

Dyadic (DYAI-NASDAQ) – Buy Rated

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Head of Healthcare Research

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Dyadic and Frederick National Laboratory to Develop Cell Lines for COVID-19 Vaccine Candidates – Warp Speed

Dyadic's C1 gene expression platform is designed to accelerate development and lower the production costs of biologic vaccines, drugs, and other biologic products at flexible commercial scales. Dyadic announced the company has been selected by the Frederick National Laboratory to engineer its patented and proprietary C1 cell lines to produce a number of COVID-19 vaccine candidates which will be utilized by the Vaccine Research Center (VRC), a part of the National Institute of Allergy and Infectious Diseases (NIAID) at the National Institutes of Health.

Investment Highlights

Making Vaccines at Scale. As the world works feverishly to develop and test a vaccine for COVID19, we look down the road at the Scale that is required. We are talking not about millions of doses but billions. Dyadic's C1 expression platform may hold the key. In a recent conversation with Dyadic's CEO, and as stated in the company's most recent presentation, the company's C1 technology-expression platform may have the potential to produce a vaccine candidate, once identified at the Scale required and at a lower cost and a higher potency than traditional expression platforms.

Israel is Interested. IIBR appears to be working with Dyadic to explore the potential of the C1 gene expression platform to express gene sequences and targets developed by IIBR. The research collaboration can combine IIBR's scientific capabilities and cGMP facilities with Dyadic's C1 gene expression platform to shorten the development cycle, lower the manufacturing cost, and improve the performance of vaccines and mAbs. Beyond Corona, the idea has been to be in a position to provide certain countermeasures against nerve agents such as sarin and VX gas, which are toxic and rapidly acting chemical warfare agents. The application of the C1 technology platform with Israeli and other government agencies (EU/U.S.) to help with the need to combat emerging biologic outbreaks, pandemics, epidemics, or other threats to national security and defense.

ZAPI Project. Dyadic has developed a biomanufacturing technology platform, nicknamed C1, which helps to speed the development, lower the manufacturing cost, and potentially improve the performance of biologic vaccines & drugs, including vaccines against Zoonotic diseases. For the past five years plus, Dyadic has been working with other pharmaceutical and biotech companies, universities and other institutes in the European Union Zoonotic Anticipation And Preparedness Initiative (ZAPI) Project, intending to create new platforms and technologies that will facilitate a fast, coordinated, and practical response to new animal and human infectious diseases, such as the Coronavirus, as soon as they emerge.

Sanofi (SNA- Not Rated). Dyadic is commercially working with Sanofi and various other top twenty-five pharma & biotech companies, as well as The Serum Institute of India, to further improve and apply the C1 gene expression platform to accelerate development, lower production costs and improve the performance of biologic vaccines, drugs, and other biologic products, at flexible commercial scales to make healthcare more accessible & affordable to patients globally.

Current Price	\$6.68
Price Target	\$14.00

Estimates	F2019E	F2020E	F2021E
Expenses (\$000s)	\$ 10,964	\$ 11,183	\$ 11,407
1Q March	\$ 2,844	\$ 2,572	\$ 2,624
2Q June	\$ 3,352	\$ 2,684	\$ 2,738
3Q September	\$ 2,398	\$ 2,796	\$ 2,852
4Q December	\$ 2,369	\$ 3,131	\$ 3,194

	F2019E	F2020E	F2021E
EPS (diluted)	\$ (0.31)	\$ (0.07)	\$ 0.78
1Q March	\$ (0.08)	\$ (0.02)	\$ 0.18
2Q June	\$ (0.10)	\$ (0.02)	\$ 0.19
3Q September	\$ (0.06)	\$ (0.02)	\$ 0.20
4Q December	\$ (0.06)	\$ (0.02)	\$ 0.22

EBITDA/Share	(\$0.28)	(\$0.07)	\$0.78
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EV/EBITDA (x)	0.0	-0.1	0.8
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Stock Data	
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52-Week Range	\$2.51 - \$8.00
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Shares Outstanding (mil.)	27.5
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Market Capitalization (mil.)	\$183
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Enterprise Value (mil.)	\$147
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Debt to Capital	0%
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Book Value/Share	\$1.76
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Price/Book	4.0
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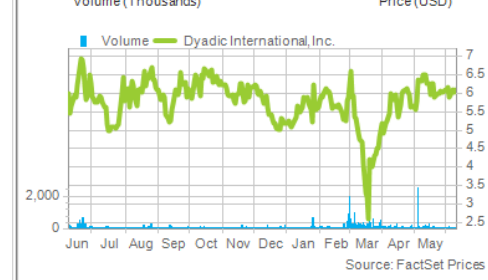
Average Three Months Trading Volume (K)	299
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Insider Ownership	30.1%
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Institutional Ownership	17.3%
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Short interest (mil.)	4.2%
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Dividend / Yield	\$0.00/0.0%
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The Serum Institute of India. It is a for-profit company and the world's largest vaccine manufacturer by the number of doses produced and sold globally (more than 1.5 billion doses), which includes Polio vaccine as well as Diphtheria, Tetanus, Pertussis, Hib, BCG, r-Hepatitis B, Measles, Mumps, and Rubella vaccines. It's estimated that about 65% of the children in the world receive at least one vaccine manufactured by Serum Institute. Vaccines manufactured by the Serum Institute are accredited by the World Health Organization, Geneva, and are being used in around 170 countries across the globe in their national immunization programs, saving millions of lives throughout the world.

Exhibit 1. Dyadic Is Working with Some of the Most Prominent Vaccine Researchers in the World.

Coronavirus Opportunities

- Israel Institute for Biological Research (IIBR)
- Zoonotic anticipation and preparedness initiative (ZAPI)
- UfoVax / (Scripps Spin Out Company)
- Cr2o, Erasmus, Utrecht, TiHo Hannover (Select ZAPI Institutes ⁽¹⁾)
- Vaccine Clinical Materials Program, Fredrick National Laboratory
- Other Ongoing Discussions

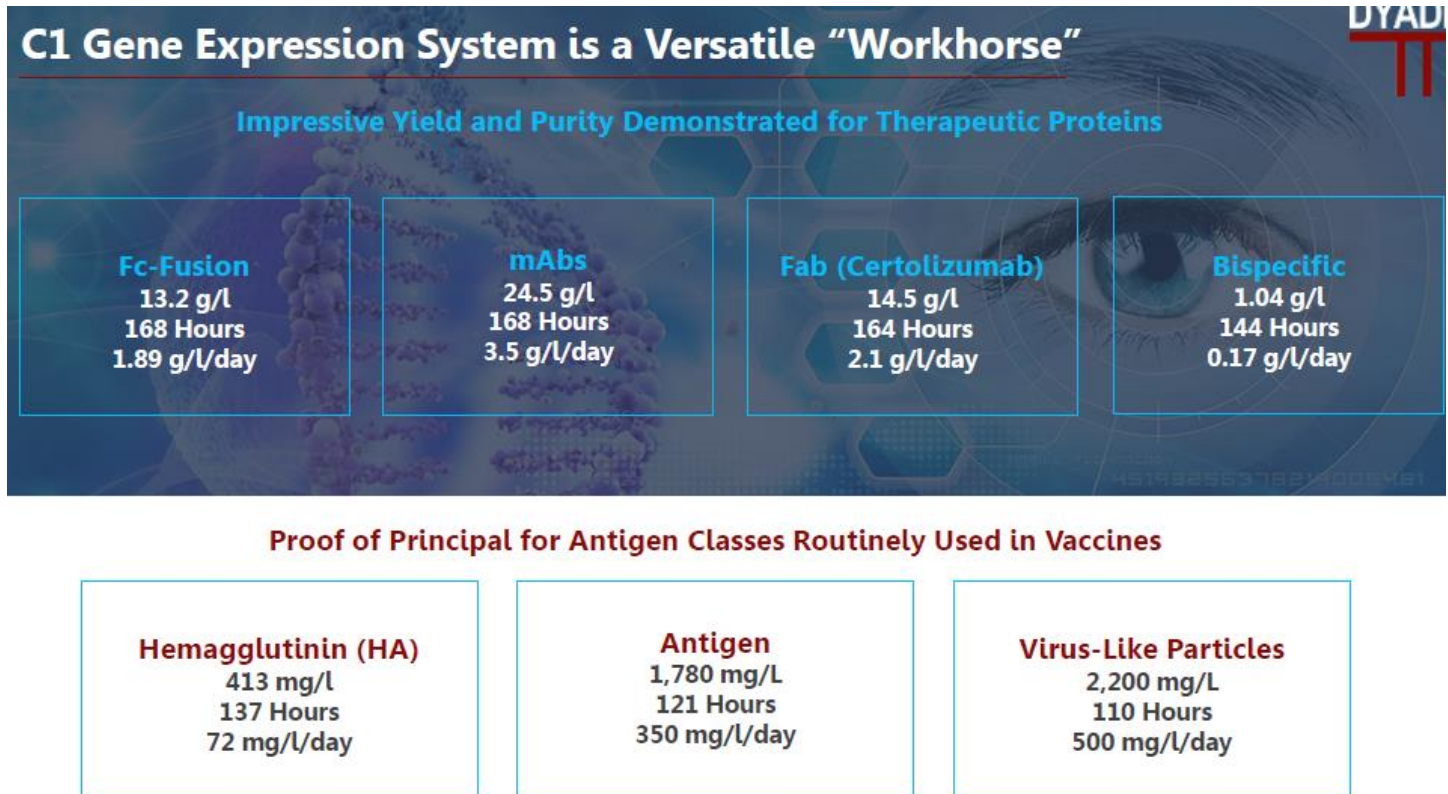
Source: Dyadic

2019 Results. A net loss of \$8.3M and just over \$34M in cash 27M shares outstanding and a market capitalization just over \$156M.

Valuation: If we flip coin four times, the reality is we have no idea how many times it will be heads vs. tails. The same thing is true in terms of our ability to predict the next partnership or license deal Dyadic may announce. With that said, if we flip a coin, a hundred times, we can expect about half of the tosses to be heads (or tails). For Dyadic, we evaluate broadly the utility of the C1 platform across three market segments. Pharma and Biotechnology, Biosimilars, Vaccines, and Industrial markets such as Petroleum or Blue Jeans. We assume eight possible deals over the next ten years, in each of the three segments, or 24 possible revenue streams, each with their own milestones and royalties. We know its unlikely that the company will achieve all 24 deals, and we also know it is equally unlikely they will have no new deals (given the existing track record). For this modeling exercise, we apply a 70% discount (or 30% probability of success) factor to determine the revenue stream. This discount is in addition to our (r) discount rate that we use in our Free Cash Flow to the Firm (FCFF), discounted EPS (dEPS), and Sum of the Parts (SOP) models. For this rate we select $r = 30\%$ (our highest discount). Our model uses a fully diluted projected out-year (2030) share count. Our three models (FCFF, dEPS, and SOP) are then equal-weighted, averaged, and rounded to the nearest whole number to derive our 12 months price target of \$14.00.

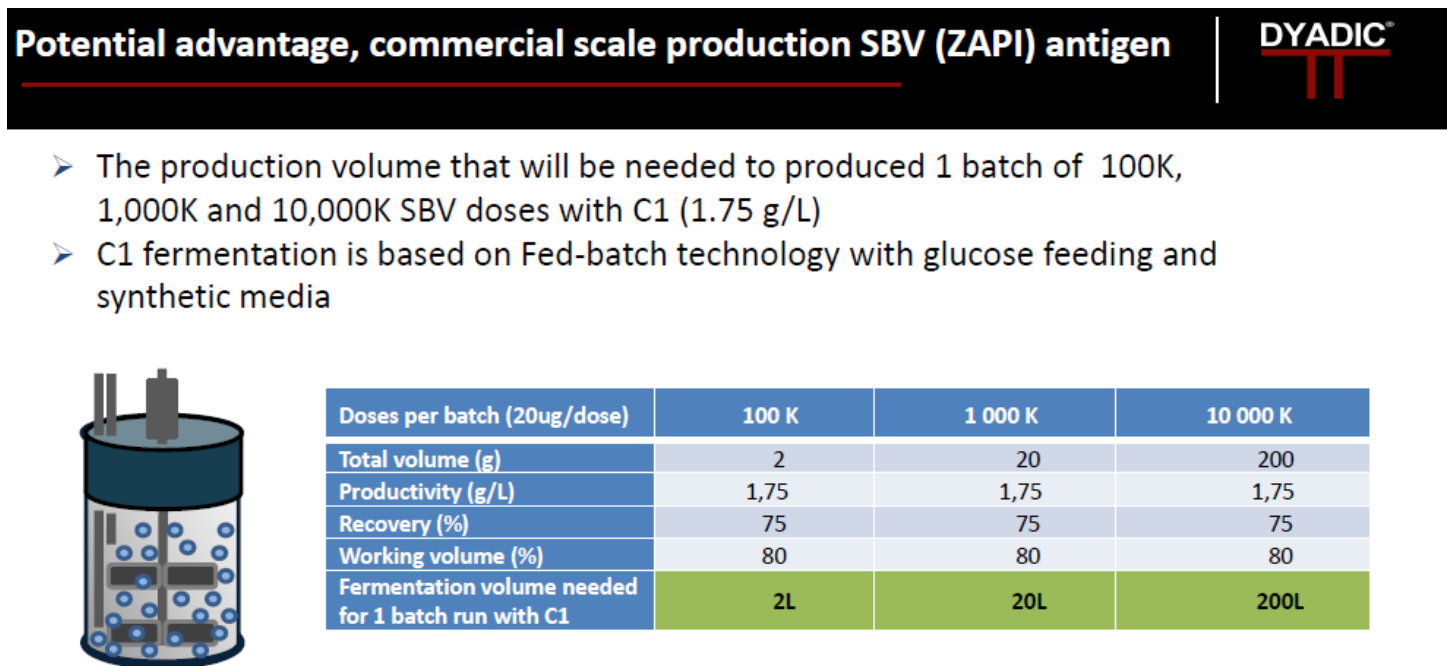
Risks: Partnership risks, Commercialization risks, Financial risks, Clinical and regulatory risks, and Legal and intellectual property risk.

Exhibit 2. Dyadic C1 Platform Shows Impressive Yield, Potency and Cost Efficiency



Source: Dyadic

Exhibit 3. The C1 Platform Is Scalable to the Yields Required to Reach “Billions” of Vaccine Doses.



E.Coli and Baculovirus would require between 7,000 L to 20,000 L capacity for 10,000 K dosages vs 200 L using C1

Source: Dyadic

Exhibit 4. Dyadic C1 Platform Offers Unique Potential to Achieve Scale and is Working with Some of the Leading Vaccine Developers

Coronavirus Opportunities – C1 Gene Expression Platform



Working together we can “Keep The World Safe” by helping to address the immediate coronavirus outbreak, be better prepared for future infectious diseases, pandemic, and epidemic outbreaks, and leveraging this unfortunate situation to advance biopharmaceutical manufacturing to help speed development, lower the cost and improve the performance of biologic vaccines and drugs such as insulin, seasonal flu and other vaccines and antibodies to make healthcare more accessible and affordable to patients.

C1, has potential to produce larger quantities of lower cost more potent recombinant Vaccines and drugs for Pandemic and Epidemic zoonotic diseases and biologic threats

Coronavirus Opportunities

- Israel Institute for Biological Research (IIBR)
- Zoonotic anticipation and preparedness initiative (ZAPI)
- UfoVax / (Scripps Spin Out Company)
- Cr2o, Erasmus, Utrecht, TiHo Hannover (Select ZAPI Institutes ⁽¹⁾)
- Vaccine Clinical Materials Program, Fredrick National Laboratory
- Other Ongoing Discussions

⁽¹⁾ ‘Coronavirus, Global Expert Landscape Analysis 2020’ https://drive.google.com/file/d/1LD_6F5QC3JVSLxKWB38auGuhg2MUI7PA/view
Albert Osterhaus (ranked #3), Bart Haagmans (#16), Berend Jan Bosch (#18).

Source: Dyadic

Exhibit 5. We Believe IIBR (Israel) is Working on Multiple COVID Vaccine Candidates with C1 Platform

Dyadic and The Israel Institute for Biological Research (IIBR) Expand Collaboration to Combat Emerging Diseases



The Israel Institute for Biological Research “IIBR” is a governmental, applied research institute specializing in the fields of biology, medicinal chemistry and environmental sciences.



IIBR will explore the potential of Dyadic's industrially proven C1 gene expression platform to express gene sequences and targets developed by IIBR into both an rVaccine candidate and monoclonal antibodies (mAbs) that may help combat the outbreak of the COVID-19 virus (Coronavirus).

The research collaboration combines IIBR's renowned scientific capabilities and cGMP facilities with Dyadic's patented and proprietary C1 gene expression platform known to shorten the development cycle, lower the manufacturing cost and improve the performance of vaccines and mAbs.

PAST SUCCESS WITH IIBR: In our collaboration with IIBR, a proprietary IIBR Fc-fusion enzyme has been expressed using our C1 technology. This Acetyl Choline Esterase enzyme has previously been shown to provide certain countermeasures against nerve agents such as sarin and VX gas which are toxic and rapidly acting chemical warfare agents. The recombinant IIBR Fc-fusion enzyme, produced in HEK293 cells, has been shown to provide longer lasting protection than the common Acetyl Choline Esterase

Source: Dyadic

Exhibit 6. The Serum Institute of India Represents Just one of Multiple Vaccine Developers

Dyadic and Serum to Develop and Manufacture Affordable and Accessible Antibody Products and Vaccines Globally

Serum Institute of India

- World's largest vaccine manufacturer -- > 1.3 billion doses
- Serum supplies vaccines to more than 140 countries
- 65% of the children in the world receive at least one vaccine produced by Serum Institute(1)
- Scope of Research and Commercialization Collaboration:
 - To develop and manufacture 12 antibodies and vaccines using Dyadic C1 Gene Expression Platform
 - Potential for downstream milestones and royalties

Adar Poonawalla, CEO
Serum Institute of India



"Serum has a proven track record of more than 50 years of developing and delivering affordable vaccines and drugs globally and we are eager to incorporate Dyadic's industrially proven C1 gene expression platform into our antibody and vaccine development and manufacturing programs. Dyadic's C1 gene expression platform has the potential to help us deliver on our commitment to bring down the cost of biologics in order to make them more accessible and affordable to patients globally."

Source: Dyadic

Exhibit 7. Note Data on Immune Response After a Single Injection (lower right). C1 Seems to Out-Perform Traditional Baculovirus Expression Systems.

Sanofi Vaccine Trial and Model Vaccine

Murine Immunogenicity Study of HA/NC Produced by C1 vs. baculovirus

Recombinant Hemagglutinin (HA) produced in C1 is well tolerated in mice

- No weight loss
- No negative clinical signs

HA/New Caledonia from C1 has excellent immunogenic properties

Superior response than control HA/New Caledonia produced in baculovirus

Immune response after single immunizations in mice (% responders)

Expression System	Dose of rHA 1 u/g	Dose of rHA 3.3 u/g	Dose of rHA 10 u/g	Dose of rHA 30 u/g
C1	50% (4/8)	57% (4/7)	100% (8/8)	100% (8/8)
Baculovirus	62% (5/8)	12% (1/8)	50% (4/8)	75% (6/8)

C1 can produce high amounts of HA (~1 g/L) and other antigens in 3-7 days by using low cost fermentation

Large market opportunity: 146M influenza doses/year

Each 0.5 mL dose typically contains: 15 µg of HA for each strain

Thus, three 1000L C1 fermentation runs theoretically can supply the annual global HA demand of ~2,175 g

(1) <https://www.dyadic.com/wp-content/uploads/2018/01/Sanofi-Pasteur-C1-Presentation.pdf>

Source: Dyadic

Exhibit 8. Upcoming Catalysts for Dyadic

Product	Geography	Event	Timeline	Impact
C1 to produce AAV vectors		large market demand for aav vectors	Future	+
Research Collaborations		Additional Collaborations with pharma companies	Future	+
Research Collaborations		Additional Collaborations with Biotrechnology companies	Future	+
Research Collaborations		Additional Collaborations with Biosimilar companies	Future	+
Research Collaborations		Additional Collaborations with Industrial companies	Future	+
Research Collaborations		Additional Collaborations with Vaccine Makers	Future	+
Serum Institute of India partnership		Expansion of the collaboration: Manufacture of up to 12 vaccines)	Future	+

Stock Significance Scale: + of moderate importance; ++ higher level; +++ very important

Source: Dawson James estimates.

Product Modeling Assumptions. Dyadic is a platform company based on its C1 technology. The company's strategy, at this point in its evolution, is to pursue license and royalty structured deals across several focus areas which include:

- a. **Large Pharma and Biotechnology companies** that have products in early stages of development, so much so that they can leverage the C1 manufacturing process (as more efficient, more cost-effective) early in the scale-up process.
- b. **Biosimilars.** We see "generic biologics" as a new and emerging industry. The industry is only p[artially focused on managing production costs. This is because makers' first priority has been to demonstrate that the manufactured product is truly the same as the brand. As the industry matures, we see the possibility of two key factors that may change, both of which could favor Dyadic.
 - i. The industry will ultimately compete on price, so makers with the lowest manufacturing cost will have a strategic advantage.
 - ii. Intellectual property Infringement. Brand companies have already pursued IP infringement to prevent generic biosimilars from entering the market. One key area is to claim infringement on the manufacturing process itself. By shifting to a C1 (Dyadic) process, companies would not be infringing on the brand makers process.
- c. **Vaccine Industry.** Dyadic currently has a partnership deal (milestones and royalties) with the Serium Institute of India. The arrangement allows Serium to select up to 12 additional projects.
 - i. We assume that the rising demand for cheaper and faster, production of vaccines only continues to rise with time. The global need is great, and in emerging countries, cost-effective production is critical. As Dyadic demonstrates success in the industry, we expect additional vaccine makers will utilize the C1 platform.
- d. **Industrial Industry.** Dyadic's first production was to move the denim jeans "stone-washed" blue jeans away from using stones to using C1 product methods. Multiple industrial processes could benefit from cost-effective production methods. We know that Dyadic has worked with the petroleum industry, although Dupont acquired that technology in a \$75M deal with the company.

Exhibit 9. Market Models: For the purposes of modeling, we assume Dyadic will focus on three areas, Industrials, Vaccines and Pharma and Biotech. -Biosimilars.

Industrial Enzymes Production														
Milestone Revenues (M)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Biofuels (ethanol from fuels)			\$ 5.0			\$ 5.0			\$ 5.0				\$ 15.0	
Animal Feed				\$ 10.0			\$ 20.0				\$ 25.0			
Pulp and Paper					\$ 10.0			\$ 5.0			\$ 5.0			
Textiles			\$ 5.0			\$ 5.0				\$ 15.0				
Food and Food Related				\$ 5.0			\$ 5.0		\$ 5.0			\$ 10.0		
Deal No. 6								\$ 5.0			\$ 5.0		\$ 5.0	
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total Milestone Revenues	\$ -	\$ -	\$ 3.0	\$ 4.5	\$ 3.0	\$ 3.0	\$ 7.5	\$ 3.0	\$ 3.0	\$ 4.5	\$ 10.5	\$ 3.0	\$ 6.0	
Royalty Revenues (M)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Biofuels (ethanol from fuels)				\$ 5.0	\$ 7.0	\$ 10.0	\$ 14.0	\$ 18.0	\$ 22.0	\$ 30.0	\$ 35.0	\$ 40.0	\$ 50.0	
Animal Feed				\$ 5.0	\$ 7.0	\$ 9.0	\$ 9.9	\$ 10.9	\$ 12.0	\$ 13.2	\$ 14.5	\$ 15.9	\$ 17.5	
Pulp and Paper				\$ 5.0	\$ 5.8	\$ 3.0	\$ 3.5	\$ 4.0	\$ 4.6	\$ 5.2	\$ 6.0	\$ 6.9	\$ 8.0	
Textiles				\$ 5.0	\$ 10.0	\$ 15.0	\$ 20.0	\$ 30.0	\$ 40.0	\$ 50.0	\$ 60.0	\$ 70.0	\$ 80.0	
Food and Food Related				\$ 5.0	\$ 7.0	\$ 10.0	\$ 11.0	\$ 12.1	\$ 13.3	\$ 14.6	\$ 16.1	\$ 17.7	\$ 19.5	
Deal No. 6														
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total Royalty Revenues	\$ -	\$ -	\$ -	\$ 7.5	\$ 11.0	\$ 14.1	\$ 18.7	\$ 24.0	\$ 29.4	\$ 36.0	\$ 41.9	\$ 47.9	\$ 55.5	
Total Industrial Enzyme Adjusted Milestone & Royalty Revenues	\$ -	\$ -	\$ 3.0	\$ 12.0	\$ 14.0	\$ 17.1	\$ 26.2	\$ 27.0	\$ 32.4	\$ 40.5	\$ 52.4	\$ 50.9	\$ 61.5	
Serum Institute of India & "Other vaccine" Partnerships														
Milestone Revenues (M)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Development of up to 12 antibodies and vaccines			\$ 5.0			\$ 5.0			\$ 5.0				\$ 15.0	
Deal No. 2				\$ 10.0			\$ 20.0				\$ 25.0			
Deal No. 3					\$ 10.0			\$ 5.0			\$ 5.0			
Deal No. 4			\$ 5.0			\$ 5.0				\$ 15.0				
Deal No. 5				\$ 5.0			\$ 5.0		\$ 5.0			\$ 10.0		
Deal No. 6								\$ 5.0			\$ 5.0		\$ 5.0	
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total Milestone Revenues	\$ -	\$ -	\$ 3.0	\$ 4.5	\$ 3.0	\$ 3.0	\$ 7.5	\$ 3.0	\$ 3.0	\$ 4.5	\$ 10.5	\$ 3.0	\$ 6.0	
Royalty Revenues (M)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Development of up to 12 antibodies and vaccines				\$ 5.0	\$ 7.0	\$ 10.0	\$ 14.0	\$ 18.0	\$ 22.0	\$ 30.0	\$ 35.0	\$ 40.0	\$ 50.0	
Option to obtain exclusive commercial sublicense 15 yrs royalty				\$ 5.0	\$ 7.0	\$ 9.0	\$ 9.9	\$ 10.9	\$ 12.0	\$ 13.2	\$ 14.5	\$ 15.9	\$ 17.5	
Deal No. 3				\$ 5.0	\$ 5.8	\$ 3.0	\$ 3.5	\$ 4.0	\$ 4.6	\$ 5.2	\$ 6.0	\$ 6.9	\$ 8.0	
Deal No. 4				\$ 5.0	\$ 10.0	\$ 15.0	\$ 20.0	\$ 30.0	\$ 40.0	\$ 50.0	\$ 60.0	\$ 70.0	\$ 80.0	
Deal No. 5				\$ 5.0	\$ 7.0	\$ 10.0	\$ 11.0	\$ 12.1	\$ 13.3	\$ 14.6	\$ 16.1	\$ 17.7	\$ 19.5	
Deal No. 6														
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total Royalty Revenues	\$ -	\$ -	\$ -	\$ 7.5	\$ 11.0	\$ 14.1	\$ 18.7	\$ 24.0	\$ 29.4	\$ 36.0	\$ 41.9	\$ 47.9	\$ 55.5	
Total Serum Institute (India) & Other Vaccines Milestone & Royalty Revenues	\$ -	\$ -	\$ 3.0	\$ 12.0	\$ 14.0	\$ 17.1	\$ 26.2	\$ 27.0	\$ 32.4	\$ 40.5	\$ 52.4	\$ 50.9	\$ 61.5	
Pharma, Biotech and Biosimilars														
Milestone Revenues (M)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Deal No. 1			\$ 5.0			\$ 5.0			\$ 5.0				\$ 15.0	
Deal No. 2				\$ 10.0			\$ 20.0				\$ 25.0			
Deal No. 3					\$ 10.0			\$ 5.0			\$ 5.0			
Deal No. 4			\$ 5.0			\$ 5.0				\$ 15.0				
Deal No. 5				\$ 5.0			\$ 5.0		\$ 5.0			\$ 10.0		
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Royalty Revenues (M)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Deal No. 1				\$ 5.0	\$ 7.0	\$ 10.0	\$ 14.0	\$ 18.0	\$ 22.0	\$ 30.0	\$ 35.0	\$ 40.0	\$ 50.0	
Deal No. 2				\$ 5.0	\$ 7.0	\$ 9.0	\$ 9.9	\$ 10.9	\$ 12.0	\$ 13.2	\$ 14.5	\$ 15.9	\$ 17.5	
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Deal No. 5				\$ 5.0	\$ 7.0	\$ 10.0	\$ 11.0	\$ 12.1	\$ 13.3	\$ 14.6	\$ 16.1	\$ 17.7	\$ 19.5	
Deal No. 6														
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total Royalty Revenues	\$ -	\$ -	\$ -	\$ 7.5	\$ 11.0	\$ 14.1	\$ 18.7	\$ 24.0	\$ 29.4	\$ 36.0	\$ 41.9	\$ 47.9	\$ 55.5	
trial, Vaccines and Pharma & Biotech - Vaccines Milestone & Royalty Revenues	\$ -	\$ -	\$ 3.0	\$ 12.0	\$ 14.0	\$ 17.1	\$ 26.2	\$ 27.0	\$ 32.4	\$ 40.5	\$ 52.4	\$ 50.9	\$ 61.5	

Source: Dawson James estimates.

Valuation. If we flip coin four times, the reality is we have no idea how many times it will be heads vs. tails. The same thing is true in terms of our ability to predict the next partnership or license deal, Dyadic may announce. With that said, if we flip a coin, a hundred times, we can expect about half of the tosses to be heads (or tails). For Dyadic, we evaluate broadly the utility of the C1 platform across three market segments. Pharma and Biotechnology, Biosimilars, Vaccines, and Industrial markets such as Petroleum or Blue Jeans. We assume eight possible deals over the next ten years, in each of the three segments, or 24 possible revenue streams, each with their own milestones and royalties. We know it's unlikely that the company will achieve all 24 deals, and we also know its equally unlikely they will have no new deals (given the existing track record). For this modeling exercise, we apply a 70% discount (or 30% probability of success) factor, to determine the revenue stream. This discount is in addition to our (r) discount rate that we use in our Free Cash Flow to the Firm (FCFF), discounted EPS (dEPS), and Sum of the Parts (SOP) models. For this rate we select $r = 30\%$ (our highest discount). Our model uses a fully diluted projected out-year (2030) share count. Our three models (FCFF, dEPS, and SOP) are then equal-weighted, averaged, and rounded to the nearest whole number to derive our 12 months price target of \$14.00.

Exhibit 10. Discounted Free Cash Flow Model

Average		14											
Price Target		15											
Year		2020											
units ('000)		2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT		(8,298)	(2,183)	24,593	30,440	39,433	66,510	68,615	84,473	108,713	144,068	139,274	170,873
Tax Rate		0%	0%	0%	0%	10%	15%	20%	22%	24%	25%	27%	29%
EBIT (1-t)		(8,298)	(2,183)	24,593	30,440	35,489	56,534	54,892	65,889	82,622	108,051	101,670	121,320
CapEx		(47,616)	-	-	-	-	-	-	-	-	-	-	-
Depreciation		198	-	-	-	-	-	-	-	-	-	-	-
Change in NWC													
FCF		(55,715)	(2,183)	24,593	30,440	35,489	56,534	54,892	65,889	82,622	108,051	101,670	121,320
PV of FCF		(64,072)	(2,183)	21,386	23,017	23,335	32,323	27,291	28,486	31,061	35,322	28,901	29,988
Discount Rate		15%											
Long Term Growth Rate		1%											
Terminal Cash Flow		875,237											
Terminal Value YE2027		216,345											
NPV		495,272											
NPV-Debt													
Shares out ('000)		32,635	2030E										
NPV Per Share		15											

Source: Dawson James

Exhibit 11. EPS Model

Current Year	2020
Year of EPS	2030
Earnings Multiple	15
Discount Factor	15%
Selected Year EPS	\$ 3.57
NPV	13.23

Discount Rate and Earnings Multiple Varies, Year is Constant							
Earnings Multiple	13.23	5%	10%	15%	20%	25%	30%
	0	0	0	0	0	0	0
5	10.95	6.88	4.41	2.88	1.92	1.29	
10	21.91	13.76	8.82	5.76	3.83	2.59	
15	32.86	20.64	13.23	8.65	5.75	3.88	
20	43.82	27.52	17.64	11.53	7.66	5.18	
25	54.77	34.40	22.05	14.41	9.58	6.47	
30	65.72	41.28	26.46	17.29	11.50	7.77	
35	76.68	48.15	30.87	20.17	13.41	9.06	

Source: Dawson James

Exhibit 12. Sum-of-the-Parts Model

Dyadic	LT Gr	Discount Rate	Yrs to Peak	% Success	Peak Sales (MM's)	Term Val)
Insutrial	1%	15%	5	30%	\$205	\$1,464
NPV						\$4.4
Vaccines	1%	15%	5	30%	\$205	\$1,464
NPV						\$4.4
Pharma & Biotech	1%	15%	5	30%	\$205	\$1,464
NPV						\$4.4
NPV						\$0.0
Net Margin						65%
MM Shrs OS (2030E)						33

Source: Dawson James

Risk Analysis

In addition to the typical risks associated with development stage technology and biotechnology-related companies, potential risks specific to Dyadic are as follows:

Partnership risk. The company is also expected to make agreements with partners for additional products, but there can be no assurances that the company will be able to secure favorable partnerships.

Commercial risk. There are no assurances that the company will be able to achieve significant sales, market share, or become profitable.

Clinical and regulatory risk. Dyadic may pursue the development of its products and face the associated regulatory risks.

Financial risk. The company may need to raise capital in the marketplace, and there can be no assurances that the company will be able to successful raise capital and or do so, at favorable terms.

Legal and intellectual property risk. The company may have to defend its patents and technical know-how, and there can be no assurances that the patents will not be infringed or will be held as valid if challenged, and or that the company may infringe on third parties' patents.

Exhibit 13. Income Statement

DYAD: Income Statement (\$000)																					
YE December 31	2018A	1Q19A	2Q19A	3Q19A	4Q19A	2019A	1Q20E	2Q20E	3Q20E	4Q20E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenue:																					
Research & Development Revenue	1,295	403	391	455	433	1,681	394	412	429	480	1,715	1,749	1,784	1,820	1,856	1,893	1,931	1,970	2,009	2,049	2,090
Total Product Sales	1,295	403	391	455	433	1,681	394	412	429	480	1,715	1,749	1,784	1,820	1,856	1,893	1,931	1,970	2,009	2,049	2,090
Industrial Milestone Revenues							690	720	750	840	3,000	4,500	3,000	3,000	7,500	3,000	3,000	4,500	10,500	3,000	6,000
Industrial Royalty Revenues							-	-	-	-	-	7,500	11,025	14,100	18,705	23,987	29,355	36,019	41,890	47,880	55,502
Vaccine & Related Milestone Revenues							690	720	750	840	3,000	4,500	3,000	3,000	7,500	3,000	3,000	4,500	10,500	3,000	6,000
Vaccine & Related Royalty Revenues							-	-	-	-	-	7,500	11,025	14,100	18,705	23,987	29,355	36,019	41,890	47,880	55,502
Pharma and Bio Related Milestone Revenues							690	720	750	840	3,000	4,500	3,000	3,000	7,500	3,000	3,000	4,500	10,500	3,000	6,000
Pharma and Bio Related Royalty Revenues							-	-	-	-	-	7,500	11,025	14,100	18,705	23,987	29,355	36,019	41,890	47,880	55,502
Total Revenue	1,295	403	391	455	433	1,681	2,070	2,160	2,250	2,520	9,000	30,000	42,075	51,300	78,615	80,962	97,066	121,558	157,170	152,639	184,505
Expenses:																					
Cost of research and development revenue	1,027	328	322	385	425	1,460	342	357	372	417	1,489	1,519	1,549	1,580	1,612	1,644	1,677	1,710	1,744	1,779	1,815
Research & Development	2,102	692	818	841	736	3,088	724	756	787	882	3,149	3,212	3,277	3,342	3,409	3,477	3,547	3,618	3,690	3,764	3,839
Research & Development (related party)	1,216	389	336	102	41	869	204	213	222	248	886	904	922	940	959	978	998	1,018	1,038	1,059	1,080
General & Administrative	4,523	1,428	1,871	1,056	1,165	5,520	1,295	1,351	1,408	1,576	5,630	5,743	5,858	5,975	6,094	6,216	6,341	6,467	6,597	6,729	6,863
Foreign Currency/Exchange	21	6	5	14	3	28	6	7	7	8	28	29	29	30	31	31	32	32	33	34	34
Total Expenses	8,888	2,844	3,352	2,398	2,369	10,964	2,572	2,684	2,796	3,131	11,183	11,407	11,635	11,867	12,105	12,347	12,594	12,846	13,103	13,365	13,632
Operating Income (Loss)	(7,592)	(2,441)	(2,962)	(1,943)	(1,936)	(9,283)	(502)	(524)	(546)	(611)	(2,183)	24,593	30,440	39,433	66,510	68,615	84,473	108,713	144,068	139,274	170,873
Settlement of Litigation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Income, net	895	267	266	245	207	985	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Other Income	-	-	-	-	-	-	(502)	(524)	(546)	(611)	(2,183)	24,593	30,440	39,433	66,510	68,615	84,473	108,713	144,068	139,274	170,873
Pretax Income	(6,698)	(2,174)	(2,696)	(1,698)	(1,729)	(8,298)	(502)	(524)	(546)	(611)	(2,183)	24,593	30,440	39,433	66,510	68,615	84,473	108,713	144,068	139,274	170,873
Income Tax Benefit (Provision)	1,006	1	-	-	11	12	-	-	-	-	-	-	-	3,943	9,977	13,723	18,584	26,091	36,017	37,604	49,553
Tax Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	15%	20%	22%	24%	25%	27%	29%
Gain (Loss) from discontinued operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GAAP Net Income (Loss)	(5,692)	(2,175)	(2,696)	(1,698)	(1,740)	(8,310)	(502)	(524)	(546)	(611)	(2,183)	24,593	30,440	35,489	56,534	54,892	65,889	82,622	108,051	101,670	121,320
GAAP-EPS	(0.21)	(0.08)	(0.10)	(0.06)	(0.06)	(0.31)	(0.02)	(0.02)	(0.02)	(0.02)	(0.07)	0.78	0.96	1.12	1.77	1.72	2.05	2.56	3.34	3.13	3.72
GAAP-EPS (Dil)	(0)	(0.08)	(0.10)	(0.06)	(0.06)	(0.31)	(0.02)	(0.02)	(0.02)	(0.02)	(0.07)	0.75	0.92	1.07	1.70	1.65	1.97	2.46	3.20	3.00	3.57
Wgt'd Avg Shrs (Bas) - '000s	27,673	26,713	26,829	27,181	27,290	27,003	27,317	27,345	31,372	31,403	29,359	31,482	31,608	31,735	31,862	31,989	32,118	32,246	32,375	32,505	32,635
Wgt'd Avg Shrs (Dil) - '000s	27,673	26,713	26,829	27,181	27,290	27,003	27,317	27,345	33,872	34,211	29,359	31,482	31,608	31,735	31,862	31,989	32,118	32,246	32,375	32,505	32,635

Source: Dawson James estimates.

Companies related to Dyadic and or mentioned in this report:

DuPont

Sanofi

Important Disclosures:

Price Chart:



Price target and rating changes over the past three years:

Initiated – Buy – October 14, 2019 – Price Target \$14.00
 Update – Buy – November 4, 2019 – Price Target \$14.00
 Update – Buy – November 22, 2019 – Price Target \$14.00
 Update – Buy – January 27, 2020 – Price Target \$14.00
 Update – Buy – February 26, 2020 – Price Target \$14.00
 Update – Buy – April 20, 2020 – Price Target \$14.00
 Update – Buy – June 10, 2020 – Price Target \$14.00

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- 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) **Neutral:** 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.

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	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	22	88%	3	14%
Market Perform (Neutral)	3	12%	1	33%
Market Underperform (Sell)	0	0%	0	0%
Total	25	100%	4	16%

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