

November 13, 2015



**(OTCQB – BSGM - \$1.37)**

Price Target: \$5.00

Rating: Speculative Buy

## BIOSIG TECHNOLOGIES, INC.

### Transforming the Cardiac Medical Device Market

Rob Goldman  
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#### COMPANY SNAPSHOT

BioSig Technologies is a medical device company that is developing a proprietary technology platform designed to improve the \$3 billion electrophysiology (EP) marketplace. Led by a proven management team and a veteran, independent Board of Directors, Minneapolis-based BioSig Technologies is preparing to commercialize its PURE EP System by filing for FDA 501(k) clearance in 2016 along with an up-list to NASDAQ.

#### KEY STATISTICS

Price as of 11/12/15	\$1.37
52 Week High – Low	\$4.80 - \$1.13
Est. Shares Outstanding	14.7M
Market Capitalization	\$20.1M
3 Mo Avg. Vol.	13,800
Exchange	OTCQB

#### COMPANY INFORMATION

**BioSig Technologies, Inc.**  
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Minneapolis MN 55426  
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#### INVESTMENT HIGHLIGHTS

**Innovative medical device company BioSig Technologies is set to transform its segment of the \$3 billion electrophysiology (EP) marketplace.** The Company's flagship platform fulfills an unmet need by enhancing the efficacy, diagnostic value, and reduced timeframe of EP studies used in cardiac ablation procedures.

**A series of milestones in the coming quarters should foster considerable recognition of BioSig's prospects, driving market value of the Company's shares.** These include the results of recent and future preclinical studies, the filing for FDA 510(k) clearance to market its platform, and an up-list to NASDAQ.

**The Company has collaborated with the leading cardiac centers in the country.** The Mayo Clinic, UCLA Cardia Arrhythmia Center, Mount Sinai Medical are just a few of the prestigious institutions that have participated in the development of the PURE EP™ platform.

**BioSig's leadership team rivals that of health care companies generating hundreds of millions in annual sales.** The team members have a history of clinical, corporate, financial, and operational successes.

**Large medical device firms have a demonstrated appetite for buying emerging EP company leaders and BioSig could be a future target.** A recent acquisition of Topera by Abbott Labs (NYSE:ABT) for \$250M is indicative of the valuations afforded EP firms.

**In our view, BioSig represents a rare opportunity in the microcap medical device arena.** With an unusually low current valuation relative to its prospects, a series of milestones in the offing, a Tier 1 leadership team, and the high price tags afforded recent acquisitions, our target price for BSGM is \$5. We rate the stock Speculative Buy.

## COMPANY OVERVIEW

Tracing its roots to 2009, medical device pioneer **BioSig Technologies, Inc. (OTCQB – BSGM - \$1.37 - Speculative Buy)** is developing a proprietary technology platform that improves the quality of cardiac recordings obtained during EP (electrophysiology) studies and catheter ablation procedures that treat cardiac arrhythmias. The transformative *PURE EP™* offering is an innovative surface electrocardiogram (ECG) and intra-cardiac multichannel recording and analysis system that assists electrophysiologists in making effective clinical evaluations and decisions in real-time. Fulfilling an unmet need for an estimated \$3 billion market that could potentially serve as a trigger for increased business on behalf of the entire industry, the Company's flagship platform has already achieved a proof of concept validation, and completed preclinical studies. Based on its current research and development roadmap, BioSig is poised to file for 510(k) clearance with the FDA in 2016 which, if granted, could lead to meaningful revenue beginning in 2017.

If not for its current development stage, BioSig could be mistaken for a seasoned health care company generating hundreds of millions in annual revenue. For example, the history of success and experience of BioSig's management team and board of directors rivals some midcap companies. Moreover, the Company boasts an enviable list of prestigious, top tier cardiac arrhythmia centers with whom it has partnered or collaborated during the development of the *PURE EP™*. These centers include:

- Mayo Clinic (MN)
- Mount Sinai Medical Center (NY)
- Texas Cardiac Arrhythmia Institute (TX)
- UCLA Cardiac Arrhythmia Center (CA)
- U.H. Case Medical Center (OH)
- William Beaumont Hospital (MI)

In our view, BioSig represents a rare opportunity in the microcap medical device arena given the unusually low current valuation relative to its prospects and the high price tags afforded recent acquisitions. Along with Tier 1 leadership and partner cardiac care centers, what may be the only pure play, publicly-traded EP company owns a first-mover advantage in its segment which, upon receipt of FDA 510(k) clearance, should result in sales of \$8-\$10 million in its first year and tens of millions in sales in Year 2. Our target price reflects a steady rise from current levels to the \$5 mark based on a series of future milestones and M&A activity in the space.

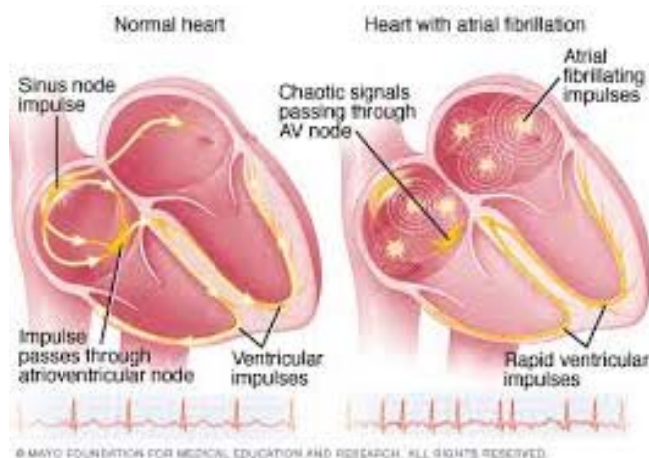
In fact, with a number of executed pure play EP company transactions in the space in the past 2 years, and segment sales dominance by large medical device players, the Company could also emerge as an M&A target at a meaningful premium to the market. The recent \$250 million acquisition of (low revenue) EP player Topera by **Abbott Labs (NYSE – ABT – NR)** illustrates the appetite for innovative EP companies. Separately, management's plan to up-list the stock from the OTC to NASDAQ, in conjunction with favorable news should be viewed as a bonus by investors as such a move would likely generate considerable interest by a larger group of the institutional and retail investment public.

We rate these shares Speculative Buy.

## THE MARKET: A PRIMER

An arrhythmia is an abnormal rhythm of the heart and is caused by problems with a heart's electrical system. The electrical impulses may happen too fast, too slowly, or erratically, which in turn cause the heart to beat too fast, too slowly, or erratically. According to the American Heart Association, Atrial Fibrillation (also called AFib or AF) is a quivering or irregular heartbeat (arrhythmia) that can lead to stroke and other heart-related complications, when rapid, disorganized electrical signals cause the heart's upper chambers (the atria) to contract quickly and irregularly. In atrial fibrillation, the upper chambers of the heart beat irregularly (quiver) instead of beating effectively to move blood into the ventricles. As a result, the heart's upper and lower chambers do not work together as they should.

A recent issue of EP Lab Digest notes that atrial fibrillation is the most common sustained arrhythmia seen in clinical practice and has grown significantly in both the number of patients affected as well as its impact on the healthcare system. According to the National Institute of Health National Heart Lung and Blood Institute, there are approximately 3 million Americans suffering with atrial fibrillation and 850,000 patients are hospitalized annually for this condition. As many as 600,000 new cases of atrial fibrillation are diagnosed each year.



*Figure 1: Normal Heart vs. AFIB Heart*

Source: [www.MayoClinic.org](http://www.MayoClinic.org)

Looking ahead, current epidemiological projections estimate that by 2050, as many as 15.9 million Americans will have some form of AF. In fact, individuals with AF (as a group) have a five-fold higher risk of stroke, and among those that do experience a stroke, the risk of serious disability and death is 50% and 60% higher, respectively, when AF is present.

While pharmacological solutions can be used as initial arrhythmia treatments, catheter ablation is now often recommended for an arrhythmia that medicine cannot control. For patients who are candidates for ablation, an electrophysiology (EP) study is necessary to define the targeted sites for the ablation procedure. Catheter ablation involves advancing several flexible catheters into the

patient's blood vessels toward the heart. Electrical impulses are used to induce the arrhythmia and local heating or freezing is used to ablate (destroy) the abnormal tissue that is causing it. Catheter ablation of most arrhythmias has a relative high success rate but only 50,000 are performed each year due to the fact that nearly half of all patients that undergo the procedure tend to require follow-up procedures due in part to the fact that the current treatment approach does not focus directly on the signal areas of the heart.

### EP Studies

Electrophysiology studies (EPS) are minimally invasive tests that occur in conjunction with ablation procedures that help doctors understand the nature of abnormal heart rhythms and take place in a special room called an electrophysiology (EP) lab or catheterization (cath) lab for 3-6 hours, on average. These tests are performed

by a special cardiologist (electrophysiologist) while a patient is mildly sedated. During an EPS, about 3 to 5 electrically sensitive catheters are placed inside the heart to record electrical activity.

It is estimated that there are about 2,000 electrophysiology labs in the U.S. and 2,000 electrophysiology labs outside the U.S., each with an electrophysiology recording system costing an average of approximately \$250,000. With the potential of 15.9 million atrial fibrillation patients and improvements in technology for atrial fibrillation ablation therapy, significant growth is predicted for the number of hospitals building electrophysiology labs. Analysts forecast the global market for EP devices to grow from \$2.5 billion in 2012 to \$5.5 billion by 2019 – making it one of the fastest growing medical device segments.



*Figure 2: Sample EP Lab*  
Source: [www.BioSig.com](http://www.BioSig.com)

### The Problem Affecting EP Labs

EP labs consist of sophisticated equipment that requires an electrophysiologist to mentally integrate information from a number of sources during procedures. As one can imagine, the lab environment and associated recording systems create significant amounts of electrical and non-biologic noise during procedures which hamper recordings of small electrophysiological potentials. Moreover, since most of the equipment in use tends to be based on technology 20-30 years old, a great deal of electromagnetic interference is generated in these environments.

As a result, preserving space and time characteristics of the heart's signals in a challenging recording environment is a difficult task as high quality, accurate information provided by the recording system is essential for an electrophysiologist to determine ablation strategies during the termination of various arrhythmias. Therefore, it is critical that the recording system's noise removal technique does not alter appearance and fidelity of these potentials. Unfortunately, current systems in use today, which are nearly exclusively produced and deployed by large medical device companies, do not fulfill this need.

Enter BioSig Technologies.



## PURE EP: AT A GLANCE

The *PURE EP™* (Precise Uninterrupted Real-time evaluation of Electrograms) is a surface electrocardiogram and intra-cardiac multichannel recording and analysis system that acquires processes and displays electrocardiogram and electrograms required during electrophysiology studies and ablation procedures. The software-based platform is designed to retain original cardiac information and provide clarity of data to further assist in effective, clinical evaluations and decision-making in real-time. As a result, the *PURE EP™* System's ability to acquire high fidelity cardiac signals will potentially increase these signals' diagnostic value, and therefore offer improved accuracy and efficiency of the EP studies and related procedures. The Company is focused on improving the quality of cardiac recordings obtained during ablation of atrial fibrillation, the most common cardiac arrhythmia, and ventricular tachycardia, an arrhythmia evidenced by a fast heart rhythm originating from the lower chambers of the heart, which can be life-threatening.

**BioSig believes this information is not always easily obtained, if at all, from any other EP equipment in the market today.**



*Figure 3: PURE EP in Action*  
Source: BioSig Technologies, Inc.

Management further believes that the *PURE EP™* System and its signal processing tools could contribute to an increase in the number of successful ablation procedures performed in each electrophysiology lab and improved patient outcomes as well (i.e., reduction in repeat procedure rates and shorter procedure times), thereby substantially raising the value of the platform among EP labs. As a result, successful AF treatments incorporating the use of *PURE EP™* improves patient outcomes, potentially reduces the incidence of strokes, and can increase utilization of ablation procedures in EP labs, which enhances clinic revenue.

## HISTORICAL AND FUTURE MILESTONES

On the road to achieving FDA 501(k) clearance next year, BioSig has already achieved a number of milestones, indicating a high degree of efficacy of the platform in tests completed in a number of prestigious cardiac centers around the country.

### ► Initial system concept in June 2011

BioSig tested its initial system concept in collaboration with physicians at the Texas Cardiac Arrhythmia Institute at St. David's Medical Center in Austin, Texas in June 2011. As part of the test, BioSig evaluated present electrophysiology recording technology by performing a detailed analysis of the methods currently used to reduce noise and artifacts and especially studied the effect of signal processing on spatiotemporal characteristics of electrocardiograms and intracardiac electrograms. Importantly, the Company compared the signal quality (amplitude, morphology and duration) obtained by the *PURE EP™* System software with different conventional electrophysiology recording systems presently used in the EP Lab by using a custom built

electrocardiogram/intracardiac simulator with a database of various electrophysiology signals. The Company also developed visualization tools to assist electrophysiologists in further differentiating true signals from noise.

**Result:** The electrocardiogram and intracardiac signals acquired with the PURE EP™ System contained less baseline wander, noise and artifacts compared to the conventional recording systems.

► **Technology and Validation Studies with Major Medical Centers**

- Mayo Clinic (MN)
- Mount Sinai Medical Center (NY)
- Texas Cardiac Arrhythmia Institute (TX)
- UCLA Cardiac Arrhythmia Center (CA)
- U.H. Case Medical Center (OH)
- William Beaumont Hospital (MI)

► **Obtained proof of concept testing at UCLA's EP and Animal labs in 2013**

BioSig developed the PURE EP™ System's proof of concept unit to demonstrate that the system's hardware and software have the ability to faithfully record small cardiac signals in an electrophysiology laboratory, and to obtain initial performance results.

**Result:** The proof of concept unit performed well compared to the conventional recording system, in that the electrocardiogram and intracardiac signals displayed on our POC unit showed less baseline wander, noise and artifacts compared to signals displayed on the other recording system. Separately, the unit worked extremely well as compared with the competing GE's CardioLab recording system used on-site.

► **Prototype and Preclinical Studies**

After analyzing the results obtained with its proof of concept unit, the Company developed the PURE EP™ System prototype. While BioSig performed initial testing in September 2014 at the UCLA Animal lab, it has conducted two preclinical studies at the Mayo Clinic in the first half of 2015, with study results due to be released in the coming months.

► **Pending Studies and Objectives**

BioSig plans to initiate a third study, this time at the Cardiac Arrhythmia Center at UCLA. The main objective of these studies is to demonstrate the clinical potential of the PURE EP™ System and show its advantages as compared to electrophysiology recorders currently on the market. Separately, the Company is developing a confidence index that will assist electrophysiologists in further differentiating true signals from noise, which may potentially provide guidance in identifying ablation targets as well as a portable device that can be fully integrated into existing electrophysiology lab environments.

The next major milestone is filing with the FDA for 510(k) clearance which management believes will be granted in 2016.

## THE BIOSIG LEADERSHIP TEAM

As noted above, the strength and depth of experience in health care, finance, and operations of the BioSig leadership team may be its greatest asset and should enhance investor confidence in the Company's future success.

### **Gregory D. Cash, President, CEO, and Director**

Greg Cash is an experienced executive and a seasoned industry veteran. He has over 30 years of business experience and has been chief executive officer of several companies, both public and privately held, as well as run global business units of larger companies.

Prior to joining BioSig, Mr. Cash was President and CEO of Argent International, a life sciences consulting firm. Previous positions include President and Chief Executive Officer of NeuroTherm, Inc., President and Chief Executive Officer, as well as a director of HeartSine Technologies, Inc., President, Vascular Therapy and New Businesses for Sorin Group based in Milan, Italy, President and Chief Executive Officer and a director of Vasomedical, Inc. a NASDAQ traded public company, Corporate Vice President, Datascope Corporation, and President of its subsidiary, InterVascular, Inc., President and Chief Operating Officer of Eminent Technology Partners and Chief Executive Office of its subsidiary, Eminent Research Systems, Vice President and General Manager, Vascular Therapies, for U.S. Surgical Corporation and spent five years with Boston Scientific Corporation, ultimately as Vice President, Cardiology Sales and Marketing, Europe. He began his career at Medtronic, Inc., where he served 14 years in increasingly senior sales and marketing positions.

Mr. Cash has lived and worked as an expatriate in London, England, Hong Kong, Paris, France and Milan, Italy and speaks French, German and Italian. He holds a B.A. in International Marketing and Business Administration from the College of St. Thomas in St. Paul, Minnesota.

### **Kenneth L. Londoner, MBA, Executive Chairman and Director**

Mr. Londoner has served as our director since February 2009 and as our executive chairman since November 2013. Mr. Londoner founded BioSig Technologies, Inc. in February 2009. Mr. Londoner is the Managing Partner of Endicott Management Partners, LLC, a firm dedicated to assisting emerging growth companies in their corporate development and investing needs since 2004. From April 2007 to October 2009, Mr. Londoner was the executive vice president of NewCardio, Inc., a silicon valley based cardiac software company. Mr. Londoner also served as a Director and the architect for the turnaround at Alliqua BioMedical, Inc. (Nasdaq: ALQA) from May 2012 to March 2014. Mr. Londoner is a co-founder of Safe Ports Holdings, LLC, in Charleston, South Carolina, a port security and logistics company. Started in July 2005, the company built and sold an inland port development project to Dubai Ports World. The sale, in the fall of 2007, was for almost six times what investors had invested. Mr. Londoner is a member of Safe Ports Board of Directors. Mr. Londoner was the founder and managing partner of Red Coat Capital Management in New York. Founded in late 1996, the hedge fund (long/short equity strategy) grew from its initial base of \$ 2 million in assets to a peak of \$ 1.1 billion. Mr. Londoner started his investment career at J. & W. Seligman & Co., Inc., a leading institutional money management firm where he rose from research analyst to managing \$ 3.5 billion in mutual funds, pension funds, and international assets. He joined Seligman in 1991 and left in 1997. Mr. Londoner graduated



from Lafayette College in 1989 with a degree in economics and finance and received his MBA from NYU's Stern School of Business in 1994, with a dual major in finance and management. Mr. Londoner just celebrated his 25th wedding anniversary and has four children. Mr. Londoner has been working with Lafayette College to develop and expand a summer internship program designed to provide undergraduate students with high value summer employment in leading growth industries in the U.S.

### **Jay Millerhagen, Vice President, Clinical Affairs**

Jay Millerhagen, Vice President of Clinical Affairs, has over 25 years of experience developing, evaluating and launching new medical technologies and therapies. Most recently, Mr. Millerhagen served as Vice President, Clinical Affairs and Market Development for RESPICARDIA, Inc., in Minnetonka, MN. At RESPICARDIA, he led clinical operations, staffing and site management leading to the pivotal IDE trial of the fully implantable ReMed System for the treatment of Central Sleep Apnea.

Prior to joining RESPICARDIA, Mr. Millerhagen served in positions of increasing responsibility at St. Jude Medical in St. Paul, MN. From 2011 to 2012, as Vice President, Clinical Affairs, he led a team of 20 in-house clinical personnel and a team of 22 field clinical engineers to execute a series of clinical studies targeted at addressing cardiac arrhythmias. He oversaw the team that completed enrollment in five major IDE (investigational device exemption) trials most of which were completed several months ahead of schedule. From 2007 to 2010, Mr. Millerhagen served as Senior Director, Clinical Affairs. His team was the first to design, submit and secure approval of an IDE from the FDA for a novel open irrigated ablation catheter based indication for Atrial Fibrillation.

From 1989 to 2007, Mr. Millerhagen held senior positions at Boston Scientific Corporation. Joining the company as a Manager of New Product Planning, he co-authored a patent on a pacemaker based on hemodynamic performance. Promoted to Director, he oversaw Brady Marketing, Heart Failure Research and Development, Heart Failure Marketing and from 2004 to 2007, he served as Director, Business Alliance Marketing with industry giants Johnson & Johnson and GE Healthcare. During his tenure at Boston Scientific he directed numerous areas of cardiovascular health.

Mr. Millerhagen received his MBA from the University of St. Thomas, St. Paul, MN, earned an MS in Exercise Physiology from St. Cloud State University, St. Cloud, MN, and a BA in Physiology and Psychology from Concordia College, Moorhead, MN. He has been member of the Heart Rhythm Society (NASPE), the Heart Failure Society of America, and the American College of Sports Medicine.

### **Steve Chaussy, Chief Financial Officer**

Mr. Chaussy has served as our chief financial officer on a part time basis since May 2011. Since 2001, Mr. Chaussy has acted as a consultant for small publicly traded entities with a special emphasis towards SEC reporting and compliance; Mr. Chaussy provides consulting services both directly and through his wholly-owned entity, Anna & Co., Inc. Prior to 2001, Mr. Chaussy served as chief financial officer for a large private distribution and wholesaling company, where he gained international experience. Mr. Chaussy is a graduate of Virginia Polytechnic Institute and State University and is a licensed certified public accountant in Virginia, California and Florida.

#### **Asher Holzer, Ph.D., Chief Scientific Officer**

Dr. Holzer was appointed Chief Scientific Officer of BioSig following years of service as a member of BioSig's Board of Directors. Dr. Holzer serves as a director of InspireMD, Inc., an Israeli-based developer of a new stent platform, and served as that company's president from March 2011 until June 2012 and chairman from March 2011 until November 2011. In addition, Dr. Holzer co-founded InspireMD Ltd., the predecessor and later wholly-owned subsidiary of InspireMD, Inc., and served as its president and chairman of the board from April 2007 until June 2012. Previously, Dr. Holzer founded Adar Medical Ltd., an investment firm specializing in medical device start-ups, and served as its chief executive officer from 2002 through 2004. Dr. Holzer currently serves on the board of directors of Adar Medical Ltd., O.S.H.-IL The Israeli Society of Occupational Safety and Health Ltd., Theracoat Ltd., 2to3D Ltd., and S.P. Market Windows Cyprus. Dr. Holzer earned his Ph.D. in Applied Physics from the Hebrew University. Dr. Holzer is also an inventor and holder of numerous patents. Dr. Holzer brings to the board his more than 25 years of experience in advanced medical devices, as well as expertise covering a wide range of activities, including product development, clinical studies, regulatory affairs, market introduction and the financial aspects of the advance medical device business.

#### **Brian McLaughlin, Vice President, Corporate Finance and Investor Relations**

With over 19 years of financial experience, McLaughlin is a seasoned Wall Street veteran specializing in healthcare investments. During his tenure in the money management industry, McLaughlin held senior roles with some of the leading U.S. hedge funds. In that capacity, he built an extensive network of relationships that will bring tremendous value to BioSig. McLaughlin held senior executive positions in the hedge fund industry for over 13 years at Sigma Capital Mgt., SAC Capital Mgt., and the investment bank, JP Morgan & Co. At Ridgeback Capital, McLaughlin was president and chief operating officer managing over a billion dollars, specifically investing in the healthcare industry. McLaughlin received a Bachelor of Arts degree in Communications from Marist College in 1996.

#### **Jerome B. Zeldis, M.D., Ph.D., Director**

Dr. Zeldis is the Chief Executive Officer of Celgene Global Health and the Chief Medical Officer of Celgene Corporation. Dr. Zeldis has been with Celgene since 1997; prior to his current role, he served as Senior Vice President of Clinical Research and Medical Affairs. Prior to Celgene, Dr. Zeldis worked at Sandoz Research Institute and Janssen Research Institute in both clinical research and medical development. He is currently on the board of the Semorex Corporation, Bionor Pharma, Inc., Mali Health and PTC Corporation and serves as the chairman of the board of directors of Alliqua BioMedical, Inc. Dr. Zeldis attended Brown University for a B.A., M.S., followed by Yale University for a M.Phil., M.D., and Ph.D. in molecular biophysics and biochemistry (immunochemistry). He trained in internal medicine at the UCLA Center for the Health Sciences and Gastroenterology at the Massachusetts General Hospital and Harvard Medical School. He was Assistant Professor of Medicine at the Harvard Medical School, Associate Professor of Medicine at University of California, Davis, Clinical Associate Professor of Medicine at Cornell Medical School and Professor of Clinical Medicine at the Robert Wood Johnson Medical School in New Brunswick, New Jersey. Dr. Zeldis has published 122 peer reviewed articles and 24 reviews, book chapters, and editorials. Dr. Zeldis brings his extensive background in the healthcare industry, as well as his experience in emerging growth companies, which will make him a valuable resource on the Company's board of directors.

### **Jeffrey F. O'Donnell, Sr., Director**

Jeff O'Donnell, Sr. has extensive experience in the Healthcare industry, merging a solid, traditional corporate background with emerging growth experience. Jeff brings more than 20 years of Board and Chief Executive experience running emerging medical device firms. Businesses under his direct leadership have achieved over \$1.5 Billion in value creation from initial public offering of stock or mergers and acquisitions. Currently, Jeff is the President and CEO of Trice Medical. Trice is an emerging growth medical device company developing optical needles used by orthopedic surgeons to diagnose soft tissue damage of joints. In 2008, Jeff started and ran Embrella Cardiovascular, a medical device start-up company, which was sold in 2011 to Edwards Lifesciences (NYSE: EW). Prior to Embrella Cardiovascular, Jeff served as President and CEO of PhotoMedex (NASDAQ: PHMD) from 1999 to 2009. Prior to PhotoMedex, Jeff was the President and CEO of Cardiovascular Dynamics. His team took CCVD public on NASDAQ in June of 1996 and purchased Radiance Medical Systems and Endologix (NASDAQ: ELGX). From 1994 to 1995 Jeff held the position of President and CEO of Kensey Nash Corporation (NASDAQ: KNSY). Additionally, he has held several senior sales and marketing management positions at Boston Scientific Corporation, Guidant Corporation and with Johnson & Johnson's Orthopedic Division. In 2005, Jeff was named LifeSciences CEO of the Year by Price Waterhouse Coopers. In 2011, Jeff was named the Greater Philadelphia Emerging Entrepreneur Of The Year by Ernst & Young. Jeff is a previous director for Cardiac Science (7 yrs.) and Endologix (12 yrs.) and is currently on the Board of BioSig Technologies; he also serves as Chairman of the Board of Mela Sciences (NASDAQ: MELA). Jeff is a graduate of LaSalle University in Philadelphia earning a B.S. in Business Administration.

### **David Weild IV**

David Weild is founder, chairman and CEO of Weild & Co. which was launched in 2014 to improve capital markets outcomes for corporations while continuing to support policymakers as they strive to improve equity markets in ways that will drive economic and job growth. He was a former vice chairman of NASDAQ and head of corporate finance and equity capital markets at a major Wall Street firm. David's work has been discussed, presented or referred to in the U.S. Congress, the U.S. Securities and Exchange Commission (SEC), the White House, the European Commission, the Organization of Economic Cooperation and Development (OECD), the Federation of European Securities Exchanges (FESE), the G-20 in Istanbul in April 2015 and by regulators throughout the world. David holds an MBA from the Stern School of Business and a BA from Wesleyan University. He studied on exchange at The Sorbonne, Ecole des Haute Etudes Commerciales and The Stockholm School of Economics. He is also Chairman of the Board of Tuesday's Children, the noted 9/11 charity.

### **Patrick J. Gallagher, Director**

Mr. Gallagher, MBA, CFA, is an accomplished capital markets executive, advisor, and investor with a distinguished record of success in both the public and private markets. He has nearly 20 years of experience on Wall Street and extensive expertise in alternative investments, capital markets, and marketing.

Mr. Gallagher serves as a strategic consultant for Kinex Pharmaceuticals, LLC, a biotechnology firm focused on next-generation therapies in oncology and immunology and was the vice president of business development and investor relations from September 2012 to October 2013. In November 2010, he was

appointed by broker Concept Capital, a division of Sanders Morris Harris, as a Managing Director and the head of institutional sales.

In 2001, Mr. Gallagher co-founded BDR Research Group, LLC, an independent sell-side research firm specializing in healthcare investing, financing and operations, and served as its chief executive officer until November 2010. Prior to 2001, he held various sales positions at investment and research firms Kidder Peabody, PaineWebber and New Vernon Associates. Mr. Gallagher is a CFA charter holder, received his MBA from Pennsylvania State University and holds a B.S. degree in finance from the University of Vermont.

#### **Donald E. Foley, Director**

Mr. Foley brings extensive financial, economic, capital markets, executive leadership expertise to BioSig. Mr. Foley was elected chief executive officer and chairman of Wilmington Trust in July 2010 and joined the Board of Directors in July 2006. Prior to becoming CEO of Wilmington Trust, Mr. Foley served as senior vice president, treasurer and director of the ITT Corporation, a supplier of advanced technology products and services. He was responsible for ITT's capital and financing activities, as well as its pension and defined contribution investments. In addition, he was a member of the company's Executive Council, chairman of ITT Industries of Canada, and served on the boards of several other direct investments and international subsidiaries.

Previously, Mr. Foley was assistant treasurer for International Paper Company and held a progression of capital market, treasury, and tax-related assignments at Mobil Corporation. He began his career at General Electric. In addition to his experience in leading global companies, Mr. Foley has also been both a member and chairman of the Board of Trustees of Burke Rehabilitation Hospital in Westchester County, New York since 2005. Through his service to the healthcare sector, Mr. Foley has developed an appreciation for health care technology and the challenges and opportunities related to hospital administration.

#### **Roy T. Tanaka, Director**

Mr. Tanaka has served as our director since July 2012. From 2004 until his retirement in September 2008, Mr. Tanaka served as the worldwide president of Biosense Webster, Inc., a Johnson & Johnson company, a market and technology leader in the field of electrophysiology. He joined Biosense Webster, Inc. as its U.S. president in 1997. Previously he held a variety of senior management positions at Sorin Biomedical, Inc., including president and chief executive officer, and leadership roles at CooperVision Surgical and Shiley, a division of Pfizer, Inc. He currently serves on the boards of directors of Volcano Corporation, Coherex Medical, Inc., Advanced Cardiac Therapeutics Inc., a company using electrophysiology to develop technology to measure the temperature in a lesion during cardiac ablation procedures, and VytronUS Inc. In addition, Mr. Tanaka served as a director of Tomo Therapy until its acquisition in June 2011. Mr. Tanaka brings broad experience in executive leadership in the medical device field. His operational expertise and knowledge of the regulatory environment, both in the U.S. and globally, also bring a valuable perspective.



## **Seth H. Z. Fischer, Director**

Mr. Fischer has served as our director since May 2013. Since September 2013, Mr. Fischer has served as the chief executive officer and director of Vivus, Inc., a biopharmaceutical company focusing on the treatment of obesity, sleep apnea, diabetes and sexual health. Prior to that, Mr. Fischer served in positions of increasing responsibility with Johnson & Johnson until 2012. Most recently Mr. Fischer served as Company Group Chairman Johnson & Johnson, Worldwide Franchise Chairman Cordis Corporation from 2008 to 2012, which included responsibility for Cordis and Biosense Webster Inc., a market and technology leader in the field of electrophysiology. Previously, he served as Company Group Chairman North America Pharmaceuticals from 2004 to 2007. In this position he had responsibilities for Ortho-McNeil Pharmaceuticals, Janssen and Scios. Mr. Fischer serves on the board of directors of Trius Therapeutics, Inc. We believe that Mr. Fischer's extensive executive experience in a major health care company and his specific experience in launching and growing new pharmaceutical products make him an ideal candidate for our board.

## **FINANCIALS**

As a development stage company, BioSig has no recorded revenue since inception and has spent XXXX on research and development of the Pure EP™ System. The Company raises funds privately on an as needed to basis to fund its research and development efforts.

Management runs a tight ship with respect to operating expenses. While quarterly R&D expenses fluctuate based upon the type of studies at the time, these costs, along with G&A, tend to be below \$500,000 per quarter. Non-cash expenses, especially those that are compensation related are recorded each quarter. Based on the June 20, 2015 filing there are over 16.5 million options, warrants and common shares associated with a Series C preferred issuance, in addition to the estimated 14.7 million common shares outstanding. We should note that with fewer than 5 million shares in the public float, and a likely long term investment horizon for many of the shareholders, we do not anticipate much, if any dilution from the conversion or exercise of these securities for the foreseeable future.

While a firm product pricing structure is still under consideration for the *PURE EP™* System, we believe that the efficacy of the offering, its ability to enhance the value of the diagnostic equipment and clinic revenue should warrant a six figure price tag, plus annual maintenance revenue. Considering the high degree of software customization, we believe that BioSig could generate 70% or greater gross margin early on and even higher gross profitability once a critical sales mass of 100 or more systems annually occurs. We preliminarily forecast the sale of a few dozen machines in Year 1 with at least 100 or more systems sold each year beginning in Year 3. With an installed base of 2,000 labs in the U.S. alone, reaching the sale of at least 100 machines within three years appears to be a slam dunk whether through direct sales or a third party distribution relationship.

## **RISKS**

The obvious primary risk to the BioSig model is failure to win 501(k) clearance from the FDA or clearance in to market the system in other nations. A secondary risk would be a slow deployment of the product. Although we would cite it as an issue for similar-sized companies, we do not view R&D funding as a risk factor due to



management's consistent ability to raise funds as needed. A less likely risk to these shares is the emergence of a competing product by a larger or smaller player. However, with a 5-year lead time, we deem it unlikely at this juncture. Nonetheless, these risks are typical of companies that are BioSig's size and status.

Investor risks include the small capitalization of BioSig, its relatively low trading volume, and low investor awareness at this early stage. In its favor, BioSig has maintained good news flow for a company of its size and relatively short operating history, sure to result in a greater degree of future recognition by Wall Street as the Company achieves key development milestones, along with the likely up-listing from the OTC to NASDAQ.

## VALUATION AND CONCLUSION

Innovative medical device company BioSig Technologies is set to transform its segment of the \$3 billion electrophysiology (EP) marketplace. The Company's flagship platform fulfills an unmet need by enhancing the efficacy, diagnostic value, and reduced timeframe of EP studies used in cardiac ablation procedures and could even increase the use of ablation procedures. As a result, we believe that BioSig represents a rare opportunity in the microcap medical device arena given the unusually low current valuation relative to its prospects and the high price tags afforded recent acquisitions, such as the \$250 million Topera deal by Abbott Labs last year. Since the space is dominated by large players, it is possible that BioSig could become an M&A target as well.

Along with Tier 1 leadership and partner cardiac care centers, what may be the only pure play, publicly-traded EP company owns a first-mover advantage in its segment which, upon receipt of FDA 510(k) clearance, should result in sales of \$8-\$10 million in its first year and tens of millions in sales in Year 2.

Our target price reflects what we believe will be a steady rise from current levels to the \$5 mark, in conjunction with reaching key milestones such as filing for FDA 510(k) clearance, receiving said clearance, and completing an up-listing to NASDAQ. We rate these shares Speculative Buy.

## Recent Trading History For BioSig Technologies, Inc. (OTC – BSGM)

(Source: [www.Stockta.com](http://www.Stockta.com))



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Rob Goldman founded Goldman Small Cap Research in 2009 and has over 25 years of investment and company research experience as a senior research analyst and as a portfolio and mutual fund manager. During his tenure as a sell side analyst, Rob was a senior member of Piper Jaffray's Technology and Communications teams. Prior to joining Piper, Rob led Josephthal & Co.'s Washington-based Emerging Growth Research Group. In addition to his sell-side experience Rob served as Chief Investment Officer of a boutique investment management firm and Blue and White Investment Management, where he managed Small Cap Growth portfolios and *The Blue and White Fund*.

### Analyst Certification

I, Robert Goldman, hereby certify that the view expressed in this research report or article, accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report.

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