Trickle Research

Every raging river, every great lake, every deep blue sea starts … with a trickle

Allocation Increase

BioSig Technologies, Inc.

(NasdaqCM: BSGM)

Report Date: 04/19/21

12- 24 month Price Target: $8.25

Allocation: *4

Closing Stock Px at Initiation (Closing Px:04 /03/20): $5.14

Closing Stock Px at Allocation Downgrade (Closing Px:05 /13/20): $10.99

Closing Stock Px at Allocation Upgrade and Target Downgrade (Closing Px:11/19/20): $4.08

Closing Stock Px at This Update (Closing Px:04/16/20): $3.88

Prepared By:
David L. Lavigne
Senior Analyst, Managing Partner
Trickle Research

Disclosure: Portions of this report are excerpted from BioSig's filings, website(s), presentations or other public collateral. We have attempted to identify those excerpts by *italicizing* them in the text.

Our last BioSig update was in December when we addressed a release of what we viewed as a bit of a milestone for the Company, which was their first commercial sale of *PURE EP™*. That sale included three units to St. David's HealthCare of Austin, Texas. To edify, BioSig has been working closely with Texas Cardiac Arrhythmia Institute, which is associate with St. David's. As we understand it from the 10K, those sales closed in February 2021, and as such should impact Q1F21.

A few days ago, the Company announced another commercial sales win. That announcement is excerpted below:

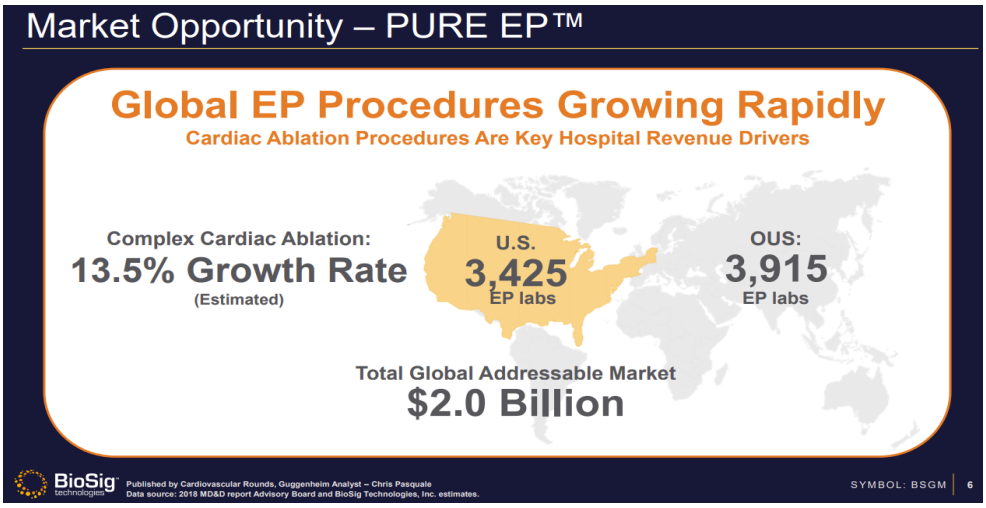
> ***BioSig lands Commercial Sales to Leading Hospital System***
>
> *- World class healthcare institution adopts PURE EP™ across multiple States*
> *- Medical centers resuming elective procedures helps drive sales acceleration*
>
> *BioSig Technologies, Inc. (NASDAQ: BSGM) ("BioSig" or the "Company"), a medical technology company commercializing an innovative signal processing platform designed to improve signal fidelity and uncover the full range of ECG and intra-cardiac signals, today announced that a top rated leading hospital system purchased PURE EP™ systems for multiple campuses in their national network.*
>
> *"We are pleased to expand our commercial installations across this most important healthcare system in multiple states." commented Kenneth L. Londoner, Chairman, and CEO of BioSig Technologies, Inc. "We expect to see further commercial sales in coming weeks and months"*

On the face, we think this announcement demonstrates continued traction in the Company's overall sales effort, but perhaps more importantly growing awareness and acceptance of *PURE EP™* by the EP community. As we have noted in prior research, we think the opportunity here is for *PURE EP™* to demonstrate and ultimately be adopted across the industry as a standard fixture in ablation procedures. If that proves to be the path, BioSig will become a *much bigger* Company. We submit that is a hefty goal, but we think that is a reasonable assumption, and much of that stems from what we perceive to be a need in the industry that BioSig can fill. We will elaborate on our conclusions therein specifically, but we will also provide a bit of color on what we believe could be the bigger picture here and perhaps other opportunities for their IP that could provide marked valuation legs in the story on a longer-term basis.

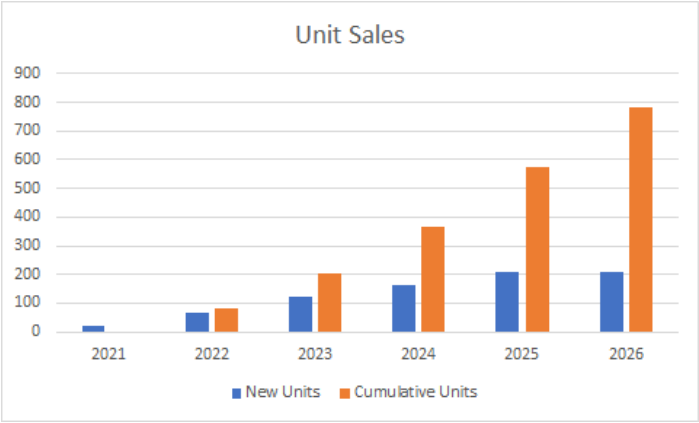
Here is an overview of our current model, which we thinks provides a basis for our valuation assumptions and may help readers draw some of their own conclusions to that end. We will start with some industry metrics as well as some other guidance the Company has provided.

The Company provides the following graphic with respect to the number of EP labs (the Total Addressable Market) both in the U.S. and outside of the U.S. We will provide one caveat to the graphic below. To be clear, industry estimates are *estimates*. We do not know how many actual EP labs there are in the U.S. or outside the U.S for that matter and we are not sure anyone knows the actual number. We typically reference that challenge in quite a lot of our research because inasmuch as we attempt to ascertain those numbers, we often find conflicting results in both private, and where available, government estimates. In the case of the number of EP labs in the U.S., we have seen conflicting data in that regard. We did our own work around attempting to ascertain that number by trying to identify the number of electrophysiologists in the U.S. as well as identifying the number of hospitals in the U.S. (and which of those likely have EP labs, and/or multiple EP labs) and then using those results to extrapolate how many labs that might imply. Our analysis in that regard, estimates about 2700 labs. That said, we will not argue whether the Company's estimate is more or less accurate than ours, but frankly, since their sources probably have better industry insight than us and probably deployed more rigorous methodologies, they may very well be closer to the real number than us. In any event, what we want to establish is that we believe our

estimates are within the confines of the likely addressable market. That is, we are not projecting that they are going to sell more units than the TAM estimates suggest even exist. We would add, keep in mind, we initiated this coverage at the front end of the pandemic, and while perhaps we should have, we did not see the (elective) hospital system grinding to a halt like it did. In short, as with many businesses, BioSig's sales efforts were largely stymied through much of 2020, which certainly had a negative impact on the trajectory of the potential sales momentum we were estimating at the time. However, we believe that sales effort is beginning to gather momentum once again.



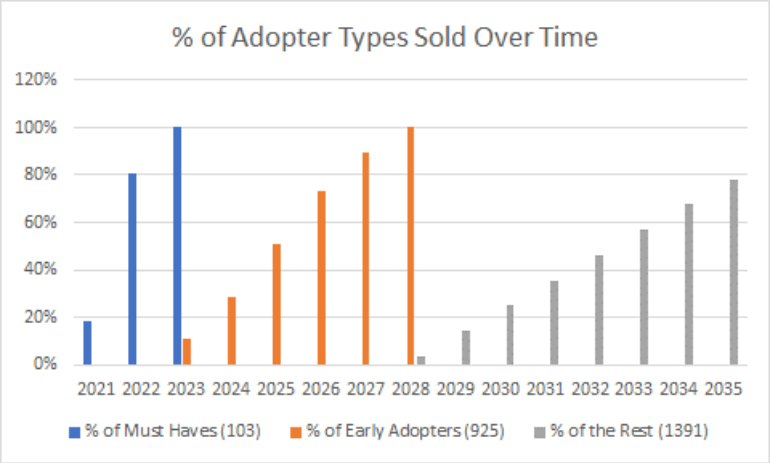
The chart below reflects the number of unit sales we are projecting over the next few years as well as the cumulative total of each. As the chart notes, we are estimating 19 sales for fiscal 2021. We believe that number coincides with the number of centers they believe they will be in, but recognize, getting into these centers may not translate into actual sales in fiscal year end 2021. To be clear, we submit, we have little visibility with respect to these assumptions, however, we would add that these assumptions *are* based in part on information we know about discussions and inquiries the Company has received regarding Pure EP.



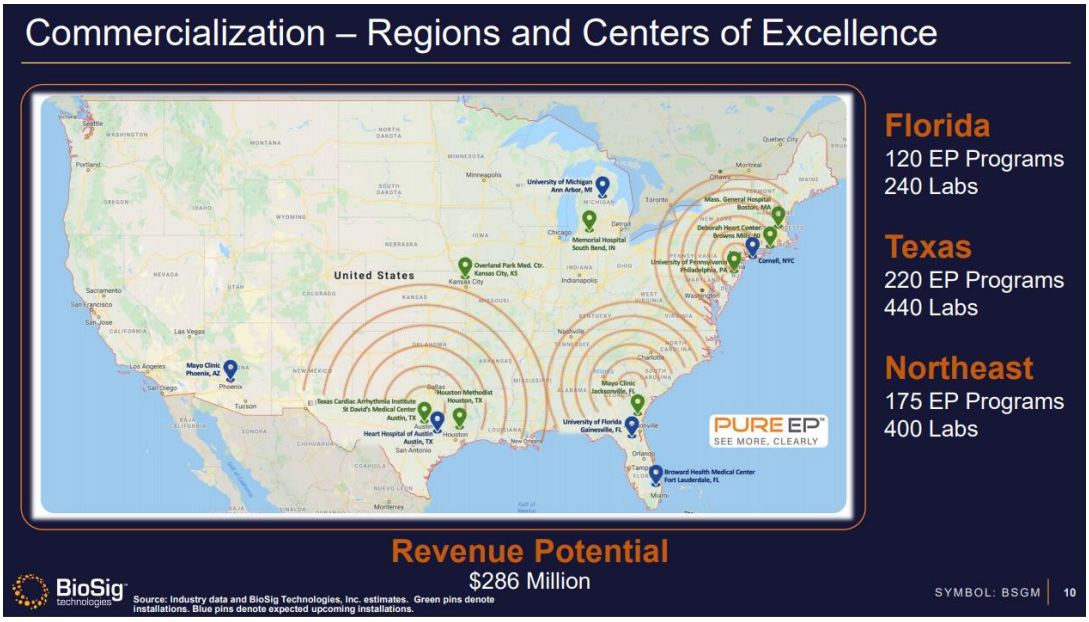
The next chart is derived from some information the Company has provided with respect to how they categorize potential customers. Specifically, they see the market divided into three groups, which they refer to as the "must haves" the "early adopters" and "the rest of what is left". They believe the "must haves" represent about 3% of the market or about 103 units (3% * the 3,425 TAM from the graphic above). In addition, they believe the "early

Adopters" represent 27% of the TAM or 925 units, and they believe that in total approximately 70% of all labs will ultimately adopt the platform amounting to an additional 1390 units.

The Chart below reflects our estimates of the rollout/penetration of these three groups over time. To edify, our estimates assume that it will take the Company through 2023 to sell all the "must haves", at which point they will start selling the "early adopters", which will take them to 2028 when they start working on "the rest".



Again, **we fully submit that we do not have good visibility with respect to this**, and we recognize the actual adoption will almost certainly look different than we have modeled it. With that said, we believe announcements like those referenced at the front of this update, support our notion that sales momentum is beginning to gather steam. To that end, other recent announcements may provide some support for our assessment here as well. For example, the Company recently announced the addition of two new Regional Directors to head up sales in Texas and Florida respectively. Inasmuch as that announcement might seem a bit generic, we think it provides some insight into the strategy here (at least initially) which (we think) is to focus on areas of the country that have a robust electrophysiology focus and where the Company has been able to establish clear reference facilities and users. Following that logic, the Company's most recent presentation provides the following graphic:



As we noted above, the Company has identified particular segments of the EP market that they intend to pursue based on what they see as perhaps the initial low hanging fruit (the "must haves" we noted above) and then expanding that focus to other potential buyers. However, as part of that approach, we also think the strategy includes trying to saturate particular markets where it is beginning to establish beachheads (Texas and Florida for instance). What we find telling about the graphic above is that in these geographic areas alone, there are nearly 1100 EP labs. Circling back to the discussion above regarding our modeling, we believe that if the Company is successful saturating these three focus markets, they could certainly meet or exceed our model projections.

To another salient issue, we think it may be helpful to address some of the clinical studies the Company is conducting around *PURE EP™*. Recall, the Company has conducted one such study, and is currently finishing up another, and the aim of those studies is to demonstrate the value of PURE EP versus legacy platforms in terms of providing superior EP signals that allow electrophysiologist to perform more accurate ablation procedures and ultimately improve outcomes. The studies are also designed to help demonstrate that efficacy across multiple procedure types. The Company believes the second of these studies (dubbed 2.0) should be available for evaluation by sometime this summer (2021). That noted, we want to be clear about these studies in case they are causing some confusion. Recognize, *PURE EP™ is obviously already an FDA approved device*. In addition, the Company expects a CE Mark designation in the current year, which will also "approve" the device in the EU as well as by extension in a number of other places around the world (we will revisit that). That being the case, these studies are being conducted by the Company to proactively demonstrate the value of the technology versus current EP signaling technology. Clearly, the Company has a great deal of confidence in their ability to demonstrate the value of the platform, if they are willing to spend resources conducting these studies and publishing their results. We think that distinction, along with recognizing that there are no regulatory or other commercial approvals depending on these outcomes, are worth iterating.

We noted the CE mark above, and we would add, we have not modeled any sales outside of the U.S. However, we believe those sales are likely provided the mark is obtained, which we think is highly probable. As a result, in the context of our analysis, we think sales outside the U.S. could represent an additional valuation leg to our current conclusions. This is an element of the story that we will assess as we mover forward, but we think it likely has value even today that we are not reflecting in our valuation.

Lastly, some may recall that our initial coverage included some coverage of a clinical trial called *"The Catheter Ablation versus Antiarrhythmic Drug Therapy for Atrial Fibrillation trial"* or "CABANA". We are not going to rehash that here as readers can refer to that initiating coverage to revisit our review, but in short, the trial compared the two prevailing arrythmia standards of care: drugs vs. ablation. However, there have been subsequent evaluations of the CANABA study since our initiation that we think are topical. Here is a link to one of those:

https://www.ahajournals.org/doi/10.1161/CIRCEP.120.008540

Again, our point here is not to rehash CABANA to build a case for ablation vs. drugs, but as this particular analysis concludes, there is clear clinical support for ablation as a standard of care for arrythmia which by the way, is a growing health issue.

To summarize the above, we believe the Company was positioned to begin its *limited market release* efforts at the start of 2020. Those efforts were clearly compromised by Covid19, but we think they are currently getting them back on track and we think recent announcements regarding sales wins and new marketing efforts support that view. We recognize that the Company's success requires that they be able to demonstrate and sell the superiority of the *PURE EP™* platform *to a measurable portion of the EP lab market*. That said, in our view, each sales win, especially given the caliber of their recent customers, validates the underlying value proposition of *PURE EP™*, and we believe that demonstrable value proposition will drive, and perhaps even necessitate, adoption of the platform by an increasing number of EP labs across the country. That is our basic thesis. To reiterate, if we are correct about that, we are confident that BioSig will garner much higher valuations.

The above said, at this point, we view *PURE EP*™ as BioSig's "core business". Further, as we have tried to argue above, we think this portion of the business includes scenarios that could lead to much better valuations than BioSig's current market capitalization indicates. On the other hand, we think there may *also be* measurably more to BioSig than this initial portion of the business provides.

In our initiating coverage we briefly addressed BioSig's NeuroClear division. From the Company's narrative, "*NeuroClear is building a way to identify and treat physical, neurological, and emotional disorders using a new sensing and stimulation technology. Neuroclear aims to address technological deficiencies present in the current electroneurogram recording systems through high-speed recording of biomedical signals, the ability to preserve valuable clinical information and optimization of therapy delivery through closed feedback loop. Clearer signals lead to increased efficiency, more successful treatment, and to better health.".*

In short, *PURE EP*™ represents the Company's first commercial application of its IP and perhaps even the original intent of the IP. However, NeuroClear represents the potential extension of the IP into other medical applications that we believe could provide additional opportunities for the Company. Specifically, we think NeuroClear (in conjunction with their development partner and investor, Mayo Clinic) is developing applications around its IP that may enable other technologies in the rapidly emerging field of bioelectric medicine.

Briefly, according to National Academy of Science, (Core Concept: The rise of bioelectric medicine sparks interest among researchers, patients, and industry | PNAS), *"bioelectric medicine, which also goes by neuromodulation, biostimulation, or electroceuticals, is emerging as an alternative or add-on to costly chemical and biologic drugs. Dysfunctional neural circuits give rise to dysfunctional organs. The goal of bioelectronic medicine is to restore healthy patterns of electrical impulses—adjusting how neurons fire and, thereby, changing the concentrations of neurotransmitters traveling through those circuits. Driving growth in bioelectronic medicine is a convergence of advances in neuroscience, electronics, materials science, molecular medicine, and biomedical engineering, alongside more than a billion dollars of investments from government and industry. Within the next decade, researchers say, modulating the body's neural networks could become a mainstream therapy for many of today's greatest health issues—from arthritis (1), asthma (2), and Alzheimer's disease (3) to depression (4), diabetes (5), and digestive disorders (6, 7). Stimulating nerves also shows promise in treating cardiovascular disease (8) and septic shock (9), even in improving cognition (10)".*

Here again, we will not belabor this update with the notion, but **we believe that NeuroClear's work in bioelectric medicine could potentially provide bigger opportunities for BioSig than the commercialization of the *PURE EP*™ platform**. At the same time, our target prices do not include any valuation contribution from this portion of the enterprise. As a result, we think this portion of the business has the potential to add a considerable valuation leg to BioSig. Again, while we think NeuroClear has marked potential we do not think current BioSig valuations reflect any value for the asset. Moreover, recognize that the Company's discussions about AI, datasets and clinical software are also adjuncts of the core IP that may create added future revenue streams although not necessarily in conjunction with NeuroClear initiatives. In short, despite what we believe will be emerging traction in its core *PURE EP*™ platform (including into markets outside of the U.S.), we think BioSig is in the early innings of its development. We would add, the Company has several resources on their site; www.biosig.com. Those resources include a video presentation by the Mayo Clinic's Dr. Suraj Kapa. That video is available here and we think it provides an insightful background to the emergence of bioelectric medicine as well as perhaps BioSig/NeuroClear's role in that advancement:

https://www.biosig.com/news-media/biosig-in-the-news/detail/2715/the-future-of-bioelectronic-medicine-with-suraj-kapa-m-d

In summary, we started our coverage of BioSig roughly 12 months ago. Just prior to that initiation, the Company acquired a license to a drug called Vicromax(tm), which is a *"broad-spectrum anti-viral agent that demonstrated strong activity against COVID-19 in cell cultures in laboratory testing"*. Succinctly, the Company accelerated development of Vicromax which ultimately encountered some safety issues in the clinic, and the Company halted the development. However, because of the broad interest around potential Covid therapies, BioSig traded through

our $10.50 price target and we lowered our allocation accordingly. Today, with the Vicromax foray off the table, BioSig has a stronger balance sheet, it has announced its first commercial sales followed by additional commercial sales, it has intimated additional traction among high profile hospital systems across the U.S., it has suggested continued progress towards a CE Mark and perhaps *PURE EP*™ sales outside of the U.S, it has provided additional color regarding the progress and potential of NeuroClear, yet the stock is trading at a 25% discount to our initiating price of $5.14. We believe the stock represents a better value today than at any time since our initiation. As a result of that view (and in the face of recent weakness in the share price) we are increasing our allocation of BioSig shares from 3 to *4 and reiterating our 12-24 price target of $8.25.

Projected Operating Model

BioSig Technologies, Inc.						
Projected Operating Overview						
By: Trickle Research LLC						
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS	(estimate)	(estimate)	(estimate)	(estimate)	(estimate)	
	3/31/2021	**6/30/2021**	**9/30/2021**	**12/31/2021**	**Fiscal 2021**	**Fiscal 2022**
Revenues:						
Unit Sales	$ 720,000	$ 1,200,000	$ 1,200,000	$ 1,440,000	$ 4,560,000	$ 15,360,000
Recurring Maintenance and Service Fees	$ -	$ -	$ -	$ -	$ -	$ 950,000
Other Revenue	$ -	$ -	$ -	$ -	$ -	$ -
	$ -	$ -	$ -	$ -		
Total Revenue	**$ 720,000**	**$ 1,200,000**	**$ 1,200,000**	**$ 1,440,000**	**$ 4,560,000**	**$ 16,310,000**
Cost of Goods	**$ 120,000**	**$ 200,000**	**$ 200,000**	**$ 240,000**	**$ 760,000**	**$ 2,368,000**
Gross Profit (Loss)	**$ 600,000**	**$ 1,000,000**	**$ 1,000,000**	**$ 1,200,000**	**$ 3,800,000**	**$ 13,942,000**
					$ -	$ -
Operating expenses:						
Research and development	$ 2,121,600	$ 2,136,000	$ 2,136,000	$ 2,143,200	$ 8,536,800	$ 8,889,300
General and administrative	$ 5,444,400	$ 5,474,000	$ 5,474,000	$ 5,488,800	$ 21,881,200	$ 22,566,200
Depreciation and amortization	$ 26,962	$ 27,016	$ 27,070	$ 27,124	$ 108,171	$ 109,039
Total operating expenses	**$ 7,592,962**	**$ 7,637,016**	**$ 7,637,070**	**$ 7,659,124**	**$ 30,526,171**	**$ 31,564,539**
Loss from operations	**$ (6,992,962)**	**$ (6,637,016)**	**$ (6,637,070)**	**$ (6,459,124)**	**$ (26,726,171)**	**$ (17,622,539)**
Other income (expense):					$ -	$ -
Gain on change in fair value of derivatives	$ -	$ -	$ -	$ -	$ -	$ -
Interest income	$ -	$ -	$ -	$ -	$ -	$ -
Loss before income taxes	$ (6,992,962)	$ (6,637,016)	$ (6,637,070)	$ (6,459,124)	$ (26,726,171)	$ (17,622,539)
Income taxes (benefit)	$ -	$ -	$ -	$ -	$ -	$ -
Net loss	$ (6,992,962)	$ (6,637,016)	$ (6,637,070)	$ (6,459,124)	$ (26,726,171)	$ (17,622,539)
Preferred stock dividend	$ (4,700)	$ (4,700)	$ (4,700)	$ (4,700)	$ (18,800)	$ (18,800)
NET LOSS AVAILABLE TO COMMON STOCKHOLDERS	$ (6,997,662)	$ (6,641,716)	$ (6,641,770)	$ (6,463,824)	$ (26,744,971)	$ (17,641,339)
Non-controlling interest	$ -	$ -	$ -	$ -	$ -	$ -
NET LOSS ATTRIBUTABLE TO BIOSIG TECHNOLOGIES, INC.	$ (6,997,662)	$ (6,641,716)	$ (6,641,770)	$ (6,463,824)	$ (26,744,971)	$ (17,641,339)
Net loss per common share, basic (in Dollars per share)	$ (0.23)	$ (0.21)	$ (0.21)	$ (0.21)	$ (0.86)	$ (0.56)
	$ (0.22)	$ (0.21)	$ (0.21)	$ (0.20)	$ (0.85)	$ (0.56)
Weighted average number of common shares outstanding, basic (in Shares)	30,930,646	31,085,191	31,229,872	31,365,872	31,152,895	31,692,915
Weighted average number of common shares outstanding, diluted (in Shares)	31,558,242	31,686,741	31,812,901	31,936,803	32,058,527	32,636,921

General Disclaimer:

Trickle Research LLC produces and publishes independent research, due diligence and analysis for the benefit of its subscriber base. Our publications are for information purposes only. Readers should review all available information on any company mentioned in our reports or updates, including, but not limited to, the company's annual report, quarterly report, press releases, as well as other regulatory filings. Trickle Research is not registered as a securities broker-dealer or an investment advisor either with the U.S. Securities and Exchange Commission or with any state securities regulatory authority. Readers should consult with their own independent tax, business and financial advisors with respect to any reported company. Trickle Research and/or its officers, investors and employees, and/or members of their families may have long/short positions in the securities mentioned in our research and analysis and may make purchases and/or sales for their own account of those securities. David Lavigne does not hold a position in BioSig.

Trickle Research co-sponsors two microcap conferences each year. Trickle Research encourages its coverage companies to present at those conferences and Trickle charges them a fee to do so. Companies are under no obligation to present at these conferences. BioSig has paid a fee to present at Trickle's co-sponsored conference.

Portions of this publication excerpted from company filings or other sources are noted in *italics* and referenced throughout the report.

Rating System Overview:

There are no letters in the rating system (Buy, Sell Hold), only numbers. The numbers range from 1 to 10, with 1 representing 1 "investment unit" (for my performance purposes, 1 "investment unit" equals $250) and 10 representing 10 investment units or $2,500. Obviously, a rating of 10 would suggest that I favor the stock (at respective/current levels) more than a stock with a rating of 1. As a guideline, here is a suggestion on how to use the allocation system.

Our belief at Trickle is that the best way to participate in the micro-cap/small cap space is by employing a diversified strategy. In simple terms, that means you are generally best off owning a number of issues rather than just two or three. To that point, our goal is to have at least 20 companies under coverage at any point in time, so let's use that as a guideline. Hypothetically, if you think you would like to commit $25,000 to buying micro-cap stocks, that would assume an investment of $1000 per stock (using the diversification approach we just mentioned, and the 20-stock coverage list we suggested and leaving some room to add to positions around allocation upgrades. We generally start initial coverage stocks with an allocation of 4. Thus, at $1000 invested per stock and a typical starting allocation of 4, your "investment unit" would be the same $250 we used in the example above. Thus, if we initiate a stock at a 4, you might consider putting $1000 into the position ($250 * 4). If we later raise the allocation to 6, you might consider adding two additional units or $500 to the position. If we then reduce the allocation from 6 to 4 you might consider selling whatever number of shares you purchased with 2 of the original 4 investment units. Again, this is just a suggestion as to how you might be able to use the allocation system to manage your portfolio.

For those attached to more traditional rating systems (Buy, Sell, Hold) we would submit the following guidelines.

A Trickle rating of 1 thru 3 would best correspond to a "Speculative Buy" although we would caution that a rating in that range should not assume that the stock is necessarily riskier than a stock with a higher rating. It may carry a lower rating because the stock is trading closer to a price target we are unwilling to raise at that point. This by the way applies to all of our ratings.

A Trickle rating of 4 thru 6 might best (although not perfectly) correspond to a standard "Buy" rating.

A Trickle rating of 7 thru 10 would best correspond to a "Strong Buy" however, ratings at the higher end of that range would indicate something that we deem as quite extraordinary..... an "Extreme Buy" if you will. You will not see a lot of these.