



## Avadel to Present Late-Breaker Data and Product Theater Forum at the 2018 American Urological Association Annual Meeting

May 18, 2018

Data demonstrates extended first uninterrupted sleep period in elderly patients

Key opinion leaders to present “NOCTIVA™: Addressing a Nighttime Condition with Daytime Consequences”

DUBLIN, Ireland, May 18, 2018 (GLOBE NEWSWIRE) -- Avadel Pharmaceuticals plc (Nasdaq:AVDL), “Avadel” or the “Company,” will release research findings from the Phase III clinical trials of AV002 at the American Urological Association (AUA) Annual Meeting in San Francisco on May 20, 2018 that demonstrate elderly nocturia patients treated with AV002 – [NOCTIVA™ \(desmopressin acetate\) Nasal Spray](#) an emulsified microdose of desmopressin – have a longer first period of uninterrupted sleep at night, and wake less often to urinate.

Benjamin M. Brucker, MD, a specialist in urology and female pelvic medicine at New York University’s Langone Medical Center and an expert on nocturia, will unveil the data from NOCTIVA’s pivotal Phase III clinical trials. The abstract, “Extended First Uninterrupted Sleep Period in Elderly Patients Following Treatment with AV002, an Emulsified Low Dose Vasopressin Analog for Nocturia,” will be presented during the Next Frontiers plenary session.

NOCTIVA, an emulsified microdose desmopressin, is the first and only product approved by FDA to treat nocturia due to nocturnal polyuria in adults. Nocturnal polyuria is the overproduction of urine at night and can lead to nocturia, a condition causing patients to wake two or more times per night to urinate. Nocturia affects an estimated 40 million Americans<sup>1</sup> and can cause patients to suffer reduced productivity, and negatively impacts overall health and health-related quality of life<sup>2</sup>.

Clinical trials for NOCTIVA were conducted in patients with a history of two or more nocturic episodes per night and with an average baseline time to first nocturic episode of 2.4 hours. Patients were randomized into three groups and received either 1.66 mcg or 0.83 mcg of NOCTIVA or a placebo for 12 weeks. Dr. Brucker’s presentation provides a sub-group analysis of these trial results, stratified into two age groups: patients ages 65 years and older and patients 75 years and older. The results demonstrated that patients on either strength of NOCTIVA stayed in bed longer before experiencing a nocturic episode. For example, on average, trial participants 65 years and older on the 1.66 mcg dose were able to stay in bed over four hours before experiencing their first nocturic episode, surpassing the four-hour critical threshold for restful sleep<sup>3</sup>. These results represented an average improvement greater than 50% relative to placebo over the 2.4-hour baseline. Further, trial participants who took either dose of NOCTIVA recorded 32% - 43% more nights with one or fewer episodes, depending on age (relative to mean nocturic episodes baseline of 3.2 – 3.4 per night at screening).

“We understand how disruptive nocturia can be for patients and are proud to have recently launched NOCTIVA, the first product determined by FDA to be safe and effective for treatment of nocturia due to nocturnal polyuria,” said Greg Divis, Chief Operating Officer of Avadel. “We’re excited to share this very pertinent data at AUA with industry leaders who can have a direct impact on nocturia patients’ quality of life.”

Additionally, physicians will present on behalf of Avadel during an AUA product theatre forum: “*Noctiva: Addressing a Nighttime Condition with Daytime Consequences.*” Nationally recognized thought leaders Diane K. Newman, DNP, FAAN, Co-director of Penn Center for Continence and Pelvic Health; Scott A. MacDiarmid, MD, FRCPSC, Urologist with Moses H. Cone Memorial Hospital; Jennifer Miles-Thomas, MD FPMRS, Assistant Professor of Urology and Medical Director of the Pelvic Health Center at Chesapeake Regional Medical Center; and Thomas Roth, PhD, Director of the Henry Ford Hospital Sleep Center, will discuss the impact of nocturia on patients and ongoing efforts to diagnose and treat the condition.

Avadel representatives are available throughout the conference at booth number 5966. Please see the schedule below detailing Avadel’s presence at AUA:

Title	Date and Time	Location	Presenter(s)
<i>Extended First Uninterrupted Sleep Period in Elderly Patients Following Treatment with AV002, an Emulsified Low Dose Vasopressin Analog for Nocturia</i>	Sunday, May 20 at 4:30 p.m. PDT	Room MCC NORTH, Hall E	<ul style="list-style-type: none"> <li>Benjamin M. Brucker, MD, Prof. of Urology and Obstetrics and Gynecology at New York University Langone Medical Center</li> <li>Diane Newman, DNP, FAAN, Co-director of Penn Center for Continence and Pelvic Health</li> <li>Scott A. MacDiarmid, MD, FRCPSC, Urologist with Moses H. Cone Memorial Hospital</li> <li>Jennifer Miles-Thomas, MD, FPMRS, Assistant Professor of Urology and Medical Director of the Pelvic Health Center at Chesapeake Regional Medical Center</li> <li>Thomas Roth, PhD, Director of the Henry Ford</li> </ul>
<i>Noctiva: Addressing a Nighttime Condition with Daytime Consequences</i>	Saturday, May 19 from 3-4 p.m. PDT	ICU Theater	<ul style="list-style-type: none"> <li>Benjamin M. Brucker, MD, Prof. of Urology and Obstetrics and Gynecology at New York University Langone Medical Center</li> <li>Diane Newman, DNP, FAAN, Co-director of Penn Center for Continence and Pelvic Health</li> <li>Scott A. MacDiarmid, MD, FRCPSC, Urologist with Moses H. Cone Memorial Hospital</li> <li>Jennifer Miles-Thomas, MD, FPMRS, Assistant Professor of Urology and Medical Director of the Pelvic Health Center at Chesapeake Regional Medical Center</li> <li>Thomas Roth, PhD, Director of the Henry Ford</li> </ul>

Exhibition Booth	Saturday, May 19 from 9 a.m. – 6 p.m. PDT	Hall D, booth number 5966	<ul style="list-style-type: none"><li>• Greg Divis, Avadel Chief Operating Officer</li><li>• Seymour Fein, MD, Developer of NOCTIVA</li></ul>
	Sunday, May 20 and Monday, May 21 from 9 a.m. – 4 p.m. PDT		

#### **About NOCTIVA™**

NOCTIVA is an emulsified low dose vasopressin analog, approved by the FDA for the treatment of nocturia due to nocturnal polyuria in adults who awaken at least two times per night to void. It is administered through a preservative-free intranasal delivery system as a single spray in one nostril approximately 30 minutes before bedtime. NOCTIVA is approved in two dosage forms of 0.83 mcg and 1.66 mcg. For more information, please visit [www.noctiva.com](http://www.noctiva.com).

#### **Important Safety Information for NOCTIVA (desmopressin acetate)**

##### **WARNING: HYPONATREMIA**

- **NOCTIVA can cause hyponatremia. Severe hyponatremia can be life-threatening, leading to seizures, coma, respiratory arrest, or death.**
- **NOCTIVA is contraindicated in patients at increased risk of severe hyponatremia, such as patients with excessive fluid intake, illnesses that can cause fluid or electrolyte imbalances, and in those using loop diuretics or systemic or inhaled glucocorticoids.**
- **Ensure serum sodium concentrations are normal before starting or resuming NOCTIVA. Measure serum sodium within seven days and approximately one month after initiating therapy or increasing the dose, and periodically during treatment. More frequently monitor serum sodium in patients 65 years of age and older and in patients at increased risk of hyponatremia.**
- **If hyponatremia occurs, NOCTIVA may need to be temporarily or permanently discontinued.**

#### **INDICATIONS AND USAGE**

NOCTIVA is a vasopressin analog indicated for the treatment of nocturia due to nocturnal polyuria in adults who awaken at least 2 times per night to void.

Limitation of Use: Not studied in patients younger than 50 years of age.

#### **CONTRAINDICATIONS**

- Hyponatremia or a history of hyponatremia
- Polydipsia
- Primary nocturnal enuresis
- Concomitant use with loop diuretics or systemic or inhaled glucocorticoids
- Estimated glomerular filtration rate below 50 mL/min/1.73 m<sup>2</sup>
- Syndrome of inappropriate antidiuretic hormone secretion (SIADH)
- During illnesses that can cause fluid or electrolyte imbalance
- New York Heart Association (NYHA) Class II-IV congestive heart failure
- Uncontrolled hypertension

#### **WARNINGS AND PRECAUTIONS**

- **Fluid retention:** Not recommended in patients at risk of increased intracranial pressure or history of urinary retention. Monitor volume status in patients with NYHA Class I congestive heart failure.
- **Nasal conditions:** Discontinue in patients with concurrent nasal conditions that may increase absorption, until resolved.

#### **ADVERSE REACTIONS**

Common adverse reactions in clinical trials (incidence >2%) included nasal discomfort, nasopharyngitis, nasal congestion, sneezing, hypertension / blood pressure increased, back pain, epistaxis, bronchitis and dizziness.

#### **DRUG INTERACTIONS**

Monitor serum sodium more frequently when NOCTIVA is concomitantly used with drugs that may cause water retention and increase the risk for hyponatremia (e.g., tricyclic antidepressants, selective serotonin re-uptake inhibitors, chlorpromazine, opiate analgesics, nonsteroidal anti-inflammatories, lamotrigine and carbamazepine).

#### **USE IN SPECIFIC POPULATIONS**

- Pregnancy: Use of NOCTIVA is not recommended.
- Pediatric: Do not use NOCTIVA for primary nocturnal enuresis in children.

To report SUSPECTED ADVERSE REACTIONS, contact Avadel at 1-877-638-4579 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

Please see the full Prescribing Information for NOCTIVA at [www.Noctiva.com/prescribing-information](http://www.Noctiva.com/prescribing-information).

**About Avadel Pharmaceuticals plc:**

Avadel Pharmaceuticals plc (NASDAQ: AVDL) is a specialty pharmaceutical company that seeks to develop differentiated pharmaceutical products that are safe, effective and easy to take through formulation development, by utilizing its proprietary drug delivery technology and through in-licensing / acquiring new products; ultimately, helping patients adhere to their prescribed medical treatment and see better results. Avadel's current portfolio of products and product candidates focuses on the urology, central nervous system (CNS) / sleep, and hospital markets. The Company is headquartered in Dublin, Ireland with operations in St. Louis, Missouri and Lyon, France. For more information, please visit [www.avadel.com](http://www.avadel.com).

**Safe Harbor:** *This press release may include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. The words "will," "may," "believe," "expect," "anticipate," "estimate," "project" and similar expressions, and the negatives thereof, identify forward-looking statements, each of which speaks only as of the date the statement is made. Although we believe that our forward-looking statements are based on reasonable assumptions within the bounds of our knowledge of our business and operations, our business is subject to significant risks and as a result there can be no assurance that actual results of our research, development and commercialization activities and our results of operations will not differ materially from the results contemplated in such forward-looking statements. These risks include: (i) risks that we may not achieve our goals of becoming a leading specialty pharma company, including by continuing to grow and broaden our offering of new and differentiated products, launch NOCTIVA, complete our REST-ON Phase III clinical trial, transform our company and drive long-term value creation; and (ii) the other risks, uncertainties and contingencies described in the Company's filings with the U.S. Securities and Exchange Commission, including our annual report on Form 10-K for the year ended December 31, 2017, in particular disclosures that may be set forth in particular under the captions "Forward-Looking Statements" and "Risk Factors," including without limitation: our dependence on a small number of products and customers for the majority of our revenues; numerous risks related to our efforts to successfully commercialize our new NOCTIVA™ product; the possibility that our Bloxiverz®, Vazculep® and Akovaz® products, which are not patent protected, could face increased competition resulting in a further loss of market share or forcing us to reduce the prices we charge for those products; the possibility that we could fail to successfully complete the research and development for pipeline products we are evaluating for potential application to the FDA pursuant to our "unapproved-to-approved" strategy, or that competitors could complete the development of such products and apply for FDA approval of such products before us; the possibility that our products may not reach the commercial market or gain market acceptance; our need to invest substantial sums in research and development in order to remain competitive; our dependence on certain single providers for development of several of our drug delivery platforms and products; our dependence on a limited number of suppliers to manufacture our products and to deliver certain raw materials used in our products; the possibility that our competitors may develop and market technologies or products that are more effective or safer than ours, or obtain regulatory approval and market such technologies or products before we do; the challenges in protecting the intellectual property underlying our drug delivery technologies and other products; and our dependence on key personnel to execute our business plan.*

**Contacts:**

**Lauren Stival**

**Avadel Sr. Director, Investor Relations and Corporate Communications**

Phone: (636) 449-5866

Email: [lstival@avadel.com](mailto:lstival@avadel.com)

**Brianne Cannon**

**FleishmanHillard**

Phone: (415) 318-4043

Email: [brianne.cannon@fleishman.com](mailto:brianne.cannon@fleishman.com)

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2. Ancoli-Israel S, Bliwise DL, Nørgaard JP. The effect of nocturia on sleep. Sleep Med Rev. 2011 April; 15(2): 91-97
3. Stanley N. The underestimated impact of nocturia on quality of life. Eur Urol. 2005;4(7):17-19



Source: Avadel Pharmaceuticals plc