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Dyadic International, Inc. (DYAI - NASDAQ)

Another Top Tier Collaboration

Based on our DCF model and a 15% discount rate, Dyadic International is valued at approximately $9.00 per share. We assume a 22.5% probability of ultimate success for C1, based on historical drug approval rates and quantity of projects in the pipeline. The model assumes revenue contributions from sources worldwide.

Current Price (8/14/2019)	$6.09
Valuation	**$9.00**

OUTLOOK

Dyadic has developed a gene expression system based on C1, its proprietary fungal expression system that can produce a variety of recombinant proteins. C1 is already commercial in industrial applications and is in development for use in the development and production of pharmaceutical grade proteins. C1 exhibits potential to economically produce biologic vaccines, virus like particles, antibodies, Fc-fusion, enzymes, AAVs and other biopharmaceuticals.

In 2015, the company sold its industrial business to DuPont for $75 million and retained the exclusive right to sublicense C1 for use in animal and human pharmaceutical applications. Proceeds from the DuPont sale provided cash for share repurchase and further development of the C1 platform for production of biologics. Additional R&D funding comes from partners. Dyadic is currently working with several biopharmaceutical companies and government organizations to validate the technology.

In the near term, we expect growing R&D revenue as additional partners are added. By 2020, we anticipate first sales-related revenues from C1, which represent licensing fees, upfront payments, milestones and royalties.

SUMMARY DATA

52-Week High	**7.30**
52-Week Low	**1.40**
One-Year Return (%)	**312**
Beta	**0.10**
Average Daily Volume (sh)	**141,400**
Shares Outstanding (mil)	**27.1**
Market Capitalization ($mil)	**165.0**
Short Interest Ratio (days)	**7.4**
Institutional Ownership (%)	**6.6**
Insider Ownership (%)	**45.5**
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 2018 Estimate	**N/A**
P/E using 2019 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**Above Average**
Type of Stock	**Small-Growth**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue

(In millions of USD)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2018	$0.2 A	$0.2 A	$0.3 A	$0.7 A	$1.3 A
2019	$0.4 A	$0.4 A	$0.5 E	$0.6 E	$1.8 E
2020					$2.2 E
2021					$3.0 E

Earnings per Share

	Q1	Q2	Q3	Q4	Year
2018	-$0.07 A	-$0.06 A	-$0.06 A	-$0.02 A	-$0.21 A
2019	-$0.08 A	-$0.10 A	-$0.07 E	-$0.07 E	-$0.32 E
2020					-$0.32 E
2020					-$0.34 E

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WHAT'S NEW

Second Quarter 2019 Financial & Operational Results

Dyadic International Inc. (NASDAQ: DYAI) released second quarter 2019 financial and operational results on August 13, 2019. Revenues were $0.4 million and represented research and development proceeds from partners working to develop C1. Total expenses were $3.4 million and net loss was ($2.7) million after adding interest income. On a per share basis, net loss was ($0.10). Total cash and investments were $38.4 million as of June 30, 2019, equivalent to ~$1.43 per share.

The second quarter continued the trend of securing collaboration agreements. A sub-licensing agreement with Luina Bio for animal health was announced in late April and with Alphazyme in early May for producing molecular biology enzymes. A 15-year agreement with Serum Institute of India was signed on May 8th to develop twelve proteins. The latest collaboration was announced in conjunction with 2Q earnings and is a fully-funded research arrangement with an unidentified top 25 global pharmaceutical company. Several other positive events occurred since the beginning of the year including promotion of Ms. Rawson to CFO, extension of the VTT contract, uplisting to the NASDAQ and the addition of the company to the Russell Microcap Index.

Second quarter revenues increased 142% to $391,000 due to an increase in research collaborations. Total expenses in the period increased 70% to $3.4 million. Research and development[1] was up 38% equaling $1.5 million. Greater activity with contract research organizations (CROs) and a greater number of research projects underway contributed to the increase. General and administrative expenses rose 103% to $1.9 million on higher stock compensation, annual bonuses and incentives, SEC registration and uplisting costs, business development and investor relation costs and legal expenses. Net loss was ($2.7) million for the period, compared to ($1.6) million in 2Q:18. On a per share basis, net loss was ($0.10) compared to ($0.06) in the prior year.

The company has guided for cash burn of ($8) to ($10) million in 2019, which has been offset by contributions from additional deals and tax incentives. Upfront payments or other revenue from existing or new partnerships could further improve this estimate. Cash and equivalents was $38.4 million down from $41.5 million as of December 31, 2018 and $40.0 million on March 31, 2019.

Research Collaborations

During 2018, Dyadic entered into nine proof of concept research collaborations that were fully funded by participating partners. The pace has been maintained in 2019, when two additional collaborations were added in the first quarter with top 25 pharmaceutical companies and three additional relationships were forged in the second quarter with companies around the globe. The latest collaboration was announced in August, in conjunction with the company's second quarter report. While the name of the partner was not disclosed, it is a top 25 global pharmaceutical company that currently employs Chinese Hamster Ovary (CHO) cells for its production. The team that is working with Dyadic recognizes the potential of C1 to improve efficiency and is developing proof of concept studies that are expected to demonstrate the superiority of C1 over the currently used expression systems. This relationship has a chance to expand through discussions with an affiliate of the partner. The affiliate has a global presence and relationships that could spread the adoption and use of C1 more broadly around the globe if it is found to be superior to current production methods. We anticipate an update to these talks as the year progresses.

The other collaborations include the agreement with Luina Bio, which was announced on April 30 and created a worldwide sub-licensing agreement for the use of C1 to develop and commercialize antigens and biological products for use with companion animals. As part of the agreement, Dyadic received a 20% equity interest in Novovet, an entity which will develop and commercialize the associated products. Dyadic will also receive a percentage of royalties on net sales and non-sales revenues associated with C1. With its interest in Novovet, Dyadic will have the right to appoint one individual to the board of directors. Dyadic has highlighted the benefits of this agreement noting the cGMP facilities that Luina maintains and the faster path to commercialization for animal health products as compared to human medicines.

[1] Total R&D includes Cost of R&D Revenue, R&D and R&D Related Party amounts.

The agreement with Alphazyme is a sub-licensing arrangement. Alphazyme and Dyadic had previously worked together in 2018 on a proof of concept project which yielded favorable results leading to the May 6th announcement. This arrangement will allow Alphazyme to use C1 to produce molecular biology enzymes addressing markets for custom DNA and RNA molecules, genomic medicine and genetic testing. It will provide Dyadic with a 7.5% ownership interest in Alphazyme, additional milestone payments and a percentage of royalties on next sales upon transfer of C1 technology to the company. Following the technology transfer, an 18 month exclusivity period will provide a head start to develop product. Following the end of the 18 months, Alphazyme has an option to extend the exclusivity period for an additional 12 months for an additional 2.5% interest in the company.

On May 8th an agreement with Serum Institute of India was announced to develop and manufacture antibody products and vaccines. The Serum Institute has dramatically reduced the cost of its products relative to many of the Western producers to make them affordable in developing economies. The use of C1, if successful, will enable Serum to maintain its low cost position in the manufacturing space and also improve the performance of biologic vaccines drugs and other biologic products. The collaboration allows C1 to be used to express up to 12 antibodies and vaccines. Dyadic will grant Serum the option for a 15 year exclusive sub-license for each of the 12 proteins in return for research funding, milestone payments and royalties. We see the Serum collaboration as potentially one of the most important due to Serum's reach (65% of children around the globe get at least one Serum vaccine) and focus on low cost (one of the biggest hurdles in medicine today). Dyadic management speculates that this agreement will heighten attention in large vaccine manufacturer board rooms who are concerned about a low cost competitor obtaining an even greater advantage in the market.

Along with the second quarter report, Dyadic announced another collaboration with a top 25 global pharmaceutical company. The agreement is a proof of concept effort that will examine the feasibility of using C1 to produce three different protein classes. This includes full length antibodies, single chain antibodies and FC Fusion proteins. One of the rationales for the collaboration was the need to address the production limitations of CHO cell hosts. The partner's current expression system was unable to produce sufficient quantities of product to ultimately commercialize the product. Dyadic may intensify the relationship with an affiliate of the pharmaceutical company that has the ability to dramatically expand the use of C1 in numerous products globally.

Dyadic continues discussions with prospects and strongly believes further collaborations will be announced in 2019. We speculate that there could be an accelerating rate to partner additions as momentum builds and biologics producers that are not now participating do not want to be excluded. Dyadic has outlined a variety of structures that would work for them to build collaborations including an access fee (upfront cash), research milestones, commercial milestones and royalties, equity stake in the company, partnerships or a combination of these structures.

We are optimistic on research collaborations with large pharmaceutical companies as it allows potential acquirers of this technology to evaluate C1's potential and have a stake in its success. With numerous interested parties invested in developing the technology we anticipate that if a bidding war begins, substantial value will accrue to Dyadic shareholders.

Other Highlights

Year to date, Dyadic has advanced several new programs, including its work exploring the use of C1 to produce adeno-associated virus (AAV) vectors, which are in short supply. The patent portfolio was augmented with the publication of the application entitled "Production of Flu Vaccine Produced from Myceliophthora Thermophila." Discussions are underway with Sanofi to advance the program to the next stage following results that exceeded targets for several in development proteins. Dyadic has sent a sample of expressed protein to partner Mitsubishi Tanabe to perform a functional analysis and decide whether to move forward with additional research. With both of these relationships, expanded licensing deals, human clinical trials and opportunity for commercialization of products is possible. The company is making excellent progress and advancing on numerous fronts, raising the likelihood of license revenues and income producing deals. Dyadic's relationship with VTT has been extended and new yield records have been achieved which we discuss in our latest note on July 9th.

Milestones

Dyadic has performed well over the last year adding nine new collaborations in 2018 and four so far in 2019. The company was also able to achieve its objectives with respect to becoming a fully reporting SEC company and satisfying the requirements to be listed on the NASDAQ. We include below recently achieved milestones and others we expect in the near term:

- NASDAQ Listing – April 2019
- NASDAQ Bell Ringing Ceremony – June 17, 2019
- Advances in glycoengineering of C1
- Additional protease deletions in C1
- Advancements in nivolumab development
- Comparison work completed for certolizumab vs. Cimzia
- Additional collaborations
    - Luina Bio – April 2019
    - Alphazyme – May 2019
    - Serum Institute of India – May 2019
    - Top Tier Pharmaceutical Company – August 2019
- VTT Contract Extension – July 2019
- Potential cash inflow from licensing or development arrangement

Valuation

Dyadic has continued to forge relationships with dominant players in the pharmaceutical and protein expression industries as well as advance its internal programs on a number of fronts. In the words of Dyadic CEO Mark Emalfarb, the company has "many shots on goal" with its numerous external and internal initiatives. As we continue to expand our understanding of the gene expression space, we believe the addressable market for C1 could be larger than our model forecasts. C1 is able to make many products economically feasible that otherwise might not even be pursued due to production level constraints. While we do not make changes to our assumption of market size we do recognize a higher level of penetration into this market following the 2Q:19 report. With the continued advancement of internal programs and a new relationship with a top tier global pharmaceutical company, we increase both the ultimate penetration of C1 and the probability of success by 10%. The change to our assumptions increases our target price from $7.00 per share to $9.00 per share. As we have stated, we believe that continued advancement of current projects and the addition of new collaborations are both value markers that contribute to our target price changes.

Summary

Dyadic has experienced a whirlwind year in 2019 with continued advancement on a number of fronts. From the addition of several new collaborations, advancement of internal programs for certolizumab and nivolumab, secondary metabolites and adeno associated viruses to progress with protease deletions and achieving the human G0 glycosylation form, which is expected around year end. These all contribute to the "shots on goal" which we believe will eventually lead to a billion dollar opportunity.

The details provided on the conference call and in the second quarter press release demonstrate continued advancement on a broad portfolio of projects that will likely yield commercialized products, licence revenues and potentially a buyout. We see a substantial level of value based on a broad portfolio of options and an exciting technology that can revolutionize the protein expression industry. Future favorable catalysts include the addition of more collaborators, achieving output milestones and entering the clinical trial process. We see the addition of new partners and the high likelihood of even more joining Dyadic in the near term as strong evidence of value. We increase our target price to $9.00 per share.

PROJECTED FINANCIALS

Dyadic International, Inc. - Income Statement

Dyadic International, Inc.	2018 A	Q1 A	Q2 A	Q3 E	Q4 E	2019 E	2020 E	2021 E
Total Revenues	**$1.3**	**$0.4**	**$0.4**	**$0.5**	**$0.6**	**$1.8**	**$2.2**	**$3.0**
YOY Growth	*71%*	*118%*	*142%*	*90%*	*-20%*	*42%*	*19%*	*36%*
Cost of R&D Revenue	$1.0	$0.3	$0.3	$0.4	$0.4	$1.5	$1.8	$2.4
Provision for Contract Losses	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
R&D	$2.1	$0.7	$0.8	$0.8	$0.8	$3.0	$3.2	$3.5
R&D Related Party	$1.2	$0.4	$0.3	$0.3	$0.2	$1.2	$1.8	$2.0
G&A	$4.5	$1.4	$1.9	$1.2	$1.2	$5.7	$4.6	$4.8
Foreign Currency Exchange	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Income from operations	($7.6)	($2.4)	($3.0)	($2.2)	($2.0)	($9.6)	($9.1)	($9.7)
Operating Margin	*-586%*	*-606%*	*-758%*	*-430%*	*-371%*	*-520%*	*-415%*	*-323%*
Interest Income	$0.9	$0.3	$0.3	$0.2	$0.2	$0.9	$0.6	$0.5
Other	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Pre-Tax Income	($6.7)	($2.2)	($2.7)	($2.0)	($1.9)	($8.7)	($8.5)	($9.2)
Provision for Income Tax	($1.0)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Tax Rate	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Net Income	**($5.7)**	**($2.2)**	**($2.7)**	**($2.0)**	**($1.9)**	**($8.7)**	**($8.5)**	**($9.2)**
Net Margin	*-439%*	*-540%*	*-690%*	*-394%*	*-338%*	*-472%*	*-386%*	*-307%*
Reported EPS	**($0.21)**	**($0.08)**	**($0.10)**	**($0.07)**	**($0.07)**	**($0.32)**	**($0.32)**	**($0.34)**
YOY Growth	*178%*	*12.2%*	*76.4%*	*32.2%*	*261.7%*	*58%*		
Shares Outstanding	27.67	26.71	26.83	26.88	26.90	26.83	26.90	26.90

Source: Company Filing // Zacks Investment R

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HISTORICAL STOCK PRICE

Dyadic International, Inc. – Share Price Chart



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