Roche to present new phase III data for Hemlibra in people with haemophilia A at the World Federation of Hemophilia 2018 World Congress

- Data include results from HAVEN 3 study in people with haemophilia A without factor VIII inhibitors and HAVEN 4 study in people with haemophilia A with or without factor VIII inhibitors
- Ongoing Hemlibra clinical development programme demonstrates commitment to advancing care for all people with haemophilia A

Roche (SIX: RO, ROG; OTCQX: RHHBY) today announced that phase III results for Hemlibra® (emicizumab) will be presented for the first time during the World Federation of Hemophilia (WFH) 2018 World Congress from 20-24 May in Glasgow, Scotland. The late-breaking presentations include positive results from the pivotal HAVEN 3 study of Hemlibra dosed every week or every two weeks in people with haemophilia A without factor VIII inhibitors and the pivotal HAVEN 4 study of Hemlibra dosed every four weeks in people with haemophilia A with or without factor VIII inhibitors. These data support the promising potential of Hemlibra for all people with haemophilia A.

“We look forward to sharing these new results from the HAVEN 3 and HAVEN 4 studies, which demonstrate the potential of Hemlibra to redefine treatment expectations for people with haemophilia A with and without inhibitors to factor VIII,” said Sandra Horning, MD, Roche’s Chief Medical Officer and Head of Global Product Development. “We will also be sharing real-world data that provides new insight into the impact of haemophilia A treatment on daily life, as part of our ongoing commitment to advancing management and care for the global haemophilia community.”

Data from the HAVEN 3 and HAVEN 4 studies will be presented for the first time in late-breaking oral presentations on Monday 21 May. The HAVEN 3 presentation will highlight new data on Hemlibra prophylaxis administered every week or every two weeks in people 12 years of age or older with haemophilia A without factor VIII inhibitors compared to no prophylaxis. The presentation will also include results from an intra-patient analysis comparing Hemlibra prophylaxis to prior treatment with factor VIII prophylaxis.
The US Food and Drug Administration (FDA) recently granted Breakthrough Therapy Designation for Hemlibra in people with haemophilia A without factor VIII inhibitors based on data from this study. The HAVEN 4 presentation will highlight primary data in people 12 years of age or older with haemophilia A with or without factor VIII inhibitors receiving Hemlibra prophylaxis every four weeks.

These presentations at WFH follow the announcement of positive top-line results from the HAVEN 3 study in November 2017 and positive top-line interim results from the HAVEN 4 study in December 2017. Data from both studies are being submitted to health authorities around the world for approval consideration.

Roche will also present real-world data from a non-interventional study in adults with haemophilia A without factor VIII inhibitors and children with haemophilia A with factor VIII inhibitors. These data on health-related quality of life and health status will provide insights into challenges of living with and managing haemophilia A for patients and caregivers.

An audio webcast for analysts and investors on the data presented and the Hemlibra clinical development programme will be held during the WFH 2018 World Congress on Wednesday 23 May 2018 from 5:30-7:00 pm CET / 4:30-6:00 pm BST. Further details are available here.

Follow Roche on Twitter via @Roche and keep up to date with WFH 2018 World Congress news and updates by using the hashtag #WFH2018.

**Overview of Roche data at the WFH 2018 World Congress**

| Abstract title                                                                 | Abstract number / Presentation details                  |
|================================================================================|--------------------------------------------------------|
| Emicizumab prophylaxis administered once-weekly or every two weeks provides effective bleed prevention in persons with hemophilia A (PwHA) without inhibitors – Results from the phase III HAVEN 3 study | #854  
Free Papers: Late-Breaking  
Oral presentation  
Monday 21 May  
11:15–11:30 am BST |
| Emicizumab subcutaneous dosing every 4 weeks is safe and efficacious in the control of bleeding in persons with hemophilia A (PwHA) with and without inhibitors: Results from Phase 3 HAVEN 4 study | #861  
Free Papers: Late-Breaking  
Oral presentation  
Monday 21 May  
11:30–11:45 am BST |
<table>
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| New option of hemostatic treatment for acquired hemophilia A by single injection of emicizumab, FVIIIa mimicking bispecific antibody, irrespective of epitope specificity | # 2  
*Poster presentation*  
*Monday 21 May*  
*9:45–10:15 am BST and 3:45–4:30 pm BST* |
| Impaired thrombus formation of von Willebrand Disease under high shear flow condition is improved by Factor VIIIa mimetic bispecific antibody (emicizumab) | # 4  
*Free Papers: Young Researchers*  
*Oral presentation*  
*Wednesday 23 May*  
*5:15–5:30 pm BST* |
| Changes in bleeding and daily life with emicizumab prophylaxis: a questionnaire in patients with haemophilia A with inhibitors (PwHAwI) and their families in a long-term phase 1/2 study | # 82  
*Poster presentation*  
*Monday 21 May*  
*9:45–10:15 am BST and 3:45–4:30 pm BST* |
| Health-related quality of life and health status in persons with hemophilia A (PwHA) without inhibitors: prospective, non-interventional study (NIS) from a real-world setting | #165  
*Poster presentation*  
*Monday 21 May*  
*9:45–10:15 am BST and 3:45–4:30 pm BST* |
| Health-related outcomes and caregiver burden in pediatric persons with hemophilia A (PwHA) with inhibitors: prospective, non-interventional study (NIS) in a real-world setting | #171  
*Poster presentation*  
*Monday 21 May*  
*9:45–10:15 am BST and 3:45–4:30 pm BST* |
| Assessment of depressive disorders among people with haemophilia A with inhibitors | #159  
*Poster presentation*  
*Wednesday 23 May*  
*3:45–4:30 pm BST* |
| Agreement between a chromogenic modified Nijmegen-Bethesda Assay and a qualitative ELISA test in detection of Factor VIII inhibitors in plasma from Persons with Hemophilia A (PwHA) | #59  
*Poster presentation*  
*Monday 21 May*  
*9:45–10:15 am BST and 3:45–4:30 pm BST* |
About HAVEN 3 (NCT02847637)
HAVEN 3 is a randomised, multicentre, open-label, phase III study evaluating the efficacy, safety and pharmacokinetics of Hemlibra prophylaxis versus no prophylaxis (episodic/on-demand factor VIII treatment) in people with haemophilia A without factor VIII inhibitors. The study included 152 patients with haemophilia A (12 years of age or older) who were previously treated with factor VIII therapy either on-demand or for prophylaxis. Patients previously treated with on-demand factor VIII were randomised in a 2:2:1 fashion to receive subcutaneous Hemlibra prophylaxis at 3 mg/kg/wk for 4 weeks, followed by 1.5 mg/kg/wk until the end of study (Arm A), subcutaneous Hemlibra prophylaxis at 3 mg/kg/wk for 4 weeks, followed by 3 mg/kg/2wks for at least 24 weeks (Arm B), or no prophylaxis (Arm C). Patients previously treated with factor VIII prophylaxis received subcutaneous Hemlibra prophylaxis at 3 mg/kg/wk for 4 weeks, followed by 1.5 mg/kg/wk until the end of study (Arm D). Episodic treatment of breakthrough bleeds with factor VIII therapy was allowed per protocol.

About HAVEN 4 (NCT03020160)
HAVEN 4 is a single-arm, multicentre, open-label, phase III study evaluating the efficacy, safety and pharmacokinetics (PK) of subcutaneous administration of Hemlibra dosed every four weeks. The study included 48 patients (12 years of age or older) with haemophilia A with or without factor VIII inhibitors who were previously treated with either factor VIII or bypassing agents, on-demand or as prophylaxis.

The study was conducted in two parts: a PK run-in; and an expansion cohort. All patients in the PK run-in (n=7) were previously treated on-demand, and received subcutaneous Hemlibra at 6 mg/kg to fully characterise the PK profile after a single dose during four weeks, followed by 6 mg/kg every four weeks for at least 24 weeks. Patients in the expansion cohort (n=41) received subcutaneous Hemlibra prophylaxis at 3 mg/kg/wk for four weeks, followed by 6 mg/kg every four weeks for at least 24 weeks. Episodic treatment of breakthrough bleeds with factor VIII therapy or bypassing agents, depending on a patient’s factor VIII inhibitor status, was allowed per study protocol.
About Hemlibra® (emicizumab)

Hemlibra is a bispecific factor IXa- and factor X-directed antibody. It is designed to bring together factor IXa and factor X, proteins required to activate the natural coagulation cascade and restore the blood clotting process for people with haemophilia A. Hemlibra is a prophylactic (preventative) treatment that can be administered by an injection of a ready-to-use solution under the skin (subcutaneously) once-weekly.

The clinical development programme is assessing the safety and efficacy of Hemlibra and its potential to help overcome current clinical challenges: the short-lasting effects of existing treatments, the development of factor VIII inhibitors and the need for frequent venous access. Hemlibra was created by Chugai Pharmaceutical Co., Ltd. and is being co-developed by Chugai, Roche and Genentech. It is marketed in the United States as Hemlibra (emicizumab-kxwh) for people with haemophilia A with factor VIII inhibitors, with kxwh as the suffix designated in accordance with Nonproprietary Naming of Biological Products Guidance for Industry issued by the US Food and Drug Administration.

About haemophilia A

Haemophilia A is an inherited, serious disorder in which a person’s blood does not clot properly, leading to uncontrolled and often spontaneous bleeding. Haemophilia A affects around 320,000 people worldwide, approximately 50-60% of whom have a severe form of the disorder. People with haemophilia A either lack or do not have enough of a clotting protein called factor VIII. In a healthy person, when a bleed occurs, factor VIII brings together the clotting factors IXa and X, which is a critical step in the formation of a blood clot to help stop bleeding. Depending on the severity of their disorder, people with haemophilia A can bleed frequently, especially into their joints or muscles. These bleeds can present a significant health concern as they often cause pain and can lead to chronic swelling, deformity, reduced mobility, and long-term joint damage. A serious complication of treatment is the development of inhibitors to factor VIII replacement therapies. Inhibitors are antibodies developed by the body’s immune system that bind to and block the efficacy of replacement factor VIII, making it difficult, if not impossible to obtain a level of factor VIII sufficient to control bleeding.
About Roche in haematology
For more than 20 years, Roche has been developing medicines that redefine treatment in haematology. Today, we are investing more than ever in our effort to bring innovative treatment options to people with diseases of the blood. In addition to approved medicines MabThera®/Rituxan® (rituximab), Gazyva®/Gazyvaro® (obinutuzumab), and Venclexta®/Venclyxto™ (venetoclax) in collaboration with AbbVie, Roche’s pipeline of investigational haematology medicines includes Tecentriq® (atezolizumab), an anti-CD79b antibody drug conjugate (polatuzumab vedotin/RG7596) and a small molecule antagonist of MDM2 (idasanutlin/RG7388). Roche’s dedication to developing novel molecules in haematology expands beyond malignancy, with the development of Hemlibra® (emicizumab), a bispecific monoclonal antibody for the treatment of haemophilia A.

About Roche
Roche is a global pioneer in pharmaceuticals and diagnostics focused on advancing science to improve people’s lives. The combined strengths of pharmaceuticals and diagnostics under one roof have made Roche the leader in personalised healthcare - a strategy that aims to fit the right treatment to each patient in the best way possible.

Roche is the world’s largest biotech company, with truly differentiated medicines in oncology, immunology, infectious diseases, ophthalmology and diseases of the central nervous system. Roche is also the world leader in in vitro diagnostics and tissue-based cancer diagnostics, and a frontrunner in diabetes management. Founded in 1896, Roche continues to search for better ways to prevent, diagnose and treat diseases and make a sustainable contribution to society. The company also aims to improve patient access to medical innovations by working with all relevant stakeholders. Thirty medicines developed by Roche are included in the World Health Organization Model Lists of Essential Medicines, among them life-saving antibiotics, antimalarials and cancer medicines. Roche has been recognised as the Group Leader in sustainability within the Pharmaceuticals, Biotechnology & Life Sciences Industry nine years in a row by the Dow Jones Sustainability Indices (DJSI).

The Roche Group, headquartered in Basel, Switzerland, is active in over 100 countries and in 2017 employed about 94,000 people worldwide. In 2017, Roche invested CHF 10.4 billion in R&D and posted sales of CHF 53.3 billion. Genentech, in the United States, is a wholly owned member of the Roche Group. Roche is the majority shareholder in Chugai Pharmaceutical, Japan. For more information, please visit www.roche.com. All trademarks used or mentioned in this release are protected by law.
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