**PUBLIC VERSION**

## Executive Summary

Cryo-Cell is undervalued with a potential 2-7x return on investment within 1-3 years. The money-making opportunity exists because of the company's nano-cap size and the CEO's furtive handling of a material contract with Duke University. We think the stock is at an inflection point because the management has recently started disclosing and marketing the Duke contract to investors, who, nonchalant about this tiny company operating in a boring and niche industry, are still not paying attention.

## Company Description

Cryo-Cell is currently a private cord blood bank. Parents of a newborn baby can choose to store the umbilical cord blood in a bank like Cryo-Cell as an insurance against potential life-threatening diseases that the baby might contract in the future. Umbilical cord blood contains stem cells that help with regenerative therapies, but it works well only autologously, meaning the patient uses the stem cells from him-or-herself. Otherwise, one might have to resort to public banks, hoping to find a match.

To date, the company operates three business segments: cellular processing and cryogenic storage (the core business), the manufacture of PrepaCyte® CB Processing System units (the product business), and cellular processing and cryogenic storage of umbilical cord blood stem cells for public use (public banking). As of FY2020, the company generated $31 million in sales, of which $29.5 million comes from the core business, which collects an upfront processing fee and annual storage fees from customers. However, unlike the nature of other industries' subscription models, per customer retention increases with time because cancers become increasingly probable as one ages, which makes one's umbilical cord blood more valuable and indispensable. This dynamic has translated into a recurring and growing annuity stream that makes up two-thirds of the company's sales.

Ever since the current management took over in 2011, Cryo-Cell has been growing at a CAGR of 6%. Gradually, evidenced by the ever-decreasing trading volumes, investors had lost interest in the company's tepid growth. Although someone's writeup on VIC revived some investor interests and had led to a more reasonable valuation, the stock has been sideways since 2018. However, when the company struck a deal with Duke University, we believe the growth profile will improve notably.

## Investment Thesis

Cryo-Cell has a long relationship with Duke University's Dr. Kurtzberg, an expert and a pioneer in cord blood-related fields. In June 2020, the company filed an 8-k to announce a patent options agreement with Duke University. However, the 8-k was rather cursory without meaningful details (see Appendix). The deal gives the company an option to license patents on processes and products that involve therapeutic uses of stem cells. In Feb 2021, the company exercised the option to sign a License Agreement with Duke that effectively grants Cryo-Cell access to patents and technologies mentioned (see Appendix). For example, one of the terms would give the company the right to operate cord blood/tissue infusion clinics under FDA-approved INDs. Despite the materiality, interested investors had to find the raw document buried in the exhibit and dig through the contract to assess its implication on the company. Nevertheless, the contract presaged an inflection point for the company with much more significant revenue opportunities than what the frivolous press release makes it seem to be for those who cared to look.

Under the contract, Duke and Dr. Kurtzberg are entitled to certain percentages of sales and stocks per milestone, set separately for Licensed Process and Licensed Product. For Licensed Process (including the treatment of autism using stem cells), Duke gets the following:

- 7% of annual NET SALES < $75M
- 10% of annual NET SALES ≥ $75M and up to $200M
- 12.5% of annual NET SALES ≥ $200M

Given that the FY2020 revenue is $31 million, it's incredible that the lowest threshold is $75 million. And it's more eye-popping to see the equity earnout milestones: Duke gets 2.5% of the company's stock if the company's market cap reaches the following:

- Equal to or greater than Three Hundred Million Dollars ($300,000,000), provided such trigger occurs within eighteen (18) months of the EFFECTIVE DATE [Feb 2021]
- Equal to or greater than Five Hundred Million Dollars ($500,000,000), provided such trigger occurs within twenty-four (24) months of the EFFECTIVE DATE

Aside from the stark contrast with the current market cap of $70 million, the specified timelines are pretty ambitious. Given Duke's reputation and Dr. Kurtzberg's technical know-how, we believe Duke has more bargaining power when hemming and hawing the details of the contract. If reaching $500 million in market cap in two years is too much of a stretch, Duke wouldn't have agreed to the deal.

Another evidence confirming these terms are not a practical joke is CEO David Portnoy's stock transactions. Ever since the company entered the contract in the summer of 2020, Portnoy has been buying shares nearly daily, a couple of thousand shares at a time (see Appendix). To date, he has accumulated 17% ownership. We were also told that last year, the CEO spoke poorly of the Duke deal when mentioned in the conversation to discourage people from investing in the company. Given the significance of the contract and the thinly traded volumes, we speculate that the CEO did not want to make a splash to the market to secretly build a meaningful position in the company before the turning point. While our speculation might be incorrect, Portnoy's buying action after all the sleepy years strongly signals that the Duke contract has a considerable upside to equity owners.

Moreover, the management has recently revamped their Investor Relations website (see Appendix) and has conveniently put out an investor presentation (which they hadn't done for quite a while). The presentation is mainly about the Duke contract but strangely still has no mention of those eye-catching terms. The first investor presentation was put out in May 2021 but was subsequently replaced with an almost identical presentation on June 4th. One difference we observed was that there's a slide on how the company's market cap compares to other pure-play cellular therapy companies; the title of that slide is "Valuation Gap", but in the May version, it's "Do you see what I see?", which is too promotional and unprofessional to attract serious investors. Evidently, the management is no longer furtive about the deal, thus forming a meaningful catalyst as more investors learn about it.

The management's vision is that Cryo-Cell will become a vertically integrated cellular therapy company that can start treating patients. Decades of development and operations guarantee a reliable and approved source of cord blood (CB). The therapeutic use of stem cells will lift the company's revenues off to another stratosphere. The management projects $24 million annual revenue *per clinic* in the investor presentation, or an average cost of $15,000. According to our channel checks, this number is realistic, which renders those milestones in Duke's contact feasible. Dr. Kurtzberg's early studies have shown that CB can treat autism and other hitherto incurable diseases. However, it is concerning that several subsequent studies and trials have

shown the muted effect of CB on improving autism (see Appendix). Dr. Kurtzberg acceded that the study was poorly designed and implemented as the sample didn't have enough children with no intellectual disability. On a positive note, there is a significant improvement for the group consisting of children with no intellectual disability.

Despite the controversy over whether CB effectively treats autisms, parents are desperate to resort to anything to treat their children because early interventions are more likely to induce long-term improvements (see Appendix). Sadly, ever since Duke started its high-profile study on CB's treatment of autism, many charlatans armed with marketing ploys began flooding the market with bogus practices and illegal products, promising to reverse autism at exorbitant costs (see Appendix). After several life-threatening incidents and media exposures, parents are becoming increasingly wary of uncredited CB treatments. Even though the improvement is not guaranteed, Kurtzberg's trials and studies have at least shown proven safety, which has been the primary concern for people undertaking experimental treatments under FDA's Expanded Access Programs. With the management's estimate, we can infer that a clinic can handle 1600 patients/cases per year, which is a reasonable estimate given that Duke's existing treatment center sees patients at around 100/month.

Now, the question is whether the company can successfully open a clinic successfully and timely. The answer should be reassuring because if charlatans can set up a practice effortlessly, there shouldn't be proscriptive obstacles for a legit entity with deep industry knowledge and network. Parents' desperation and incredulity set Cryo-Cell up as an attractive, if not the only option to resort to, thanks to the company's affiliation with Duke University and Dr. Kurtzberg. Moreover, there are no umbilical cord stem cells outside universities or cord banks, according to an industry watchdog. In addition, most of the stem cell research for autism has been done at Duke. All these setups will position Cryo-Cell as a likely monopoly in an unaddressed billion-dollar market.

**Valuation**

Because of the immense revenue upside implied by the Duke contract, sophisticated valuations are not necessary. Assuming no multiple expansion (highly unlikely), the build-out of one clinic can nearly double the company's sales in a year. Our investment also comes with call options granted by the License Agreement, like Duke's stem cell product DUOC could treat multiple sclerosis and leukodystrophies.

The current valuation is already in-line with, if not cheaper than, few comparable peers. Therefore, we believe the downside risk is *de minimis* compared to the upside, making CCEL an attractive investment with an asymmetrical return profile.

**Considerations**

We expect the company to incur material costs associated with building out clinics and funding the ongoing IND trials and research. We believe, however, that the company can bootstrap the clinic buildouts as it earns a ~$6 million operating cash flow per annum, sufficient to construct at least one clinic with enough capacity to achieve the $24 million unit revenue.

It's worth noting that the Duke deal demands minimum royalties regardless of the company's topline performance. If the company is unable to monetize the patent portfolio, then the Duke contract will become a financial burdening. But the inability to monetize patents will likely result from failures to obtain FDA approvals, which is an event that allows the company to terminate the contract with Duke.

**Catalysts**
Increased investor awareness
Announcement of clinic build outs
Impressive financial performance

**Appendix**

Patent Option Agreement dated June 2020
https://www.sec.gov/Archives/edgar/data/862692/000119312520166773/d943128dex101.htm

Patent and Technology License Agreement dated February 2021
https://www.sec.gov/Archives/edgar/data/862692/000156459021018845/ccel-ex102_169.htm

Investor Relations Website
https://ir.cryo-cell.com/company-information/presentations

Autologous Cord Blood Infusions Are Safe and Feasible in Young Children with Autism Spectrum Disorder: Results of a Single-Center Phase I Open-Label Trial
https://pubmed.ncbi.nlm.nih.gov/28378499/

The view for cord blood is “cup half full” not “cup half empty”
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7519759/

A Phase II Randomized Clinical Trial of the Safety and Efficacy of Intravenous Umbilical Cord Blood Infusion for Treatment of Children with Autism Spectrum Disorder
https://www.sciencedirect.com/science/article/abs/pii/S0022347620303346

Everything parents should know about stem cell therapy for Autism
https://parentsguidecordblood.org/en/news/everything-parents-should-know-about-stem-cell-therapy-autism

Early Intervention for Autism
https://www.nichd.nih.gov/health/topics/autism/conditioninfo/treatments/early-intervention

The Empty Promise of Stem Cell Therapy Marketed as Autism Treatment
https://slate.com/technology/2019/04/stem-cell-therapy-autism-treatment-medical-waste.html

Study finds little evidence to back cord-blood therapy for autism
https://www.spectrumnews.org/news/study-finds-little-evidence-to-back-cord-blood-therapy-for-autism/

8-k filed on June 2020 about the Patent Option Agreement
https://www.sec.gov/Archives/edgar/data/862692/000119312520166773/d943128d8k.htm

Insider transactions
http://openinsider.com/ccel