

INSTITUTIONAL RESEARCH

BiotechnologyUPDATE REPORT

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Dyadic (DYAI-NASDAQ) – Buy Rated

Coronavirus nCoV and How Dyadic Could Help ZAPI it.

Dyadic's CEO, Mark Emalfarb reviewed with us the impact of the coronavirus, named 2019-nCoV and how a company like Dyadic could help to create a solution. The global biotech industry is working overtime to identify a conserved region of the virus (an area that doesn't change) making a vaccine possible. One complication though, is it can be very difficult to mass produce certain vaccines. Dyadic's C1 could be part of the answer.

Investment Highlights

An outbreak of a pneumonia-like illness that started in the city of Wuhan has put health authorities on high alert in China and around the world. The new coronavirus—named 2019-nCoV—is thought to have originated in the food market of the central China metropolis and has since infected more than a thousand people. The infected and death toll are expected to rise. Healthcare authorities globally are searching for answers.

The ZAPI Project. The Coronavirus appears to be is a virus that is transmitted from animals to people and now, a Zoonotic Virus which is then transmitted from person to person. 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, with the goal 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.

Israel is on it too. For the past few years we Dyadic has been working with the Israeli Institute for Biological Research (IIBR) to apply the company's C1 technology to develop and manufacture recombinant vaccines and neutralizing agents comprising targeted antigens and monoclonal antibodies, to combat emerging diseases and threats. In this collaboration a proprietary IIBR Fc-fusion enzyme has been expressed using the company's C1 technology. 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 whether that be pandemics, epidemics or for national security and defense.

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 in order to make healthcare more accessible & affordable to patients globally.

January 27, 2020

Jason H. Kolbert

Head of Healthcare Research
646-465-6891

| Current Price | | | | | | \$5.22 |
|--|-------|----------|-----|----------|-------|---------|
| Price Target | | | | | | \$14.00 |
| 5 | 50 | | | 2225 | | 0015 |
| Estimates | | 019E | | 020E | | 021E |
| Expenses (\$000s) | \$ | 11,799 | \$ | 12,035 | | 12,276 |
| 1Q March | \$ | 2,844 | | 2,768 | | 2,823 |
| 2Q June | \$ | 3,352 | \$ | 2,888 | \$ | 2,946 |
| 3Q September | \$ | 2,398 | \$ | 3,009 | \$ | 3,069 |
| 4Q December | \$ | 3,205 | \$ | 3,370 | \$ | 3,437 |
| | | 019E | | 020E | | 021E |
| EPS (diluted) | \$ | (0.34) | | (0.11) | | 0.87 |
| 1Q March | \$ | (0.08) | \$ | (0.03) | \$ | 0.20 |
| 2Q June | \$ | (0.10) | \$ | (0.03) | \$ | 0.21 |
| 3Q September | \$ | (0.06) | \$ | (0.03) | \$ | 0.22 |
| 4Q December | \$ | (0.09) | \$ | (0.03) | \$ | 0.24 |
| | | | | | | |
| EBITDA/Share | | (\$0.34) | | (\$0.11) | | \$0.87 |
| EV/EBITDA (x) | | 0.0 | | 0.0 | | 0.9 |
| Stock Data | | | | | | |
| 52-Week Range | | \$1.84 | | - | | \$7.30 |
| Shares Outstanding (mil.) | | | | | | 27.2 |
| Market Capitalization (mil | .) | | | | | \$142 |
| Enterprise Value (mil.) | | | | | | \$105 |
| Debt to Capital | | | | | | 0% |
| Book Value/Share | | | | | | \$1.76 |
| Price/Book | | | | | | 1.2 |
| Average Three Months Tra | din | g Volum | e (| K) | | 79 |
| Insider Ownership | | | | | | 30.3% |
| Institutional Ownership | | | | | | 17.1% |
| Short interest (mil.) | | | | | | 4.0% |
| Dividend / Yield | | | | | 0.0 | 00/0.0% |
| Dyadic International, In Volume (Thousands) | c. (E | YAI) | | Pri | ce (I | USD) |



The Serum Institute of India. It is a for profit company and the world's largest vaccine manufacturer by 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 is 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.

Dyadic's last report: Just under half a million in R&D revenues (\$454k) in the quarter and spent just \$1.6M in the period closing the quarter with \$37M in cash and equivalents. We met with management and see the potential for multiple additional catalysts to unfold over the next year plus.

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 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.

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

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Exhibit 1. Upcoming Catalysts for Dyadic

| Product | Geography | Event | Timeline | Impact |
|----------------|-------------------------|--|----------|--------|
| C1 to produce | e AAV vectors | large market demand for aav vectors | Future | + |
| Research Col | laborations | Additional Collaborations with pharma companies | Future | + |
| Research Col | llaborations | Additional Collaborations with Biotrechnology companies | Future | + |
| Research Col | laborations | Additional Collaborations with Biosimilar companies | Future | + |
| Research Col | laborations | Additional Collaborations with Industrial companies | Future | + |
| Research Col | llaborations | Additional Collaborations with Vaccine Makers | Future | + |
| Serum Institut | te 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[partially 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 the 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.

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Exhibit 2. 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) Biofuels (ethanol from fuels) | 2018E | 2019E | \$ | 2020E 5.0 | 2021E | 2022E | 2023E \$ 5.0 | 2024E | 2025E | 2026E \$ 5.0 | 2027E 202 | 28E | 2029E | 2030E \$ 15.0 |
| Animal Feed | | | ۶ | 5.0 | 10.0 | | 3 3.0 | \$ 20.0 | | 3 3.0 | \$ 2 | 25.0 | | 3 13.U |
| Pulp and Paper | | | | ~ | 10.0 | \$ 10.0 | | | \$ 5.0 | | | 5.0 | | |
| Textiles | | | Ś | 5.0 | , | | \$ 5.0 | | Ψ 0.0 | | \$ 15.0 | 5.0 | | |
| 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% | |
| Total Milestone Revenues | - | \$ - | \$ | 3.0 \$ | 4.5 | \$ 3.0 | \$ 3.0 | \$ 7.5 | | \$ 3.0 | \$ 4.5 \$ 3 | 10.5 \$ | 3.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Royalty Revenues (M) | 2018E | 2019E | | 2020E | 2021E | 2022E | 2023E | 2024E | 2025E | 2026E | 2027E 202 | 28E | 2029E | 2030E |
| Biofuels (ethanol from fuels) | | | | | | | \$ - | \$ 4.0 | | | | 8.0 \$ | | \$ 10.0 |
| Animal Feed | | | | \$ | | | | \$ 14.0 | | | \$ 30.0 \$ 3 | | 40.0 | |
| Pulp and Paper | | | | \$ | | | \$ 9.0 | | | | \$ 13.2 \$ | | 15.9 | |
| Textiles | | | | \$ | | | \$ 3.0 | | | \$ 4.6 | | 6.0 \$ | 6.9 | |
| Food and Food Related | | | | \$ | | | \$ 15.0 | | | \$ 40.0 | | | 70.0 | |
| Deal No. 6 | | | | \$ | | | \$ 10.0 | | | \$ 13.3 | | | | \$ 19.5 |
| Probability of Success | | | | 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 \$ 4 | 41.9 \$ | 47.9 | \$ 55.5 |
| Total Industrial Enzyme Adjusted Milestone & Royalty Revenues | | | Ś | 20 1 | 12.0 | | | ć 26.5 | ć 37.0 | ć 33.5 | ¢ 40.5 Å | A ^ | FC 2 | ٠ |
| lotal 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 |
| | | | | | | | | | | | | | | |
| Serium Institute of India & "Other vaccine" Partnerships | | | | | | | | | | | | | | |
| Milestone Revenues (M) | 2018E | 2019E | | 2020E | 2021E | 2022E | 2023E | 2024E | 2025E | 2026E | 2027E 202 | 28E | 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 | | | \$ 2 | 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% | |
| Total Milestone Revenues | ; - | \$ - | \$ | 3.0 \$ | | | \$ 3.0 | | | | | 10.5 \$ | 3.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Royalty Revenues (M) | 2018E | 2019E | | 2020E | 2021E | 2022E | 2023E | 2024E | 2025E | 2026E | 2027E 202 | 28E | 2029E | 2030E |
| Development of up to 12 antibodies and vaccines | 2018E | 2019E | | | | | \$ - | \$ 4.0 | \$ 5.0 | \$ 6.0 | \$ 7.0 \$ | 8.0 \$ | 9.0 | \$ 10.0 |
| | 2018E | 2019E | | \$ | 5.0 | \$ 7.0 | \$ - \$ 10.0 | \$ 4.0 \$ 14.0 | \$ 5.0 \$ 18.0 | | \$ 7.0 \$ \$ 30.0 \$ | 8.0 \$ 35.0 \$ | 9.0 40.0 | \$ 10.0 \$ 50.0 |
| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 | 2018E | 2019E | | \$ | 5.0 \$ 5.0 \$ | \$ 7.0 \$ 7.0 | \$ - \$ 10.0 \$ 9.0 | \$ 4.0 \$ 14.0 \$ 9.9 | \$ 5.0 \$ 18.0 \$ 10.9 | \$ 6.0 \$ 22.0 \$ 12.0 | \$ 7.0 \$ \$ 30.0 \$ 3 \$ 13.2 \$ 3 | 8.0 \$ 35.0 \$ 14.5 \$ | 9.0 40.0 15.9 | \$ 10.0 \$ 50.0 \$ 17.5 |
| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 4 | 2018E | 2019E | | \$ \$ \$ | 5.0 § 5.0 § 5.0 § | \$ 7.0 \$ 7.0 \$ 5.8 | \$ - \$ 10.0 \$ 9.0 \$ 3.0 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 | \$ 7.0 \$ \$ 30.0 \$ 3 \$ 13.2 \$ 3 \$ 5.2 \$ | 8.0 \$ 35.0 \$ 14.5 \$ 6.0 \$ | 9.0 40.0 15.9 6.9 | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 |
| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 4 Deal No. 5 | 2018E | 2019E | | \$ \$ \$ \$ | 5.0 \$ 5.0 \$ 5.0 \$ | \$ 7.0 \$ 7.0 \$ 5.8 \$ 10.0 | \$ - \$ 10.0 \$ 9.0 \$ 3.0 \$ 15.0 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 \$ 40.0 | \$ 7.0 \$ 30.0 \$ 3 \$ 13.2 \$ 5.2 \$ \$ 50.0 \$ 6 | 8.0 \$ 35.0 \$ 14.5 \$ 6.0 \$ 60.0 \$ | 9.0 40.0 15.9 6.9 70.0 | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 \$ 80.0 |
| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 4 Deal No. 5 Deal No. 6 | 2018E | 2019E | | \$ \$ \$ \$ \$ | 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ | \$ 7.0 \$ 7.0 \$ 5.8 \$ 10.0 \$ 7.0 | \$ - \$ 10.0 \$ 9.0 \$ 3.0 \$ 15.0 \$ 10.0 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 \$ 12.1 | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 \$ 40.0 \$ 13.3 | \$ 7.0 \$ 30.0 \$ 3 5 5.2 \$ 50.0 \$ 6 5 5.2 \$ 5 14.6 \$ 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 8.0 \$ 35.0 \$ 14.5 \$ 6.0 \$ 60.0 \$ 16.1 \$ | 9.0 40.0 15.9 6.9 70.0 17.7 | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 \$ 80.0 \$ 19.5 |
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| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 4 Deal No. 5 Deal No. 6 | | 2019E \$ - | \$ | \$ \$ \$ \$ \$ | 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 30% | \$ 7.0 \$ 7.0 \$ 5.8 \$ 10.0 \$ 7.0 30% | \$ - \$ 10.0 \$ 9.0 \$ 3.0 \$ 15.0 \$ 10.0 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 30% | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 \$ 12.1 30% | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 \$ 40.0 \$ 13.3 30% | \$ 7.0 \$ 30.0 \$ 3 \$ 30.0 \$ 3 \$ 5.2 \$ 5.2 \$ 5.0 \$ 6 \$ 14.6 \$ 30% | 8.0 \$ 35.0 \$ 14.5 \$ 6.0 \$ 60.0 \$ 16.1 \$ 30% | 9.0 40.0 15.9 6.9 70.0 17.7 30% | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 \$ 80.0 \$ 19.5 |
| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 5 Deal No. 6 Probability of Success Total Royalty Revenues \$ | s - | | \$ | \$ \$ \$ \$ 30% | 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 7.5 \$ | \$ 7.0 \$ 7.0 \$ 5.8 \$ 10.0 \$ 7.0 30% \$ 11.0 | \$ - \$ 10.0 \$ 9.0 \$ 3.0 \$ 15.0 \$ 10.0 30% \$ 14.1 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 30% | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 \$ 12.1 30% \$ 24.0 | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 \$ 40.0 \$ 13.3 30% \$ 29.4 | \$ 7.0 \$ 30.0 \$ 35 55 55.2 \$ 55.0 \$ 14.6 \$ 30% \$ 36.0 \$ 4 | 8.0 \$ 35.0 \$ 14.5 \$ 6.0 \$ 60.0 \$ 16.1 \$ 30% 41.9 \$ | 9.0 40.0 15.9 6.9 70.0 17.7 30% 47.9 | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 \$ 80.0 \$ 19.5 \$ 309 \$ 55.5 |
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| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 5 Deal No. 5 Deal No. 6 Probability of Success Total Serum Institute (India) & Other Vaccines Milestone & Royalty Revenues \$ Pharma, Biotech and Biosimiars Milestone Revenues (M) Deal No. 1 Deal No. 1 Deal No. 2 Deal No. 3 Deal No. 4 Deal No. 5 Deal No. 6 Probability of Success Total Milestone Revenues (S) Royalty Revenues (S) Royalty Revenues (S) Royalty Revenues (S) Deal No. 1 Deal No. 2 Deal No. 1 Deal No. 2 Deal No. 3 Deal No. 4 Deal No. 5 Deal No. 6 Deal No. 6 Deal No. 6 Deal No. 6 Deal No. 1 Deal No. 1 Deal No. 1 Deal No. 1 Deal No. 2 Deal No. 3 Deal No. 1 Deal No. 2 Deal No. 3 Deal No. 3 Deal No. 3 Deal No. 4 Deal No. 4 Deal No. 3 Deal No. 4 Deal No. 4 Deal No. 4 Deal No. 5 Deal No. 5 Deal No. 5 Deal No. 6 Deal No. | 2018E | \$ - \$ - 2019E | \$ \$ \$ | \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ | 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 7.5 \$ 12.0 \$ 2021E 10.0 \$ 30% 4.5 \$ 2021E | \$ 7.0 \$ 7.0 \$ 5.8 \$ 10.0 \$ 7.0 30% \$ 11.0 2022E \$ 10.0 30% \$ 3.0 2022E | \$ 10.0 \$ 9.0 \$ 3.0 \$ 15.0 \$ 10.0 30% \$ 14.1 \$ 17.1 2023E \$ 5.0 \$ 3.0 2023E \$ 5.0 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 30% \$ 26.2 2024E \$ 20.0 \$ 5.0 \$ 7.5 2024E \$ 4.0 \$ 9.9 \$ 3.5 | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 \$ 12.1 30% \$ 24.0 \$ 27.0 2025E \$ 5.0 30% \$ 3.0 2025E \$ 5.0 \$ 18.0 \$ 10.9 \$ 10.9 | \$ 6.0 \$ 22.0 \$ 12.0 \$ 46.0 \$ 13.3 30% \$ 29.4 \$ 32.4 2026E \$ 5.0 \$ 3.0 \$ 2026E \$ 4.6 \$ 4.6 | \$ 7.0 \$ 30.0 \$ 3.0 | 8.0 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ | 9.0 40.0 15.9 6.9 9.0 40.0 15.9 6.9 9.0 40.0 15.9 6.9 9.0 6.9 6.9 9.0 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 | \$ 10. \$ 50. \$ 17. \$ 8. \$ 80. \$ 19. \$ 55. \$ 61. \$ 55. \$ 2030E \$ 15. \$ 5. \$ 2030E \$ 15. \$ 10. \$ 10. |
| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 5 Deal No. 5 Deal No. 6 Probability of Success Total Serum Institute (India) & Other Vaccines Milestone & Royalty Revenues \$ Pharma, Biotech and Biosimlars Milestone Revenues (M) Deal No. 1 Deal No. 2 Deal No. 3 Deal No. 4 Deal No. 5 Deal No. 6 Probability of Success Total Milestone Revenues (M) Deal No. 6 Probability of Success Total Milestone Revenues (M) Deal No. 1 Deal No. 3 Deal No. 1 Deal No. 1 Deal No. 1 Deal No. 3 Deal No. 1 Deal No. 3 Deal No. 1 Deal No. 3 Deal No. 5 Deal No. 5 Deal No. 5 | 2018E | \$ - \$ - 2019E | \$ \$ \$ | S S S S S S S S S S | 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 7.5 \$ 12.0 \$ 2021E 10.0 \$ 4.5 \$ 2021E 5.0 \$ 5.0 | \$ 7.0 \$ 7.0 \$ 10.0 \$ 11.0 \$ 11.0 \$ 14.0 2022E \$ 10.0 \$ 30% \$ 3.0 2022E | \$ - \$ 10.0 \$ 9.0 \$ 3.0 \$ 15.0 \$ 10.0 \$ 17.1 2023E \$ 5.0 \$ 3.0 \$ 2023E \$ - \$ 10.0 \$ 3.0 \$ 3.0 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 30% \$ 26.2 2024E \$ 20.0 \$ 5.0 30% \$ 7.5 2024E \$ 4.0 \$ 9.9 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 \$ 12.1 30% \$ 24.0 \$ 27.0 \$ 5.0 \$ 5.0 \$ 3.0 \$ | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 \$ 40.0 \$ 29.4 \$ 22.4 \$ 32.4 \$ 5.0 \$ 5.0 \$ 5.0 \$ 3.0% \$ 4.6 \$ 4.6 \$ 4.6 \$ 4.6 \$ 4.6 \$ 4.6 | \$ 7.0 \$ \$ 30.0 \$ \$ 30.0 \$ \$ 13.2 \$ 5 2 \$ \$ 5.2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ \$ 5 2 \$ \$ \$ 5 2 \$ \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 2 \$ \$ 5 5 0.0 \$ \$ 6 5 \$ 6 \$ 5 2 \$ \$ 5 5 0.0 \$ \$ 6 5 5 2 \$ \$ 5 5 0.0 \$ \$ 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 8.0 \$ 35.0 \$ 5 6.0 \$ 5 | 9.0 40.0 15.9 6.9 70.0 17.7 30% 47.9 50.9 2029E 10.0 30% 3.0 2029E 9.0 40.0 15.9 6.9 70.0 | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 \$ 19.0 \$ 55.5 \$ 55.6 \$ 2030E \$ 15.0 \$ 6.1 \$ 2030E \$ 10.0 \$ |
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| Development of up to 12 antibodies and vaccines Option to obtain exclusive commercial sublicense 15 yrs royalty Deal No. 3 Deal No. 4 Probability of Success Total Serum Institute (India) & Other Vaccines Milestone & Royalty Revenues \$ Milestone Revenues (M) Deal No. 1 Deal No. 1 Deal No. 1 Deal No. 2 Deal No. 3 Deal No. 4 Deal No. 5 Deal No. 6 Probability of Success Total Milestone Revenues (M) Deal No. 1 Deal No. 2 Deal No. 1 Deal No. 2 Deal No. 1 Deal No. 1 Deal No. 2 Deal No. 4 Deal No. 2 Deal No. 5 Deal No. 6 Deal No. 1 Deal No. 1 Deal No. 1 Deal No. 2 Deal No. 4 Deal No. 5 Deal No. 6 Deal No. 5 Deal No. 6 Deal N | 2018E | \$ - 2019E | \$ \$ \$ \$ \$ \$ | \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ | 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 5.0 \$ 7.5 \$ 12.0 \$ 2021E 10.0 \$ 30% 4.5 \$ 2021E 5.0 \$ 5 | \$ 7.0 \$ 7.0 \$ 10.0 \$ 10.0 \$ 11.0 \$ 11.0 \$ 2022E \$ 10.0 \$ 3.0 2022E \$ 10.0 | \$ 10.0 \$ 9.0 \$ 15.0 \$ 10.0 \$ 17.1 2023E \$ 5.0 \$ 3.0 \$ 2038E \$ 5.0 \$ 3.0 \$ 14.1 \$ 17.1 | \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 30% \$ 26.2 2024E \$ 20.0 \$ 5.0 30% \$ 7.5 2024E \$ 4.0 \$ 14.0 \$ 9.9 \$ 3.5 \$ 20.0 \$ 11.0 30% \$ 11.0 30% | \$ 5.0 \$ 18.0 \$ 10.9 \$ 4.0 \$ 30.0 \$ 12.1 30% \$ 24.0 \$ 27.0 2025E \$ 5.0 \$ 30.0 \$ 5.0 30% \$ 10.9 \$ 10.9 \$ 10.9 \$ 10.9 \$ 24.0 \$ 24.0 | \$ 6.0 \$ 22.0 \$ 12.0 \$ 4.6 \$ 40.0 \$ 13.3 30% \$ 29.4 \$ 32.4 2026E \$ 5.0 \$ 5.0 \$ 3.0 \$ 2026E \$ 4.0 \$ 12.0 \$ 4.6 \$ 40.0 \$ 13.3 30% \$ 29.4 | \$ 7.0 \$ 30.0 \$ 3.0 | 8.0 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ | 9.0 40.0 15.9 6.9 70.0 17.7 30% 47.9 2029E 10.0 2029E 10.0 2029E 10.0 15.9 6.9 70.0 17.7 30% 47.9 | \$ 10.0 \$ 50.0 \$ 17.5 \$ 8.0 \$ 19.5 \$ 1 |
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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.

28.856

28,856

28 856

18,974

0%

2024E

15%

66.934

53,547

53.547

23,150

20%

82.758

64,551

64 551

24,267

22%

106.964

24%

81,293

81 293

26,575

142,284

106,713

106 713

30,335

25%

137.455

100,342

100 342

24,803

27%

169.017

120,002

120 002

25,794

29%

64.862

55,133

55 133

27,411

37.817

34,035

34 035

19,460

10%

2021E

23.041

23,041

23 041

17,422

0%

Exhibit 3. Discounted Free Cash Flow Model

| Average | 14 |
|--------------|------|
| | |
| Price Target | 14 |
| Year | 2019 |
| | - |

| 2019E | 2020E |
|----------|--|
| (9,905) | (3,705) |
| 0% | 0% |
| (9,905) | (3,705) |
| (24,523) | - |
| 91 | - |
| | |
| (34,338) | (3,705) |
| (34,338) | (3,222) |
| 15% | |
| 1% | |
| 865,731 | |
| 186,083 | |
| 386,712 | |
| | |
| 28,049 | 2030E |
| 14 | |
| | 0% (9,905) (24,523) 91 (34,338) (34,338) 15% 1% 865,731 186,083 386,712 28,049 |

Exhibit 4. EPS Model

| 2019 |
|------------|
| 2030 |
| 15 |
| 15% |
| \$ 4.08 |
| 13.16 |
| \$ |

| | | Discount Rat | e and Earning | gs Multiple V | aries, Year is | Constant | |
|----------|-------|--------------|---------------|---------------|----------------|----------|------|
| | 13.16 | 5% | 10% | 15% | 20% | 25% | 30% |
| Earnings | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Multiple | 5 | 11.94 | 7.16 | 4.39 | 2.75 | 1.75 | 1.14 |
| | 10 | 23.87 | 14.31 | 8.78 | 5.50 | 3.51 | 2.28 |
| | 15 | 35.81 | 21.47 | 13.16 | 8.24 | 5.26 | 3.42 |
| | 20 | 47.74 | 28.62 | 17.55 | 10.99 | 7.01 | 4.56 |
| | 25 | 59.68 | 35.78 | 21.94 | 13.74 | 8.77 | 5.70 |
| | 30 | 71.62 | 42.93 | 26.33 | 16.49 | 10.52 | 6.83 |
| | 35 | 83.55 | 50.09 | 30.72 | 19.23 | 12.28 | 7.97 |

Source: Dawson James

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Exhibit 5. 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 | | | | | | \$5.1 |
| Vaccines | 1% | 15% | 5 | 30% | \$205 | \$1,464 |
| NPV | | | | | | \$5.1 |
| Pharma & Biotech | 1% | 15% | 5 | 30% | \$205 | \$1,464 |
| NPV | | | | | | \$5.1 |
| NPV | | | | | | \$0.0 |
| Net Margin | | | | | | 65% |
| MM Shrs OS (2030E) | | | | | | 28 |
| Total | | | | | | \$15.18 |

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.

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Exhibit 6. Income Statement

| DYAI.: Income Statement (\$000) | | | | | | | | | | | | | | | | | |
|---|---------|---------|---------|---------|---------|----------|---------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| .: YE September 31 | 2018A | 1Q19A | 2Q19A | 3Q19A | 4Q19E | 2019E | 2020E | 2021E | 2022E | 2023E | 2024E | 2025E | 2026E | 2027E | 2028E | 2029E | 2030E |
| Revenue: | | | | | | | | | | | | | | | | | 1 |
| Research & Development Revenue | 1,295 | 403 | 391 | 455 | 375 | 1,623 | 1,655 | 1,688 | 1,722 | 1,757 | 1,792 | 1,828 | 1,864 | 1,901 | 1,940 | 1,978 | 2,018 |
| | | | | | | | | | | | | | | | | | ĺ |
| Total Product Sales | 1.295 | 403 | 391 | 455 | 375 | 1.623 | 1.655 | 1.688 | 1.722 | 1.757 | 1.792 | 1.828 | 1.864 | 1.901 | 1.940 | 1.978 | 2.018 |
| Industrial Milestone Revenues | 1,233 | 700 | 331 | 700 | 313 | 1,020 | 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 | | | | | | | 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 | | | | | | | 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 | 375 | 1,623 | 9,000 | 36,000 | 42,075 | 51,300 | 78,615 | 80,962 | 97,066 | 121,558 | 157,170 | 152,639 | 184,505 |
| Expenses: | | | | | | | , | ĺ | ŕ | ŕ | | ĺ | | ĺ | | ĺ | |
| Cost of research and development revenue | 1,027 | 328 | 322 | 385 | 300 | 1,335 | 1,362 | 1,389 | 1,417 | 1,445 | 1,474 | 1,503 | 1,533 | 1,564 | 1,595 | 1,627 | 1,660 |
| Research & Development | 2,102 | 692 | 818 | 841 | 800 | 3,152 | 3,215 | 3,279 | 3,345 | 3,412 | 3,480 | 3,550 | 3,621 | 3,693 | 3,767 | 3,842 | 3,919 |
| Research & Development (related party) | 1,216 | 389 | 336 | 102 | 350 | 1,178 | 1,201 | 1,225 | 1,250 | 1,275 | 1,300 | 1,326 | 1,353 | 1,380 | 1,407 | 1,436 | 1,464 |
| General & Adminastrative | 4,523 | 1,428 | 1,871 | 1,056 | 1,750 | 6,105 | 6,227 | 6,352 | 6,479 | 6,608 | 6,740 | 6,875 | 7,013 | 7,153 | 7,296 | 7,442 | 7,591 |
| Foreign Currency Exchange | 21 | 6 | 5 | 14 | 5 | 30 | 30 | 31 | 32 | 32 | 33 | 33 | 34 | 35 | 35 | 36 | 37 |
| Total Expenses | 8,888 | 2,844 | 3,352 | 2,398 | 3,205 | 11,799 | 12,035 | 12,276 | 12,521 | 12,772 | 13,027 | 13,288 | 13,554 | 13,825 | 14,101 | 14,383 | 14,671 |
| Operating Income (Loss) | (7,592) | (2,441) | (2,962) | (1,943) | (2,830) | (10,176) | (3,035) | 23,724 | 29,554 | 38,528 | 65,588 | 67,674 | 83,513 | 107,734 | 143,069 | 138,256 | 169,834 |
| Settlement of Litigation | - | | | | | | | | | | | | | | | | ĺ |
| Interest Income, net | 895 | 267 | 266 | 245 | 250 | 1,028 | _ | _ | _ | _ | | _ | L | | L | | 1 |
| Total Other Income | | | | | | - | (3,035) | 23,724 | 29,554 | 38,528 | 65,588 | 67,674 | 83,513 | 107,734 | 143,069 | 138,256 | 169,834 |
| Pretax Income | (6,698) | (2,174) | (2,696) | (1,698) | (2,580) | (9,149) | (3,035) | 23,724 | 29,554 | 38,528 | 65,588 | 67,674 | 83,513 | 107,734 | 143,069 | 138,256 | 169,834 |
| Income Tax Benefit (Provision) | 1,006 | 1 | | - | - | 1 | - | - | - | 3,853 | 9,838 | 13,535 | 18,373 | 25,856 | 35,767 | 37,329 | 49,252 |
| Tax Rate | 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) | (2,580) | (9,149) | (3,035) | 23,724 | 29,554 | 34,675 | 55,750 | 54,139 | 65,140 | 81,878 | 107,302 | 100,927 | 120,582 |
| GAAP-EPS | (0.21) | (0.08) | (0.10) | (0.06) | (0.09) | (0.34) | (0.11) | 0.87 | 1.07 | 1.26 | 2.01 | 1.95 | 2.33 | 2.92 | 3.81 | 3.57 | 4.25 |
| GAAP-EPS (Dil) | (0) | (0.08) | (0.10) | (0.06) | (0.09) | (0.34) | (0.11) | 0.83 | 1.02 | 1.20 | 1.92 | 1.86 | 2.22 | 2.79 | 3.64 | 3.41 | 4.06 |
| Wgtd Avg Shrs (Bas) - '000s | 27,673 | 26,713 | 26,829 | 27,181 | 27,208 | 26,983 | 27,276 | 27,386 | 27,495 | 27,605 | 27,716 | 27,827 | 27,938 | 28,050 | 28,163 | 28,276 | 28,389 |
| Watd Ava Shrs (Dil) - '000s | 27,673 | 26,713 | 26,829 | 27,181 | 27,208 | 26,983 | 27,276 | 27,386 | 27,495 | 27,605 | 27,716 | 27,827 | 27,938 | 28,050 | 28,163 | 28,276 | 28,389 |

Source: Dawson James estimates.



Companies related to Dyadic and or mentioned in this report:

DuPont Sanofi

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Important Disclosures:





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

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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) Neutral: The analyst believes the price of the stock is fairly valued for the next 12-18 months:
- 3) **Sel**l: 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.

| | Company Co | verage | Investment | Banking |
|----------------------------|----------------|------------|----------------|-------------|
| Ratings Distribution | # of Companies | % of Total | # of Companies | % of Totals |
| Market Outperform (Buy) | 23 | 88% | 3 | 13% |
| Market Perform (Neutral) | 3 | 12% | 1 | 33% |
| Market Underperform (Sell) | 0 | 0% | 0 | 0% |
| Total | 26 | 100% | 4 | 15% |

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