



Bayer AG
Communications
51368 Leverkusen
Germany
Tel. +49 214 30-1
media.bayer.com

News Release

Not intended for U.S. and UK Media

Data from Phase III VICTORIA study presented at American College of Cardiology's 69th Annual Scientific Session Together With World Congress of Cardiology (ACC.20/WCC)

Vericiguat significantly reduced the risk of the composite primary endpoint of cardiovascular death or heart failure hospitalization

- VICTORIA is the first positive contemporary outcomes study focused exclusively on a chronic heart failure patient population following a worsening event
 - Treatment effect on the composite endpoint of cardiovascular death or heart failure hospitalization was consistently demonstrated regardless of background heart failure therapy
 - Vericiguat was well-tolerated – overall incidence rate of adverse events was comparable to placebo
 - Studied in a population with higher event rates than in other contemporary heart failure studies, the overall treatment benefit was driven by the patients within the lower three quartiles of baseline NT-proBNP levels, where relative risk reduction of the primary composite endpoint was up to 27%
-

Berlin, March 28, 2020 – Bayer announced today detailed results from the Phase III VICTORIA study, which demonstrate superiority in the composite primary efficacy endpoint of investigational vericiguat versus placebo. VICTORIA is the first positive contemporary outcomes study focused exclusively on symptomatic chronic heart failure patients (ejection fraction <45%) following a worsening event. Vericiguat was studied in combination with available heart failure therapies. A greater than two-fold higher annual placebo event rate for the primary endpoint of cardiovascular death or heart failure hospitalization and twice the baseline levels of a clinical marker of disease prognosis (NT-proBNP) put these patients at higher risk for hospitalization or death compared to recent heart failure outcomes trials.

Vericiguat up to 10mg once daily on top of available background therapy significantly reduced the risk of the composite endpoint of heart failure hospitalization or cardiovascular death in patients with symptomatic chronic heart failure (ejection fraction <45%) following a worsening event. A hazard ratio of 0.90 (95% CI 0.82-0.98; p=0.019) in this high-risk population translated into a clinically relevant 4.2/100 patient-years absolute reduction in event rate. Based on this absolute risk reduction, the number needed to treat (NNT) with vericiguat for one year to prevent a primary outcome event is approximately 24. The findings from VICTORIA were presented today as a Late-Breaking Clinical Trial at the virtual American College of Cardiology's 69th Annual Scientific Session Together With World Congress of Cardiology (ACC.20/WCC Virtual) and were simultaneously published in *The New England Journal of Medicine*. Vericiguat is being jointly developed with MSD (known as Merck & Co., Inc. in the U.S. and Canada).

"For this group of chronic heart failure patients at high risk for future events, where other drugs have been infrequently studied, vericiguat proved its potential to become a significant novel addition to usual guideline-based treatments," said Paul W. Armstrong, M.D., cardiologist and Distinguished University Professor of Medicine at the Canadian VIGOUR Centre, University of Alberta, the study's lead author. "The observed absolute risk reduction is a gratifying result in chronic heart failure patients that not only may open up a new avenue for them but also a pathway for future discovery in cardiovascular heart disease."

"One in five people will develop heart failure, and despite advances in therapies, patients are still caught in a downward spiral, putting them at increasing risk for repeat hospitalizations or death after each event," said Dr. Joerg Moeller, Member of the Executive Committee of Bayer AG's Pharmaceutical Division and Head of Research and Development. "The VICTORIA data show that patient's heart and vascular function was improved with vericiguat. Efficacy and safety of vericiguat were consistent regardless of background therapy including in patients receiving sacubitril/valsartan."

VICTORIA enrolled a large international symptomatic chronic heart failure patient population (ejection fraction <45%) with a prior worsening event who are at high risk for cardiovascular events despite optimized background heart failure therapy. Vericiguat reduced the primary outcome from much higher event rates than in other contemporary heart failure studies consistently across most of the thirteen prespecified subgroups, including patients receiving sacubitril/valsartan and those with more severe symptoms

according to New York Heart Association (NYHA) class III. In a pre-specified baseline NT-proBNP analysis, patients were divided into four quartiles. The overall treatment benefit was driven by the patients within the lower three quartiles, where relative risk reduction of the primary composite endpoint ranged between 18-27%.

Secondary endpoints including time to first occurrence of heart failure hospitalization (ARR 3.2 per 100 patient years), time to total heart failure hospitalizations (including first and recurrent events: ARR 4.1 per 100 patient years), and time to the composite of all-cause mortality or heart failure hospitalization (ARR 4.2 per 100 patient years) were statistically significant. While numerically and directionally consistent with the primary endpoint, the secondary efficacy analyses for time to cardiovascular death or time to all-cause death were not statistically significant.

Vericiguat was well-tolerated, which is consistent with the safety profile seen in previous studies with vericiguat. The overall incidence rate of serious adverse events (32.8 versus 34.8%) and discontinuations (6.6% vs 6.3%) was comparable to placebo. Rates of symptomatic hypotension (9.1% vs 7.9%) and syncope (4% vs 3.5%) tended to be more common with vericiguat than placebo, but the difference was not statistically significant. Throughout the VICTORIA study, there were no increased renal adverse events such as hyperkalemia or decreases in estimated glomerular filtration rate (eGFR). The vericiguat safety profile was also positive in combination with other therapies used in heart failure patients, including sacubitril/valsartan.

Merck and Bayer plan to share VICTORIA data with regulatory authorities worldwide.

About VICTORIA

VICTORIA is a randomized, placebo-controlled, multi-center, double-blind Phase III study investigating vericiguat versus placebo in combination with available heart failure therapies in symptomatic chronic heart failure patients (ejection fraction <45%) with a prior worsening event, defined as heart failure hospitalization or receiving an intravenous diuretic for heart failure without hospitalization. The primary endpoint of the study is the composite of time to first occurrence of cardiovascular death or heart failure hospitalization.

Vericiguat 10 mg once daily significantly reduced the combined risk of heart failure hospitalization and cardiovascular death by 10% (relative risk reduction; HR 0.90; 95% CI

(0.82-0.98; $p=0.019$); absolute risk reduction (ARR) 4.2 per 100 patient years. The results for the individual components of the primary endpoint are: heart failure hospitalization: HR 0.90, 95% CI (0.81-1.00; $p=0.048$); cardiovascular death: HR 0.93, 95% CI (0.81-1.06; $p=0.269$).

The Phase III VICTORIA study enrolled 5,050 patients with an ejection fraction of $<45\%$ who were randomized to receive either vericiguat once daily (titrated up to 10mg) or placebo in combination with available heart failure therapies. The study, which was co-sponsored by Merck and Bayer, was conducted in collaboration with the Canadian VIGOUR Centre and the Duke Clinical Research Institute in more than 600 centers in 42 countries including in Europe, Japan, China and the U.S.

About Vericiguat

Vericiguat (BAY 1021189 / MK-1242) is an investigational, oral, once-daily, direct stimulator of the soluble guanylate cyclase (sGC) enzyme. Vericiguat actively restores functioning of a distinct pathway (NO-sGC-cGMP) not addressed by current therapies. While sGC is important for the function of both the blood vessels and the heart, it is insufficiently stimulated in heart failure patients resulting in myocardial and vascular dysfunction. Vericiguat is the first-in-class sGC-stimulator under development in this indication.

About Heart Failure

Heart failure is a highly prevalent chronic condition: Within the last 8 years, the approximate global prevalence of HF has doubled to over 60 million people. Heart failure is characterized by the progressive decline in the heart's ability to pump enough blood to meet the body's needs for blood and oxygen. Risk factors include hypertension, diabetes mellitus, smoking, a past myocardial infarction, and coronary artery disease. Despite advances in therapy and prevention efforts, heart failure remains as malignant as some common cancers. In the U.S. and Europe, 50-60% of hospitalized heart failure patients can be classified as heart failure with reduced ejection fraction (HFrEF). Annually, approximately 30% of patients with symptomatic chronic heart failure will experience worsening of the disease, which is marked by progressive symptoms and/or a recent heart failure event. More than half of patients with worsening chronic HFrEF are rehospitalized within 30 days of the worsening event, and 1 in 5 patients with worsening chronic HFrEF will die within 2 years. Approximately 2.3 million patients in the EU (1.2 million) and the US (1.1 million) have worsening chronic heart failure.

About Worldwide Collaboration between Bayer and MSD

Since October 2014, Bayer and MSD (known as Merck & Co., Inc. in the U.S. and Canada) are in a worldwide collaboration in the field of sGC modulators. The collaboration brings together two leading companies that have stated their intent to fully evaluate this therapeutic class in areas of unmet medical need. The vericiguat program is being co-developed by Bayer and MSD.

About Cardiology at Bayer

Bayer is an innovation leader in the area of cardiovascular diseases, with a long-standing commitment to delivering science for a better life by advancing a portfolio of innovative treatments. The heart and the kidneys are closely linked in health and disease, and Bayer is working in a wide range of therapeutic areas on new treatment approaches for cardiovascular and kidney diseases with high unmet medical needs. The cardiology franchise at Bayer already includes a number of products and several other compounds are in various stages of preclinical and clinical development. Together, these products reflect the company's approach to research, which prioritizes targets and pathways with the potential to impact the way that cardiovascular diseases are treated.

About Bayer

Bayer is a global enterprise with core competencies in the life science fields of health care and nutrition. Its products and services are designed to benefit people by supporting efforts to overcome the major challenges presented by a growing and aging global population. At the same time, the Group aims to increase its earning power and create value through innovation and growth. Bayer is committed to the principles of sustainable development, and the Bayer brand stands for trust, reliability and quality throughout the world. In fiscal 2019, the Group employed around 104,000 people and had sales of 43.5 billion euros. Capital expenditures amounted to 2.9 billion euros, R&D expenses to 5.3 billion euros. For more information, go to www.bayer.com.

Contact:

Daniela Esser, phone +49 30 468-15805

Email: daniela.esser@bayer.com

Find more information at www.pharma.bayer.com

Our online press service is just a click away: media.bayer.com

Follow us on Facebook: <http://www.facebook.com/pharma.bayer>

Follow us on Twitter: [@BayerPharma](https://twitter.com/BayerPharma)

de (2020-0094E)

Forward-Looking Statements

This release may contain forward-looking statements based on current assumptions and forecasts made by Bayer management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Bayer's public reports which are available on the Bayer website at www.bayer.com. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.