Company reports.

Appendix 3. Summary of SIOPEL-6 Side Effects

This table includes adverse events that were associated with additional treatment (mostly doxorubicin) given to children in each group.

Adverse Event and Grade	Cisplatin Alone (N=52)	Cisplatin–Sodium Thiosulfate (N=57)
	no. of patients (%)	
Allergy, grade 3	1 (2)	0
Febrile neutropenia, grade 3	10 (19)	8 (14)
Infection, grade 3	16 (31)	13 (23)
Hypomagnesemia, grade 3	1 (2)	1 (2)
Hypernatremia, grade 3	0	1 (2)
Vomiting, grade 3	2 (4)	4 (7)
Nausea, grade 3	3 (6)	2 (4)
Left ventricular systolic dysfunction, grade 3 or 4	0	0
Renal event, grade 3 or 4	0	0
Anemia		
Grade 3	8 (15)	10 (18)
Grade 4	0	1 (2)
Leukopenia, grade 3	2 (4)	2 (4)
Neutropenia		
Grade 3	3 (6)	7 (12)
Grade 4	3 (6)	3 (5)
Thrombocytopenia		
Grade 3	1 (2)	1 (2)
Grade 4	1 (2	1 (2)
Gastrointestinal event	2 (4)	3 (5)
Elevated liver-enzyme level		
Grade 3	6 (12)	3 (5)
Grade 4	0	1 (2)
Elevated serum glucose level, grade 3	2 (4)	1 (2)
Hypermagnesemia, grade 3†	2 (4)	5 (9)
Hypophosphatemia, grade 3	0	5 (9)
Hyperkalemia, grade 3	2 (4)	0
Hypokalemia		
Grade 3	0	4 (7)
Grade 4	0	1 (2)
Dyspnea, grade 3	1 (2)	0

Source: NEJM, 378; 25 June 2018.

Important Disclosers:

Price Chart

Price target and ratings changes over the past 3 years:
Initiated – Buy – October 10, 2018 – Price Target $17.00

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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) **Sell**: 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 in the last twelve months.

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	31	91%	10	32%
Market Perform (Neutral)	3	9%	0	0%
Market Underperform (Sell)	0	0%	0	0%
Total	34	100%	10	29%

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.