March 19, 2025

Benitec Biopharma Reports Positive Interim Clinical Results for Three Subjects Treated with BB-301 in Phase 1b/2a Study to be Presented at the 2025 Muscular Dystrophy Association Clinical & Scientific Conference

-Durable, Clinically Significant Improvements in Swallowing Function Achieved 12-months Post-Treatment with BB-301 for Subject 1-

-Durable, Clinically Significant Improvements in Swallowing Function Achieved 12-months Post-Treatment with BB-301 for Subject 2, with Subject 2 Achieving a Clinically Normal Swallowing Profile Following the Significant Reduction in Total Dysphagic Symptom Burden-

-Clinically Significant Improvements in Swallowing Function Achieved 3-months Post-Treatment with BB-301 for Subject 3, with Subject 3 Achieving a Clinically Normal Swallowing Profile Following the Significant Reduction in Total Dysphagic Symptom Burden-

-Positive Interim Clinical Study Results to be Reported as a Late-Breaking Oral Presentation at the 2025 Muscular Dystrophy Association Clinical & Scientific Conference-

HAYWARD, Calif., March 19, 2025 (GLOBE NEWSWIRE) -- Benitec Biopharma Inc. (NASDAQ: BNTC) (“Benitec” or “Company”), a clinical-stage, gene therapy-focused, biotechnology company developing novel genetic medicines based on its proprietary “Silence and Replace” DNA-directed RNA interference (“ddRNAi”) platform, today announces continued durable improvements in swallowing function and reductions in total dysphagic symptom burden following administration of the low-dose of BB-301 in the first three Subjects treated in the BB-301 Phase 1b/2a single-arm, open-label, sequential, dose-escalation cohort study (NCT06185673) in Oculopharyngeal Muscular Dystrophy (OPMD). Interim clinical study results will be presented today in an oral late-breaking podium presentation at the 2025 Muscular Dystrophy Association Clinical & Scientific Conference, taking place in Dallas, Texas.

The interim clinical study update to be presented at the 2025 Muscular Dystrophy Association Clinical & Scientific Conference will detail the 12-month (365-day) post-treatment results for the first Subject, the 12-month (365-day) post-treatment results for the second Subject, and the 3- month (90-day) post-treatment results for the third Subject, each of whom have been safely treated with BB-301. The key radiographic efficacy endpoints that will be described during the presentation include serial videofluoroscopic swallowing study

("VFSS") assessments of Swallowing Efficiency (via characterization of post swallow accumulation of food and liquid material or "Total Pharyngeal Residue") and VFSS assessments of Swallowing Effectiveness (via characterization of the frequency of pathologic sequential swallows which comprise rapid involuntary contractions of the pharyngeal muscles without restoration of the resting pharyngeal diameter between pharyngeal contractions). The key subject-reported efficacy endpoints that will be described during the presentation include serial assessments of total dysphagic symptom burden via the use of the Sydney Swallow Questionnaire or "SSQ" (a 17-question patient-reported outcome instrument). The average post-treatment results for each Subject will be compared to their average pre-treatment results (as evaluated during the five clinical assessment visits conducted during enrollment in the Benitec-sponsored OPMD Natural History Study). A detailed description of the interim clinical study results will be found **here** on the Company website following the completion of the formal presentation at 1:30 pm Central Time.

"We are extremely grateful for the extraordinary commitment of the Subjects and their families to the BB-301 clinical development program. We are highly encouraged by the clinically significant improvements observed for the first three Subjects treated with BB-301, with Subject 2 and Subject 3 each achieving clinically normal swallowing profiles based on the results of the respective reductions in their total dysphagic symptom burdens," said Jerel A. Banks, M.D., Ph.D., Executive Chairman and Chief Executive Officer of Benitec. "The sixth and final Subject of Cohort 1 will be treated with BB-301 in the second calendar quarter of this year, and we are highly optimistic about the potential for continued benefit in Subjects enrolled in the ongoing clinical study. We look forward to enrolling additional Subjects at the next, higher dose of BB-301 later this year."

OPMD is a rare, autosomal dominant, late-onset degenerative muscle disorder presenting in patients at 40-60 years of age. OPMD is principally characterized by severe progressive dysphagia, impacting 97% of patients, which can lead to chronic choking, malnutrition, aspiration pneumonia and, in severe cases, death. OPMD is caused by a mutation in the poly(A)-binding protein nuclear 1 (PABPN1) gene. There is no effective drug therapy available for OPMD. Current clinical interventions are limited to palliative surgical procedures and dietary modifications, which do not address the underlying cause of the disease. BB-301, a novel investigational gene therapy designed to improve the dysphagic symptoms of OPMD, is being evaluated in a Phase 1b/2a, open-label dose escalation study (NCT06185673) to assess safety and clinical activity.

Subjects Enrolled into the BB-301 Clinical Development Program are Impacted by Two Discrete Drivers of Total Dysphagic Symptom Burden:

- OPMD Subjects enrolled into the OPMD Natural History Study and the BB-301 Phase 1b/2a Clinical Treatment Study can be impacted by the post swallow accumulation of food and liquid ("Inefficient Swallowing").

- OPMD Subjects enrolled into the OPMD Natural History Study and the BB-301 Phase 1b/2a Clinical Treatment Study can be impacted by pathologic sequential swallows comprising rapid involuntary contractions of the pharyngeal muscles without restoration of the resting pharyngeal diameter between pharyngeal contractions ("Ineffective Swallowing").

Clinical Utility, Sensitivity, and Specificity of the Key Assessment Methods:

- In the BB-301 Phase 1b/2a Clinical Treatment Study, Radiologists and Speech Language Pathologists employ serial VFSS to objectively characterize the nature and severity of anatomical and functional abnormalities present in each Subject during the pre-treatment period and the post-treatment period.

- Serial SSQ assessments are employed to characterize the contribution of the VFSS findings to the total symptom burden experienced by each Subject, thus, linking the VFSS findings to the changes in Subject-reported symptom burden for the pre-treatment period and the post-treatment period.

- The SSQ has been used in conjunction with VFSS in several controlled clinical studies which compared the results for healthy subjects with those of dysphagic patients:

    - The clinical studies demonstrated strong correlations between the results of VFSS-based assessments and SSQ-based assessments and facilitated the identification of SSQ cut-off values of 111.0[1] and 118.5[2], below which swallowing is clinically normal.

    - Audag, et al.[2] obtained a sensitivity of 93% and a specificity of 82% with the use of an SSQ cut-off score of 118.5.

    - Additionally, these clinical studies provide robust support for the discriminant validity of the SSQ which is critical to its use in the accurate characterization of responses to treatment and the establishment of efficacy for a given treatment.

- Subjects in the BB-301 Phase 1b/2a Treatment Study are blinded to their SSQ Total Scores and VFSS (TPR and pathologic sequential swallowing frequency) assessment results, and the Central Reader for the VFSS assessments is blinded to the SSQ Total Scores for each Subject.

Summary of the Interim Clinical Study Results for Subject 1, Subject 2, and Subject 3:

- Three Subjects with distinct causes of their respective dysphagic symptom burdens were safely treated with BB-301 (1.2e13 vg/Subject) and experienced significant, clinically meaningful improvements in swallowing function.

- There were no Severe Adverse Events.

- All three Subjects experienced significant reductions in their total dysphagic symptom burdens:

    - Subject 1, plagued by Inefficient Swallowing, experienced clinically significant reductions in post swallow accumulation of foods and liquids per the VFSS Total Pharyngeal Residue (TPR) results and achieved a correspondingly significant reduction in total dysphagic symptom burden per the Total SSQ Scores 12-months post-BB-301 administration. This Subject has completed the statistical follow-up period of the BB-301 Phase 1b/2a Treatment Study.

    - Subject 2, plagued by Ineffective Swallowing, experienced an almost complete

resolution of pathologic sequential swallows per the VFSS results and achieved a correspondingly significant reduction in total dysphagic symptom burden per the Total SSQ Scores, achieving an SSQ score indicative of a clinically normal swallowing profile 12-months post-BB-301 administration. This Subject has completed the statistical follow-up period of the BB-301 Phase 1b/2a Treatment Study.

- Subject 3, plagued by Ineffective Swallowing, experienced complete resolution of pathologic sequential swallows per the VFSS results and achieved a correspondingly significant reduction in total dysphagic symptom burden per the Total SSQ Score, achieving an SSQ score indicative of a clinically normal swallowing profile 3-months post BB-301 administration.

Clinical Study Results for Subject 1 (365-Days Post Treatment with BB-301):

Subject 1, plagued by Inefficient Swallowing, experienced significant, clinically meaningful reductions of post swallow residue across all food and liquid consistencies 12-months post treatment with BB-301 per the VFSS results, and the VFSS results were accompanied by significant reductions in total dysphagic symptom burden.

Subject 1 displayed significant reductions (i.e., improvements) in VFSS TPR (37% reduction for Thin Liquid, 18% reduction for Solid Food, and 29% reduction for Thick Liquids) following the administration of the low-dose of BB-301 as compared to the average values recorded for Subject 1 during the pre-treatment period.

Subject 1 also displayed continued clinically meaningful reductions (i.e., improvements) in total dysphagic symptom burden with an average 12-month post-treatment SSQ Total Score demonstrating a 41% reduction as compared to the average values recorded for Subject 1 during the pre-treatment period.

Clinical Study Results for Subject 2 (365-Days Post Treatment with BB-301):

Subject 2, plagued by Ineffective Swallowing, experienced significant, clinically meaningful reductions in the frequency of pathologic sequential swallows 12-months post treatment with BB-301 per the VFSS results, and the VFSS results were accompanied by significant reductions in total dysphagic symptom burden with Subject 2 achieving an SSQ score indicative of a clinically normal swallowing profile.

During the fifteen pre-treatment VFSS assessments conducted for Thin Liquid in the OPMD Natural History Study, Subject 2 experienced a high frequency of pathologic sequential swallows (observed during 80% of the swallowing assessments). During the twelve post-treatment VFSS assessments conducted for Thin Liquid in the Phase 1b/2a Clinical Treatment Study, Subject 2 experienced a significantly lower frequency of pathologic sequential swallows (observed during 17% of the swallowing assessments). Critically, the magnitude of reduction in the frequency of pathologic sequential swallows reported for Thin Liquid at the 6-month post-treatment interim clinical update in October 2024 (observed during 17% of the swallowing assessments) was maintained at month 12 (again observed during 17% of the swallowing assessments).

Subject 2 also displayed continued clinically meaningful reductions (i.e., improvements) in

total dysphagic symptom burden with an average 12-month post-treatment SSQ Total Score demonstrating a 91% reduction as compared to the average values recorded for Subject 2 during the pre-treatment period. The 12-month post-treatment average SSQ value of 68 units for Subject 2 represents a clinically normal swallowing profile.

Interim Clinical Study Results for Subject 3 (90-Days Post Treatment with BB-301):

Subject 3, plagued by Ineffective Swallowing, experienced significant, clinically meaningful reductions in the frequency of pathologic sequential swallows 3-months post treatment with BB-301 per the VFSS results, and the VFSS results were accompanied by a significant reduction in total dysphagic symptom burden with Subject 3 achieving an SSQ score indicative of a clinically normal swallowing profile.

During the twenty-five pre-treatment VFSS assessments conducted for Thin Liquid and Thick Liquids in the OPMD Natural History Study, Subject 3 experienced a high frequency of pathologic sequential swallows (observed during 84% of the swallowing assessments). During the five post-treatment VFSS assessment conducted for Thin Liquid and Thick Liquids in the Phase 1b/2a Clinical Treatment Study, Subject 3 experienced no pathologic sequential swallows (observed during 0% of the swallowing assessments).

Subject 3 also displayed a clinically meaningful reduction (i.e., improvement) in total dysphagic symptom burden with a 3-month post-treatment SSQ Total Score demonstrating a 68% reduction as compared to the average values recorded for Subject 3 during the pre-treatment period. The 3-month post-treatment SSQ value of 70 units for Subject 3 represents a clinically normal swallowing profile.

The Subjects were blinded to their SSQ Total Scores and VFSS (TPR and pathologic sequential swallowing frequency) assessment results, and the Central Reader for the VFSS assessments was blinded to the SSQ Total Scores for each Subject.

Enrollment Into the BB-301 Phase 1b/2a Clinical Treatment Study is Ongoing:
Five Subjects have been safely treated with the low-dose of BB-301, and the sixth and final Subject of Cohort 1 is anticipated to receive the low-dose of BB-301 in 2Q 2025.

Adverse Events:
No Severe Adverse Events have been observed for the Subjects treated with BB-301.

About Benitec Biopharma Inc.
Benitec Biopharma Inc. (“Benitec” or the “Company”) is a clinical-stage biotechnology company focused on the advancement of novel genetic medicines with headquarters in Hayward, California. The proprietary “Silence and Replace” DNA-directed RNA interference platform combines RNA interference, or RNAi, with gene therapy to create medicines that simultaneously facilitate sustained silencing of disease-causing genes and concomitant delivery of wildtype replacement genes following a single administration of the therapeutic construct. The Company is developing Silence and Replace-based therapeutics for chronic and life-threatening human conditions including Oculopharyngeal Muscular Dystrophy (OPMD). A comprehensive overview of the Company can be found on Benitec’s website at www.benitec.com.

Forward Looking Statements

Except for the historical information set forth herein, the matters set forth in this press release include forward-looking statements, including statements regarding Benitec's plans to develop and potentially commercialize its product candidates, the timing of completion of pre-clinical and clinical trials, the timing of the availability of data from our clinical trials, the timing and sufficiency of patient enrollment and dosing in clinical trials, the timing of expected regulatory filings, the clinical utility and potential attributes and benefits of ddRNAi and Benitec's product candidates, the intellectual property position, and other forward-looking statements. These forward-looking statements are based on the Company's current expectations and subject to risks and uncertainties that may cause actual results to differ materially, including unanticipated developments in and risks related to: unanticipated delays; further research and development and the results of clinical trials possibly being unsuccessful or insufficient to meet applicable regulatory standards or warrant continued development; the ability to enroll sufficient numbers of subjects in clinical trials; determinations made by the FDA and other governmental authorities; the Company's ability to protect and enforce its patents and other intellectual property rights; the Company's dependence on its relationships with its collaboration partners and other third parties; the efficacy or safety of the Company's products and the products of the Company's collaboration partners; the acceptance of the Company's products and the products of the Company's collaboration partners in the marketplace; market competition; sales, marketing, manufacturing and distribution requirements; greater than expected expenses; expenses relating to litigation or strategic activities; the Company's ability to satisfy its capital needs through increasing its revenue and obtaining additional financing, given market conditions and other factors, including our capital structure; our ability to continue as a going concern; the length of time over which the Company expects its cash and cash equivalents to be sufficient to execute on its business plan; the impact of local, regional, and national and international economic conditions and events; and other risks detailed from time to time in the Company's reports filed with the Securities and Exchange Commission. The Company disclaims any intent or obligation to update these forward-looking statements.

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Source: Benitec Biopharma Inc.

[1] Bua, B.A. and Bülow, M., BMC Research Notes (2014) 7:742;[2] Audag N., et al., Dysphagia (2019) 34:556-566

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