Takeda and Ovid Therapeutics Announce Innovative Clinical Development and Commercialization Collaboration for TAK-935 in Rare Pediatric Epilepsies

Collaboration Between Big Pharma and Small Biotech Underscores Potential for New Approaches to Partnering

Ovid and Takeda Will Share Equally in Building on the Discovery from the Laboratories of Takeda, Bringing Together Capabilities of Both Companies in Development, Regulatory and Commercialization Activities

OSAKA, Japan and NEW YORK, Jan. 18, 2017 (GLOBE NEWSWIRE) -- Takeda Pharmaceutical Company Limited (TSE: 4502) and Ovid Therapeutics Inc., a privately-held biopharmaceutical company committed to developing medicines that transform the lives of people with rare neurological diseases, today announced the formation of a global collaboration focused on the clinical development and commercialization of Takeda's investigational new drug TAK-935, a novel, potent and highly selective CH24H inhibitor, in rare pediatric epilepsies. TAK-935 has successfully completed Phase 1 clinical development under Takeda's leadership and will be moving into Phase 1b/2a clinical studies in rare epileptic encephalopathies where patients continue to suffer from significant unmet medical needs.

Innovative Structure and Terms of Collaboration

Under the terms of the agreement, Takeda received equity in Ovid and may be eligible to receive certain milestone payments based on the advancement of TAK-935. The companies will share in the development and commercialization costs on a 50/50 basis and, if successful, the companies will share in the profits on a 50/50 basis. Takeda will lead commercialization in Japan, and has the option to lead in Asia and other selected geographies. Ovid will lead clinical development activities and commercialization of TAK-935 in the United States, Europe, Canada and Israel. All activities of the collaboration regarding TAK-935 will be guided by the Takeda/Ovid "One Team" concept, an integrated and interdisciplinary team from both companies devoted to the successful advancement of TAK-935 across rare epilepsy syndromes. If mutually agreed, additional orphan central nervous system indications may also be pursued. Additional financial details were not disclosed.

“Ovid’s agility, exclusive focus on developing therapies for rare neurological diseases and specialized capabilities in central nervous system drug development are highly differentiated and well suited to this important program,” said Emiliangelo Ratti, head of the central nervous system therapeutic area for Takeda Pharmaceuticals. “Takeda is driven by the urgent need to provide novel medicines for people with psychiatric, neurological and rare central nervous system disorders for whom there are no treatments available. This agreement is a prime example of our commitment to partnering select development programs with prominent companies that will enable us to remain at the leading edge of innovation.”

Clinical Development Strategy

The companies expect to initiate a Phase 1b/2a study in 2017 in patients with rare epileptic encephalopathies including Dravet syndrome, Lennox-Gastaut syndrome and Tuberous Sclerosis Complex. These rare epilepsies often present in infancy and cause significant morbidities for patients and their families throughout their lives. Despite the availability of medicines for epilepsy, there are few treatment options for these specific disorders, creating a significant medical need for the development of novel therapies.

“Working together with Takeda we believe we can build on the strengths and interests of both companies. This is a creative alliance between a biotechnology and pharmaceutical company where not only do we both share the passion and commitment to develop meaningful medicines that may improve the lives of patients worldwide but also we are able to unlock value in both companies’ pipelines and talent,” said Jeremy Levin, DPhil, MB BChir, chairman and chief executive officer of Ovid Therapeutics. “This alliance advances our strategy to become a leader in the rare neurological disorders field. Building on our work with OV101 in Angelman and Fragile X syndromes, the collaboration in rare epilepsies extends our ability to help patient communities who face neurological conditions with limited to no therapeutic options.”

About TAK-935

TAK-935, which is being studied in rare pediatric epilepsies, is a potent, highly-selective, first-in-class inhibitor of the enzyme cholesterol 24-hydroxylase (CH24H). CH24H is predominantly expressed in the brain, where it plays a central role in cholesterol homeostasis. CH24H converts cholesterol to 24-S-hydroxycholesterol (24HC) which then exits the brain into the blood plasma circulation.[i] Glutamate is one of the main neurotransmitters in the brain and has been shown to play a role in the initiation and spread of seizure activity.[ii] Recent literature indicates CH24H is involved in over-activation of the glutamatergic pathway through modulation of the NMDA channel,[iii] implying its potential role in CNS diseases such as epilepsy. To our knowledge, TAK-935 is the only molecule with this mechanism of action in clinical development.

TAK-935 has been tested in preclinical models to provide data to support the advancement of the drug into human clinical studies in patients suffering from rare epilepsy syndromes. A novel proprietary PET ligand, developed by Takeda and Molecular Neuroimaging, LLC (MNI), has been used to determine target occupancy of TAK-935 in the brain.[iv] In addition, TAK-935’s effect in the brain has been measured from the change in the plasma concentration of 24HC.

TAK-935 has completed four Phase 1 clinical studies[v],[vi],[vii],[viii] which have assessed tolerability and target engagement at doses which are believed to be therapeutically relevant.

About Takeda Pharmaceutical Company
Takeda Pharmaceutical Company Limited is a global, research and development-driven pharmaceutical company committed to bringing better health and a brighter future to patients by translating science into life-changing medicines. Takeda focuses its R&D efforts on oncology, gastroenterology and central nervous system therapeutic areas plus vaccines. Takeda conducts R&D both internally and with partners to stay at the leading edge of innovation. New innovative products, especially in oncology and gastroenterology, as well as Takeda's presence in Emerging Markets, are currently fueling the growth of Takeda. More than 30,000 Takeda employees are committed to improving quality of life for patients, working with Takeda's partners in health care in more than 70 countries. For more information, visit http://www.takeda.com/news.

About Ovid Therapeutics
Ovid Therapeutics Inc. is a privately-held, New York-based, biopharmaceutical company using its BoldMedicine™ approach to develop therapies that transform the lives of patients with rare neurological diseases. Ovid's lead product candidate, OV101, is currently in development for the treatment of symptoms of Angelman syndrome and Fragile X syndrome.

For more information, visit http://www.ovidrx.com/.

Takeda's Forward-Looking Statements
This press release contains "forward-looking statements." Forward-looking statements include all statements other than statements of historical fact, including plans, strategies and expectations for the future, statements regarding the expected timing of filings and approvals relating to the transaction, the expected timing of the completion of the transaction, the ability to complete the transaction or to satisfy the various closing conditions, future revenues and profitability from or growth or any assumptions underlying any of the foregoing. Statements made in the future tense, and words such as "anticipate," "expect," "project," "continue," "believe," "plan," "estimate," "pro forma," "intend," "potential," "target," "forecast," "guidance," "outlook," "seek," "assume," "will," "may," "should," and similar expressions are intended to qualify as forward-looking statements. Forward-looking statements are based on estimates and assumptions made by management that are believed to be reasonable, though they are inherently uncertain and difficult to predict. Investors and security holders are cautioned not to place undue reliance on these forward-looking statements.

Forward-looking statements involve risks and uncertainties that could cause actual results or experience to differ materially from that expressed or implied by the forward-looking statements. Some of these risks and uncertainties include, but are not limited to: required regulatory approvals for the transaction may not be obtained in a timely manner, if at all; the conditions to closing of the transaction may not be satisfied; competitive pressures and developments; applicable laws and regulations; the success or failure of product development programs; actions of regulatory authorities and the timing thereof; changes in exchange rates; and claims or concerns regarding the safety or efficacy of marketed products or product candidates in development.

The forward-looking statements contained in this press release speak only as of the date of this press release, and neither Ovid nor Takeda undertake any obligation to revise or update any forward-looking statements to reflect new information, future events or circumstances after the

date of the forward-looking statement. If one or more of these statements is updated or corrected, investors and others should not conclude that additional updates or corrections will be made.

Ovid's Cautionary Note on Forward-Looking Statements
This press release contains forward-looking statements. Forward-looking statements contained in this press release include, without limitation, statements regarding the potential use of TAK-935 to treat epilepsy and various central nervous system indications, the scope and timing of the clinical development of TAK-935 and Ovid's potential payment of milestone payments. Words such as "may," "believe," "will," "expect" and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements. These forward-looking statements are not guarantees of future performance and involve a number of unknown risks, assumptions, uncertainties and factors that are beyond Ovid's control. All forward-looking statements are based on Ovid's expectations and assumptions as of the date of this press release. Actual results may differ materially from these forward-looking statements. Except as required by law, Ovid expressly disclaims any responsibility to update any forward-looking statement contained herein, whether as a result of new information, future events or otherwise.

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[i] Russell DW, Halford RW, Ramirez DMO, Shah R, Kotti T. Cholesterol 24-Hydroxylase: An Enzyme of Cholesterol Turnover in the Brain. Annu Rev Biochem. 2009; 78: 1017–1040.

[ii] Mehta A, Prabhakar M, Kumar P, Deshmukh R, Sharma PL. Excitotoxicity: bridge to various triggers in neurodegenerative disorders. Eur J Pharmacol 2013;698(1-3):6-18.

[iii] Paul SM, Doherty JJ, Robichaud AJ, Belfort GM, Chow BY, Hammond RS, et al. The major brain cholesterol metabolite 24(S)-hydroxycholesterol is a potent allosteric modulator of N-methyl-D-aspartate receptors. J Neurosci 2013;33(44):17290-300.

[iv] https://www.clinicaltrials.gov/ct2/show/NCT02497235?term=TAK-935&rank=1

[v] https://www.clinicaltrials.gov/ct2/show/NCT02497235?term=TAK-935&rank=1

[vi] https://www.clinicaltrials.gov/ct2/show/NCT02906813?term=TAK-935&rank=2

[vii] https://www.clinicaltrials.gov/ct2/show/NCT02201056?term=TAK-935&rank=3

[viii] https://www.clinicaltrials.gov/ct2/show/NCT02539134?term=TAK-935&rank=4