January 13, 2022

Zacks Small-Cap Research

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Brad Sorensen
312-265-9574
email@zacks.com

scr.zacks.com
10 S. Riverside Plaza, Chicago, IL 60606

Emmaus Life Sciences, Inc. (EMMA-OTC)

EMMA: A commercial stage biopharma company easing symptoms of sickle cell.

EMMA is a commercial stage biopharma company bringing relief to sickle cell sufferers and looking to expand their reach. Using a discounted cash flow model and a discount rate of 25% we arrive at a valuation for EMMA of $5.70.

Current Price (01/12/22)	$1.51
Valuation	**$5.70**

OUTLOOK

Emmaus Life Sciences, Inc. has a product on the market that is helping to ease the symptoms of sickle cell disease using the amino acid L-glutamine and going by the commercial name of Endari.

The company is pursuing growth opportunities through hiring their own sales force and expanding international, where there is a large market opportunity. Additionally, the company is investigating Endari for uses in easing symptoms of other conditions.

SUMMARY DATA

52-Week High	**$2.15**
52-Week Low	**$1.10**
One-Year Return (%)	**25.83**
Beta	**2.07**
Average Daily Volume (sh)	**14,346**
Shares Outstanding (mil)	**49**
Market Capitalization ($mil)	**$74**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**0**
Insider Ownership (%)	**36**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**308.4**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2022 Estimate	**N/A**
P/E using 2023 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**High,**
Type of Stock	**N/A**
Industry	**Med-Biomed/Gene**
Zacks Rank in Industry	**N/A**

ZACKS ESTIMATES

Revenue
(in millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	5 A	6 A	6 A	6 E	23 A
2022	6 E	6 E	6 E	6 E	24 E
2023	6 E	6 E	7 E	7 E	26 E
2024	7 E	7 E	7 E	7 E	28 E

Earnings per share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	-$0.17A	$0.05A	-$0.06A	$0.05E	$0.03 E
2022	$0.01E	$0.01E	$0.01E	$0.01E	$0.04 E
2023	$0.03E	-$0.01E	$0.01E	$0.01E	$0.04 E
2024	$0.01E	$0.01E	$0.01E	$0.02E	$0.05E

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INITIATING COVERAGE

We are initiating coverage of Emmaus Life Sciences, Inc. (EMMA) with a valuation of $5.70 per share. Emmaus Life Sciences is a commercial-stage biopharmaceutical company engaged in the discovery, development, marketing and sales of innovative treatments and therapies, primarily for rare and orphan diseases, although the company is attempting to extend its efforts to include conditions and diseases affecting larger populations. Emmaus is a California-based company that went public under the symbol EMMA after a merger with MYnd Analytics, Inc. in July of 2019. Being a commercial-stage company means that, unlike many bio companies, Emmaus has a product in the marketplace and is bringing in revenue from sales of that product.

Emmaus brought Endari to the United States market in 2018 that produced net revenues of $16.5 million and grew to $23.2 million in 2020. Endari is a therapy that reduces complications of Sickle Cell Disease in adults and children 5 years and older. Emmaus is hoping to expand distribution of Endari to international markets in the middle east, Europe and Latin America, while also pursuing other uses for Endari in other conditions such as diverticulosis. Also speaking to the importance of Endari both to the company and to the public was the FDA granting Endari the orphan drug designation, which gives the therapy a 7-year window of marketing exclusivity in the US and could lead to 10 years of exclusivity in the European Union.

The orphan drug designation is granted for those drugs or therapies that are targeted at conditions impacting fewer than 200,000 Americans. Sickle cell disease fits that profile on the surface as the Center for Disease Control (CDC) estimates that 100,000 Americans are struck with the condition. But the market appears to be much larger than that with an estimated 20-25 million people with sickle cell globally. The CDC also notes that the impact of sickle cell is much greater on the black population than other races, with 1 out of every 365 Black births in the US having sickle cell disease, while only 1 out of every 16,300 Hispanic-Americans will be born with sickle cell disease. Additionally, according again to the CDC, about 1 out of every 13 Black babies is born with sickle cell trait. So while the orphan drug designation applies, the importance and impact of Endari, especially among minority populations, in our view, goes beyond what typical orphan drugs may have.

Emmaus Life Sciences has a therapy that is already on the market and is pursuing other promising opportunities as mentioned. We also believe that they are getting their fiscal house in order, reducing the near-term organizational risk that we believe existed in recent years. The company was delayed in filing reports with the SEC—something we don't like to see and can become concerned with—but have now caught up on all reports and appear to be running in an efficient and organized manner—alleviating the concerns over internal controls that may have developed. Emmaus appears to run in a

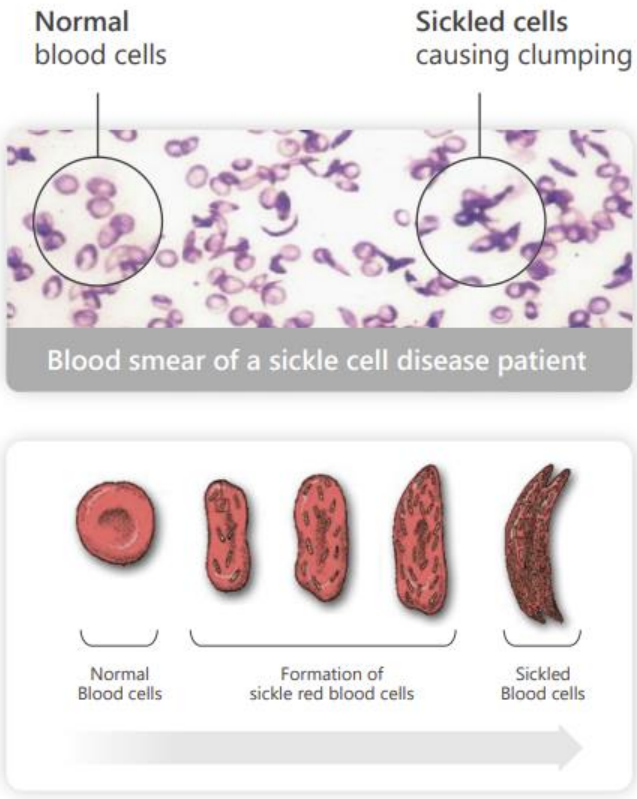
relatively conservative fiscal fashion and has developed international partnerships that should prove beneficial if the terms come to fruition.

INVESTMENT CASE

Emmaus Life Sciences is a commercial-stage biopharmaceutical company pursuing innovative treatments and therapies for a variety of conditions, primarily to this point for rare and orphan diseases, but recently expanding research to include conditions and diseases affecting larger populations. The therapy that has come to market for Emmaus is named Endari and, for now, treats sickle cell disease, which has no cure and has a detrimental impact on numerous people both in the US, where Endari is currently approved for use, and around the world, where the opportunity for expansion exists.

Sickle Cell Disease

Sickle cell disease is a genetic mutation that causes an individual's blood cell to distort into a C, or sickle, shape. This mutation reduces the blood cells' ability to transport oxygen throughout the body. Another problem arising from sickle cell disease is that the sickled blood cells tend to break down rapidly and becoming very "sticky", resulting in patients with sickle cell disease having a propensity to have blood cells that clump together. This clumping causes the blood cells to become stuck and cause damage within blood vessels.



Source: https://www.emmausmedical.com/ December 17, 2021

As a result of this clumping and damage to the blood vessels, sufferers of sickle cell can have reduced blood flow to distal organs, which leads to physical symptoms such as incapacitating pain, tissue and organ damage and even early death. Other symptoms of sickle cell disease can include painful swelling of the feet and hands, fatigue from anemia due to the reduced blood cell count, and a potential yellowing of the skin or whites of the eyes.

Sickle cell disease impacts approximately 100,000 people in the US and an estimated 20-25 million people worldwide, a disease for which there is no cure and few effective treatments. And it appears to impact the black community in an outsize fashion with the CDC reporting that about 1 in 13 black babies born are born with the sickle cell trait. This results in 1 out of every 365 black babies being born with sickle cell disease, while only 1 in every 16,300 Hispanic-American births are born with sickle cell.

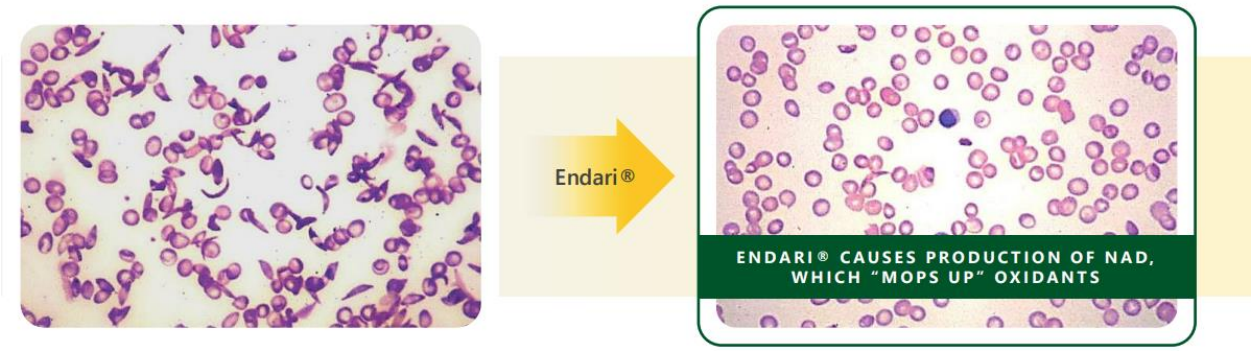
Endari

As mentioned, there are no official cures for sickle cell disease, although there have been reported cases, by the CDC, of stem cell transplants being used to "cure" sickle cell. This potential cure is an exciting new potential option but will likely not be appropriate for many sickle cell victims. The risks that come along with stem cell transplants, according to the CDC, including life-threatening illness or death and it can be quite difficult to find a matching donor. For most sickle cell sufferers, being able to manage and control symptoms would likely be a much preferrable, and more readily available, option. And that's what Endari, the therapy for treatment of sickle cell disease created by Emmaus, can provide.

Endari has been proven to reduce complications of sickle cell disease in adults and children 5 years and older and gained the orphan drug designation from the FDA, which is reserved for those drugs and therapies targeted at conditions affecting fewer than 200,000 Americans. This designation provides the company that receives it with the possibility of receiving tax credits for qualified clinical trials, an exemption from user fees, and, most importantly for Emmaus at this point, 7 years of market exclusivity after approval of the drug or therapy. The effectiveness of Endari in the fight against sickle cell disease is demonstrated by the results from recent clinical studies, which included 230 patients with sickle cell anemia or sickle thalassemia. Importantly, prior to the study, all 230 patients had at least two painful crises within 12 months of entering the trial. Among the encouraging results:

- Endari was shown to lower the frequency of sickle cell crises by 45%--annualized.
- Endari was shown to lower the frequency of hospitalizations by 33%.
- Cumulative days spent in the hospital by those on Endari were reduced by 41%.
- The time to the first sickle cell crisis in patients was delayed by 30 days.
- There was a reduced occurrence of acute chest syndrome (ACS). ACS is an acute complication of sickle cell disease and a major cause of morbidity and mortality. Once acquired, immediate intervention is required—regardless of age.
- Analysis by the company indicates that patients requiring blood transfusions and receiving Endari required about 43% fewer units of red blood cells.

A pictorial representation of what happens with the red blood cells and Endari is below, the details of which will be discussed in the following section.



Source: https://www.emmausmedical.com/ December 17, 2021

It can seem a bit heartless to look at the financial benefits of a treatment like Endari when quality of life issues are involved, but it is the financial picture that helps motivate further treatments such as Endari. As seen above, patients that take Endari have fewer hospitalization days, resulting in lower costs to patients and their insurance companies. According to a study in the *American Journal of Hematology* (*March 2009, Kauf, Coates, Huazhi, Mody-Patel, Hartzema*), the potential savings on treatment costs could reach more than $2 billion annually in the US alone.

Other important aspects of a drug or therapy is how complicated it is to use, how accessible it is and how many patients it is approved for. There are several other types of treatment for sickle cell disease, with the main one being hydroxyurea, which is a drug produced by several companies, including Bristol Myers Squibb. While hydroxyurea has proven effective in reducing crisis episodes in some sickle cell patients, it is only approved for those over 18 years of age and, more seriously, has a black box warning from the FDA noting that, "Hydroxyurea is mutagenic and clastogenic, and causes cellular transformation to a tumorigenic phenotype. Hydroxyurea is thus unequivocally genotoxic and a presumed transspecies carcinogen which implies a carcinogenic risk to humans. In patients receiving long-term hydroxyurea for myeloproliferative disorders, such as polycythemia vera and thrombocythemia, secondary leukemias have been reported. It is unknown whether this leukemogenic effect is secondary to hydroxyurea or is associated with the patient's underlying disease." Endari is approved for those 5 year of age and older and carries no black box label for patients to be concerned about. Additionally, Endari is easy for patients to take with it being in powder form and able to take easily orally and has other convenience benefits including:

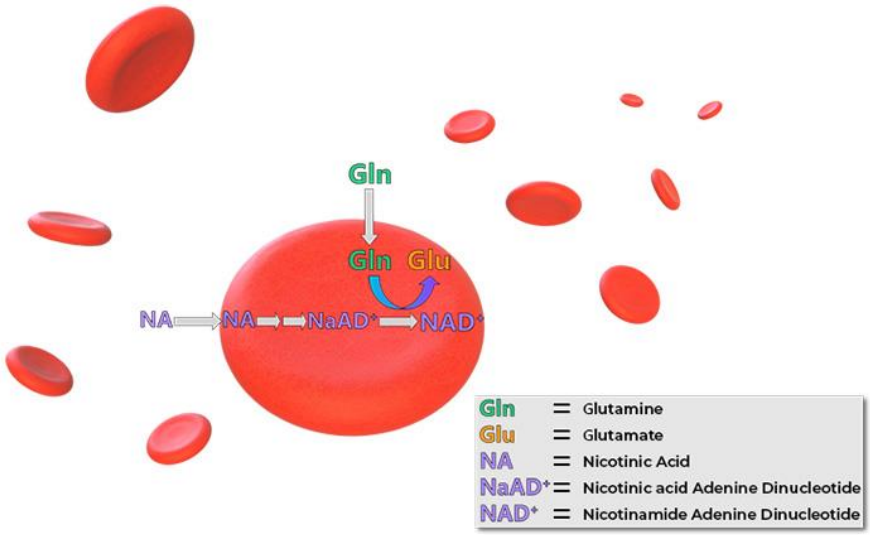
- No preliminary bloodwork or follow-up testing is needed.
- Endarii can be delivered to the patient's front door and taken at home.
- Endari can be administered via being mixed into food or drinks.
- The company believes that Endari, due to the above factors, has a high potential for to be the first choice for medication for patients using telemedicine services.

Endari—how it works

Endari consists of the amino acid glutamine, which is a naturally occurring amino acid in the human body and is a key sickle cell disease treatment that can be used alone or alongside other treatments. For those of us in the analyst world, lack of complete understanding of anything is frustrating, but that can often be the case with the human body and how and why it interacts with therapies, both drug and otherwise and that's the case here. The mechanism of action of the amino acid glutamine in treating sickle cell disease is not fully understood but the company has a general idea on why it works:

1. Oxidative stress is caused by an imbalance in cells between reactive oxygen and the cell's ability to detoxify oxygen. Oxidative stress phenomena are involved in the pathophysiology (functional changes that accompany a particular syndrome or disease) of sickle cell disease.

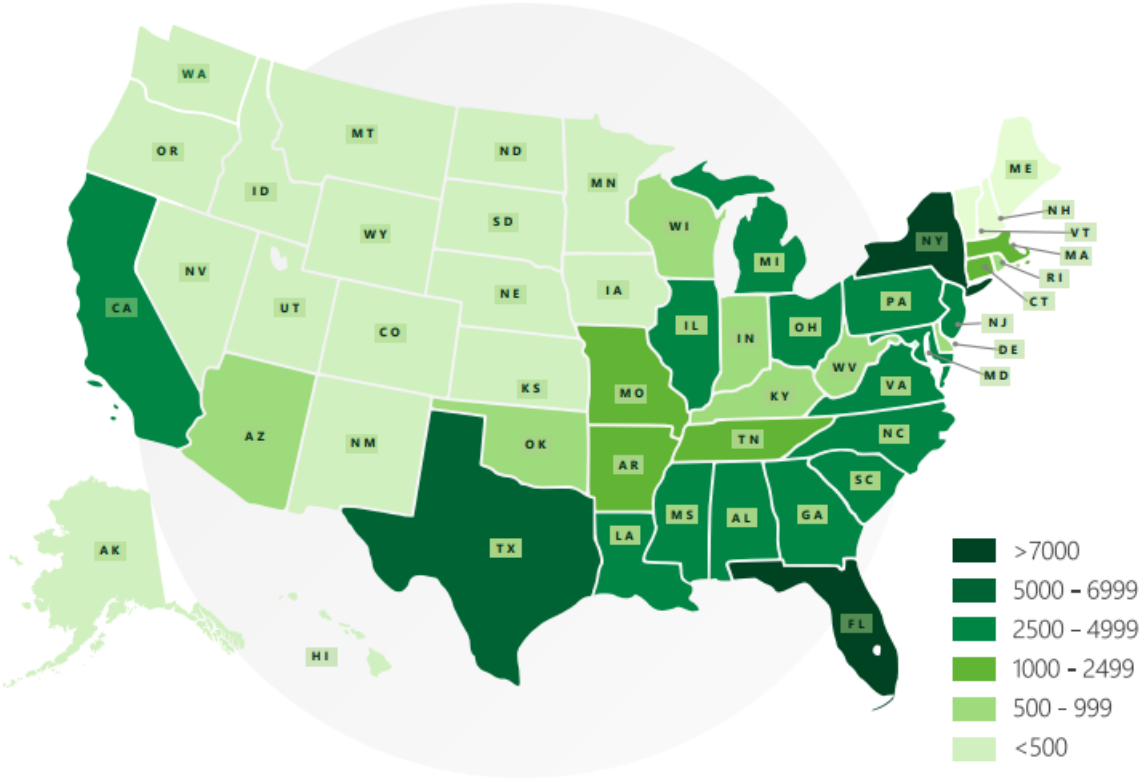
2. Sickle red blood cells are more susceptible to oxidative damage than normal red blood cells, which may contribute to the chronic hemolysis (damage or destruction of red blood cells) and vaso-occlusive (when blood flow is blocked to an area because sickle-shaped cells have become stuck in the blood vessel) events associated with sickle cell disease.
    - Stuck blood cells increase the risk of heart attacks, strokes and frequent infections.
3. It is believed that Endari helps to restore the ratio of NADH/NAD (total) in the red blood cells. NADH is a natural antioxidant in the cell and is involved in regulating and preventing oxidative damage in red blood cells. In individuals with sickle cell disease, the ratio of NAD+ and NADH may be altered. Endari improves and restores the ratio of NADH to NAD total, which may help sickle cell red blood cells tolerate increased oxidative stress.
4. NAD is nicotinamide adenine dinucleotide—a critical coenzyme found in every cell in the body—involved in hundreds of metabolic processes.
    - Exists in two form-NAD+ and NADH+
    - Higher levels of oxidants experienced by SCD patients tilts the NAD+/NADH equilibrium toward NAD+ production.



Source: https://www.endarirx.com/how-ENDARI-works December 10, 2021

Endari-How It's Sold

Having a drug or therapy that works isn't much good unless the company can get that solution into people's hands. Emmaus has a good start at that challenge with Endari and is continuing to work to improve access and distribution. Through research the company has done, they've recognized that about 86% of sickle cell patients in the US live in the major metropolitan areas in 18 states—as seen in the map below. This allows Emmaus to have a more targeted sales approach and to concentrate the company's sales resources in specific areas. To that end, Emmaus transitioned from a contract sales force to an internal sales team, which we believe better aligns with the company's goals, and have since added to their sales staff and the expenses for sales and marketing have increased to support more salespeople and the associated travel required. For now, we believe that spending more money to get the word out on the benefits of Endari is money well spent and we will be watching to see if the results follow the investment.



Source: https://www.emmausmedical.com/ December 21, 2021

Additionally, in the US, Emmaus is more aggressively attempting to expand the reach of Endari. The salespeople we mentioned above are targeting hematologists, physicians and treatment centers, while also working with local and national sickle cell disease foundations to get the word about Endari out. Importantly, Endari is well covered by various insurance programs, including Managed Medicare, the Children's Health Insurance Program (CHIP), commercial insurance and Medicare, while also providing patient assistance where required. The result is that Emmaus has a network of over 600 pharmacies distributing Endari, with the big 3 distributors involved—AmerisourceBergen, Cardinal and McKesson. And there are more opportunities to expand Endari's reach through pharmacy benefit managers, group purchasing organizations and specialty pharmacies.
But we view one of the real opportunities for an expansion of Endari in treating sickle cell disease to be in the global area—and that is an area where Emmaus is being quite aggressive. The first step is getting Endari approved by the various regulatory agencies in the relevant countries and, according to the company, of the 20-25 million global cases of sickle cell—the predominant concentration of them are in Africa, the Middle East, India, South America and Mediterranean regions. Currently, Endari is approved for use in the US and Israel. Endari is submitted for approval in Saudi Arabia, Kuwait, Bahrain and the United Arab Emirates, while the process for gaining approval has started in other Gulf Cooperation Council countries and Early Access programs are underway or planned in the UK, France and Turkey. Additionally, Emmaus has opened an office in Dubai and has distribution partners in place in the Middle East and North Africa (MENA) region.

Endari—How It's Produced

Of course, if Emmaus navigates a successful sales strategy, both in the US and around the world, maintaining a good supply of prescription grade L-glutamine (PGLG) required for the production of Endari is crucial. During the trial and beginning commercialization phases of the Endari rollout, Emmaus contracted with Japanese company Ajinomoto to supply the needed PGLG. As sales began to ramp up the company prepared for production increase in various ways. The company entered into a supply agreement with Telcon RF Pharmaceutical, Inc.-a South Korea based

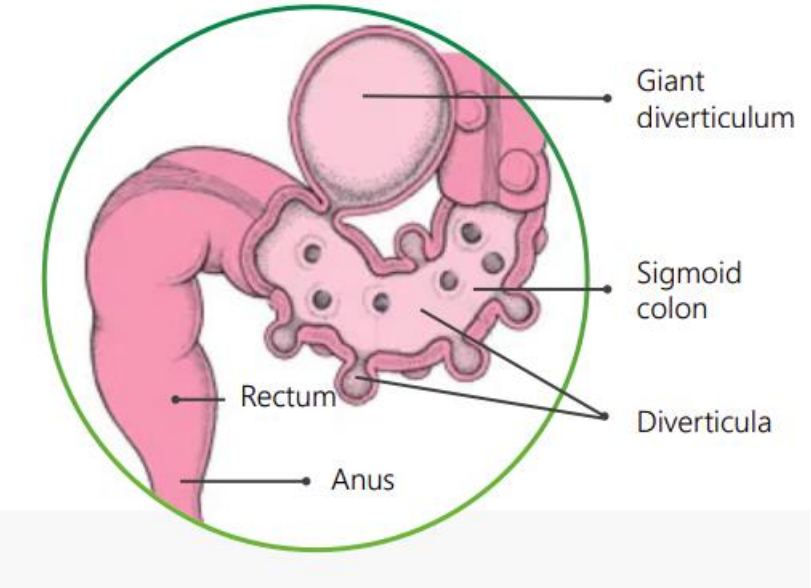
company, and Emmaus granted Telcon certain rights to diverticulosis treatment in exchange for cash—the details of which are outlined below:

- 2017—Telcon paid Emmaus $32 million for the right to supply 25% of Emmaus' PGLG needs.
- 2017—Telcon asked Emmaus to use the cash received to purchase 10% of Telcon stock to be pledged as collateral, which Emmaus did.
- 2017—Telcon paid Emmaus $10 million for the distribution rights to Emmaus' diverticulosis (discussed below) in China, Korea and Japan
- 2020—Emmaus sold the Telcon stock and invested $26 million in a Telcon convertible bond to replace the collateral.

Emmaus is also taking other steps to secure the long-term supply of PGLG. Emmaus is a 40% owner of company in Japan known as EJ Holdings, Inc., which is owned 60% owned by Japan Industrial Partners. This partnership purchased a phased-out pharmaceutical production plant in Japan in 2019 and is now moving to phase the plant back in to supply the PGLG needed by Emmaus. At this point, EJ Holdings is wholly supported by Emmaus, with Emmaus supplying all of the needed funding to the partnership. As of 12/31/20 that amount loaned totaled $18.6 million and Emmaus notes that the EJ Holding may need substantial more funding, which will be provided by Emmaus, in order to complete the phase-in process. Once the plant is phased in and operational, which is projected to be in 2023, the company estimates it will be able to produce 2,000 tons/year of needed PGLG.

Endari—Other Uses

The amino acid L-glutamine that makes up Endari has also shown promise in combating other conditions. Emmaus has provided the product for various clinical trials including a Phase 3 study for the treatment of burn injuries, a Phase 1 study for the treatment of pancreatic cancer and a Phase 1 study for the treatment of type 2 diabetes. The most promising development involving Endari beyond sickle cell disease is in the treatment of diverticulosis. Diverticulosis is the formation of balloon-like sacs (diverticula) in the large intestine.



Source-- https://ir.emmausmedical.com/company-information/presentations--December 17, 2021

In the US, 40% of 60-year-olds and 70% of 80-year-olds are estimated to have diverticulosis. And of that number, 10-20% will develop into diverticulitis, resulting in pain, nausea, vomiting, constipation, diarrhea, fever, and leukocytosis. Emmaus theorizes that L-glutamine may rejuvenate the mucosa membrane of the large intestine, which support muscle cells, including those surrounding the

intestine-helping to prevent diverticula formation. Tests on this theory are in the beginning stages but early results are positive with two initial patients showing a 100% and 50% reduction in the number of diverticula over 6 months. Emmaus estimated the market for this type of treatment to reach over $8 billion in the US and over $14 billion worldwide.

Other Emmaus Opportunities

Emmaus has entered into a partnership with Kainos Medicine, a South Korean company, with the IRAK4 inhibitor anti-cancer drug for solid cancers, blood cancers and lymphoma. Under the agreement, Kainos granted Emmaus and exclusive license for the US, the UK and the European Union to patent the rights and other intellectual property related to IRAK4. In return, Emmaus has agreed to pay Kainos a “six-figure upfront fee” and subsequent cash payments upon the achievement of milestones totaling in the “mid-eight figures”, a single digit percentage royalty based on net sales and a similar percentage of any sublicensing consideration.

Additionally, Emmaus and CellSeed, Inc. are working jointly to develop and commercialize regenerative corneal epithelial sheets in the United States, a technology called “Cell Sheet Engineering” that has restored the vision of patients with limbal stem cell deficiency in clinical trials conducted in Europe. Under the terms of the agreement, Emmaus Life Sciences and CellSeed will conduct clinical trials to seek FDA approval for use by patients in the US.

The treatment is based on CellSeed’s technology of cell sheet engineering, a method for taking small quantities of a patient's own progenitor cells and culturing them in a special cell culturing dish. When the cells have grown sufficiently to create a sheet of cells, they are transplanted back into the patient. If the transplant is successful, the cells will differentiate to replace the damaged cells and restore the functions that have been lost. By using the patient’s own cells, this technology reduces the risk of tissue rejection and avoids the need to wait for a donor. If this treatment is approved in the US, Emmaus will pay CellSeed, which is a Japanese company, a single-digit royalty based on the net sales of the technology.

THE COMPANY

Emmaus Life Sciences, Inc. is a commercial-stage biopharmaceutical company engaged in the discovery, development, marketing and sale of innovative treatments and therapies, primarily for rare and orphan diseases but also starting to look to more common afflictions. Emmaus has a commercially viable product in the form of Endari, which is a prescription-grade L-glutamine oral powder that treats severe symptoms of sickle cell disease. It was approved by the FDA with an Orphan Drug designation in 2017 and started being sold commercially in 2018.

We believe that the prospects of expanding the sales of Endari are good and are pleased with the plans Emmaus management has in place to expand those sales. Expanding sales of Endari is crucial, we believe, to keep the company moving forward, reduce the risks of having to overextend itself in the credit markets or diluting current shareholders by returning heavily to the equity market, and fuel further discoveries and expanding the company's pipeline. The decision to bring the sales force in house in January of 2020 was a good one in our opinion. Even though it increased the company’s marketing expenses, we believe having a knowledgeable sales force with “skin in the game” will enhance the prospects of expanding the reach of Endari. We acknowledge that sales of Endari grew by less than 2% in 2020 over 2019, not exactly the robust results we would expect to see from a more aggressive marketing campaign, but we excuse the lackluster performance due to the COVID-19 pandemic that curtailed almost all functions of society, including travel, in-person meetings, and non-critical doctor appointments. We expect to see better results once the 2021 number roll in and even more robust growth in 2022.

Emmaus is in a fairly good financial position in our opinion, although there are several items that raise some yellow flags, which we feel comfortable with at this point but are keeping an eye on. First, Emmaus had an issue getting financials filed in time with the SEC and has had to make several revisions to previously issued financial—something we believe can be a sign of a lack of internal controls. We don't believe that to be the case with Emmaus, however, as they have made the revisions necessary and have filed financials on time and without issue in more recent history. We mentioned above the convertible note of Telcon that Emmaus invested $26 million in. Typically we don't like to see cash in a high-growth, research-based company tied up in an investment yielding around 2% annually—as that doesn't come close to clearing the hurdle rate for a necessary return for a company such as this and that cash often can be put to more effective use. However, in this case, the note is part of transaction described above that serves to secure the supply of prescription-grade L-glutamine that is the key ingredient in Endari. While these potential yellow flags don't worry us as much as they typically would, due to the reasons outlined, we are keeping a close eye on the 40% stake Emmaus holds in EJ Holdings. Again, this investment is in an effort to further secure the supply of L-glutamine that the company needs but the fact that Emmaus is funding all operations of EJ Holdings and the fact that the partnership and the plant that was purchased are both located in a foreign country (Japan). Although Japan is a very stable and advance country, it is a different country with different laws and procedures that may cause some complicating issues for Emmaus. Again, we understand why the investment was made, but we do believe that the risk profile of Emmaus bumps up slightly due to the nature of the agreement and the financial commitment to the partnership. Finally, we want to make note of the fact that Emmaus also has a revolving credit line of agreement with the company's CEO of up to $1 million that seems to be a pretty good deal for the CEO with an effective annual interest rate equivalent to 10.4% as of September 30, 2021—not unreasonable for a higher risk company but something to keep an eye on as to the frequency of use in the future.

In short, we believe there are some unique aspects to Emmaus that require a bit more understanding by investors but once investigated we believe these issues not worthy of raising any alarm bells. The prospects of Endari and therefore Emmaus appear bright to us and we are pleased with the actions that management is taking to expand the domestic use of Endari, move into international markets, and explore other potential uses for the therapy.

VALUATION

We are initiating coverage of Emmaus Life Sciences (EMMA) with a valuation of $5.70 per share. The major factors in determining the valuation of EMMA involve the growth rate of Endari for the treatment of sickle cell, while also projecting the potential income from expanding the use of Endari into other treatments of conditions such as diverticulosis. With Emmaus management bringing the sales function in house, demonstrating to us their commitment to improving sales, while also considering the loosening of opportunities for the salespeople to speak and meet with potential clients due to fewer Covid-related restrictions, we are assigning a 7% growth rate for Endari through 2025 before leveling off at 3% thereafter as the market becomes saturated and new competition may enter the market. That higher growth rate in effect until 2025 also includes the assumption that some of that growth comes from expansion of Endari into some international markets. The real game-changer for Emmaus, in our view, would be for Endari to expand for use in treating other conditions.

We assume that Endari is approved for treatment of diverticulosis in 2024 with sales beginning in 2025 at a rate of 0.1% of the projected US market of $480 million. Admittedly, this is a very rough estimate but we think a reasonable one based on the condition and lack of effective treatments currently available. After the initial year of sales, we assume a 5% growth rate of sales of Endari for

the treatment of diverticulosis in the following years. We are also adding a measure of conservatism to our estimates as we assume the growth rates of Endari for sickle cell diseases and diverticulosis will also include any other uses that may be approved for Endari in the next 10 years.

On the expense side, we assume that sales expenses expand at 7% annualized rate, which they will likely need to do, in our view, in order to meet the sales growth assumptions we are making. Further, we assign a 5% growth rate to both administrative expenses and research and development as that is the growth rate we assume will be needed in order to achieve the goals outlined. Finally, a major benefit that we believe exists for potential shareholders of EMMA is that Emmaus is already making sales and meeting expenses without getting additional financing. We believe this will continue and that the dilution of current shareholders due to the issuance of additional shares will be de minimis in the coming years.

We believe in the prospects of Emmaus to expand the use rate of Endari but acknowledge that there are many uncertainties surrounding the growth rates and approvals for the expansion of the uses of Endari. Therefore, we are assigning a discount rate of 25% to Emmaus when applied to the discounted cash flow model, which is what we are using to come up with the $5.70 valuation. We believe that valuation, given the factors above, is a fair one and that investors considering EMMA for their portfolio should recognize that the risk level is elevated as the future cash flows are certainly not assured. But we believe there are solid prospects and good odds for success as we've laid out and believe EMMA is worth a look at the current levels for investors with a higher risk tolerance.

RISKS

- The internal sales team may not meet projected sales goals, which would dent the possibility of profitability.
- Other treatments may come to market for sickle cell disease, which would likely dent the sales of Endari.
- The push by the management of Emmaus to move to international sales of Endari may run into regulatory hurdles.
- Obtaining the supply of prescription-grade L-glutamine is critical to the future of Emmaus. Should that supply be unable to be secured, Emmaus would likely be impacted in a detrimental way.
- The company has had problems with filing timely and accurate reports with the SEC and, should that continue, the stock would likely suffer.
- If Endari fails to gain approval for other conditions, the future financial projections would likely have to be reduced.
- The partnership with EJ Holdings is critical to securing the needed supply of L-glutamine and is wholly dependent on Emmaus for funding. Should that partnership fail or the building the partnership owns fail to be brought up to production standards, Emmaus would likely be damaged.
    - The company appears to rely on the services, knowledge and connections of CEO Yutaka Niihara, which exposes the company to risk should something cause Dr. Niihara to be unable to fulfill his current responsibilities.

MANAGEMENT

Yutaka Niihara, M.D., M.P.H. has served as Chairman and Chief Executive Officer since January 2016, as Chief Scientific Officer from April 2015 until December 2015, as President and Chief Executive Officer from April 2011 to April 2015 and as a director since April 2011 of EMI Holding, and as a director of EMI Holding's predecessor, Emmaus Medical, from 2003 to April 2011. Since May 2005, Dr. Niihara has also served as the President, Chief Executive Officer and Medical Director of Hope International Hospice, Inc., or Hope Hospice, a Medicare-certified hospice program. From June 1992 to October 2009, Dr. Niihara served as a physician specialist for Los Angeles County. Dr. Niihara is the principal inventor of the patented L-glutamine treatment for SCD. Dr. Niihara has been involved in patient care and research for sickle cell disease during most of his career and is a widely published author in the area of sickle cell disease. Dr. Niihara is board-certified by the American Board of Internal Medicine/Medical Oncology and by the American Board of Internal Medicine/Hematology. He is licensed to practice medicine in both the United States and Japan. Dr. Niihara is a Professor of Medicine at the David Geffen School of Medicine at UCLA. Dr. Niihara a holds B.A. degree in Religion from Loma Linda University, a M.D. degree from the Loma Linda University School of Medicine and a M.P.H. degree from Harvard School of Public Health.

Willis C. Lee, M.S. has served as Chief Operating Officer since May 2011, as a director since December 2015, as Vice-Chairman of the board of directors since January 2016 and as Chief Financial Officer from October 2016 to July 2018 of EMI Holding. Mr. Lee also previously served as a director of EMI Holding from May 2011 to May 2014 and again from to December 2015 to January 2016. Mr. Lee served as the Co-Chief Operating Officer and Chief Financial Officer and as a director of Emmaus Medical from March 2010 to May 2011. Prior to that time, he was the Controller at Emmaus Medical from February 2009 to February 2010. From 2004 to 2010, Mr. Lee led worldwide sales and business development of Yield Dynamics product group at MKS Instruments, Inc., a provider of instruments, subsystems, and process control solutions for the semiconductor, flat panel display, solar cell, data storage media, medical equipment, pharmaceutical manufacturing, and energy generation and environmental monitoring industries. Prior to that time, Mr. Lee held various managerial and senior positions at various public and private companies in the semiconductor and other industries. Mr. Lee received his B.S. degree and a M.S. degree in Physics from University of Hawaii and University of South Carolina, respectively.

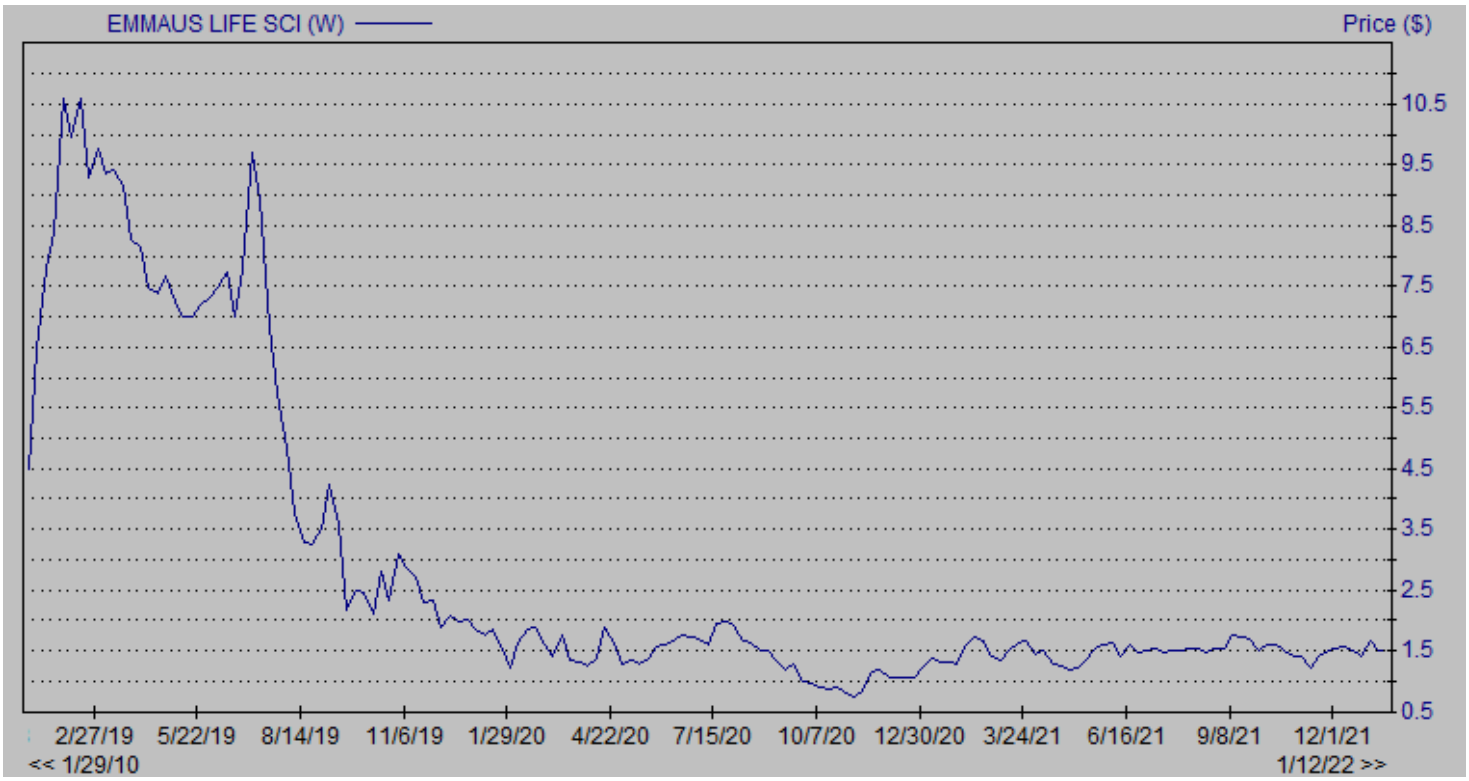
Yasushi Nagasaki, C.P.A. has served as Interim Chief Financial Officer since September 1, 2020 and as Senior Vice President Finance from July 2019 to August 2020. Mr. Nagasaki also served as Senior Vice President Finance from April 2012 to July 2019 and as Chief Financial Officer from May 2011 to April 2012 of EMI Holding. From September 2005 until joining EMI Holding, Mr. Nagasaki was the Chief Financial Officer of Hexadyne Corporation, an aerospace and defense supplier. Mr. Nagasaki also served on the board of directors at Hexadyne Corporation from September 2005 to April 2011. From May 2003 to August 2005, Mr. Nagasaki was the Controller at Upsilon Intertech Corporation, an international distributor of defense and aerospace parts and sub systems. Mr. Nagasaki is a Certified Public Accountant and received a B.A. in Commerce from Waseda University and a M.A. in International Policy Studies from the Monterey Institute of International Studies, a graduate school of Middlebury College.

PROJECTED INCOME STATEMENT & BALANCE SHEET

Emmaus Life Sciences
Income Statement and Balance Sheet
(in thousands, except share data)

	1Q2021	2Q2021	3Q2021
Net Revenues	5,335	6,489	5,766
Cost of goods sold	436	430	445
Gross profit	4,899	6,059	5,321
Operating expenses			
Research and development	1,809	753	470
Selling	1,283	1,453	1,518
General and administrative	3,422	3,370	3,364
Total operating expenses	6,514	5,576	5,352
Gain/(loss) from operations	(1,615)	483	(31)
Other income/(expense)			
Net gain/(loss) on investment	-	-	-
Net gain/(loss) on equity method investment	(754)	(582)	(663)
Interest expense	(1,054)	(653)	(683)
Other income/(expense)	(4,981)	3,049	(1,542)
Total other income/(expense)	(6,789)	1,814	(2,888)
Income/(loss) before income taxes	(8,404)	2,297	(2,919)
Income taxes/(benefit)	18	(192)	232
Net Income/(loss)	(8,422)	2,489	(3,151)
Earnings/(loss) per common share	$ (0.17)	$ 0.05	$ (0.06)
Weighted average of shares outstanding	49,073,769	49,311,864	49,311,864
Current Assets			
Cash and Cash Equivalents	3,759	1,671	2,321
Inventories, net	6,740	6,543	6,252
Other Current assets	3,642	4,826	3,901
Total current assets	14,141	13,040	12,474
Property, plant and equipment	109	99	97
Equity method investment	15,790	17,383	17,835
Investment in convertible bond	27,943	28,671	25,716
Other assets	4,240	4,086	3,935
Total Assets	62,223	63,279	60,057
Current Liabilities			
Accounts payable	5,991	6,301	6,973
Notes payable	4,616	3,291	3,269
Other current liabilities	13,800	10,921	14,784
Total current liabilities	24,407	20,513	25,026
Operating lease liabilities, less current portion	3,824	3,639	3,449
Other long-term liabilities	46,668	48,502	46,683
Total Liabilities	74,899	72,654	75,158
Paid in Capital	219,699	219,973	220,066
Accumulated other comprehensive income	1,367	1,905	(763)
Accumulated deficit	(233,742)	(231,253)	(234,404)
Total Stockholder deficit	(12,676)	(9,375)	(15,101)
Total Liabilities and stockholder deficit	62,223	63,279	60,057

HISTORICAL STOCK PRICE



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