

Healthcare: Biotechnology

Daré Bioscience, Inc. | DARE - \$1.12 - NASDAQ | Buy

Company Update

Stock Data

52-Week Low - High	\$0.69 - \$3.25
Shares Out. (mil)	16.68
Mkt. Cap.(mil)	\$18.69
3-Mo. Avg. Vol.	1,658,476
12-Mo.Price Target	\$6.00
Cash (mil)	\$2.4
Tot. Debt (mil)	\$0.0

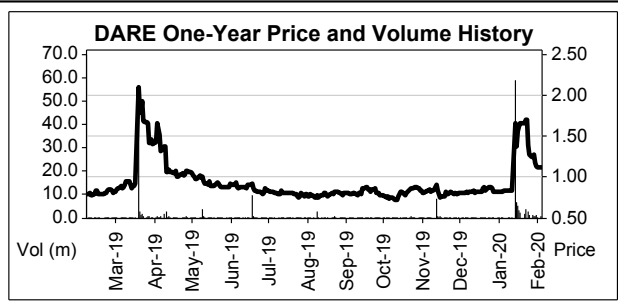
DARE completed reverse merger with Cerulean Pharma on July 19, 2017.

EPS \$

Yr Dec	—2018—	—2019E—	—2020E—
		Curr	Curr
1Q	(0.88)A	(0.27)A	(0.16)E
2Q	(0.32)A	(0.29)A	(0.17)E
3Q	(0.23)A	(0.20)A	(0.17)E
4Q	(0.27)A	(0.17)E	(0.16)E
YEAR	(1.69)A	(0.94)E	(0.66)E
P/E	NM	NM	NM

Revenue (\$ millions)

Yr Dec	—2018—	—2019E—	—2020E—
		Curr	Curr
1Q	0.0A	0.0A	0.0E
2Q	0.0A	0.0A	0.0E
3Q	0.0A	0.0A	0.0E
4Q	0.0A	0.0E	0.0E
YEAR	0.0A	0.0E	0.0E



DARE: Takeaways from Our Ovaprene and BV1 Expert Call with Dr. Andrea Thurman

Yesterday, we hosted an Expert Call with Dr. Andrea Thurman, Associate Professor of OB/GYN and Director of Resident Research at East Virginia Medical School, to walk us through Ovaprene's PCT translatability into pivotal pregnancy prevention trials and its value proposition as a novel nonhormonal contraceptive, as well as DARE-BV1's existing dataset and clinical potential to address the high unmet need in treating BV.

Putting numbers on the demand for contraception, and why non-hormonal options matter. Dr. Thurman has been practicing as an OB/GYN since 1998, mainly in large academic institutions. She has been at the East Virginia Medical School for ten years and is Director of the Clinical Research Center. Dr. Thurman informs us that the EVMS Clinical Research Center has carried out hundreds of studies since it was founded in 1986, and that the center initiates approximately 15 trials each year, with a specific focus on reproductive health, contraception, and prevention of STIs including herpes and HIV. Dr. Thurman estimates that the research clinic sees approximately 120 to 160 women of reproductive age per month, and that the faculty typically see about 30 to 60 female patients per day. Dr. Thurman notes that about 80% of her patients are of reproductive age and many are teenagers. In her clinical experience, Dr. Thurman has definitely observed a demand among women for non-hormonal methods, especially from women who experience side effects on progestin-based contraceptives, or have comorbidities that prevent them from taking estrogen. Specifically, contraceptives that contain estrogen, including oral pills, the hormonal patch, and NuvaRing, have contraindications that limit their use, including diabetes, high blood pressure, migraines, and breastfeeding. On the other hand, progestin based contraceptives have few absolute contraindications but can alter the menstrual cycle. Dr. Thurman also brought up another important point: that the patient's age can impact contraceptive choice. Adolescents and young women often prefer long-acting methods such as the progestin implant, a progestin-releasing intrauterine device (IUD), or the nonhormonal copper IUD. However, older women are more likely to acquire health conditions that make hormonal options less acceptable, so they may be inclined to switching to non-hormonal methods to avoid the side effects of estrogen and progestin-based contraceptives.

Must read pp. 2-3 for additional key takeaways:

- Ovaprene can fill existing unmet needs in contraception
- PCTs have high translatability into pregnancy prevention trials
- Contraceptive efficacy is linked to adherence, and Ovaprene could offer a benefit as a monthly product
- Dr. Thurman is compelled by DARE-BV1's 86% clinical cure rate and single dose treatment

DARE: TAKEAWAYS FROM OUR OVAPRENE AND BV1 DOC CALL WITH DR. ANDREA THURMAN

In Dr. Thurman's view, Ovaprene fits perfectly into the large treatment gap in nonhormonal methods, including the copper IUD, and pericoital methods like the condom. Dr. Thurman emphasizes that although the copper IUD (Paragard) is a highly efficacious and cost effective nonhormonal contraceptive, there are several barriers to its use. These include risk of heavier bleeding during menses and dysmenorrhea or menstrual cramps with an IUD, and the fact that some women are adverse to the idea of having an intrauterine device. Dr. Thurman also explained that women with heavy menses, endometriosis, or fibroids would not be good candidates for the copper IUD due to the increased bleeding risk, and that IUD insertion could be painful, which may cause women to turn away from IUDs. Additionally, women who experience adverse effects with the copper IUD must return to their OB/GYN to have the device removed, whereas Ovaprene users can simply remove the ring at any time they choose. Nonhormonal methods such as male and female condoms are also often used but must be used properly in the moment, and have also have problems with acceptability. Therefore, Dr. Thurman sees potential for Ovaprene to fill in the treatment gap, and she views Ovaprene's woman-controlled use and monthly dosing as meaningful advantages that women could benefit from, as an intermediate between the long-acting IUD and pericoital methods such as the condom. Dr. Thurman believes that Ovaprene use, which involves insertion at the end of menses and removal at the beginning of menses, is relatively easy and therefore Ovaprene is likely to be used properly by a majority of women.

PCTs are the gold standard for initial testing of barrier contraceptives, and have high translatability into pregnancy prevention trials. Dr. Thurman's center is part of the NICHD Clinical Contraceptive Trials Network, so they are experienced with Phase 1 through Phase 3 contraceptive trials. Dr. Thurman explains that post-coital tests (PCTs) are the standard initial clinical test for barrier contraceptives, such as the diaphragm and vaginal gels and films, and Ovaprene would also fall under this category. She then explained that these initial tests are carried out in women with tubal ligations who are not at risk of becoming pregnant. After intercourse during ovulation, when there is adequate production of cervical mucous, there is typically a high baseline level of motile sperm in the cervical mucous. However, after using a barrier contraceptive, ideally there would be less than 5 progressively motile sperm per high-power field (PMS/HPF) in order to indicate good efficacy. Recall, Ovaprene's PCT showed less than 5 PMS/HPF across 100% of women and cycles tested (n=26, three cycles per patient), with a mean 0.48 PMS/HPF with Ovaprene use, vs. 27.21 PMS/HPF at baseline. Based on Dr. Thurman's guidance of less than 5 PMS/HPF for efficacy, we believe that Ovaprene is likely to achieve favorable efficacy in pivotal contraceptive trials. Dr. Thurman also cites the example of the Caya diaphragm, which was recently tested in a PCT by the CONRAD (Contraception Research and Development) group. Importantly, the Caya diaphragm showed less than one motile sperm per HPF, similar to Ovaprene. Dr. Thurman also pointed out that the Caya diaphragm is an approved OTC contraceptive in the EU, and has shown contraceptive efficacy. The CONRAD group has also conducted PCTs on various other products including FemCap, a cervical cap diaphragm, which also showed less than five sperm per HPF, and all of these products have succeeded in pregnancy prevention trials. Therefore, Dr. Thurman believes that the PCT is a reliable test and is highly predictive of efficacy in clinical trials that test for pregnancy prevention.

Contraceptive efficacy is closely linked to adherence, and Ovaprene could offer a benefit as a monthly product. Diving deeper into translatability of PCTs into pregnancy prevention, Dr. Thurman explained that the amount of difference between perfect and typical use could also be a key contributing factor. For example, methods such as implants and IUDs have almost the same typical and perfect use efficacy since there are no problems with adherence. However, pericoital methods such as diaphragms and condoms tend to have a greater disparity in typical and perfect use efficacy due to human error. Dr. Thurman believes that Ovaprene will be more like a long-acting contraceptive since it is used monthly rather than in the moment, so its typical use and perfect use efficacy are likely to be similar. She cites that PCT studies usually translate to contraceptive efficacy perfect use rates of 80% to 90% in research, and expects that Ovaprene would be in the higher end of this range, since monthly use would lead to good adherence. In terms of trial design, Dr. Thurman believes that important elements include proper inclusion and exclusion criteria to prevent use of other contraceptives, proper use of the investigational contraceptive, and digital data systems that can improve data quality. Additionally, Dr. Thurman expects that Ovaprene is likely to be more effective than pericoital methods, but less effective than implants or IUDs due to differences in adherence. Therefore, she anticipates that Ovaprene would be benchmarked against other monthly contraceptives, since efficacy is very closely correlated with adherence. The closest comparison would be NuvaRing, which is replaced every three weeks

and has 90-95% typical use efficacy and 85-90% perfect use efficacy. However, she points out that NuvaRing's three-week cycle can make it difficult to remember when to replace the product, compared to Ovaprene, which aligns with the patient's natural menstrual cycle. In Dr. Thurman's view, Ovaprene's timing could give it an edge over NuvaRing in terms of typical use efficacy.

Transitioning to another important topic in women's health, Dr. Thurman outlined the key unmet needs in bacterial vaginosis (BV). BV is one of the most common gynecological infections, affecting more than 20 million women in the U.S. Dr. Thurman emphasized that there is a serious unmet need in BV, especially since it increases the risk of other comorbidities such as preterm birth and labor, as well as a greater risk of acquiring HIV and reduced efficacy of HIV prophylactic PrEP medications. In her practice, about 30-50% of patient complain of previous BV infections, or of discharge. She estimates that 30% out of these women with BV are symptomatic and 70% are asymptomatic. Dr. Thurman also cited a publication ([click here](#)) by Pavel et al. that followed 400 women in the U.S., which showed that vaginal microbiome varied between women of different ethnic groups, found rates of asymptomatic BV to be as high as 40-50% in certain groups. In the clinic, if a patient presents with symptoms of BV, an exam is usually performed, followed by the Amsel test for a diagnosis, as well as exclusion of other infections such as *Trichomonas vaginalis* which can produce similar symptoms. The diagnosis is usually made right away, and patients are typically treated with an antibiotic, oral metronidazole, twice daily for seven days, or a topical metronidazole gel. However, Dr. Thurman is unsure how many patients complete the full seven days of treatment, so compliance remains an issue. Other disadvantages of oral antibiotics are that they are systemic therapies, and have side effects such as unpleasant taste, nausea, and vomiting, and also can cause a reaction when the patient consumes alcohol. Even with available oral and topical antibiotics, the cure rate is only between 35% and 65%, and she estimates that about 50 to 60% of patients are cured after one month. However, the recurrence rate is so high that Dr. Thurman sometimes prescribes refills so that patients do not have to return to the office every time they experience a recurrence.

Dr. Thurman is compelled by DARE-BV1's 86% clinical cure rate and single dose treatment. In her view, DARE-BV has the potential to be a meaningful BV therapy with the ability to address to the high recurrence rate with current oral and topical antibiotics. Another compelling aspect is DARE-BV1's one-time gel application, compared to daily antibiotics or topical therapies. Dr. Thurman explains that a BV diagnosis is usually made based on patient symptoms and the Amsel criteria, which consist of four findings that are indicative of BV: an elevated pH, discharge, presence of clue cells in the discharge, and an amine odor. Dr. Thurman reminds us that the Amsel score is the test that is typically used in clinical practice and in academia. While the Nugent score (gram stain) is more accurate in predicting BV vs. other infections such as *Trichomonas vaginalis*, it is primarily used in research and will not be done for all patients in the clinic. She believes that diagnosing based on Amsel criteria and patient symptoms is the standard, although the Nugent score would be useful for backing up these results. In terms of what is clinically meaningful, Dr. Thurman notes that resolving symptoms is most important to patients, even if they have not achieved cure by the Amsel or Nugent criteria. She also points out that vaginal flora is diverse and can fluctuate in BV patients, so the placebo response rate in BV trials can be around 15-20%. When designing a clinical trial for BV, most women are assessed at baseline using Amsel criteria and clinical symptoms, and then begin treatment. Patients are seen about 7-14 days after, and then one month after, so most BV studies typically involve three visits, which is easy for patients to adhere to. The Amsel and Nugent score and clinical symptoms are evaluated at each visit, and all BV studies are placebo controlled and usually have no difficulty enrolling. To ensure clinical success, she recommends that patients in trials should be tested for coexisting infections such as *Trichomonas* which has similar symptoms to BV, and notes that some trials have asked patients to use condoms to improve cure rates, although this may not be applicable to a real life population.

VALUATION

Our \$6/share price target is derived from a risk-adjusted net present value (rNPV) analysis, based on 1) \$2.5/share, driven by U.S. sales of Ovaprene for contraception (launch 2022, 25% POS, \$468M peak sales); and 2) \$3.7/share, driven by U.S. sales of topical sildenafil for FSAD (launch 2022, 25% POS, \$419M peak sales). Possible impediments to our price target include clinical failures of the Ovaprene post-coital and single pivotal trials and/or of the upcoming Ph2 and Ph3 trials for topical sildenafil. Other impediments include regulatory hurdles of approval and financial risks.

As of September 30, 2019, cash and cash equivalents were approximately \$2.4M.

RISKS

Clinical risks. Currently, clinical success is most defined by Ovaprene and topical sildenafil, and failure to clinically advance these products would have significant material adverse effects on the company. Additionally, clinical success in a previous trial does not necessarily indicate success in future trials. Modeling of Ovaprene's regulatory path after the Caya regulatory path does not guarantee regulatory success. Furthermore, DARE licenses its products, which are subject to termination should terms of agreement not be met. For example, the licensing agreement for Ovaprene may be terminated should Ovaprene failed to be commercialized within six months of obtaining a PMA from the FDA.

Regulatory risks. As Ovaprene is composed of both drug and device components, it is considered a combination product and is currently designed for review under the CDRH department in the FDA. Should the designation change or if there were additional requirements imposed, this would necessitate additional trials with more patients and additional funds, causing shifts in expected timelines. For FSAD, there are currently no approved products, and there are no precedent regulatory paths to provide framework. Thus, approval for topical sildenafil is subject to unexpected changes and shifts in required regulatory endpoints.

Financial risks. DARE currently has no products on market and continues to incur losses as a result. Losses will continue to be incurred until the potential approval of Ovaprene. DARE continues to seek additional products for its portfolio through licensing agreements, and further clinical and regulatory development of such products will depend upon sufficient financial resources. Lastly, as there are no FDA approved treatments for FSAD, it is unclear whether health insurance plans will provide coverage of topical sildenafil.

COMPANY DESCRIPTION

Daré Bioscience, Inc. (DARE) is a clinical-stage biopharmaceutical company focused on developing innovative products for women's reproductive health. The company's lead asset is Ovaprene, a non-hormonal, once a month contraceptive ring soon to enter Phase 2 testing with topline results expected in 2H19. Assuming positive results from the planned postcoital test (PCT) trial, DARE plans to conduct a single U.S. Phase 3 trial in 250 women over a period of six months, with results 2H21. On February 12, 2018, DARE announced the acquisition of an exclusive worldwide license agreement to develop and commercialize sildenafil (oral formulation is branded as Viagra) for the treatment of Female Sexual Arousal Disorder (FSAD), a disorder that is characterized by a persistent inability to attain sexual arousal or to maintain arousal until the completion of a sexual activity. The mechanism by which sildenafil works is by selective inhibitor of phosphodiesterase 5 (PDE5), the enzyme responsible for cyclic guanosine monophosphate catabolism in vaginal tissue, causing relaxation of the female vaginal smooth muscle. Simply by enhancing genital blood flow, topical sildenafil offers a safe, and effective, and "on demand" solution to attain sexual arousal. DARE plans on leveraging the 505(b)(2) regulatory pathway including the established safety database from Viagra. With that said, the company has requested a meeting with the FDA to establish a consensus on Phase 2b and Phase 3 protocol and endpoints. Upon successful communication with the FDA, DARE plans to commence a Phase 2b trial in 2H18. Additionally, in April 2018, DARE announced its exclusive, worldwide license agreement for the development and commercialization of the intravaginal ring (IVR) platform. The IVR technology is a novel platform through which one or more drugs, including hormones and larger molecules such as peptides, can be delivered at specific dosages and release rates within single segmented rings. This method has so far been validated by successful pre-clinical studies in sheep. Ultimately, the IVR platform can be the foundation for the delivery of other combinations of drugs and hormones to treat a multitude of other diseases and conditions. In our view, this partnership between JNP and DARE provides the right fitting of the IVR platform with DARE's pipeline.

DARE is headquartered in La Jolla, California.

Dare Bioscience, Inc.
(Nasdaq: DARE)

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Income Statement

Year ended December 31 (In thousands of US\$)	FY 2017A	FY 2018A	1Q Mar-19A	2Q Jun-19A	3Q Sep-19A	4Q Dec-19E	FY 2019E	1Q Mar-20E	2Q Jun-20E	3Q Sep-20E	4Q Dec-20E	FY 2020E	FY 2021E	FY 2022E	FY 2023E	FY 2024E	FY 2025E	FY 2026E	FY 2027E
REVENUES																			
Ovaprene for contraception - U.S.	-	-	-	-	-	-	-	-	-	-	-	-	-	37,687	135,997	280,434	375,877	432,108	467,792
Topical sildenafil for FSAD - U.S.	-	-	-	-	-	-	-	-	-	-	-	-	-	45,421	140,632	232,226	326,697	383,000	419,072
Total Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	83,108	276,630	512,660	702,574	815,108	886,864
Operating expenses																			
COGS	-	-	-	-	-	-	-	-	-	-	-	-	-	12,466	41,494	76,899	105,386	122,266	133,030
Gross Profit	-	-	-	-	-	-	-	-	-	-	-	-	-	70,642	235,135	435,761	597,188	692,842	753,835
Research and development (R&D)	985	6,414	1,693	2,513	1,966	2,065	8,237	3,097	3,252	3,349	3,416	13,114	15,081	7,540	5,278	5,542	5,764	5,937	6,056
Sales and marketing (S&M)	-	-	-	-	-	-	-	-	-	-	-	-	5,000	20,000	26,000	13,000	14,300	15,373	16,141
General and administrative (G&A)	2,705	4,656	1,277	1,307	1,319	1,385	5,288	1,454	1,527	1,603	1,683	6,268	7,521	8,273	8,894	9,339	9,572	9,811	10,008
Gain on asset sale	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Licensing expenses	-	625	113	163	133	-	408	-	-	-	-	-	-	-	-	-	-	-	-
Impairment of goodwill	7,491	5,188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total operating expense	11,196	16,882	3,083	3,982	3,419	3,449	13,934	4,551	4,779	4,952	5,100	19,382	27,602	48,280	81,667	104,780	135,022	153,387	165,234
Operating income (loss)	(11,196)	(16,882)	(3,083)	(3,982)	(3,419)	(3,449)	(13,934)	(4,551)	(4,779)	(4,952)	(5,100)	(19,382)	(27,602)	34,828	194,963	407,880	567,552	661,721	721,631
Other expense	(18)	143	31	30	25	-	87	-	-	-	-	-	-	-	-	-	-	-	-
Pre-tax income (loss)	(11,537)	(16,739)	(3,052)	(3,952)	(3,393)	(3,449)	(13,847)	(4,551)	(4,779)	(4,952)	(5,100)	(19,382)	(27,602)	34,828	194,963	407,880	567,552	661,721	721,631
Provision (benefit from) for income taxes	-	-	-	(790)	-	-	(790)	-	-	-	-	-	-	-	(5,819)	(130,522)	(181,617)	(211,751)	(230,922)
Income tax rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	32.0%	32.0%	32.0%	32.0%
Net income (Loss)	(11,519)	(16,739)	(3,052)	(4,742)	(3,393)	(3,449)	(14,636)	(4,551)	(4,779)	(4,952)	(5,100)	(19,382)	(27,602)	34,828	200,782	538,402	749,169	873,472	952,552
Basic Shares Out	3,232	9,888	11,422	16,105	16,683	20,020	15,615	28,028	28,729	29,447	31,656	29,456	36,820	37,741	37,929	38,119	38,310	38,501	38,694
Diluted Shares Out	3,232	9,888	11,422	16,105	16,683	20,020	15,615	28,028	28,729	29,447	31,656	29,456	36,820	37,741	37,929	38,119	38,310	38,501	38,694
Basic EPS	(\$3.56)	(\$1.69)	(\$0.27)	(\$0.29)	(\$0.20)	(\$0.17)	(\$0.94)	(\$0.16)	(\$0.17)	(\$0.17)	(\$0.16)	(\$0.66)	(\$0.75)	\$0.92	\$5.29	\$14.12	\$19.56	\$22.69	\$24.62
Diluted EPS	(\$3.56)	(\$1.69)	(\$0.27)	(\$0.29)	(\$0.20)	(\$0.17)	(\$0.94)	(\$0.16)	(\$0.17)	(\$0.17)	(\$0.16)	(\$0.66)	(\$0.75)	\$0.92	\$5.29	\$14.12	\$19.56	\$22.69	\$24.62

Source: SEC filings and press releases, ROTH Capital Partners

Consensus Estimates	2017A	2018A	Mar-19A	Jun-19A	Sep-19A	Dec-19E	2019E	Mar-20E	Jun-20E	Sep-20E	Dec-20E	2020E	2021E	
Revenue (\$M)							-	-	-	-	-	0.6	2.0	
EPS - GAAP							(0.17)	(0.91)	(\$235.00)	(\$0.24)	(\$0.25)	(\$0.26)	(\$0.75)	(\$0.61)

Source: Thomson Reuters, November 16, 2019

Dare Bioscience, Inc.
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Balance Statement

Year ended December 31 (In thousands of US\$)	FY 2017A	1Q Mar-18A	2Q Jun-18A	3Q Sep-18A	4Q Dec-18A	FY 2018A	1Q Mar-19A	2Q Jun-19A	3Q Sep-19A
ASSETS									
Current assets:									
Cash and cash equivalents	7,560	15,625	12,447	9,537	6,806	6,806	3,505	5,631	2,435
Property and equipment held for sale	-	-	-	-	-	-	-	-	-
Accounts receivable	284	29	25	80	31	31	167	493	38
Prepaid retention payment	-	-	-	-	-	-	-	-	-
Prepaid expenses and other current assets	312	291	347	550	403	403	589	438	771
Other current assets	193	-	-	-	-	-	-	-	-
Total current assets	8,349	15,945	12,819	10,168	7,240	7,240	4,260	6,562	3,243
Property and equipment, net	-	-	8	11	9	9	8	7	6
Goodwill	5,188	-	-	-	-	-	-	-	-
Other assets	723	686	657	617	578	578	751	692	633
TOTAL ASSETS	14,260	16,631	13,484	10,796	7,827	7,827	5,020	7,261	3,882
LIABILITIES AND STOCKHOLDERS EQUITY									
Current liabilities:									
Current portion of loan payable	-	-	-	-	-	-	-	-	-
Accounts payable	-	-	1,265	-	460	460	326	632	352
Accrued expenses	-	-	-	-	631	631	691	1,342	1,537
Accounts payable and accrued expenses	967	808	-	1,203	-	-	-	-	-
Current portion of deferred revenue	-	-	-	-	-	-	-	-	-
Total current liabilities	967	808	1,265	1,203	1,091	1,091	1,016	1,974	1,889
Loan payable, net of current portion	-	-	-	-	-	-	-	-	-
Deferred revenue	-	-	0.3	9	10	10	-	-	-
Other long-term liabilities	-	3	-	-	-	-	223	204	183
Total liabilities	11,946	10,979	1,266	1,212	1,101	1,101	1,239	2,178	2,072
Commitments and contingencies									
Preferred stock (\$0.01 par value)	-	-	-	-	-	-	-	-	-
Common stock (\$0.0001 par value)	(1)	1	1	1	1	1	1	2	2
Additional paid-in capital	25,541	35,748	35,755	35,714	35,792	35,792	35,890	41,942	42,077
Accumulated deficit	(12,231)	(19,897)	(23,479)	(26,053)	(28,970)	(28,970)	(32,022)	(36,764)	(40,157)
Accumulated other comprehensive income (loss)	(18)	(32)	(59)	(78)	(97)	(97)	(89)	(97)	(112)
Total stockholders' equity (deficit)	2,314	5,652	12,218	9,584	6,727	6,727	3,780	5,083	1,810
TOTAL LIABILITIES AND EQUITY	14,260	16,631	13,484	10,796	7,827	7,827	5,020	7,261	3,882

Source: SEC filings and press releases, ROTH Capital Partners

Regulation Analyst Certification ("Reg AC"): The research analyst primarily responsible for the content of this report certifies the following under Reg AC: I hereby certify that all views expressed in this report accurately reflect my personal views about the subject company or companies and its or their securities. I also certify that no part of my compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

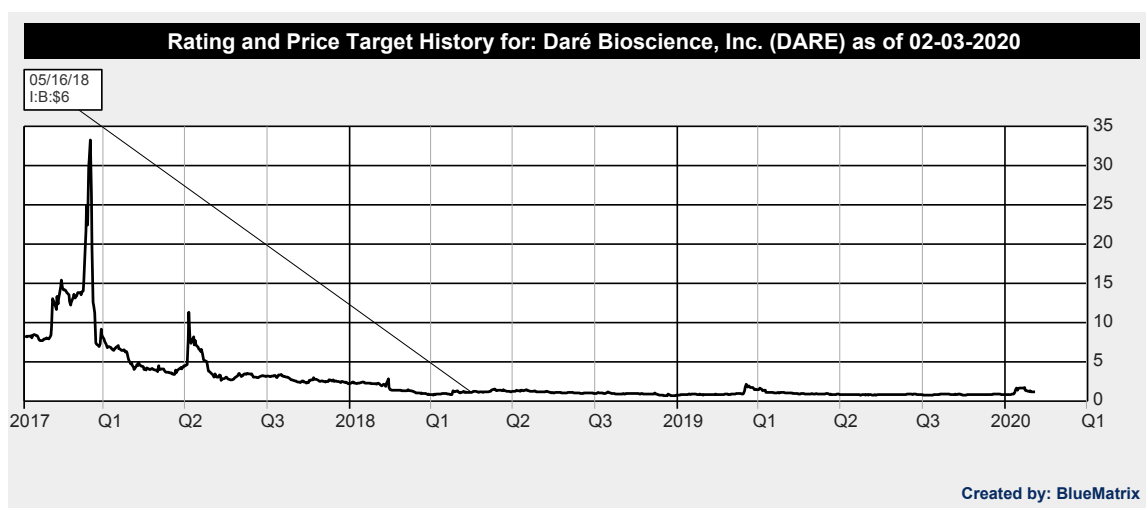
Disclosures:

Within the last twelve months, ROTH has received compensation for investment banking services from Daré Bioscience, Inc..

ROTH makes a market in shares of Daré Bioscience, Inc. and as such, buys and sells from customers on a principal basis.

Shares of Daré Bioscience, Inc. may be subject to the Securities and Exchange Commission's Penny Stock Rules, which may set forth sales practice requirements for certain low-priced securities.

Within the last twelve months, ROTH has managed or co-managed a public offering for Daré Bioscience, Inc..



Each box on the Rating and Price Target History chart above represents a date on which an analyst made a change to a rating or price target, except for the first box, which may only represent the first note written during the past three years. **Distribution Ratings/IB Services** shows the number of companies in each rating category from which Roth or an affiliate received compensation for investment banking services in the past 12 month.

Distribution of IB Services Firmwide

Rating	Count	Percent	IB Serv./Past 12 Mos. as of 02/04/20	
			Count	Percent
Buy [B]	281	81.21	159	56.58
Neutral [N]	44	12.72	17	38.64
Sell [S]	5	1.45	2	40.00
Under Review [UR]	16	4.62	11	68.75

Our rating system attempts to incorporate industry, company and/or overall market risk and volatility. Consequently, at any given point in time, our investment rating on a stock and its implied price movement may not correspond to the stated 12-month price target.

Ratings System Definitions - ROTH employs a rating system based on the following:

Buy: A rating, which at the time it is instituted and or reiterated, that indicates an expectation of a total return of at least 10% over the next 12 months.

Neutral: A rating, which at the time it is instituted and or reiterated, that indicates an expectation of a total return between negative 10% and 10% over the next 12 months.

Sell: A rating, which at the time it is instituted and or reiterated, that indicates an expectation that the price will depreciate by more than 10% over the next 12 months.

Under Review [UR]: A rating, which at the time it is instituted and or reiterated, indicates the temporary removal of the prior rating, price target and estimates for the security. Prior rating, price target and estimates should no longer be relied upon for UR-rated securities.

Not Covered [NC]: ROTH does not publish research or have an opinion about this security.

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