



Neurocrine Biosciences Presents New Data from RE-KINECT, the Largest Real-World Screening Study of Possible Tardive Dyskinesia, Demonstrating the Effect of Involuntary Movements on Patient Quality of Life

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- **Nearly 30% of Patients with Possible Tardive Dyskinesia Reported Moderate-to-Extreme Problems Performing Their Usual Activities, Including Work, Housework and Leisure Activities**
- **Almost Half of Patients with Possible Tardive Dyskinesia Experienced Moderate-to-Extreme Anxiety or Depression**
- **New Long-Term Data from the KINECT 4 Study Show that Treatment with INGREZZA® (valbenazine) Improved Overall Severity of Abnormal Movements from Moderate-to-Severe to None-to-Mild in More than 95% of Tardive Dyskinesia Patients**

SAN DIEGO, May 20, 2019 /PRNewswire/ -- Neurocrine Biosciences, Inc. (NASDAQ: NBIX) today announced new data from RE-KINECT, the largest real-world screening study to date of patients with clinician-confirmed possible tardive dyskinesia (TD), demonstrating the effect of involuntary movements (possible TD) on patient health-related quality of life. Results from the study showed that involuntary movements had a significant negative impact on a patient's health-related quality of life, with nearly 30% of patients with possible TD reporting moderate-to-extreme problems performing their usual activities, including work, housework and leisure activities. In addition, almost half of patients with possible TD experienced moderate-to-extreme anxiety or depression. These data, along with new long-term data from the KINECT 4 study, will be presented at the American Psychiatric Association (APA) Annual Meeting in San Francisco.



TD is an involuntary movement disorder that is characterized by uncontrollable, abnormal and repetitive movements of the face, torso and/or other body parts that can be disruptive and negatively impact patients. The abnormal and involuntary movements of TD can impact patients socially, emotionally and physically, causing patients to feel embarrassed or judged by others or withdraw from society and isolate themselves.

"The RE-KINECT study provides valuable insights into the real-world and personal impact the involuntary movements from possible tardive dyskinesia may have on the everyday life of a patient. Through objective, standardized and systematic measurements, this study helped document the negative effect of abnormal movements on multiple aspects of functioning and quality of life in patients with possible tardive dyskinesia," said Stanley Caroff, M.D., Professor of Psychiatry at the University of Pennsylvania and the Corporal Michael J. Crescenz VA Medical Center in Philadelphia. "The findings from RE-KINECT are valuable for informing treatment decisions in clinical practice and demonstrate the importance of including assessments from patients and caregivers on the severity and social impact of the stigmatizing movements of tardive dyskinesia."

RE-KINECT was designed to better understand the significance of possible TD and its impact on patients treated with antipsychotic medications, including the effect on quality of life as reported by patients and caregivers. Data from RE-KINECT demonstrated that patients with clinician-confirmed possible TD (n=204) reported a higher percentage of moderate (score=3), severe (score=4) or extreme (score=5) problems in the following areas of the EuroQoL 5-Dimension 5-Level (EQ-5D-5L) questionnaire compared to patients without clinician-confirmed possible TD (n=450):

- Nearly 30% (28.7%) of patients with possible TD (n=202) reported moderate-to-extreme problems performing their usual activities, including work, housework and leisure activities, compared to 19.5% of patients without possible TD (n=447).
- Almost half of patients (47.5%) with possible TD (n=202) reported they experienced moderate-to-extreme levels of anxiety/depression, compared to 39.5% of patients without possible TD (n=446).
- 20.9% of patients with possible TD (n=201) reported moderate-to-extreme mobility problems, compared to 12.1% of patients without possible TD (n=446).
- In a regression model, EQ-5D-5L utility scores showed poorer perceived quality of life in patients with possible TD who reported "a lot" of severity (n=53) or "a lot" of impact (n=33) on daily activities, compared to patients without possible TD.¹

"Results from RE-KINECT clearly demonstrate the burden involuntary movements have on patients, including an impact on family, work and social life. In patients who rated their possible tardive dyskinesia symptoms as having "a lot" of severity or "a lot" of

impact on daily activities, the negative effect on their quality of life was especially apparent," said Eiry W. Roberts, M.D., Chief Medical Officer at Neurocrine Biosciences. "Insights from this real-world study add to the understanding of the needs of patients with possible tardive dyskinesia and are important in helping the medical community understand how to provide the best care possible for this patient population."

Neurocrine Biosciences will also present new data from KINECT 4, a long-term, open-label, Phase III study, demonstrating that long-term treatment with once-daily INGREZZA® (valbenazine) capsules 40 mg or 80 mg improved the overall severity of abnormal movements in patients with TD. More than 95% of TD patients with a baseline score of moderate-to-severe for overall severity of abnormal movements improved to none-to-mild at 48 weeks of INGREZZA treatment (n=98). Approximately 98% of TD patients with moderate-to-severe incapacitation due to abnormal movements improved to none-to-mild over the course of treatment with INGREZZA (n=59). In addition, patients experienced TD improvements during long-term treatment as demonstrated by mean change from baseline to week 48 in the Abnormal Involuntary Movement Scale (AIMS) total score (sum of items 1-7, evaluated by site raters) with INGREZZA 40 mg/day (-10.2) or 80 mg/day (-11.0). In this long-term, open-label study, INGREZZA was generally well tolerated with a safety profile consistent with previous studies. After week 4, treatment emergent adverse events that occurred in ≥5% of all participants (combined dose groups) were urinary tract infection (8.5%) and headache (5.2%). Change from baseline in psychiatric stability, vital signs, electrocardiogram parameters, and laboratory test values were generally small and not clinically significant.

About the RE-KINECT Study

RE-KINECT is a prospective real-world screening study that included 739 patients from 37 outpatient psychiatry practices in the U.S. The study objective was to assess the presence and impact of possible tardive dyskinesia (TD) and describe the associated disease burden in a cohort of patients with one or more psychiatric disorders and a cumulative lifetime exposure to antipsychotic medication of three months or more. Patients were clinically evaluated for abnormal involuntary movements in general body regions (head/face, neck/trunk, upper/lower limbs) as well as for possible TD. Demographics, psychiatric history and medication history were captured as part of a 12-month retrospective chart review. Health-related quality of life was evaluated using the EuroQoL 5 Dimensions (EQ-5D-5L) questionnaire, which includes five domains that are each scored on a scale of 1 ("no problems") to 5 ("unable to perform") and the Sheehan Disability Scale (SDS), which is a brief patient-rated measure for disability and impairment, that includes three domains that are scored on a scale of 0 "not at all" to 10 "extremely."

About the KINECT 4 Phase III Study

KINECT 4 is a Phase III, open-label study, in which 163 participants with moderate-to-severe TD and underlying schizophrenia, schizoaffective disorder or mood disorder (including bipolar disorder or major depressive disorder) received 48 weeks of open-label treatment with once-daily INGREZZA (40 mg or 80 mg capsules) followed by a four-week washout. Dosing was initiated at 40 mg/day in all participants, with escalation to 80 mg/day at week 4 based on effectiveness and tolerability. Dose reduction to 40 mg was allowed in participants who could not tolerate the 80 mg dose.

About Tardive Dyskinesia (TD)

Tardive dyskinesia (TD) is a movement disorder that is characterized by uncontrollable, abnormal and repetitive movements of the face, torso and/or other body parts, which may be disruptive and negatively impact patients. The condition is caused by prolonged use of treatments that block dopamine receptors in the brain, such as antipsychotics commonly prescribed to treat mental illnesses such as schizophrenia, bipolar disorder and depression and certain anti-nausea medications. In patients with TD, these treatments are thought to result in irregular dopamine signaling in a region of the brain that controls movement. The symptoms of TD can be severe and are often persistent and irreversible. TD is estimated to affect at least 500,000 people in the U.S.

About INGREZZA® (valbenazine) Capsules

INGREZZA, a selective vesicular monoamine transporter 2 (VMAT2) inhibitor, is the first FDA-approved product indicated for the treatment of adults with tardive dyskinesia, a condition associated with uncontrollable, abnormal and repetitive movements of the face, torso and/or other body parts.

INGREZZA is thought to work by reducing the amount of dopamine released in a region of the brain that controls movement and motor function, helping to regulate nerve signaling in adults with tardive dyskinesia. VMAT2 is a protein in the brain that packages neurotransmitters, such as dopamine, for transport and release in presynaptic neurons. INGREZZA, developed in Neurocrine's laboratories, is novel in that it selectively inhibits VMAT2 with no appreciable binding affinity for VMAT1, dopaminergic (including D2), serotonergic, adrenergic, histaminergic, or muscarinic receptors. Additionally, INGREZZA can be taken for the treatment of tardive dyskinesia as one capsule, once-daily, together with psychiatric medications such as antipsychotics or antidepressants.

Important Safety Information

Contraindications

INGREZZA is contraindicated in patients with a history of hypersensitivity to valbenazine or any components of INGREZZA. Rash, urticaria, and reactions consistent with angioedema (e.g., swelling of the face, lips, and mouth) have been reported.

Warnings & Precautions

Somnolence

INGREZZA can cause somnolence. Patients should not perform activities requiring mental alertness such as operating a motor vehicle or operating hazardous machinery until they know how they will be affected by INGREZZA.

QT Prolongation

INGREZZA may prolong the QT interval, although the degree of QT prolongation is not clinically significant at concentrations expected with recommended dosing. INGREZZA should be avoided in patients with congenital long QT syndrome or with arrhythmias associated with a prolonged QT interval. For patients at increased risk of a prolonged QT interval, assess the QT interval before increasing the dosage.

Adverse Reactions

The most common adverse reaction ($\geq 5\%$ and twice the rate of placebo) is somnolence. Other adverse reactions ($\geq 2\%$ and $>$ placebo) include: anticholinergic effects, balance disorders/falls, headache, akathisia, vomiting, nausea, and arthralgia.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit MedWatch at www.fda.gov/medwatch or call 1-800-FDA-1088.

Please see INGREZZA full Prescribing Information at www.INGREZZA.com/PI.


About Neurocrine Biosciences

Neurocrine Biosciences (Nasdaq: NBIX) is a neuroscience-focused, biopharmaceutical company with more than 25 years of experience discovering and developing life-changing treatments for people with serious, challenging and under-addressed neurological, endocrine and psychiatric disorders. The company's diverse portfolio includes FDA-approved treatments for tardive dyskinesia and endometriosis* and clinical development programs in multiple therapeutic areas including Parkinson's disease, congenital adrenal hyperplasia and uterine fibroids*. Headquartered in San Diego, Neurocrine Biosciences specializes in targeting and interrupting disease-causing mechanisms involving the interconnected pathways of the nervous and endocrine systems. For more information, visit neurocrine.com, and follow the company on [LinkedIn](#). (*in collaboration with AbbVie)

Forward-Looking Statements

In addition to historical facts, this press release contains forward-looking statements that involve a number of risks and uncertainties. These statements include, but are not limited to, statements related to the benefits to be derived from INGREZZA and the continued success of the launch of INGREZZA. Among the factors that could cause actual results to differ materially from those indicated in the forward-looking statements are: risks and uncertainties associated with the commercialization of INGREZZA; risks and uncertainties relating to factors that may limit demand for INGREZZA; risks associated with the Company's dependence on third parties for development and manufacturing activities related to INGREZZA, and the ability of the Company to manage these third parties; risks that the FDA or other regulatory authorities may make adverse decisions regarding INGREZZA; risks that clinical development activities may be delayed for regulatory or other reasons, may not be successful or replicate previous clinical trial results, may fail to demonstrate that our product candidates are safe and effective, or may not be predictive of real-world results or of results in subsequent clinical trials; risks that INGREZZA may be precluded from commercialization or continued commercialization by the proprietary or regulatory rights of third parties, or have unintended side effects, adverse reactions or incidents of misuse; and other risks described in the Company's periodic reports filed with the Securities and Exchange Commission, including without limitation the Company's quarterly report on Form 10-Q for the quarter ended March 31, 2019. Neurocrine disclaims any obligation to update the statements contained in this press release after the date hereof.

¹ The severity of possible TD in each of 4 body regions was rated by both patients and clinicians as follows: 0=none, 1=some, and 2=a lot. Patients also rated the impact of possible TD in each of 7 daily activity domains using the same item responses.

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