Novartis announces positive results at ATS for once-daily Ultibro® Breezhaler® versus combination therapy (tiotropium plus formoterol)

- QUANTIFY study met primary endpoint demonstrating non-inferiority of Ultibro® Breezhaler® vs tiotropium 18 mcg plus formoterol 12 mcg in improving health-related quality of life outcomes¹,²

- QUANTIFY study met secondary endpoint demonstrating superiority of Ultibro Breezhaler vs tiotropium plus formoterol by improving lung function¹,²

- Ultibro Breezhaler provides the convenience of a once-daily fixed-dose combination in a single inhalation device for the treatment of COPD

- Novartis showcases 16 respiratory abstracts at the 2014 American Thoracic Society (ATS) International Conference

Basel, May 21, 2014 – Novartis announced today new data from the QUANTIFY study, which demonstrated the non-inferiority of Ultibro® Breezhaler® (indacaterol/glycopyrronium) 110/50 mcg compared to tiotropium 18 mcg plus formoterol 12 mcg in terms of health-related quality of life (HRQoL) outcomes in moderate-to-severe chronic obstructive pulmonary disease (COPD) patients at week 26¹,². Positive results from QUANTIFY are part of 16 Novartis respiratory abstracts being presented at the American Thoracic Society (ATS) International Conference, May 16-21, 2014 in San Diego, CA, USA.

In the QUANTIFY study, which included over 900 COPD patients, once-daily Ultibro Breezhaler showed superior improvements in lung function (trough FEV₁) at 26 weeks compared to once-daily tiotropium plus twice-daily formoterol in moderate-to-severe COPD patients. Additionally, patients taking Ultibro Breezhaler were more likely to demonstrate a clinically meaningful improvement in shortness of breath and health-related quality of life (per protocol set) at 26 weeks compared to tiotropium plus formoterol. The safety and tolerability of Ultibro Breezhaler was comparable to the other treatment arm in the study¹,².

“These positive results from QUANTIFY demonstrate that once-daily Ultibro Breezhaler can provide better symptom control versus a combination of two individual treatments, tiotropium plus formoterol,” said Tim Wright, Global Head of Development, Novartis Pharmaceuticals. “More patients on Ultibro Breezhaler had a meaningful improvement in health-related quality of life demonstrating superiority of our LABA/LAMA vs tiotropium plus formoterol.”

COPD affects an estimated 210 million people worldwide³ and is projected to be the third leading cause of death by 2020⁴. Symptoms can impose a significant burden on patients and reduce quality of life⁵,⁶, but they are often inadequately managed. Treatments that
are easy for patients to take and have reliable dose control whilst effectively managing the symptoms of COPD are important to improve patient outcomes.\textsuperscript{7-9}

QUANTIFY was a 26-week treatment, multicenter, randomized, parallel group, blinded study to assess the efficacy and safety of once-daily Ultibro Breezhaler in 934 patients with moderate-to-severe COPD, versus the free-combination of tiotropium 18 mcg plus formoterol 12 mcg. The primary objective was to demonstrate non-inferiority of Ultibro Breezhaler in HRQoL as assessed by the St. George’s Respiratory Questionnaire-COPD (SGRQ-C) versus tiotropium plus formoterol after 26 weeks of treatment. Secondary endpoints included transition dyspnea index (TDI) score, trough FEV\textsubscript{1}, forced vital capacity (FVC) and safety and tolerability.\textsuperscript{1,2}

**About Ultibro Breezhaler**

Ultibro Breezhaler (indacaterol/glycopyrronium bromide) is a novel, once-daily dual bronchodilator approved as a maintenance bronchodilator treatment to relieve symptoms in adult patients with COPD.\textsuperscript{10} Ultibro Breezhaler is a fixed-dose combination of two bronchodilators, indacaterol 110 mcg, a long-acting beta\textsubscript{2}-adrenergic agonist (LABA) and glycopyrronium 50 mcg, a long-acting muscarinic antagonist (LAMA). Ultibro Breezhaler was developed and previously known as QVA149. Clinical trials have shown that Ultibro Breezhaler offers statistically significant improvements in bronchodilation compared to treatments widely used as current standards of care, including salmeterol/fluticasone 500/50 mcg, in patients with no history of moderate or severe exacerbations over the last year and open-label tiotropium 18 mcg. Ultibro Breezhaler is currently approved for use in over 30 countries, including the EU, Japan, Canada, Mexico and Australia.

**About the Novartis COPD portfolio**

Novartis is committed to addressing the unmet medical needs of COPD patients and improving their quality of life by providing innovative medicines and devices. The Novartis COPD portfolio includes Onbrez\textsuperscript{®} Breezhaler\textsuperscript{®} / Arcapta\textsuperscript{™} Neohaler\textsuperscript{™} (indacaterol), Seebr\textsuperscript{®} Breezhaler\textsuperscript{®} (glycopyrronium bromide) and Ultibro Breezhaler (indacaterol/glycopyrronium bromide), which are all indicated as maintenance treatments for COPD patients. Glycopyrronium bromide was exclusively licensed to Novartis in April 2005 by Vectura and its co-development partner Sosei.

Novartis continues development of respiratory products for delivery via the low resistance Breezhaler\textsuperscript{®} inhalation device, which makes it suitable for patients with different severities of airflow limitation.\textsuperscript{5} The Breezhaler device allows patients to hear, feel and see that they have taken the full dose correctly.\textsuperscript{9,10}

**About COPD**

COPD is a progressive life-threatening disease that makes it hard to breathe, with symptoms that have a destructive impact on patients’ function and quality of life.\textsuperscript{4,14} COPD is often considered to be a disease of later years, but estimates suggest that 50% of those with COPD are now less than 65 years old, resulting in increases in absenteeism, premature retirement and reductions in workforce participation.\textsuperscript{5,6}

**Disclaimer**

The foregoing release contains forward-looking statements that can be identified by words such as “can,” “projected,” “to be,” “committed,” “continues,” or similar terms, or by express or implied discussions regarding potential new indications or labeling for Ultibro Breezhaler, or regarding potential future revenues from any or all of the products in the Novartis COPD portfolio, including Ultibro Breezhaler. You should not place undue reliance on these statements. Such forward-looking statements are based on the current beliefs and expectations of management regarding future events, and are subject to significant known and unknown risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those set forth in the forward-looking statements. There can be no guarantee that Ultibro Breezhaler will be submitted or approved for any
additional indications or labeling in any market, or at any particular time. Nor can there be any guarantee that any of the products in the Novartis COPD portfolio will receive additional regulatory approvals or be commercially successful in the future. In particular, management’s expectations regarding these products could be affected by, among other things, the uncertainties inherent in research and development, including unexpected clinical trial results and additional analysis of existing clinical data; unexpected regulatory actions or delays or government regulation generally; the company’s ability to obtain or maintain proprietary intellectual property protection; general economic and industry conditions; global trends toward health care cost containment, including ongoing pricing pressures; unexpected manufacturing issues, and other risks and factors referred to in Novartis AG’s current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in this press release as of this date and does not undertake any obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

About Novartis
Novartis provides innovative healthcare solutions that address the evolving needs of patients and societies. Headquartered in Basel, Switzerland, Novartis offers a diversified portfolio to best meet these needs: innovative medicines, eye care, cost-saving generic pharmaceuticals, preventive vaccines, over-the-counter and animal health products. Novartis is the only global company with leading positions in these areas. In 2013, the Group achieved net sales of USD 57.9 billion, while R&D throughout the Group amounted to approximately USD 9.9 billion (USD 9.6 billion excluding impairment and amortization charges). Novartis Group companies employ approximately 135,000 full-time-equivalent associates and sell products in more than 150 countries around the world. For more information, please visit http://www.novartis.com.

Novartis is on Twitter. Sign up to follow @Novartis at http://twitter.com/novartis.

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