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ContraFect Corp. (CFRX-NASDAQ)

CFRX: Exebacase Shows Potent Antimicrobial Activity in Implant-Associated MRSA Osteomyelitis…

Based on our updated probability adjusted DCF model that takes into account potential future revenues from the lysin pipeline, our valuation of CFRX is $3.00/share. This model is highly dependent upon clinical updates for CF-301 and advancement of additional lysin products and will be adjusted accordingly based upon future clinical results.

Current Price (09/01/22)	$0.27
Valuation	**$3.00**

OUTLOOK

On August 15, 2022, ContraFect Corp. (CFRX) announced financial results for the second quarter of 2022 and provided a business update. While the Phase 3 DISRUPT trial of intravenous exebacase was stopped following the interim futility analysis, the company is continuing to advance its lead programs. Later this year, we anticipate ContraFect will file a regulatory submission to study exebacase in patients with chronic or recurrent prosthetic joint infections. In support of this, a recent publication highlighted the ability of exebacase and CF-296 (an engineered variant of exebacase) to significantly lower bacterial counts in a rabbit model of implant-associated MRSA osteomyelitis.

SUMMARY DATA

52-Week High	**$4.45**
52-Week Low	**$0.26**
One-Year Return (%)	**-92.93**
Beta	**0.09**
Average Daily Volume (sh)	**2,720,712**
Shares Outstanding (mil)	**39**
Market Capitalization ($mil)	**$10**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**64**
Insider Ownership (%)	**4**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2019 Estimate	**-0.2**
P/E using 2020 Estimate	**-0.2**

Risk Level	**High**
Type of Stock	**Small-Value**
Industry	**Med-Drugs**

ZACKS ESTIMATES

Revenue
(in millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	0 A	0 A	0 A	0 A	0 A
2022	0 A	0 A	0 E	0 E	0 E
2023					0 E
2024					0 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	-$0.18 A	-$0.14 A	-$0.13 A	-$0.11 A	-$0.55 A
2022	-$0.51 A	-$0.46 A	-$0.32 E	-$0.34 E	-$1.63 E
2023					-$1.33 E
2024					-$1.14 E

Business Update

Exebacase Active in Rabbit Model of MRSA Implant-Associated Osteomyelitis

On July 15, 2022, ContraFect Corp. (CFRX) announced the publication of results in the *Journal of Bone and Joint Infection* from a preclinical rabbit model of implant-associated methicillin-resistant *Staphylococcus aureus* (MRSA) osteomyelitis (Karau *et al*., 2022).

The study consisted of an *in vitro* biofilm time-kill experiment that examined the effect of treatment with exebacase or CF-296 (engineered variant of exebacase) on a colonized titanium screw and an *in vivo* surgical experiment that examined MRSA quantities following treatment with systemic daptomycin and exebacase or CF-296. For the surgical experiment, New Zealand male and female rabbits had MRSA colonized screws inserted into their tibias along with localized treatment with exebacase, CF-296, or lysin carrier and systemic treatment with daptomycin or saline.

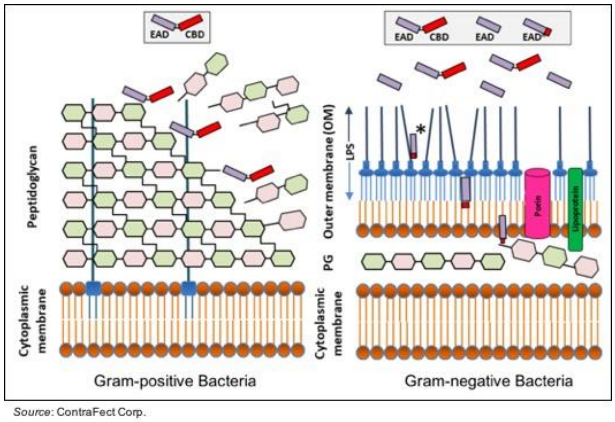
Results from the *in vitro* study showed mean reductions in bacterial load of 2.41 and 2.08 $\log_{10}$ cfu per implant after 1 hour of treatment and 5.38 and 4.65 $\log_{10}$ cfu per implant after 24 hours for exebacase and CF-296, respectively. Results from the *in vivo* study showed that local administration of either lysin without systemic antibiotics reduced MRSA counts compared to controls. In addition, application of either lysin along with daptomycin resulted in a significant reduction in MRSA counts on infected implants compared to daptomycin alone.

These results support the findings from a compassionate use study of four patients in France with recurrent MRSA periprosthetic joint infections that had been administered exebacase locally (Ferry *et al*., 2021). In that study, two of four patients had favorable outcomes after >1 year of follow up, with total disappearance of clinical signs of septic arthritis.

While there are a few limitations to the latest study, including the use of only one strain of MRSA, one concentration of lysin, and a lower dose of daptomycin than would be utilized in human dosing, the results provide support for the local administration of lysins for the treatment of osteomyelitis and prosthetic joint infections caused by MRSA.

CF-370 to be Advanced for Treating Gram-Negative Infections

CF-370 is the company's lead engineered lysin development candidate targeting Gram-negative bacterial species. The following figure shows how lysins are effective against Gram-positive bacteria due to their ability to easily interact with the peptidoglycan layer. However, Gram-negative bacteria have an outer membrane that acts as a barrier against most lysins, thus preventing them from reaching the peptidoglycan layer. While the majority of purified Gram-negative lysins have no antimicrobial activity, there are a select few that have some activity in low ionic strength buffers (indicated by the asterisk in the following figure on the right). It is these lysins that ContraFect used as lead compounds to modify in order to increase their anti-microbial activity, with CF-370 emerging as the lead candidate from this research.



Source: ContraFect Corp.

Most recently, ContraFect had multiple presentations on CF-370 at the 32nd European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) Annual Meeting. The results included its activity in an *in vivo* model and *in vitro* analysis of its susceptibility to resistance.

***In vivo* efficacy of CF-370 alone and in addition to amikacin in the rabbit acute pneumonia model caused by an extensively drug-resistant (XDR) *Pseudomonas aeruginosa,* AR-769**

This study utilized a rabbit model of pulmonary infection induced by *Pseudomonas aeruginosa* and examined two doses of CF-370 (3 and 10 mg/kg, iv, single dose), two doses of CF-370 (3 and 10 mg/kg, iv, single dose) in combination with amikacin (4 mg/kg, iv, 3 doses every 8 hours), amikacin alone, vehicle control, and an untreated cohort. Results showed that CF-370, when administered alone and in combination with amikacin, significantly reduced bacterial counts by approximately 3.0 $\log_{10}$ cfu/g tissue when compared to amikacin alone (P≤0.0004) and by approximately 4.5 $\log_{10}$ cfu/g tissue when compared to vehicle control . In addition, significantly reduced bacterial counts were seen in secondary organs of interest (spleen and kidney) when CF-370 was administered in combination with amikacin compared to amikacin alone.

Lysin CF-370 exhibits a low propensity for decreased susceptibility in Gram-negative (GN) ESKAPE pathogens

This study utilized the standard 28-day serial passage method to induce *in vitro* resistance against CF-370, ciprofloxacin, and levofloxacin. CF-370 had an extremely low propensity for developing decreased susceptibility to the Gram negative ESKAPE pathogens (*P. aeruginosa*, *Acinetobacter baumannii*, *Klebsiella pneumoniae*, and *Enterobacter cloacae*) and *Escherichia coli*. Minimum inhibitory concentrations (MICs) for CF-370 did not change against any of the pathogens, except for a 2-fold increase with *E. cloacae*. In contrast, MIC increases ranged from 32-fold to 512-fold for levofloxacin and ciprofloxacin.

Lysin CF-370 suppresses *in vitro* resistance in *Pseudomonas aeruginosa* to meropenem, tobramycin and levofloxacin

This study utilized the 28-day serial passage method to test whether CF-370 could suppress in vitro resistance in *P. aeruginosa* to current standard of care antibiotics (meropenem, tobramycin, and levofloxacin). The addition of CF-370 at only 1/8x MIC completely repressed resistance of *P. aeruginosa* to both tobramycin and levofloxacin and increased only 2-fold to meropenem, compared to 4-fold, 16-fold, and 32-fold MIC changes without CF-370, respectively.

CF-370 is currently being evaluated in GLP toxicology studies. These are required for an IND application for examining CF-370 in Gram-negative infections. The company will be advancing CF-370 into the clinic with a multiple day dosing regimen to maximize chances for clinical success.

Financial Update

On August 15, 2022, ContraFect announced financial results for the second quarter of 2022. As expected, the company did not report any revenues for the three months ending June 30, 2022. Net loss for the second quarter of 2022 was $18.1 million, or $0.46 per share, compared to a net loss of $5.4 million, or $0.14 per share, for the second quarter of 2021. R&D expenses for the second quarter of 2022 were $16.8 million, compared to $7.8 million for the second quarter of 2021. The increase was primarily due to an increase in spending on CMC costs related to the analytical and process validation and pre-commercial manufacturing of exebacase, an increase in spending on non-clinical studies of exebacase, IND-enabling studies of CF-370 to support a potential IND application, and an increase in spending on clinical activities for the Phase 3 DISRUPT trial ahead of the interim futility analysis. G&A expenses for the second quarter of 2022 were $3.3 million, compared to $2.9 million for the second quarter of 2021. The increase was primarily due to increased personnel and related expenses.

As of June 30, 2022, ContraFect had approximately $27.3 million in cash, cash equivalents, and marketable securities. As of May 10, 2022, the company had approximately 39.3 million shares outstanding and, when factoring stock options and warrants, a fully diluted share count of approximately 54.7 million.

Conclusion

With the Phase 3 DISRUPT trial halted following the interim futility analysis, ContraFect is looking ahead to additional development strategies for exebacase. The results from the rabbit model of MRSA osteomyelitis are very

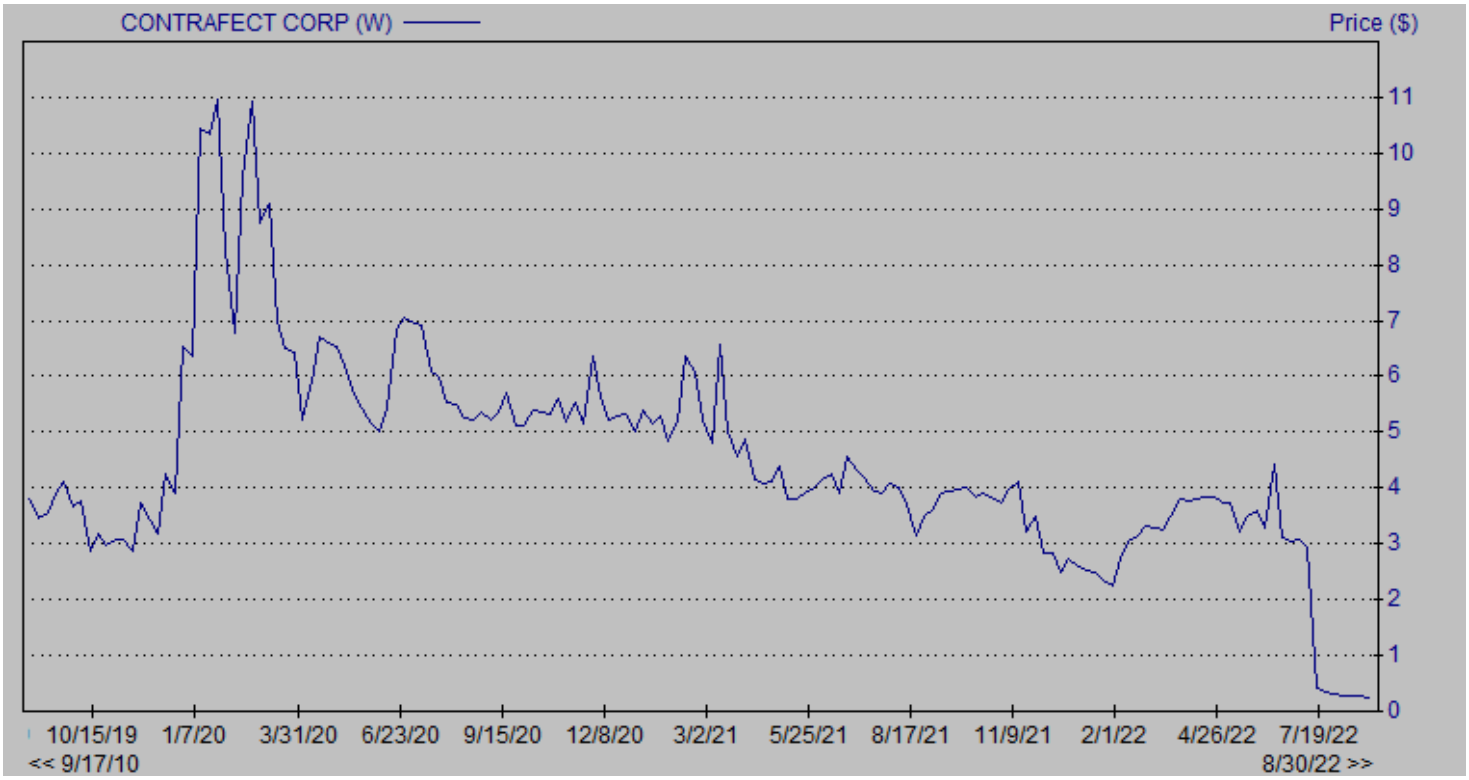
encouraging and point to exebacase's potential in treating prosthetic joint infections. ContraFect will be filing with regulatory authorities to initiate a study of intra-articular exebacase in patient with chronic or recurrent prosthetic joint infections later this year. The company is also expected to advance CF-370 for resistant Gram-negative infections and we look forward to updates as it advances toward clinical trials. With no changes to our model, our valuation remains at $3.00 per share.

PROJECTED FINANCIALS

ContraFect Corp.	2021 A	Q1 A	Q2 A	Q3 E	Q4 E	2022 E	2023 E	2024 E
Exebacase	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth		-	-	-	-			
Grants & Collaborative Revenue	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth		-	-	-	-			
Total Revenues	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth		-	-	-	-			
Cost of Sales	$0	$0	$0	$0	$0	$0	$0	$0
Product Gross Margin		-	-	-	-			
Research & Development	$35.5	$12.7	$16.8	$9.5	$10.0	$49.0	$40.0	$42.0
General & Administrative	$11.8	$3.3	$3.3	$3.1	$3.2	$12.8	$13.0	$15.0
Other Expenses	$0	$0	$0	$0	$0	$0	$0	$0
Operating Income	($47.3)	($16.0)	($20.0)	($12.6)	($13.2)	($61.8)	($53.0)	($57.0)
Operating Margin		-	-	-	-			
Non-Operating Expenses (Net)	$27.0	($4.2)	$1.9	$0.0	$0.0	($2.2)	$0.0	$0.0
Pre-Tax Income	($20.3)	($20.2)	($18.1)	($12.6)	($13.2)	($64.0)	($53.0)	($57.0)
Income Taxes Paid	$0	$0	$0	$0	$0	$0	$0	$0
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Net Income	**($20.3)**	**($20.2)**	**($18.1)**	**($12.6)**	**($13.2)**	**($64.0)**	**($53.0)**	**($57.0)**
Net Margin		-	-	-	-			
Reported EPS	**($0.55)**	**($0.51)**	**($0.46)**	**($0.32)**	**($0.34)**	**($1.63)**	**($1.33)**	**($1.14)**
YOY Growth		-	-	-	-			
Basic Shares Outstanding	36.8	39.3	39.3	39.3	39.3	39.3	40.0	50.0

Source: Zacks Investment Research, Inc. *David Bautz, PhD*

HISTORICAL STOCK PRICE



Source: Zacks Investment Research

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