Bayer AG
Investor Relations
51368 Leverkusen
Germany
www.investor.bayer.com

Investor News

Not intended for U.S. and UK Media

Two-year data presented at European Respiratory Society (ERS) Congress 2014:

Safety and Sustained Benefits of Adempas® From Bayer Confirmed by Results of Long-Term Studies

- Analysis of long-term extension studies CHEST-2 and PATENT-2 confirms long-term safety profile of riociguat over two years in patients with chronic thromboembolic pulmonary hypertension (CTEPH) and pulmonary arterial hypertension (PAH)
- Results demonstrate sustained improvements with riociguat in patients with CTEPH and PAH

Leverkusen, Germany, September 8, 2014 – Data presented at the European Respiratory Society (ERS) Congress today confirm the safety profile and the sustained efficacy of Adempas® (riociguat) over at least two years of treatment in patients with inoperable chronic thromboembolic pulmonary hypertension (CTEPH) or persistent or recurrent CTEPH after surgical treatment, and in patients with pulmonary arterial hypertension (PAH).

Riociguat is a soluble guanylate cyclase (sGC) stimulator, the first member of a novel class of compounds to target a key molecular mechanism underlying pulmonary hypertension (PH). The two-year results of the open-label extension studies CHEST-2 and PATENT-2 confirm that the improvements in exercise capacity and WHO Functional Class (FC) as observed in the pivotal Phase III studies CHEST-1 and PATENT-1 were sustained. Exercise capacity as measured by the Six-Minute Walk Test is a marker of disease severity and a predictor of survival in patients suffering from PH.

The longer observation time in CHEST-2 and PATENT-2 of at least two years allowed for an analysis of the correlation between efficacy endpoints and survival and clinical worsening, via a Cox proportional-hazards regression model. The model demonstrated a significant correlation between baseline values and change from baseline in 6 Minute

Walking Distance (6MWD), N-terminal of the prohormone brain natriuretic peptide (NT-proBNP), WHO FC and event-free survival (no clinical worsening).

“The long-term results of these studies are very encouraging, as they substantiate that the improvements PAH or CTEPH patients experience with riociguat are sustainable over the long-term,” said Pisana Ferrari from the European Pulmonary Hypertension Association. “For patients, this means improvements in their ability to walk farther, helping the heart and lungs work better, and making breathing easier when performing everyday basic tasks, and this ultimately suggests improved outcomes and prognoses.”

The analysis of the CHEST-2 data cut-off showed that, at two years, mean exercise capacity of CTEPH patients as measured by the 6MWD had increased by 50m compared to CHEST-1 trial baseline. Moreover, WHO FC had improved or stabilized in 97% of CTEPH patients (39% improved and 58% stabilized). The survival rate of patients at two years of treatment with riociguat was 93%.

In PATENT-2, PAH patients treated with riociguat over two years showed a mean improvement in 6MWD of 47m compared with PATENT-1 trial baseline. WHO FC had improved or stabilized in 91% of PAH patients (33% improved and 58% stabilized). As in CHEST-2, in PATENT-2 the survival rate of patients at two years of treatment with riociguat was 93%.

Riociguat was generally well-tolerated, with a good safety profile. The most commonly reported adverse reaction, occurring in greater than or equal to 10 percent of patients under riociguat treatment (up to 2.5 mg TID), was dizziness. Other adverse reactions included dyspepsia, headache and hypotension.

“The positive results of CHEST-2 and PATENT-2 contribute to the growing evidence of riociguat as an effective and well-tolerated long-term treatment for two of the five types of pulmonary hypertension, having demonstrated in clinical trials early, significant and sustained benefits for patients,” said Principal Investigator Professor Ardeschir Ghofrani, University Hospital Giessen and Marburg, and Kerckhoff Heart and Lung Center, Bad Nauheim, Germany. “The correlation between patient-relevant parameters, such as 6MWD and WHO FC and event-free survival, underlines that close monitoring of patient’s symptoms and exercise capacity is important for predicting outcome and response to treatment.”

Notes to Editors

- **Abstract:** Riociguat for the treatment of chronic thromboembolic pulmonary hypertension (CTEPH): 2-year results from the CHEST-2 long-term extension
  Session: 216
  Date and time: Monday 8 September, 08.30 – 10.30 am
  Room: A1-4

- **Abstract:** Riociguat for the treatment of pulmonary arterial hypertension (PAH): 2-year results from the PATENT-2 long-term extension
  Session: 216
  Date and time: Monday 8 September, 08.30 – 10.30 am
  Room: A1-4

About Pulmonary Hypertension
Pulmonary hypertension (PH) is a severe, progressive, life-changing and life-threatening disorder of the heart and lungs in which the blood pressure in the pulmonary arteries is above normal, and which can lead to heart failure and death. Patients with PH develop a markedly decreased exercise capacity and a reduced quality of life. The most common symptoms of PH include shortness of breath, fatigue, dizziness and fainting, all of which are worsened by exertion. As the symptoms of PH are non-specific, diagnosis can be delayed by as much as two years. Early diagnosis and accurate identification of the PH type are essential, as a delay in treatment initiation can have a negative impact on survival. Continuous treatment monitoring is then vital to ensure that patients are receiving optimal care for their particular type and stage of disease.

There are five different types of PH; each can affect the patient in a different way and every patient may have a different etiology of PH. For the best chance of success patients need to be treated at a PH specialist center.

About Riociguat
Riociguat is a soluble guanylate cyclase (sGC) stimulator, the first member of a novel class of compounds, discovered and developed by Bayer as an oral treatment to target a key molecular mechanism underlying PH. Riociguat is being investigated as a new and specific approach to treat different types of PH. sGC is an enzyme found in the

cardiopulmonary system and the receptor for nitric oxide (NO). When NO binds to sGC, the enzyme enhances synthesis of the signaling molecule cyclic guanosine monophosphate (cGMP). cGMP plays an important role in regulating vascular tone, proliferation, fibrosis, and inflammation.

PH is associated with endothelial dysfunction, impaired synthesis of NO and insufficient stimulation of sGC. Riociguat has a novel mode of action – it sensitizes sGC to endogenous NO by stabilizing the NO-sGC binding. Riociguat also directly stimulates sGC via a different binding site, independently of NO. Riociguat, as a stimulator of sGC, addresses the issue of NO deficiency by restoring the NO-sGC-cGMP pathway, leading to increased generation of cGMP.

With its novel mode of action, riociguat has the potential to overcome a number of limitations of currently approved PAH therapies, including nitric oxide (NO) dependence, and is the first drug which has shown clinical benefits in patients with inoperable CTEPH, or persistent or recurrent CTEPH after surgical treatment, where until the approval of riociguat no pharmacological treatment was available.

The riociguat development program across different forms of PH demonstrates Bayer's ongoing commitment to understanding this severe and life-threatening condition, with high unmet medical need, to improve the lives of people with PH.

Riociguat was approved under the name Adempas® in the US for use in CTEPH and PAH in October 2013. In Canada, the approvals for CTEPH and PAH followed in September 2013 and March 2014 respectively. In Switzerland and Japan, riociguat was approved in the CTEPH indication in November 2013, and in January 2014 respectively.
In the EU and US, riociguat has been granted orphan drug designation and was approved by the European Medicines Agency (EMA) under the name Adempas® for use in CTEPH and PAH in March 2014.

About Bayer HealthCare
The Bayer Group is a global enterprise with core competencies in the fields of healthcare, agriculture and high-tech materials. Bayer HealthCare, a subgroup of Bayer AG with annual sales of EUR 18.9 billion (2013), is one of the world's leading, innovative companies in the healthcare and medical products industry and is based in Leverkusen, Germany. The company combines the global activities of the Animal Health, Consumer Care, Medical Care and Pharmaceuticals divisions. Bayer HealthCare's aim is to

discover, develop, manufacture and market products that will improve human and animal health worldwide. Bayer HealthCare has a global workforce of 56,000 employees (Dec 31, 2013) and is represented in more than 100 countries. More information is available at www.healthcare.bayer.com.

Bayer AG, Investor Relations contacts:

Dr. Alexander Rosar (+49-214-30-81013)
Dr. Jürgen Beunink (+49-214-30-65742)
Peter Dahlhoff (+49-214-30-33022)
Judith Nestmann (+49-214-30-66836)
Constance Spitzer (+49-214-30-33021)
Dr. Olaf Weber (+49-214-30-33567)