

# SECURITIES & EXCHANGE COMMISSION EDGAR FILING

## ENDRA Life Sciences Inc.

**Form: S-3**

**Date Filed: 2018-08-10**

Corporate Issuer CIK: 1681682

UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM S-3  
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

**ENDRA LIFE SCIENCES INC.**

*(Exact name of registrant as specified in its charter)*

**Delaware**  
*(State or other jurisdiction of  
incorporation or organization)*

**26-0579295**  
*(I.R.S. Employer  
Identification No.)*

ENDRA Life Sciences Inc.  
3600 Green Court, Suite 350  
Ann Arbor, MI 48105  
(734) 335-0468

*(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)*

Francois Michelin  
Chief Executive Officer  
ENDRA Life Sciences Inc.  
3600 Green Court, Suite 350  
Ann Arbor, MI 48105  
(734) 335-0468

*(Name, address, including zip code, and telephone number, including area code, of agent for service)*

Copy to:

Mark R. Busch  
K&L Gates LLP  
214 North Tryon Street, 47<sup>th</sup> Floor  
Charlotte, North Carolina 28202  
(704) 331-7440

**From time to time after the effective date of this registration statement.**

*(Approximate date of commencement of proposed sale to the public)*

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box.

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If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. [ ]

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act (check one):

Large accelerated filer [ ]

Accelerated filer [ ]

Non-accelerated filer [ ]

Smaller reporting company [X]

Emerging growth company [X]

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided to Section 7(a)(2)(B) of the Securities Act. [ ]

#### CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share (1)	Proposed Maximum Aggregate Offering Price (1)	Amount of Registration Fee
Common stock, par value \$0.0001 per share ("Common Stock"), issuable upon conversion of 10.0% Senior Secured Convertible Notes due 2018 (the "Notes")	662,152(2)	\$ 2.26	\$ 1,496,463.50	\$ 186.31
Common Stock issuable upon exercise of warrants	283,337(3)	\$ 2.26	\$ 640,341.62	\$ 79.72
<b>Total registration fee</b>				<b>\$ 266.03</b>

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) under the Securities Act of 1933, as amended (the "Securities Act"). Based on the average of the high and low reported trading prices of Common Stock as reported on the Nasdaq Capital Market on August 7, 2018.

(2) Represents the maximum number of shares of Common Stock that are issuable upon conversion of the Notes issued to the Selling Stockholders in a private placement which closed on June 28, 2018 (the "June 2018 Private Placement"). Pursuant to Rule 416 under the Securities Act, the Registrant is also registering such indeterminate number of shares of Common Stock as may be issued from time to time upon conversion of the Notes as a result of the anti-dilution provisions thereof.

(3) Represents the maximum number of shares of Common Stock that are issuable upon exercise of the warrants issued to the Selling Stockholders in the June 2018 Private Placement, including shares of Common Stock that are issuable upon exercise of the warrants issued to National Securities Corporation (the "Placement Agent") and its designees in connection with the June 2018 Private Placement.

**The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

The information in this prospectus is not complete and may be changed. The selling stockholders may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and the selling stockholders are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated August 10, 2018



ENDRA Life Sciences Inc.

Prospectus

**662,152 Shares of Common Stock for sale by the Selling Stockholders issuable in respect of Senior Secured Convertible Notes**

**283,337 Shares of Common Stock for sale by the Selling Stockholders issuable in respect of Warrants**

This prospectus relates to the resale or other disposition from time to time of up to 662,152 shares of our common stock, par value \$0.0001 per share ("Common Stock"), that may be issued upon conversion of our Senior Secured Convertible Notes (the "Notes") and up to 283,337 shares of Common Stock that may be issued upon exercise of the warrants (the "Warrants") issued in a private placement which closed on June 28, 2018 (the "June 2018 Private Placement"), including warrants issued to National Securities Corporation ("NSC") and its designees in connection with NSC's services as placement agent in the June 2018 Private Placement, by the persons described in this prospectus, whom we call the "Selling Stockholders," identified in the section of this prospectus entitled "Selling Stockholders."

We are registering the shares of Common Stock issuable upon conversion of the Notes and upon exercise of the Warrants as required by the terms of the registration rights agreement among the investors in the June 2018 Private Placement, NSC and us. Such registration does not mean that the Selling Stockholders will actually offer or sell any of the shares of Common Stock issuable upon conversion of the Notes or exercise of the Warrants and offered by this prospectus (collectively, the "Securities").

The Securities may be sold by the Selling Stockholders from time to time in the open market, through privately negotiated transactions or a combination of these methods, at market prices prevailing at the time of sale or at negotiated prices. The distribution of the Securities by the Selling Stockholders is not subject to any underwriting agreement. We will not receive any proceeds from the sale of the Securities by the Selling Stockholders, although we will receive the exercise price of any exercised Warrants paid to us by the Selling Stockholders, which will be used for working capital and general corporate purposes. We will bear all expenses of registration incurred in connection with this offering, but all selling and other expenses incurred by the Selling Stockholders will be borne by them.

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Our Common Stock is traded on the Nasdaq Capital Market under the symbol "NDRA." On August 9, 2018, the last reported sale price for our Common Stock was \$2.33 per share. The warrants issued in our May 2017 initial public offering are listed on the Nasdaq Capital Market under the symbol "NDRAW;" however, the Warrants issued in the June 2018 Private Placement are not so listed.

We are an "Emerging Growth Company" as defined in the Jumpstart Our Business Startups Act of 2012 and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings. See "Prospectus Summary – Implications of Being an Emerging Growth Company."

**Our business and an investment in the Securities involve a high degree of risk. Before making any investment in the Securities, you should read and carefully consider risks described in the "Risk Factors" section beginning on page 1 of this prospectus.**

You should rely only on the information contained in this prospectus or any prospectus supplement or amendment hereto. We have not authorized anyone to provide you with different information. This prospectus may only be used where it is legal to sell the Securities. The information in this prospectus is only accurate on the date of this prospectus, regardless of the time of any sale of Securities.

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.**

This prospectus is dated , 2018.

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You should rely only on the information contained in this prospectus. We have not authorized any other person to provide you with information that is different from that contained in this prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The Selling Stockholders are offering to sell and seeking offers to buy the Securities only in jurisdictions where offers and sales are permitted. You should assume that the information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of our Securities. Our business, financial condition, results of operations and prospects may have changed since that date. We are not making an offer of any Securities in any jurisdiction where the offer is not permitted.

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## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. Under this process, the Selling Stockholders may from time to time, in one or more offerings, sell the shares of Common Stock described in this prospectus.

We are responsible for the information contained in or incorporated by reference into this prospectus. We have not authorized anyone to provide you with different information, and we take no responsibility for any other information others may give you. We are not, and the Selling Stockholders are not, making an offer to sell the Securities in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus (and in any supplement or amendment to this prospectus) is accurate only as of the date on the front of the document, and any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since those dates.

Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to that jurisdiction.

Unless otherwise stated or the context requires otherwise, references to “ENDRA”, the “Company,” “we,” “us” or “our” are to ENDRA Life Sciences Inc.

## PROSPECTUS SUMMARY

The following summary highlights selected information contained elsewhere in or incorporated by reference in this prospectus. This summary is not complete and does not contain all of the information that should be considered before investing in our Securities. Potential investors should read the entire prospectus carefully, including the more detailed information regarding our business provided in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 (the "Form 10-K") incorporated herein by reference, the risks of purchasing our Securities discussed under the "Risk Factors" section of the Form 10-K, and our financial statements and the accompanying notes to the financial statements incorporated herein by reference.

### Our Company

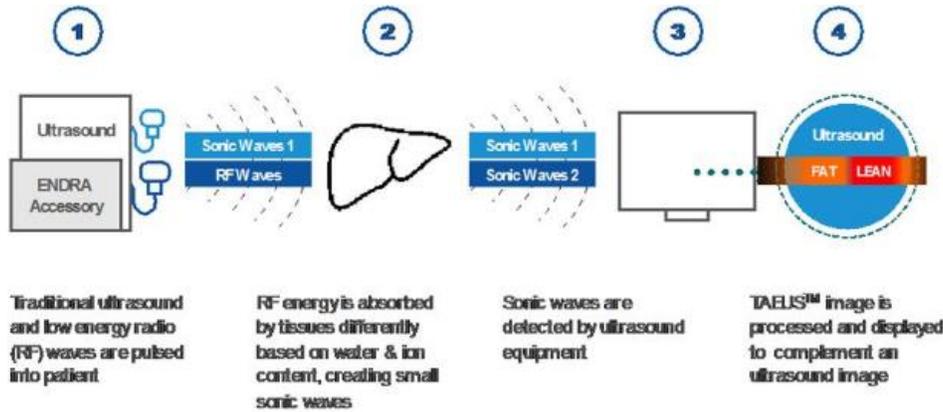
We are leveraging experience with pre-clinical enhanced ultrasound devices to develop technology for increasing the capabilities of clinical diagnostic ultrasound, to broaden patient access to the safe diagnosis and treatment of a number of significant medical conditions in circumstances where expensive X-ray computed tomography ("CT") and magnetic resonance imaging ("MRI") technology is unavailable or impractical.

In 2010, we began marketing and selling our Nexus 128 system, which combined light-based thermoacoustics and ultrasound to address the imaging needs of researchers studying disease models in pre-clinical applications. Building on this expertise in thermoacoustics, we have developed a next-generation technology platform — Thermo Acoustic Enhanced Ultrasound, or TAEUS — which is intended to enhance the capability of clinical ultrasound technology and support the diagnosis and treatment of a number of significant medical conditions that require the use of expensive CT or MRI imaging or where imaging is not practical using existing technology. We believe that our TAEUS technology, which can be used with existing ultrasound equipment and incorporated into next-generation ultrasound systems, has the potential to make advanced imaging available in certain applications to a wider range of patients on a more cost-effective basis than is possible using existing CT and MRI technology.

*Image below: A typical cart-based ultrasound system (left) with a conceptual illustration of ENDRA's first-generation technology (right). Other components in development include a hand-held RF applicator with a screen depicting TAEUS information.*



Our TAEUS technology uses radio frequency, or RF, pulses to stimulate tissues, using a small fraction of the energy that would be transmitted into the body during an MRI scan. Using RF energy enables our TAEUS technology to penetrate deep into tissue, enabling the imaging of human anatomy at depths equivalent to those of conventional ultrasound. The RF pulses are absorbed by tissue and converted into ultrasound signals, which are detected by an external ultrasound receiver and a digital acquisition system that is part of the TAEUS system. The detected ultrasound is processed into images using our proprietary algorithms and displayed to complement conventional gray-scale ultrasound images. The TAEUS imaging process is illustrated below:



We believe that our TAEUS technology has the potential to add a number of new capabilities to conventional ultrasound and thereby enhance the utility of both existing and new ultrasound systems and extend the use of ultrasound technology to circumstances that either require the use of expensive CT or MRI imaging systems or where imaging is not practical using existing technology.

Our TAEUS platform is not intended to replace CT and MRI systems, both of which are versatile imaging technologies with capabilities and uses beyond the focus of our business. However, they are also expensive, with a CT system costing approximately \$1 million and an MRI system costing up to \$3 million. In addition, and in contrast to ultrasound systems, due to their limited number and the fact that they are usually fixed-in-place at major medical facilities, CT and MRI systems are frequently inaccessible to patients.

To demonstrate the capabilities of our TAEUS platform, we have conducted various internal ex-vivo laboratory experiments and have also conducted limited internal in-vivo large animal studies. In our ex-vivo and in-vivo testing, we have demonstrated that the TAEUS platform has the following capabilities and potential clinical applications:

- **Tissue Composition:** Our TAEUS technology enables ultrasound to distinguish fat from lean tissue. This capability would enable the use of TAEUS-enhanced ultrasound for the early identification, staging and monitoring of NAFLD, a precursor to non-alcoholic steatohepatitis ("NASH"), liver fibrosis, cirrhosis and liver cancer.
- **Temperature Monitoring:** Our TAEUS technology enables traditional ultrasound to visualize changes in tissue temperature, in real time. This capability would enable the use of TAEUS-enhanced ultrasound to guide thermoablative therapy, which uses heat or cold to remove tissue, such as in the treatment of cardiac atrial fibrillation, or removal of cancerous liver and kidney lesions, with greater accuracy.

- Vascular Imaging: Our TAEUS technology enables ultrasound to view blood vessels from any angle, using only a saline solution contrasting agent, unlike Doppler ultrasound, which requires precise viewing angles. This capability would enable the use of TAEUS-enhanced ultrasound to easily identify arterial plaque or malformed vessels.
- Tissue Perfusion: Our TAEUS technology enables ultrasound to image blood flow at the capillary level in a region, organ or tissue. This capability could be used to assist physicians in characterizing microvasculature fluid flows symptomatic of damaged tissue, such as internal bleeding from trauma, or diseased tissue, such as certain cancers.

To further test the capability of our TAEUS platform to distinguish tissue composition in conjunction with an NAFLD application, we have engaged the Centre for Imaging Technology Commercialization ("CIMTEC"), a contract research organization, to initiate human studies.

Ultrasound systems are more broadly available to patients than either CT or MRI systems. There are an estimated 925,000 ultrasound systems globally in use today generating over 400 million annual diagnostic ultrasound procedures. Sales of ultrasound diagnostic equipment were approximately \$4.4 billion globally in 2017 and an estimated 30,000 to 50,000 new and replacement ultrasound systems are sold into the market annually. Ultrasound systems are relatively inexpensive compared to CT and MRI systems, with smaller portable ultrasound systems costing as little as \$10,000 and new cart-based ultrasound systems costing between \$75,000 and \$200,000. These numbers cover all types of diagnostic ultrasound procedures, including systems intended for cardiology, prenatal and abdominal use. However, we do not intend to address low-cost, portable ultrasound systems and systems focused on applications, such as prenatal care, where we believe our TAEUS technology will not substantially impact patient care. Accordingly, we define our addressable market for one or more of our TAEUS applications at approximately 338,000 cart-based ultrasound systems currently in use throughout the world.

Many ultrasound systems are designed to be moved by an operator from room to room, or closer to patients. CT and MRI systems are stationary systems, requiring the patient to travel to a medical center; there are only about 32,000 CT systems and 16,000 MRI systems located in the United States. Ultrasound technology does not present the same safety concerns as CT and MRI technology, since ultrasound does not emit ionizing radiation and ultrasound contrast agents are considered to be generally safe. The ultrasound's imaging capabilities, however, are more limited compared to CT and MRI technologies, which are able to measure tissue temperature during thermal ablation surgery or quantify fat to diagnose early stage liver disease.

After approval, our TAEUS technology can be added as an accessory to existing ultrasound systems, helping to improve clinical decision-making on the front lines of patient care, without requiring new clinical workflows or large capital investments. We are also developing TAEUS for incorporation into new ultrasound systems, primarily through our collaboration with GE Healthcare, described more fully below.

Because of the large number of traditional ultrasound systems currently in global use, we are first developing our TAEUS technology for sale as an aftermarket accessory that works with existing ultrasound systems. Because our TAEUS technology is designed to enhance the utility of, not replace, conventional ultrasound, we believe healthcare providers will be able to increase the utilization of, and generate new revenue from, their existing ultrasound systems once we obtain required regulatory approval for specific applications. Based on our design work and our understanding of the ultrasound accessory market, we intend to price our initial NAFLD TAEUS application at a price point approximating \$40,000 to \$50,000, which may enable purchasers to recoup their investment by performing a relatively small number of additional ultrasound procedures. We further believe that clinicians will be attracted to our technology because it will enable them to perform more procedures with existing ultrasound equipment, thereby retaining more imaging patients in their clinics rather than referring patients out to a regional medical center for a CT or MRI scan.

Each of our TAEUS platform applications will require regulatory approvals before we are able to sell or license the application. Based on certain factors, such as the installed base of ultrasound systems, availability of other imaging technologies, such as CT and MRI, economic strength and applicable regulatory requirements, we intend to seek initial approval of our applications for sale in the European Union, followed by the United States and China.

The first TAEUS application we intend to commercialize is our NAFLD TAEUS application. Our initial target market for this application is the European Union. We believe that our NAFLD TAEUS application will qualify for sale in the European Union as a Class IIa medical device. As a result, we will be required to obtain a CE mark for our NAFLD TAEUS application before we can sell the application in the European Union. To this end, we have contracted with medical device contract engineering firms to perform the commercial product engineering for our NAFLD TAEUS application. Existing regulations would not require us to conduct a clinical trial to obtain a CE mark for this application. Nonetheless, for commercial reasons and to support our CE mark application we have contracted CIMTEC to conduct human studies to demonstrate our NAFLD TAEUS application's ability to distinguish fat from lean tissue.

While we are seeking a CE mark for our NAFLD TAEUS application, we are also preparing to expand our sales, marketing and customer support capabilities, so that we can commence initial sales of the application in the European Union once we have received this regulatory approval. Following receipt of such CE mark and placement of initial systems with researchers and universities, we plan to conduct one or more clinical studies to further demonstrate this product's capabilities.

After the process of obtaining a CE mark for our NAFLD TAEUS application is complete, we intend to prepare for submission to the U.S. Food and Drug Administration, or the FDA, an application under the Food, Drug and Cosmetic Act, or the FD&C Act, to sell our NAFLD TAEUS application in the U.S. We anticipate that the application, as well as those for our other TAEUS applications, will be submitted for approval under Section 510(k) of the FD&C Act. We expect that our initial FDA clearance will allow us to sell the NAFLD TAEUS application in the U.S. with general imaging claims. However, we will need to obtain additional FDA clearances to be able to make diagnostic claims for fatty tissue content determination. Accordingly, to support our commercialization efforts we expect that, following receipt of our initial FDA clearance, we will submit one or more additional applications to the FDA, each of which will need to include additional clinical trial data, so that following receipt of the necessary clearances we may make those diagnostic claims.

#### **Collaboration with GE Healthcare**

In April 2016, we entered into a Collaborative Research Agreement with General Electric Company, acting through its GE Healthcare business unit and the GE Global Research Center, or GE Healthcare. Under the terms of the agreement, GE Healthcare has agreed to assist us in our efforts to commercialize our TAEUS technology for use in a fatty liver application by, among other things, providing equipment and technical advice, and facilitating introductions to GE Healthcare clinical ultrasound customers. In return for this assistance, we have agreed to afford GE Healthcare certain rights of first offer with respect to manufacturing and licensing rights for the target application. More specifically, we have agreed that, prior to commercially releasing our NAFLD TAEUS application, we will offer to negotiate an exclusive ultrasound manufacturer relationship with GE Healthcare for a period of at least one year of commercial sales. The commercial sales would involve, within our sole discretion, either our Company commercially selling GE Healthcare ultrasound systems as the exclusive ultrasound system with our TAEUS fatty liver application embedded, or GE Healthcare being the exclusive ultrasound manufacturer to sell ultrasound systems with our TAEUS fatty liver application embedded. The agreement is subject to termination by either party upon not less than 60 days' notice.

On January 30, 2018, we and GE Healthcare entered into an amendment to our agreement, extending its term by 21 months to January 22, 2020.

## About This Offering

This prospectus relates to the public offering by the Selling Stockholders listed in this prospectus of (i) up to 662,152 shares of Common Stock issuable upon conversion or in respect of the Notes, and (ii) up to 270,928 shares of Common Stock issuable upon exercise of the Warrants. This is not an underwritten offering by the Selling Shareholders. The Securities offered by this prospectus may be sold by the Selling Stockholders from time to time in the open market, through negotiated transactions or otherwise at market prices prevailing at the time of sale or at negotiated prices. We will receive no proceeds from the sale of the Securities by the Selling Stockholders, although we will receive the exercise price of any exercised Warrants paid to us by the Selling Stockholders, which will be used for working capital and general corporate purposes. We will bear all the expenses of registration incurred in connection with this offering, but all selling and other expenses incurred by the Selling Stockholders will be borne by them.

## Risks Related to Our Business

An investment in our Securities involves a high degree of risk. You should carefully consider the risks summarized below. These risks are discussed more fully in the "Risk Factors" section of our Form 10-K incorporated herein by reference. These risks include, but are not limited to, the following:

- We have a history of operating losses, and we may never achieve or maintain profitability.
- Our efforts may never result in the successful development of commercial applications based on our TAEUS technology.
- If we fail to obtain and maintain necessary regulatory clearances or approvals for our TAEUS applications, or if clearances or approvals for future applications and indications are delayed or not issued, our commercial operations will be harmed.
- Our limited commercial experience makes it difficult to evaluate our current business, predict our future results or forecast our financial performance and growth.
- We are depending on third parties to design, manufacture and seek regulatory approval of our TAEUS applications. If any third party fails to successfully design, manufacture and gain regulatory approval of our TAEUS applications, our business will be materially harmed.
- Competition in the medical imaging market is intense and we may be unable to successfully compete.
- If we are unable to secure additional financing on favorable terms, or at all, to meet our future capital needs, we will be unable to complete fully our current business plan.
- We intend to market our TAEUS applications, if approved, globally, in which case we will be subject to the risks of doing business outside of the United States.
- If we are unable to protect our intellectual property, then our financial condition, results of operations and the value of our technology and products could be adversely affected.

### **Implications of Being an Emerging Growth Company**

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and, for as long as we continue to be an “emerging growth company,” we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to “emerging growth companies,” including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an “emerging growth company” until December 31, 2022, or until the earliest of (i) the last day of the first fiscal year in which our annual gross revenues exceed \$1.07 billion, (ii) the date that we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, which would occur if the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter, or (iii) the date on which we have issued more than \$1 billion in non-convertible debt during the preceding three-year period. We are choosing to “opt out” of the extended transition periods available under the JOBS Act for complying with new or revised accounting standards, but intend to take advantage of the other exemptions discussed above.

We are also currently considered a “smaller reporting company,” which generally means that we have a public float of less than \$75 million. If we are still considered a “smaller reporting company” at such time as we cease to be an “emerging growth company,” we will be subject to increased disclosure requirements. However, the disclosure requirements will still be less than they would be if we were not considered either an “emerging growth company” or a “smaller reporting company.” Specifically, similar to “emerging growth companies,” “smaller reporting companies” are able to provide simplified executive compensation disclosures in their filings; are exempt from the provisions of Section 404(b) of the Sarbanes-Oxley Act requiring that independent registered public accounting firms provide an attestation report on the effectiveness of internal control over financial reporting; and have certain other decreased disclosure obligations in their SEC filings, including, among other things, being required to provide only two years of audited financial statements in annual reports.

### **Corporate Information**

We were incorporated in Delaware in July 2007 and have a wholly-owned subsidiary, ENDRA Life Sciences Canada Inc. Our corporate headquarters is located at 3600 Green Court, Suite 350, Ann Arbor, Michigan 48105-1570. Our website can be accessed at [www.endrainc.com](http://www.endrainc.com). The telephone number of our principal executive office is (734) 335-0468. The information contained on, or that may be obtained from, our website is not, and shall not be deemed to be, a part of this prospectus.

## THE OFFERING

Common Stock currently outstanding	3,923,027 shares. (1)
Common Stock offered by the Company	None.
Common Stock offered by the Selling Stockholders issuable upon conversion of the Notes	Up to 662,152 shares.
Common Stock offered by the Selling Stockholders issuable upon exercise of the Warrants	Up to 283,337 shares.
Use of proceeds	We will not receive any of the proceeds from the sales of the Securities by the Selling Stockholders, although we will receive proceeds from the exercise price of any exercised Warrants. We intend to use those proceeds, if any, for working capital and general corporate purposes.
NASDAQ symbol for Common Stock	NDRA.
Risk factors	You should carefully consider the information set forth in this prospectus and, in particular, the specific factors set forth in the "Risk Factors" section in the Form 10-K incorporated herein by reference before deciding whether or not to invest in the Securities.

(1) As of August 1, 2018. This number excludes:

- 2,086,563 shares of Common Stock issuable upon the exercise of outstanding warrants issued in our initial public offering listed on the Nasdaq Capital Market under the symbol "NDRAW," at an exercise price of \$6.25 per share;
- 522,114 shares of Common Stock issuable upon the exercise of outstanding unregistered warrants, at a weighted average exercise price of \$7.56 per share;
- 987,911 shares of Common Stock issuable upon the exercise of outstanding stock options issued pursuant to our 2016 Omnibus Incentive Plan, or our Incentive Plan, at a weighted average exercise price of \$5.60 per share, and
- 357,163 shares of Common Stock reserved for future issuance under our Incentive Plan.

See "Description of Capital Stock" below.

## RISK FACTORS

An investment in the Securities involves a high degree of risk. You should carefully consider the risks set forth under the section captioned "Risk Factors" contained in our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference in this prospectus, and in the other reports that we file with the SEC and that we incorporate by reference into this prospectus, before deciding to invest in the Securities. The risks and uncertainties we have described are not the only ones we face.

If any of the events described in these risk factors actually occurs, or if additional risks and uncertainties that are not presently known to us or that we currently deem immaterial later materialize, then our business, prospects, results of operations and financial condition could be materially adversely affected. In that event, the trading price of our securities could decline, and you may lose all or part of your investment in our securities. The risks discussed include forward-looking statements, and our actual results may differ substantially from those discussed in these forward-looking statements. See "Cautionary Note Regarding Forward-Looking Statements and Other Information Contained in this Prospectus."

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain “forward-looking statements” within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), that are intended to be covered by the “safe harbor” created by those sections. Forward-looking statements, which are based on certain assumptions and describe our future plans, strategies and expectations, can generally be identified by the use of forward-looking terms such as “believe,” “expect,” “may,” “will,” “should,” “would,” “could,” “seek,” “intend,” “plan,” “goal,” “project,” “estimate,” “anticipate,” “strategy”, “future”, “likely” or other comparable terms and references to future periods. All statements other than statements of historical facts included in this prospectus and the documents incorporated by reference regarding our strategies, prospects, financial condition, operations, costs, plans and objectives are forward-looking statements. Examples of forward-looking statements include, among others, statements we make regarding: expectations for revenues, cash flows and financial performance, the anticipated results of our development efforts and the timing for receipt of required regulatory approvals and product launches.

Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially from those indicated in the forward-looking statements. Therefore, you should not rely on any of these forward-looking statements. Important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements include, among others, the following:

- our limited commercial experience, limited cash and history of losses;
- our ability to obtain adequate financing to fund our business operations in the future;
- our ability to achieve profitability;
- our ability to develop a commercially feasible application based on our TAEUS technology;
- market acceptance of our technology;
- results of our human studies, which may be negative or inconclusive;
- our ability to find and maintain development partners;
- our reliance on collaborations and strategic alliances and licensing arrangements;
- the amount and nature of competition in our industry;
- our ability to protect our intellectual property;
- potential changes in the healthcare industry or third-party reimbursement practices;
- delays and changes in regulatory requirements, policy and guidelines including potential delays in submitting required regulatory applications for CE mark certification or FDA approval;
- our ability to obtain CE mark certification and secure required FDA and other governmental approvals for our TAEUS applications;
- our ability to comply with regulation by various federal, state, local and foreign governmental agencies and to maintain necessary regulatory clearances or approvals; and
- the other risks and uncertainties described in the Risk Factors and in Management’s Discussion and Analysis of Financial Condition and Results of Operations sections of this prospectus.

Any forward-looking statement made by us in this report is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise. We anticipate that subsequent events and developments will cause our views to change. You should read this prospectus and the documents referenced in this prospectus and filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. Our forward-looking statements do not reflect the potential impact of any future acquisitions, merger, dispositions, joint ventures or investments we may undertake. We qualify all of our forward-looking statements by these cautionary statements.

#### **USE OF PROCEEDS**

We will not receive any proceeds from the issuance of Common Stock in respect of the Notes or the Warrants. To the extent we receive proceeds from the exercise of Warrants held by the Selling Stockholders, we will use those proceeds for working capital and other general corporate purposes

We have agreed to bear the expenses (other than selling commissions or any legal expenses incurred by any Selling Stockholder) in connection with the registration of the shares of our Common Stock being offered for resale hereunder by the Selling Stockholders.

See "Plan of Distribution" elsewhere in this prospectus for more information.

#### **DETERMINATION OF OFFERING PRICE**

The Selling Stockholders will determine at what price they may sell the offered Common Stock, and such sales may be made at prevailing market prices or at privately negotiated prices. See "Plan of Distribution" below for more information.

## SELLING STOCKHOLDERS

This prospectus covers the resale from time to time by the Selling Stockholders identified in the table below of up to 662,152 shares of Common Stock that may be issued upon conversion of the Notes and up to 283,337 shares of Common Stock that may be issued upon exercise of the Warrants issued in the June 2018 Private Placement, including the Warrants issued to NSC and its designees in connection with NSC's services as placement agent in the June 2018 Private Placement.

The Selling Stockholders identified in the table below may from time to time offer and sell under this prospectus any or all of the shares of Common Stock issuable upon conversion of the Notes or upon exercise of the Warrants described under the column "Shares of Common Stock Registered Hereby" in such table below.

Certain Selling Stockholders may be deemed to be "underwriters" as defined in the Securities Act. Any profits realized by such Selling Stockholders may be deemed to be underwriting discounts and commissions under the Securities Act. Additionally, certain Selling Stockholders are directors and/or officers of the Company.

The table below has been prepared based upon the information furnished to us by the Selling Stockholders and/or our transfer agent as of the date of this prospectus. The Selling Stockholders identified below may have converted, sold, transferred or otherwise disposed of some or all of their Notes, Warrants or underlying Common Stock since the date on which the information in the following table is presented in transactions exempt from or not subject to the registration requirements of the Securities Act. Information concerning the Selling Stockholders may change from time to time and, if necessary, we will amend or supplement this prospectus accordingly. We cannot give an estimate as to the number of shares of Common Stock that will actually be held by the Selling Stockholders upon termination of this offering because the Selling Stockholders may offer some or all of their Common Stock, as applicable, under the offering contemplated by this prospectus or may acquire additional shares of Common Stock. The aggregate total number of shares of Common Stock that may be sold hereunder will not exceed the number of shares of Common Stock offered hereby. Please read the section entitled "Plan of Distribution" in this prospectus.

The following table sets forth the name of each Selling Stockholder, the number of shares of our Common Stock beneficially owned by such Selling Stockholder before this offering, the number of shares of Common Stock to be offered for such Selling Stockholder's account and (if one percent or more) the percentage of Common Stock to be beneficially owned by such Selling Stockholder after completion of the offering. The number of shares of Common Stock owned are those beneficially owned, as determined under the rules of the SEC, and such information is not necessarily indicative of beneficial ownership for any other purpose. Under such rules, the Selling Stockholders' beneficial ownership includes any shares of our Common Stock as to which a person has sole or shared voting power or dispositive power and any shares of Common Stock which the person has the right to acquire within 60 days after August 1, 2018 (as used in this section, the "Determination Date"), through the conversion or exercise of any option, warrant or right or other security (including upon the conversion of the Notes), or pursuant to the automatic termination of a power of attorney or revocation of a trust, discretionary account or similar arrangement, and such shares are deemed to be beneficially owned and outstanding for computing the share ownership and percentage of the person holding such options, warrants or other rights, but are not deemed outstanding for computing the percentage of any other person. Except where we had knowledge of such ownership, the number presented in this column may not include shares held in street name or through other entities over which the Selling Stockholders have voting and dispositive power.

Since the Warrants are not exercisable until December 28, 2018, the Common Stock issuable upon exercise thereof is not reflected in the table below as beneficially owned prior to the offering. Shares of Common Stock issuable upon the conversion of the Notes shown in the table below as beneficially owned prior to the offering reflect a conversion rate of \$2.016, at which rate the holders may elect to convert at any time until three days prior to a Qualified Financing (as defined in the Notes). Shares of Common Stock issuable upon the conversion of the Notes shown as registered hereby reflect the maximum amount of shares issuable, at the minimum conversion rate of \$1.40 per share resulting from a Qualified Financing conducted at such price.

Unless otherwise set forth below, based upon the information furnished to us, (a) the persons and entities named in the table have sole voting and sole dispositive power with respect to the shares set forth opposite the Selling Stockholder's name, subject to community property laws, where applicable, (b) no Selling Stockholder had any position, office or other material relationship within the past three years with us or with any of our predecessors or affiliates, and (c) no Selling Stockholder is a broker-dealer or an affiliate of a broker-dealer. The number of shares of Common Stock shown as beneficially owned before the offering is based on information furnished to us or otherwise based on information available to us at the timing of the filing of the registration statement of which this prospectus forms a part.

Name of Selling Security Holder	Shares of Common Stock Beneficially Owned Prior to this Offering	Shares of Common Stock Registered Hereby (1)	Shares of Common Stock Beneficially Owned upon Completion of this Offering (2)	Percentage of Common Stock Beneficially Owned upon Completion of this Offering (3)
Anthony DiGiandomenico (4)	126,324	96,231	91,601	2.3%
Benjamin Padnos (5)	114,723	67,361	80,000	2.0%
Charles Christensen (6)	24,802	48,116	-	*
Dennis D. Howarter and Pamela J. Howarter JTWROS (7)	24,802	48,116	-	*
Francois Michelon (8)	180,093	9,623	175,132	4.3%
James Somers (9)	24,802	48,116	-	*
Jeffrey S. and Margaret M. Padnos JTWROS (10)	93,891	52,927	66,609	1.7%
Keith Jackson (11)	24,802	48,116	-	*
Kenmont Capital Private Equity Partners IV, LP (12)	89,604	96,231	40,000	1.0%
Mario Dell'Aera (13)	24,802	48,116	-	*
Mark W. Boyer (14)	24,802	48,116	-	*
Michael Burwell (15)	24,802	48,116	-	*
Michael Thornton (16)	230,369	48,116	194,654	4.8%
Pacific Capital Management LLC (17)	49,604	96,231	-	*
Scott J. Gehsmann (18)	15,874	30,795	-	*
StoryCorp Consulting (19)	37,044	9,623	29,901	*
Warberg WF VI LP (20)	24,802	48,116	-	*
Andrei Amaritei (21)	1,305	1,336	1,305	*
Jonathan Rich (22)	-	2,671	-	*
National Securities Corporation (23)	72,239	25,724	72,239	1.8%
Alden Carrere (24)	-	1,302	-	*
Richard Goldstein (25)	2,995	2,232	2,995	*
Robert Clifford (26)	75,589	2,583	75,589	1.9%
Dan Landry (27)	58,535	2,583	58,535	1.5%
Ankur Desai (28)	19,213	2,583	19,213	*
Newbridge Securities Corporation (29)	1,020	8,527	1,020	*
Nikhil Bhambi (30)	1,305	534	1,305	*
Roger Monteforte (31)	-	3,348	-	*

\* Less than 1%

- (1) The number of shares of Common Stock registered hereby assumes the issuance of the maximum number of shares issuable upon conversion of the Notes.
- (2) Assumes all of the shares of Common Stock registered on the registration statement of which this prospectus is a part are sold in the offering, that shares of Common Stock beneficially owned by the Selling Stockholders but not being offered pursuant to this prospectus (if any) are not sold, and that no additional shares of Common Stock are purchased or otherwise acquired by the Selling Stockholders.
- (3) Percentages are based on the 3,923,027 shares of Common Stock issued and outstanding as of the Determination Date. Shares of our Common Stock subject to options, warrants or conversion rights that are currently exercisable or convertible, or exercisable or convertible within 60 days of the Determination Date are deemed to be outstanding for the purpose of computing the percentage ownership of the person holding those options, warrants or conversion rights, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person.
- (4) Anthony DiGiandomenico is a director of the Company. Common Stock beneficially owned prior to the offering consists of (i) 58,625 shares of Common Stock, (ii) 17,096 shares of Common Stock issuable upon the exercise of options, (iii) 999 shares of Common Stock issuable upon the exercise of restricted warrants and (iv) 49,604 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (x) up to 71,429 shares of Common Stock issuable upon the conversion of Notes and (y) 24,802 shares of Common Stock issuable upon the exercise of Warrants. Mr. DiGiandomenico is affiliated with MDB Capital Group LLC, a member firm of FINRA.
- (5) Common Stock beneficially owned prior to the offering consists of (i) 80,000 shares of Common Stock and (ii) 34,723 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (x) up to 50,000 shares of Common Stock issuable upon the conversion of Notes and (y) 17,361 shares of Common Stock issuable upon the exercise of Warrants.
- (6) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.

- (7) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby consist of (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants. Dennis and Pamela Howarter share voting and dispositive power over these shares.
- (8) Francois Michelin is the Company's Chief Executive Officer and Chairman of the Company's board of directors. Common Stock beneficially owned prior to the offering includes (i) 26,544 shares of Common Stock, (ii) 148,588 shares of Common Stock issuable upon the exercise of options, and (iii) 4,961 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby consist of (x) up to 7,143 shares of Common Stock issuable upon the conversion of Notes and (y) 2,480 shares of Common Stock issuable upon the exercise of Warrants.
- (9) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby consist of (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.
- (10) Common Stock beneficially owned prior to the offering consists of (i) 66,609 shares of Common Stock and (ii) 27,282 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 39,286 shares of Common Stock issuable upon the conversion of Notes and (ii) 13,641 shares of Common Stock issuable upon the exercise of Warrants. Jeffrey and Margaret Padnos share voting and dispositive power over these shares.
- (11) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.
- (12) Common Stock beneficially owned prior to the offering consists of (i) 20,000 shares of Common Stock, (ii) 20,000 shares of Common Stock issuable upon the exercise of warrants and (iii) 49,604 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (x) up to 71,429 shares of Common Stock issuable upon the conversion of Notes and (y) 24,802 shares of Common Stock issuable upon the exercise of Warrants. Donald R. Kendall, Jr., the managing member of the general partner of Kenmont Capital Private Equity Partners IV, LP, holds voting and dispositive power over these shares.
- (13) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.
- (14) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.
- (15) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.
- (16) Michael Thornton is the Chief Technology Officer of the Company. Common Stock beneficially owned prior to the offering consists of (i) 59,988 shares of Common Stock, (ii) 144,570 shares of Common Stock issuable upon the exercise of options, (iii) 999 shares issuable upon the exercise of restricted warrants and (iv) 24,802 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (x) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of warrants.

- (17) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 71,429 shares of Common Stock issuable upon the conversion of Notes and (ii) 24,802 shares of Common Stock issuable upon the exercise of Warrants. Jonathan Glaser holds voting and dispositive power over these shares.
- (18) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 22,858 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants.
- (19) David Wells, our Chief Financial Officer, has sole voting and dispositive control over the shares held by StoryCorp Consulting. Common Stock beneficially owned prior to this offering include shares owned by Mr. Wells and consists of (i) 18,833 shares of Common Stock, (ii) 13,250 shares of Common Stock issuable upon the exercise of options and (iii) 4,961 shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (x) up to 7,143 shares of Common Stock issuable upon the conversion of Notes and (y) 2,480 shares of Common Stock issuable upon the exercise of Warrants.
- (20) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the conversion of Notes. Shares of Common Stock registered hereby include (i) up to 35,715 shares of Common Stock issuable upon the conversion of Notes and (ii) 12,401 shares of Common Stock issuable upon the exercise of Warrants. Warberg Asset Management holds voting and dispositive power over these shares.
- (21) Common Stock beneficially owned prior to this offering consists of 1,305 shares of Common Stock issuable upon the exercise of warrants. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of the placement agent services of NSC in the June 2018 Private Placement. Mr. Amaritei is an employee of NSC and was designated by NSC to receive these Warrants.
- (22) Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of the placement agent services of NSC in the June 2018 Private Placement. Mr. Rich is an employee of NSC and was designated by NSC to receive these Warrants.
- (23) Represents shares of Common Stock issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC. NSC is a member of FINRA.
- (24) Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Carrere is an employee of NSC and was designated by NSC to receive these Warrants.
- (25) Common Stock beneficially owned prior to the offering consists of (i) 2,400 shares of Common Stock and (ii) 595 shares of Common Stock issuable upon the exercise of warrants. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Goldstein is an employee of NSC and was designated by NSC to receive these Warrants.
- (26) Common Stock beneficially owned prior to the offering consists of (i) 66,342 shares of Common Stock and (ii) 9,247 shares of Common Stock issuable upon the exercise of warrants. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Clifford is affiliated with NSC and was designated by NSC to receive these shares.
- (27) Common Stock beneficially owned prior to the offering consists of 58,535 shares of Common Stock. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Landry is affiliated with NSC and was designated by NSC to receive these shares.
- (28) Common Stock beneficially owned prior to the offering consists of 19,213 shares of Common Stock. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Desai is affiliated with NSC and was designated by NSC to receive these Warrants.
- (29) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the exercise of warrants. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Newbridge Securities Corporation is a member of FINRA and was designated by NSC to receive these Warrants. Scott Goldstein, Guy Amico and Henry (Ric) Duques share voting and dispositive power over these shares due to their majority ownership of Newbridge Financial Inc., the controlling entity of Newbridge Securities Corporation.
- (30) Common Stock beneficially owned prior to the offering consists of shares of Common Stock issuable upon the exercise of warrants. Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Bhambi is an employee of NSC and was designated by NSC to receive these Warrants.
- (31) Shares of Common Stock registered hereby are issuable upon the exercise of the Warrants issued in consideration of placement agent services of NSC in the June 2018 Private Placement. Mr. Monteforte was designated by NSC to receive these Warrants.

## PLAN OF DISTRIBUTION

The Selling Stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of Common Stock or interests in shares of Common Stock received after the date of this prospectus from a Selling Stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of Common Stock or interests in shares of Common Stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The Selling Stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the date the registration statement of which this prospectus is a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares at a stipulated price;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of Common Stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of Common Stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledgee, transferee or other successors-in-interest as Selling Stockholders under this prospectus. The Selling Stockholders also may transfer the shares of Common Stock in other circumstances, in which case the transferees, pledgees or other successors-in-interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of the Securities or interests therein, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the Securities in the course of hedging the positions they assume. The Selling Stockholders may also sell shares of our Common Stock short and deliver the Securities to close out their short positions, or loan or pledge the Common Stock to broker-dealers that in turn may sell the Securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the Selling Stockholders from the sale of the Securities offered by them will be the purchase price of the Securities less discounts or commissions, if any. Each of the Selling Stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of Securities to be made directly or through agents. We will not receive any of the proceeds from this offering, although we will receive the exercise price of any exercised Warrants paid to us by the Selling Stockholders or their transferees, which will be used for working capital and general corporate purposes.

The Selling Stockholders also may resell all or a portion of the Securities in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule.

The Selling Stockholders and any underwriters, broker-dealers or agents that participate in the sale of the Common Stock or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the Securities may be underwriting discounts and commissions under the Securities Act. Selling Stockholders who are "underwriters" within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our Common Stock to be sold, the names of the Selling Stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the Common Stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the Common Stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the Selling Stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of Securities in the market and to the activities of the Selling Stockholders and their affiliates. In addition, to the extent applicable, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the Selling Stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The Selling Stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the Selling Stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the Securities offered by this prospectus.

We have agreed with the Selling Stockholders to use commercially reasonable efforts to keep the registration statement of which this prospectus is a part effective until the earlier of (1) such time as all of the Securities covered by this prospectus have been sold or (2) the date on which all of the Securities may be sold without restriction pursuant to Rule 144 of the Securities Act.

## DESCRIPTION OF CAPITAL STOCK

The following is a brief description of our capital stock. This summary does not purport to be complete in all respects. This description is subject to and qualified entirely by the terms of our Fourth Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation"), and our amended and restated bylaws, copies of which have been filed with the SEC and are also available upon request from us.

### Authorized Capitalization

We have 60,000,000 shares of capital stock authorized under our Certificate of Incorporation, consisting of 50,000,000 shares of common stock with a par value of \$0.0001 per share ("Common Stock") and 10,000,000 shares of preferred stock with a par value of \$0.0001 per share ("Preferred Stock"). As of the date of this prospectus, we had 3,923,027 shares of Common Stock issued and outstanding held of record by 45 stockholders, and no shares of Preferred Stock issued and outstanding. Our authorized but unissued shares of Common and Preferred Stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange or automated quotation system on which our securities may be listed or traded.

### Common Stock

The holders of outstanding shares of Common Stock are entitled to such dividends as may be declared by our board of directors out of funds legally available for such purpose. The shares of Common Stock are neither redeemable nor convertible. Holders of Common Stock have no preemptive or subscription rights to purchase any of our securities.

Each holder of our Common Stock is entitled to one vote for each such share outstanding in the holder's name. No holder of Common Stock is entitled to cumulate votes in voting for directors.

In the event of our liquidation, dissolution or winding up, the holders of our Common Stock are entitled to receive pro rata our assets, which are legally available for distribution, after payments of all debts and other liabilities. All of the outstanding shares of our Common Stock are fully paid and non-assessable.

Our shares of Common Stock are listed on the Nasdaq Capital Market under the symbol "NDRA."

### Preferred Stock

Our board of directors has the authority, without further action by the stockholders, to issue up to 10,000,000 shares of Preferred Stock in one or more series and to fix the designations, powers, rights, preferences, qualifications, limitations and restrictions thereof. These designations, powers, rights and preferences could include voting rights, dividend rights, dissolution rights, conversion rights, exchange rights, redemption rights, liquidation preferences, and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of Common Stock. The issuance of Preferred Stock could adversely affect the voting power of holders of Common Stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of Preferred Stock could have the effect of delaying, deferring or preventing change in our control or other corporate action. No shares of Preferred Stock are outstanding, and we have no present plan to issue any shares of Preferred Stock.

### Stock Options and Warrants

As of August 1, 2018, we had reserved the following shares of Common Stock for issuance pursuant to stock options, warrants and equity plans:

- 2,086,563 shares of Common Stock issuable upon the exercise of outstanding warrants issued in our initial public offering listed on the Nasdaq Capital Market under the symbol "NDRAW," at an exercise price of \$6.25 per share;

- 522,114 shares of Common Stock issuable upon the exercise of outstanding unregistered warrants, at a weighted average exercise price of \$7.56 per share;
- 987,911 shares of our Common Stock issuable upon the exercise of outstanding stock options issued pursuant to our 2016 Omnibus Incentive Plan, or our Incentive Plan, at a weighted average exercise price of \$5.60 per share; and
- 357,163 shares of our Common Stock that will be reserved for future issuance under our Incentive Plan.

#### **Other Convertible Securities**

As of the date hereof, other than the securities described above and the Notes, the Company does not have any outstanding convertible securities.

#### **GE Healthcare Right**

In April 2016, we entered into a Collaborative Research Agreement with General Electric Company, acting through its GE Healthcare business unit and the GE Global Research Center, or GE Healthcare. The agreement provides that prior to selling any equity interests in our company to a healthcare device manufacturer, we will first offer to negotiate in good faith to sell such equity interests to GE Healthcare.

#### **Transfer Agent**

The transfer agent of our Common Stock offered hereby is Corporate Stock Transfer, Inc., 3200 Cherry Creek Dr. South, Suite 430, Denver, CO 80209. Its telephone number is (303) 282-4800.

#### **Anti-Takeover Effects of Certain Provisions of Delaware Law and Our Charter Documents**

The following is a summary of certain provisions of Delaware law, our Certificate of Incorporation and our bylaws. This summary does not purport to be complete and is qualified in its entirety by reference to the corporate law of Delaware and our Certificate of Incorporation and bylaws.

*Effect of Delaware Anti-Takeover Statute.* We are subject to Section 203 of the Delaware General Corporation Law, an anti-takeover law. In general, Section 203 prohibits a Delaware corporation from engaging in any business combination (as defined below) with any interested stockholder (as defined below) for a period of three years following the date that the stockholder became an interested stockholder, unless:

- prior to that date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares of voting stock outstanding (but not the voting stock owned by the interested stockholder) those shares owned by persons who are directors and officers and by excluding employee stock plans in which employee participants do not have the right to determine whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to that date, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 defines "business combination" to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- subject to limited exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation, or who beneficially owns 15% or more of the outstanding voting stock of the corporation at any time within a three-year period immediately prior to the date of determining whether such person is an interested stockholder, and any entity or person affiliated with or controlling or controlled by any of these entities or persons.

*Our Charter Documents.* Our charter documents include provisions that may have the effect of discouraging, delaying or preventing a change in control or an unsolicited acquisition proposal that a stockholder might consider favorable, including a proposal that might result in the payment of a premium over the market price for the shares held by our stockholders. Certain of these provisions are summarized in the following paragraphs.

*Effects of authorized but unissued common stock.* One of the effects of the existence of authorized but unissued common stock may be to enable our board of directors to make more difficult or to discourage an attempt to obtain control of our Company by means of a merger, tender offer, proxy contest or otherwise, and thereby to protect the continuity of management. If, in the due exercise of its fiduciary obligations, the board of directors were to determine that a takeover proposal was not in our best interest, such shares could be issued by the board of directors without stockholder approval in one or more transactions that might prevent or render more difficult or costly the completion of the takeover transaction by diluting the voting or other rights of the proposed acquirer or insurgent stockholder group, by putting a substantial voting block in institutional or other hands that might undertake to support the position of the incumbent board of directors, by effecting an acquisition that might complicate or preclude the takeover, or otherwise.

*Cumulative Voting.* Our Certificate of Incorporation does not provide for cumulative voting in the election of directors, which would allow holders of less than a majority of the stock to elect some directors.

*Vacancies.* Our Certificate of Incorporation provides that all vacancies may be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum.

*Special Meeting of Stockholders.* A special meeting of stockholders may only be called by the Chairman of the board of directors, the President, the Chief Executive Officer, or the board of directors at any time and for any purpose or purposes as shall be stated in the notice of the meeting, or by request of the holders of record of at least 20% of the outstanding shares of common stock. This provision could prevent stockholders from calling a special meeting because, unless certain significant stockholders were to join with them, they might not obtain the percentage necessary to request the meeting. Therefore, stockholders holding less than 20% of the issued and outstanding common stock, without the assistance of management, may be unable to propose a vote on any transaction that would delay, defer or prevent a change of control, even if the transaction were in the best interests of our stockholders.

## LEGAL MATTERS

The validity of the Securities offered hereby will be passed upon for us by K&L Gates LLP, Charlotte, North Carolina.

## EXPERTS

The financial statements of ENDRA Life Sciences Inc. as of December 31, 2017 and December 31, 2016 included in the Annual Report on Form 10-K for the year ended December 31, 2017 have been audited by RBSM LLP, independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. We have incorporated these financial statements by reference in reliance upon the report of RBSM LLP, given upon their authority as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a Registration Statement on Form S-3 under the Securities Act to register the Securities offered by this prospectus. The term "registration statement" means the original registration statement and any and all amendments thereto, including the schedules and exhibits to the original registration statement or any amendment. This prospectus is part of that registration statement. This prospectus does not contain all of the information set forth in the registration statement or the exhibits to the registration statement. For further information with respect to us and the Securities being offered pursuant to this prospectus, you should refer to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract, agreement or other document referred to are not necessarily complete, and you should refer to the copy of that contract or other documents filed as an exhibit to the registration statement.

We file annual reports, quarterly reports, current reports, proxy statements and other information with the SEC under the Exchange Act. You can read our SEC filings, including the registration statement, at the SEC's website at [www.sec.gov](http://www.sec.gov).

You may read and copy this information at the SEC's Public Reference Room at 100 F Street, N.E., Washington D.C. 20549, at prescribed rates. You may obtain information regarding the operation of the public reference room by calling the SEC at 1-800-SEC-0330.

The SEC also maintains a website (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

Our website can be accessed at [www.endrainc.com](http://www.endrainc.com). The information contained on, or that may be obtained from, our website is not, and shall not be deemed to be, a part of this prospectus.

The representations, warranties and covenants made by us in any agreement that is filed as an exhibit to the registration statement of which this prospectus is a part were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were made as of an earlier date. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that they have gathered their information from sources they believe to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe that these industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data.

## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus.

We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC:

- our annual report on Form 10-K for the fiscal year ended December 31, 2017 filed with the SEC on March 20, 2018 (as amended by Form 10-K/A filed with the SEC on April 13, 2018);
- our quarterly report on Form 10-Q for the fiscal quarter ended March 31, 2018 filed with the SEC on May 15, 2018;
- our Current Reports on Form 8-K filed with the SEC on February 5, 2018, March 29, 2018 (as amended by Form 8-K/A filed on April 13, 2018), June 15, 2018, July 2, 2018, and July 18, 2018;
- our Definitive Proxy Statement on Schedule 14A related to our 2018 Annual Meeting of Stockholders, filed with the SEC on May 10, 2018; and
- the description of our Common Stock contained in our Registration Statement on Form 8-A (File No. 001-37969) filed with the SEC on December 16, 2016, including any amendment or reports filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made on or after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the Securities made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents. You should direct any requests for documents to ENDRA Life Sciences Inc., 3600 Green Court, Suite 350, Ann Arbor, Michigan 48105; Telephone: (734) 335-0468. Copies of the above reports may also be accessed from our web site at [www.endrainc.com](http://www.endrainc.com). We have authorized no one to provide you with any information that differs from that contained in this prospectus. Accordingly, you should not rely on any information that is not contained in this prospectus. You should not assume that the information in this prospectus is accurate as of any date other than the date of the front cover of this prospectus.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement.



ENDRA Life Sciences Inc.

**662,152 Shares of Common Stock for sale by the Selling Stockholders issuable in respect of the Senior Secured Convertible Notes**

**283,337 Shares of Common Stock for sale by the Selling Stockholders issuable in respect of the Warrants**

**PROSPECTUS**

**, 2018**

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**PART II**

**INFORMATION NOT REQUIRED IN PROSPECTUS**

**Item 14. Other Expenses of Issuance and Distribution.**

Set forth below is an estimate (except for registration fees, which are actual) of the approximate amount of the fees and expenses payable by us in connection with the issuance and distribution of the shares of our Common Stock. The Selling Stockholders will not be responsible for any of the expenses of this offering.

SEC registration fee	\$	266
Accounting fees and expenses	\$	15,000
Legal fees and expenses	\$	50,000
Miscellaneous	\$	1,734
Total	\$	67,000

**Item 15. Indemnification of Directors and Officers.**

The following summary is qualified in its entirety by reference to the complete text of any statutes referred to below and the Fourth Amended and Restated Certificate of Incorporation of ENDRA Life Sciences Inc., a Delaware corporation.

Section 145 of the General Corporation Law of the State of Delaware (the "DGCL") permits a Delaware corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

In the case of an action by or in the right of the corporation, Section 145 of the DGCL permits a Delaware corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses that the Court of Chancery or such other court shall deem proper.

Section 145 of the DGCL also permits a Delaware corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under Section 145 of the DGCL.

Article NINTH of our Fourth Amended and Restated Certificate of Incorporation states that our directors shall not be personally liable to us or to our stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability. Under Section 102(b)(7) of the DGCL, the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty can be limited or eliminated except (i) for any breach of the director's duty of loyalty to the corporation or its stockholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; (iii) under Section 174 of the DGCL (relating to unlawful payment of dividend or unlawful stock purchase or redemption); or (iv) for any transaction from which the director derived an improper personal benefit.

Article EIGHTH of our Fourth Amended and Restated Certificate of Incorporation provides that we shall indemnify (and advance expenses to) our officers and directors to the full extent permitted by the DGCL.

All of the Company's directors and officers are covered by insurance policies maintained by the Company against specified liabilities for actions taken in their capacities as such, including liabilities under the Securities Act. Such insurance also insures us against losses which we may incur in indemnifying our officers and directors.

As permitted by the DGCL, we have entered into indemnification agreements with each of our directors and executive officers that require us to indemnify them against various actions including, but not limited to, third-party actions where such director or executive officer, by reason of his or her corporate status, is a party or is threatened to be made a party to an action, or by reason of anything done or not done by such director in any such capacity. We indemnify directors and executive officers against all costs, judgments, penalties, fines, liabilities, amounts paid in settlement by or on behalf of such directors or executive officers and for any expenses actually and reasonably incurred by such directors or executive officers in connection with such action, if such directors or executive officers acted in good faith and in a manner they reasonably believed to be in or not opposed to our best interests, and with respect to any criminal proceeding, had no reasonable cause to believe their conduct was unlawful. We also intend to advance to our directors and executive officers expenses (including attorney's fees) incurred by or on behalf of such directors and executive officers in advance of the final disposition of any action after our receipt of a statement or statements from directors or executive officers requesting such payment or payments from time to time, provided that such statement or statements are preceded or accompanied by a written undertaking, by or on behalf of such directors or executive officers, to repay such amount if it shall ultimately be determined that they are not entitled to be indemnified against such expenses by us.

The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification or advancement of expenses, including, among others, provisions about submitting a written request to us that includes such documentation and information as is reasonably available to the director or executive officer and is reasonably necessary to determine entitlement to indemnification and provisions.

**Item 16. Exhibits and Financial Statement Schedules.**

Exhibit Number	Exhibit Description	Filed Herewith	Incorporated by Reference			
			Form	Exhibit	Filing Date	Registration/File No.
<a href="#">4.1</a>	Specimen Certificate representing shares of common stock of the Registrant		S-1	4.1	11/21/16	333-214724
<a href="#">4.2</a>	Form of Senior Secured Convertible Promissory Note		8-K	4.1	07/02/18	001-37969
<a href="#">4.3</a>	Form of Common Stock Warrant		8-K	4.2	07/02/18	001-37969
5.1	Opinion of K&L Gates LLP	X				
<a href="#">23.1</a>	Consent of RBSM LLP, Independent Registered Public Accounting Firm	X				
23.2	Consent of K&L Gates LLP (contained in Exhibit 5.1)	X				
<a href="#">24.1</a>	Power of Attorney (included on signature page)	X				
101.INS	XBRL Instance Document	X				
101.SCH	XBRL Taxonomy Schema	X				
101.CAL	XBRL Taxonomy Extension Calculation Linkbase	X				
101.DEF	XBRL Taxonomy Extension Definition Linkbase	X				
101.LAB	XBRL Taxonomy Extension Label Linkbase	X				
101.PRE	XBRL Taxonomy Extension Presentation Linkbase	X				

**Item 17. Undertakings.**

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 15 or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification by it is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities, other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding, is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

(a) The undersigned registrant hereby undertakes:

1. To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

i. To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

ii. To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of a prospectus filed with the SEC pursuant to Rule 424(b) under the Securities Act if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement); and

iii. To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act") that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

2. That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
  3. To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (b) The undersigned registrant hereby undertakes that, for the purpose of determining liability under the Securities Act of 1933 to any purchaser if the registrant is relying on Rule 430B: (A) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and (B) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (c) The undersigned registrant hereby undertakes that, for the purpose of determining liability under the Securities Act of 1933 to any purchaser: if the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness; provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.
- (d) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Ann Arbor, State of Michigan, on this 10th day of August 2018.

### ENDRA Life Sciences Inc.

/s/ Francois Michelin  
Francois Michelin  
Chief Executive Officer and Director  
(Principal Executive Officer)

### POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Francois Michelin and Michael Thornton and each of them, his true and lawful attorney-in-fact and agent, each with full power of substitution and resubstitution, severally, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, any subsequent registration statements pursuant to Rule 462 of the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof. This power of attorney may be executed in counterparts.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Dated: August 10, 2018	<u>/s/ Francois Michelin</u> Francois Michelin Chief Executive Officer and Director (Principal Executive Officer)
Dated: August 10, 2018	<u>/s/ David R. Wells</u> David R. Wells Chief Financial Officer (Principal Financial and Accounting Officer)
Dated: August 10, 2018	<u>/s/ Anthony DiGiandomenico</u> Anthony DiGiandomenico, Director
Dated: August 10, 2018	<u>/s/ Sanjiv Gambhir, M.D., Ph.D.</u> Sanjiv Gambhir, M.D., Ph.D., Director
Dated: August 10, 2018	<u>/s/ Michael Harsh</u> Michael Harsh, Director
Dated: August 10, 2018	<u>/s/ Alexander Tokman</u> Alexander Tokman, Director

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The logo for K&L GATES, consisting of the text "K&L GATES" in a white, sans-serif font on a dark blue rectangular background.

August 10, 2018

ENDRA Life Sciences Inc.  
3600 Green Court, Suite 350  
Ann Arbor, MI 48105

Ladies and Gentlemen:

We have acted as counsel to ENDRA Life Sciences Inc., a Delaware corporation (the "Company"), in connection with the Registration Statement on Form S-3 (the "Registration Statement") filed on the date hereof with the Securities and Exchange Commission (the "SEC") under the Securities Act of 1933, as amended (the "Securities Act"), with respect to the resale from time to time by the selling stockholders listed in the Registration Statement under the heading "Selling Stockholders" (the "Selling Stockholders"), as detailed in the Registration Statement, of up to 945,489 shares of the Company's common stock, \$0.0001 par value per share ("Common Stock"), which are comprised of: (a) up to 662,152 shares of Common Stock (the "Note Shares") issuable upon conversion of the Senior Secured Convertible Notes (the "Notes") sold and issued by the Company to the Selling Stockholders pursuant to that certain Securities Purchase Agreement, dated as of June 28, 2018 (the "Purchase Agreement"); and (b) up to 283,337 shares of Common Stock (the "Warrant Shares") issuable upon exercise of warrants to purchase shares of Common Stock sold and issued by the Company to the Selling Stockholders pursuant to the Purchase Agreement (the "Warrants").

You have requested our opinion as to the matters set forth below in connection with the Registration Statement. For purposes of rendering that opinion, we have examined: (a) the Registration Statement, (b) the Company's Fourth Amended and Restated Certificate of Incorporation, as amended (the "Charter"), (c) the Company's Amended and Restated Bylaws (the "Bylaws"), (d) the Purchase Agreement, (e) the Notes, (f) the Warrants, (g) the resolutions adopted by the Company's Board of Directors relating to the Registration Statement, the Purchase Agreement and the issuance and sale of the Notes and the Warrants to the Selling Stockholders pursuant thereto, and the issuance of the Note Shares and the Warrant Shares (the "Resolutions"), and (h) a certificate of an officer of the Company, dated as of the date hereof. Other than our review of the documents listed in (a) through (h) above, we have not reviewed any other documents or made any independent investigation for the purpose of rendering this opinion.

K&L GATES LLP  
4350 LASSITER AT NORTH HILLS AVENUE SUITE 300 POST OFFICE BOX 17047 RALEIGH NC 27619-7047  
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For the purposes of this opinion letter, we have assumed that: (a) each document submitted to us is accurate and complete; (b) each such document that is an original is authentic; (c) each such document that is a copy conforms to an authentic original; (d) all signatures on each such document are genuine; and (e) the Company is and shall remain at all times a corporation duly incorporated, validly existing and in good standing under the laws of the State of Delaware.

In rendering our opinion below, we have also assumed that (a) the Company will have sufficient authorized and unissued shares of its Common Stock issuable upon conversion of the Notes or issuable upon exercise of the Warrants on the date of such conversion of any Notes or such exercise of any Warrants, (b) the Resolutions have not been, and will not be, revoked, modified or amended, and (c) the issuance of the Note Shares and the Warrant Shares will be noted in the Company's stock ledger. We have further assumed the legal capacity of natural persons, and we have assumed that each party to the documents we have examined or relied on has the legal capacity or authority and has satisfied all legal requirements that are applicable to that party to the extent necessary to make such documents enforceable against that party. We have not verified any of those assumptions.

Our opinion set forth below is limited to the Delaware General Corporation Law (" DGCL ") and reported decisions interpreting the DGCL.

Based upon and subject to the foregoing, it is our opinion that:

1. The issuance of the Note Shares has been duly authorized and, when issued and delivered upon the conversion and in accordance with the terms of the Notes, the Note Shares will be validly issued, fully paid, and non-assessable.
2. The issuance of the Warrant Shares has been duly authorized and, when issued and delivered by the Company against payment therefor in accordance with the terms of the Warrants, the Warrant Shares will be validly issued, fully paid, and non-assessable.

This opinion is rendered solely in connection with the registration of the Note Shares and the Warrant Shares for resale by the Selling Stockholders under the Registration Statement. This opinion is expressed as of the date hereof, and we disclaim any undertaking to advise you of any subsequent changes in the facts stated or assumed herein or of any subsequent changes in applicable laws.

We hereby consent to the filing of this opinion letter with the SEC as Exhibit 5.1 to the Registration Statement. In giving our consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ K&L Gates LLP

K&L Gates LLP

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INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in this Registration Statement of ENDRA Life Sciences Inc. (the "Company") on Form S-3 of our report dated March 20, 2018, relating to the consolidated financial statements of ENDRA Life Sciences Inc. and subsidiaries, appearing in the Annual Report on Form 10-K of ENDRA Life Sciences Inc. and subsidiaries for the year ended December 31, 2017. We also consent to the reference to our firm under the heading "Experts" in such Prospectus.

/s/ RBSM LLP

RBSM LLP  
Henderson, NV  
August 10, 2018

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