

electroCore, Inc.

(ECOR: NASDAQ)

ECOR: Getting A BOOST from New Initiatives

Our valuation is generated using a 20x multiple of 2026 earnings and discounting that value to the present year at a 20% rate.

Current Price (5/3/2023) **\$6.00**
Valuation \$30.00

OUTLOOK

electroCore is a commercial company marketing its gammaCore vagus nerve stimulation device in multiple migraine and cluster headache indications. The device non-invasively stimulates the vagus nerve which treats headache. It delivers an electrical pulse to activate the vagus nerve in the neck. Numerous clinical trials have been conducted supporting the efficacy and safety of gammaCore. Additional trials are underway for indications in stroke, PTSD, TBI and PT headache.

Sales are advancing in multiple areas: VA in the US, NHS in the UK, commercial, cash pay & distributors. Low penetration at the VA, expansions of the NHS program and continued efforts with commercial payors support topline advancement. Numerous distribution agreements signed around the globe will also layer on additional sales opportunities most recently with Joerns Healthcare, which is a domestic distributor in a variety of care settings. Truvaga is another exciting topline driver.

Associations with the VA, NHS, CVS, Express Scripts & others combined with the strong safety and efficacy data for gammaCore support a long runway for topline growth in the US, European and Asian markets.

Our valuation assumes first positive earnings in 2025 and employs a multiple of 2026 earnings to determine target price.

SUMMARY DATA

52-Week High **10.50**
 52-Week Low **2.92**
 One-Year Return (%) **-4.2**
 Beta **1.2**
 Average Daily Volume (sh) **11,477**

Shares Outstanding (mil) **4.75**
 Market Capitalization (\$mil) **28.5**
 Short Interest Ratio (days) **2.6**
 Institutional Ownership (%) **17.3**
 Insider Ownership (%) **17.5**

Annual Cash Dividend **\$0.00**
 Dividend Yield (%) **0.00**

5-Yr. Historical Growth Rates
 Sales (%) **N/A**
 Earnings Per Share (%) **N/A**
 Dividend (%) **N/A**

P/E using TTM EPS **N/A**
 P/E using 2023 Estimate **N/A**
 P/E using 2024 Estimate **N/A**

Zacks Rank **N/A**

Risk Level **Above Average**
 Type of Stock **Small-Growth**
 Industry **Med-Tech Devices**

ZACKS ESTIMATES

Revenue

(In millions of USD)

	Q1	Q2	Q3	Q4	Year
	(Mar)	(Jun)	(Sep)	(Dec)	(Dec)
2022	\$1.9 A	\$2.2 A	\$2.0 A	\$2.6 A	\$8.6 A
2023	\$2.8 A	\$3.2 E	\$3.5 E	\$3.9 E	\$13.5 E
2024					\$21.7 E
2025					\$32.3 E

Earnings per Share

	Q1	Q2	Q3	Q4	Year
2022	-\$1.18 A	-\$1.13 A	-\$1.15 A	-\$1.22 A	-\$4.69 A
2023	-\$1.24 A	-\$1.15 E	-\$0.89 E	-\$0.62 E	-\$3.81 E
2024					-\$2.18 E
2025					-\$0.45 E

WHAT'S NEW

First Quarter 2023 Financial and Operational Results

For the quarter ending March 31, 2023, electroCore Inc. (NASDAQ: ECOR) posted revenues of approximately \$2.8 million vs. \$1.9 million in the prior year quarter. This represents growth of nearly 50%, driven by increases in the VA/DOD segment and commercial revenues augmented by electroCore's cash pay initiatives. Since our previous update following the report of fourth quarter results, electroCore has presented a poster at the American Academy of Neurology, reported favorable results from a study evaluating well-being, announced promising results for traumatic brain injury and foreign language learning and participated in multiple conferences.

First quarter 2023 financial and operational results were provided in a [press release](#) and [Form 10-Q](#) filed with the SEC on May 3rd. A [conference call](#) with investors and analysts was held immediately following the release. 1Q:23 revenues of \$2.8 million were slightly ahead of our initial estimates and matched revised company guidance. Net loss per share was (\$1.24). Management reiterated its outlook of revenues between \$14.0 and \$15.0 million in 2023.

Operational and scientific highlights for 1Q:23 and to date include:

- 1:15 reverse stock [split](#) – February 2023
- Distribution [agreement](#) with Byond Healthcare – February 2023
- Traumatic brain injury results [reported](#) in Journal of Neurotrauma – March 2023
- Import license [granted](#) for Indonesia, Malaysia and South Africa – April 2023
- Teijin license fee [remitted](#) – April 2023
- Three patent issue notifications [received](#) – April 2023
- AAN Foreign Language Learning [study](#) and [presentation](#) – April 2023
- National Institutes of Health Grant [Award](#) – April 2023

In the financial domain, revenues for 1Q:23 were \$2.8 million, a 46% increase over the \$1.9 million generated in 1Q:22. Net loss was (\$5.9) million in 1Q:23 which compares to our (\$7.4) million estimate. This equated to a loss of (\$1.24) on a per share basis.

For the three-month period ending March 31, 2023 and versus the same period a year prior:

- Net sales were \$2.8 million, up 46% primarily due to increases in the VA and DOD channel of 35% and growth in commercial revenues of 55%. Initial contributions from the launch of Truvaga and TAC-STIM added to the revenue line. Ex-US revenues resumed their rapid growth rate, rising 34%;
- Gross margin was 83.5% versus 81.0% due to product mix tilted towards longer duration therapy and a greater number of refills. Favorable absorption of labor and overhead also contributed to the improvement in the metric;
- Research & development expenses totaled \$1.8 million, rising 94% on increased investment in next-generation, smartphone integrating gammaCore devices;
- Selling, general & administrative expenses of \$6.7 million were up 8.5% from \$6.2 million on account of a severance charge payment and targeted investment in sales and marketing for cash pay, direct-to-physician, direct-to-consumer awareness campaigns and spending on the e-commerce platform;
- Net loss was (\$5.9) million versus (\$5.6) million with loss per share (\$1.24) and (\$1.18), respectively.¹

As of March 31, 2023, cash, equivalents and marketable securities on the balance sheet totaled \$11.9 million. Cash burn was (\$5.9) million. No financing cash flows were recognized. Management has reiterated its 2023 revenue guidance of \$14 to \$15 million. We anticipate operating expenses rising mid-single digits net of expense reductions early in 2023. R&D activities will be driven by new product development and \$6 million in National Institute on Drug Abuse (NIDA) grant funding work to use gammaCore to treat symptoms of substance withdrawal.

¹ Note that our earnings per share actuals use updated share counts in previous periods to reflect the February 2023 reverse stock split.

New Indications

The number of indications that may benefit from nVNS seems to be endless. Announcements of grants to support opioid use disorder, and the recent launch of Truvaga to improve stress, anxiety, sleep, energy and mood build on previous work done demonstrating benefits in post-traumatic stress disorder, stroke, and Parkinson's disease. Recently, work conducted in collaboration with the Department of Defense at the US Defense Language Institute Foreign Language Center demonstrated a statistically significant benefit for language test performance.

Data from the language study was [presented](#) at the 75th Annual Meeting of the American Academy of Neurology (AAN). Support for the study was provided by the Defense Advanced Research Projects Agency (DARPA)/AFRL within the DARPA Targeted Neuroplasticity Training (TNT) program. 36 subjects were assessed in a 1:1 ratio between nVNS and sham following a baseline assessment. gammaCore stimulation treatments were self-administered before and after training. On day five, assessments were administered on language recall. Mood was also measured. Subjects using nVNS showed increases in energy and focus relative to sham participants.

The study's [findings](#) suggest that transcutaneous vagus nerve stimulation (tcVNS) promotes learning by inducing neuroplasticity, enhancing focus and mitigating fatigue. tcVNS training benefits are sustained for at least 24 hours after stimulation. Based on current and related demonstration of training enhancement, the study's authors conclude that tcVNS could be beneficial in language learning as well as acquisition of skills in intensive learning environments.

Traumatic Brain Injury is another area where a study was conducted. This pre-clinical [work](#) was presented in a paper entitled "Non-Invasive Vagus Nerve Stimulation Improves Brain Lesion Volume and Neurobehavioral Outcomes in a Rat Model of Traumatic Brain Injury" in the peer-reviewed Journal of Neurotrauma. The use of nVNS was associated with small brain lesion (damage) volume as compared with the control group. Benefits were measured after one day of treatment and by day 7, nVNS was associated with a decreased lesion size of 35% and 89% in the low and high dose nVNS groups respectively. Neurobehavioral assessments were also more favorable for the mice treated with nVNS.

The \$6 million NIDA grant mentioned earlier will fund a 100-patient trial that will be conducted at Emory University and the Atlanta VA Hospital. It is of a double-blind, randomized, sham-controlled design with a primary endpoint of peak difference in the Subjective Opioid Withdrawal Score (SOWS) between nVNS and sham treatment on day 2 and 3 of the initial withdrawal period. The grant will have a duration of three years. Based on today's visibility, enrollment could be completed by the end of 2024 and regulatory submissions may be able to start in 2025.

New Distributor

In February 2023 electroCore [added](#) another distributor to its roster, Byond Healthcare Pty Ltd in South Africa, bringing its total number of distribution partners to eleven. The exclusive distribution agreement with Byond has a three-year term which will allow the partner to distribute gammaCore Sapphire in South Africa and Namibia. We summarize below the distribution arrangements that electroCore has signed in the last several years.

Exhibit I – Distribution Agreements²

Partner	Announce Date	Region	Term
Pro Medical Baltic	December 2020	Lithuania, Latvia, Belarus, Kazakhstan, Ukraine	Three Years
RSK Medical	January 2021	Canada	Three Years
Medistar	February 2021	Australia	Three Years
Silvert Medical	March 2021	Belgium, Luxembourg, the Netherlands, France	Three Years
East Agency	April 2021	Qatar	Three Years
Kromax	June 2021	Taiwan, China, Malaysia, Singapore, Indonesia	Three Years
Melidonia	December 2021	Cyprus	Three Years
Cyrus	December 2021	United Arab Emirates, Oman	Five Years
Medexsol	December 2021	Saudi Arabia, Bahrain	Five Years
Teijin	April 2022	Japan	Not Disclosed
Byond Healthcare	February 2023	South Africa & Namibia	Three Years

Other international activity includes product registration in Indonesia, Malaysia and South Africa, which was described in an April 6th [press release](#). The license allows for importation, distribution and marketing of gammaCore Sapphire in Indonesia and marketing approval in Malaysia and South Africa. Kromax South Asia and Byond Healthcare will launch based on these clearances in their respective territories.

² Analyst work compiled from electroCore press releases.

Truvaga

electroCore's strategy over the last several years has been to expand its revenue sources into new geographical, government and product verticals. The [latest](#) initiative is Truvaga™ which is a device similar to gammaCore Sapphire which activates the vagus nerve, but at non-prescription strength. Truvaga reduces stress by activating the vagus nerve at the primary source in the neck.³ There is a broad body of research demonstrating that vagus nerve stimulation can influence the body's stress response, which in turn increases serotonin and norepinephrine. Serotonin is involved in regulating mood, appetite, and sleep, among other functions and is associated with feelings of happiness and well-being. Norepinephrine acts as a neurotransmitter and hormone, playing a role in regulating attention and alertness, as well as regulating the body's sympathetic nervous system response in times of stress. Norepinephrine is also involved in regulating blood pressure and heart rate. See footnotes for additional research on vagus nerve stimulation and stress.^{4,5}

The product sells for \$299 online and claims to reduce stress, improve sleep, induce calmness and boost thinking. [Support](#) for the product is available with both online video and written instruction as well as a customer support line. Training sessions are also offered during the week.

Exhibit II – Truvaga Device⁶



New Patents

In April 2023, the US Patent Office [issued](#) three new patents to electroCore related to devices and methods for vagal nerve stimulation. The patents provide additional strength to electroCore's portfolio that is expected to expand into new conditions. A series of patents were [announced](#) in February 2023 related to new indications for nVNS therapy, technical design for refilling electroCore's device and new methods of vagal nerve stimulation therapy.

April patent titles:

- [Vagal nerve stimulation devices and methods for treating medical conditions](#)
 - US patent number 11,623,079
 - Device and methods are described for treating medical conditions, such as those associated with insufficient dopamine and/or endogenous opioids in the brain
- [Vagal nerve stimulation for treating dopamine-related conditions](#)
 - US patent number 11,623,080
 - Device and methods are described for treating medical conditions, such as those associated with insufficient dopamine and/or endogenous opioids in the brain
- [Devices and methods for non-invasive vagal nerve stimulation](#)
 - US patent number 11,623,078
 - Describes the design of a device for non-invasive stimulation of nerves, such as the vagus nerve

³ The vagus nerve runs from the brainstem, down the neck and into the thorax and abdomen. It can be found in the neck near the pharynx, larynx, trachea and esophagus.

⁴ Bremner, J.D., *et al.* [Application of Noninvasive Vagal Nerve Stimulation to Stress-Related Psychiatric Disorders](#). J Pers Med. Sept 2020.

⁵ Breit, S., *et al.* [Vagus Nerve as Modulator of the Brain–Gut Axis in Psychiatric and Inflammatory Disorders](#). Front. Psychiatry, 13 March 2018.

⁶ Source: electroCore's Truvaga website. Accessed February 2023.

These patents build on the previous set of intellectual property rights that were announced in 2022 related to using a mobile phone for vagus nerve stimulation in dementia, use of devices for remote therapy, treatment of a broad group of gastrointestinal disorders and use of a stimulator with a mobile device.

February patent titles:

- **Non-Invasive Nerve Stimulation to Treat or Prevent Autism Spectrum Disorders and Other Disorders of Psychological Development**
 - US patent number 11,534,600
 - Related to devices and methods for treating behavioral disorders, such as attention-deficit /hyperactivity disorder, autism spectrum disorder and Asperger syndrome with nVNS.
- **Technologies for Initial Provisioning and Refilling of Medical Devices**
 - US patent number 11,581,090
 - Related to electrical stimulation devices that limit the use of the devices to a prescribed number of treatments (e.g., doses) and/or a prescribed time period.
- **Vagal Nerve Stimulation Therapy**
 - US patent number 11,590,341
 - Related to a method of treating post-operative symptoms in a patient that includes attaching a patch to the neck of the patient and wirelessly transmitting electrical impulses to electrodes in the patch to reduce intraperitoneal or retroperitoneal inflammation.
 - The electrical impulses are applied for at least two doses/per day with each dose having a duration of 60 seconds to 5 minutes.













Department of Defense BOOST Program

electroCore was selected to participate in the Department of Defense's (DoD) Biotech Optimized for Operational Solutions and Tactics (BOOST) Program which is in part funded by the Defense Advanced Research Projects Agency (DARPA). The program seeks to improve training in the intelligence, surveillance, and reconnaissance (ISR) training environment. Investigations conducted using gammaCore have quantified a 20% acceleration in training and a 35% improvement in memory retention during intelligence, surveillance, and reconnaissance (ISR) training. The same participants also exhibited a 25% improvement in attention and mood. If further study confirms the initial findings, electroCore will be expected to provide field ready devices to the US Air Force by 2H:23. The company has signed an agreement with the contractor for the first purchase commitment for this nVNS product which will be called the Tac-Stim⁷ for human performance. electroCore is working to expand use of the product to all branches of the US Armed Services.

electroCore is now developing a second-generation product designated Tac-Stim 2.0 which will be evaluated by various DoD and military representatives later this summer. The product is designed for greater durability and reliability in combat zones.

⁷ Tactical Stimulation (Tac-Stim). If it's the military, you've got to have an acronym.

Exhibit III – electroCore Pipeline & Partnerships⁸

Indication	Phase	Partnerships
Headache		
Primary Headache	Market	 
Subarachnoid Hemorrhage Headache	Pilot	
General Neurology		
Post Traumatic Stress Disorder	Pivotal	   
Opioid Use Disorder	Pivotal	
Parkinson's Disease	Pilot	 
Acute Neurological Injury		
Stroke	Pilot	 
Subarachnoid Hemorrhage	Pilot	
Gastrointestinal / COVID		
Nausea in gastroparesis	Pilot	 
Long COVID	Pilot	

Summary

electroCore has been busy in 2023. Most notable has been the launch of two new brands, Tac-Stim and Truvaga which have the potential to provide dramatic growth and better margins than the existing business outside the indications listed in the corporate pipeline. Revenue growth was driven by both government and commercial channels as well as new initiatives. Joerns Healthcare is one of these initiatives that provides exposure to 12.5 million lives with a business model similar to VA arrangement. It will process the first prescriptions in 2Q:23. All of these efforts have been supported by a material increase in the sales force which now stands at about 45 representatives. As these individuals build up their books of business, we expect to see continued growth in each of the segments and improving margins as the sales force becomes more efficient.

electroCore continues to develop its intellectual property with six patents highlighted so far this year. The patents address new indications in behavioral disorders and dopamine deficits and relate to the next generation of technologies for the gammaCore device. We remain very positive on electroCore's revenue prospects and see the trend in this line item supporting substantially greater valuation. The material and bold initiatives being advanced by electroCore support continued strong topline growth and our price target of \$30 per share.

⁸ Source: electroCore Corporate Presentation April 2023

PROJECTED FINANCIALS

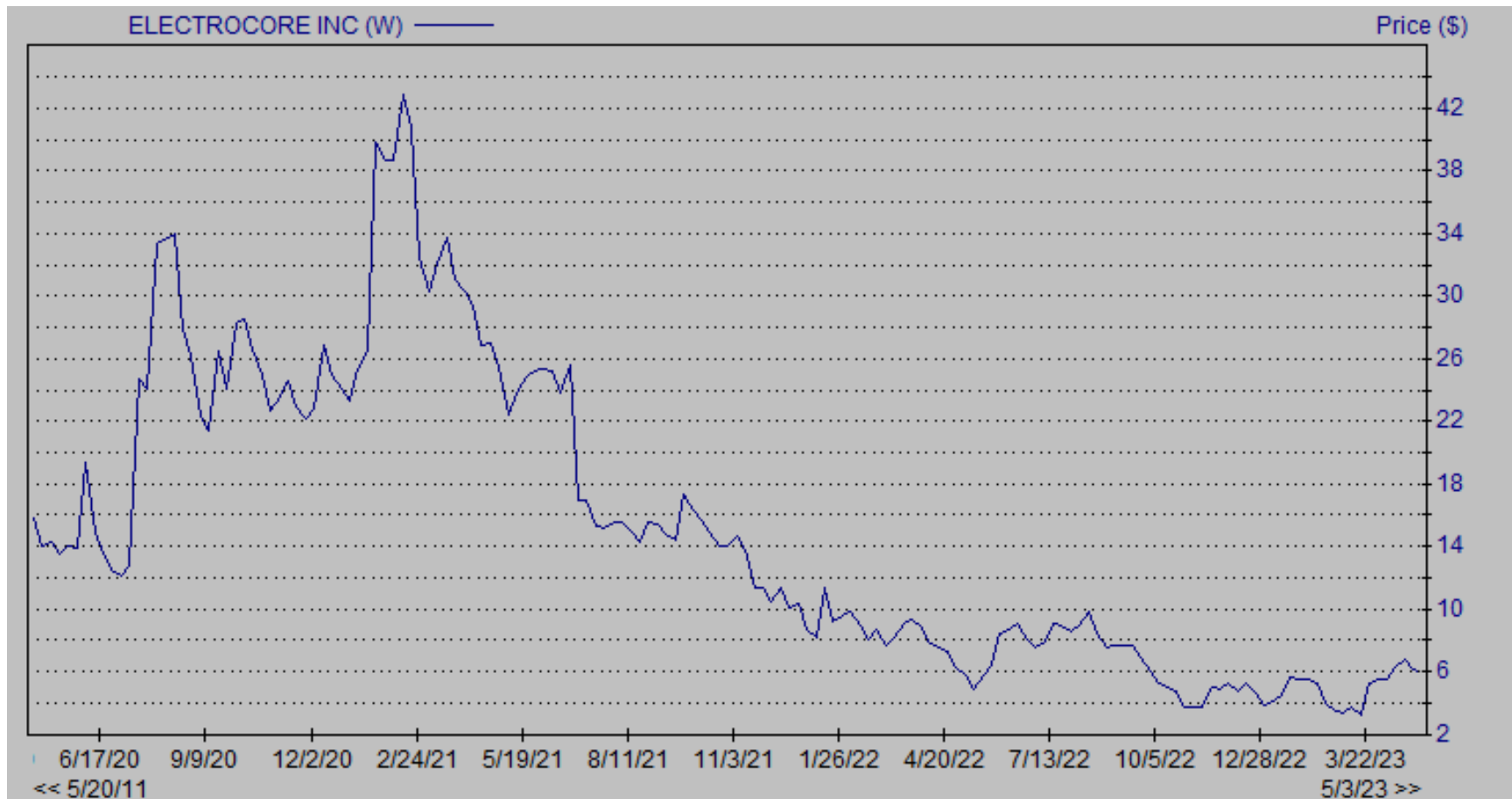
electroCore, Inc. - Income Statement

electroCore, Inc.	2022 A	Q1 A	Q2 E	Q3 E	Q4 E	2023 E	2024 E	2025 E
Total Revenues (\$US '000)	\$8,592	\$2,780	\$3,222	\$3,552	\$3,992	\$13,546	\$21,674	\$32,294
YOY Growth	58%	46%	49%	80%		58%	60%	49%
Cost of Goods Sold	\$1,616	\$458	\$580	\$639	\$719	\$2,709	\$4,335	\$8,073
Product Gross Margin	81%	84%	82%	82%	82%	80%	80%	75%
Research & Development	\$5,520	\$1,809	\$1,558	\$1,235	\$1,001	\$5,603	\$5,720	\$1,000
Selling, General & Administrative	\$24,330	\$6,710	\$6,530	\$5,910	\$6,460	\$25,610	\$26,634	\$26,400
Restructuring & Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Income from operations	(\$22,874)	(\$6,197)	(\$5,446)	(\$4,232)	(\$4,188)	(\$20,376)	(\$15,016)	(\$3,180)
Operating Margin	-266%	-223%	-169%	-119%	-105%	-150%	-69%	-10%
Other Expense	(\$281)	(\$119)	\$0	\$0	\$0	(\$119)	\$0	
Pre-Tax Income	(\$22,593)	(\$6,078)	(\$5,446)	(\$4,232)	(\$4,188)	(\$20,257)	(\$15,016)	(\$3,180)
Provision for Income Tax	(\$431)	(\$211)	\$0	\$0	\$0	(\$211)	\$0	\$0
Tax Rate	1.9%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%
Net Income	(\$22,162)	(\$5,867)	(\$5,446)	(\$4,232)	(\$4,188)	(\$20,046)	(\$15,016)	(\$3,180)
Net Margin	-258%	-211%	-169%	-119%	-105%	-148%	-69%	-10%
Reported EPS	(\$4.69)	(\$1.24)	(\$1.15)	(\$0.89)	(\$0.62)	(\$3.81)	(\$2.18)	(\$0.45)
YOY Growth	7%	# DIV/0!	# DIV/0!	# DIV/0!	# DIV/0!	-19%	-43%	n/A
Basic Shares Outstanding	4,729	4,743	4,750	4,755	6,800	5,262	6,900	7,000

Source: Company Filing // Zacks Investment Research, Inc. Estimates

HISTORICAL STOCK PRICE

electroCore – Share Price Chart⁹



⁹ Source: Zacks Research System

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