Investor Update

Basel, 15 May 2018

FDA approves subcutaneous formulation of Actemra for use in active polyarticular juvenile idiopathic arthritis (pJIA), a rare form of juvenile arthritis

Roche (SIX: RO, ROG; OTCQX: RHHBY) announced today that the US Food and Drug Administration (FDA) has approved the subcutaneous (SC) formulation of Actemra® (tocilizumab) for the treatment of active polyarticular juvenile idiopathic arthritis (pJIA) in patients two years of age and older. Actemra can be given alone or in combination with methotrexate (MTX) in patients with pJIA. In 2013, FDA approved the intravenous (IV) formulation of Actemra for patients two years of age and older with active pJIA.

pJIA is a form of juvenile idiopathic arthritis (JIA), a chronic disease of childhood.[1] JIA affects approximately 100 in every 100,000 children,[2] of which pJIA accounts for around 30 percent.[3] pJIA is characterized by inflammation in five or more joints within the first six months of the disease and most commonly affects the small joints in the body such as the hands and feet.[3]

"Polyarticular juvenile idiopathic arthritis is a rare, often painful disease in children," said Sandra Horning, MD, Chief Medical Officer and Head of Global Product Development. "With this approval, we are pleased Actemra offers an alternative delivery option to

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physicians and parents of children aged two or older to treat this debilitating disease."

The approval is based on data from the JIGSAW-117 study, a 52-week, open-label, multicentre, phase 1b pharmacokinetic (PK)/pharmacodynamic (PD) bridging study designed to determine the appropriate dosing regimen of Actemra SC across a range of body weights (BWs) in children with pJIA.[4] The study enrolled 52 patients aged one to 17 years with pJIA and previous inadequate response or intolerance to methotrexate who were either Actemra naive or were receiving Actemra IV with adequate disease control. Actemra SC was administered open label according to a body weight (BW)–based dosing regimen: pJIA patients weighing <30 kg received 162 mg of Actemra every three weeks and pJIA patients weighing ≥30 kg received 162 mg of Actemra every two weeks for 52 weeks. Model-computed PK and PD parameters, and safety were assessed.

In general, the safety observed for Actemra administered subcutaneously was consistent with the known safety profile of Actemra IV, with the exception of injection site reactions (ISRs) and neutropenia (low white blood cell count). A higher frequency of ISRs was observed in Actemra SC treated pJIA patients compared to patients treated with Actemra SC for other approved indications. During the duration of the one-year study, a frequency of 28.8% (15/52) ISRs was observed in Actemra SC treated PJIA patients. All ISRs reported were mild in severity, and none of the ISRs required patient withdrawal from treatment or dose interruption. During routine laboratory monitoring in Actemra SC treated pJIA patients, a decrease in neutrophil counts below 1×10^9 per L occurred in 15.4% of patients, and

was more frequently observed in the patients less than 30 kg (25.9%) compared to patients at or above 30 kg (4.0%). Neutrophils are a type of white blood cell.

The efficacy of Actemra SC in children two to 17 years of ages is based on PK exposure and extrapolation of established efficacy of Actemra IV in pJIA patients and Actemra SC in patients with RA.

About Actemra®/RoActemra® (tocilizumab)

Actemra/RoActemra is the first approved anti-IL-6 receptor biologic available in both intravenous (IV) and subcutaneous (SC) formulations for the treatment of adult patients with moderate-to-severe active rheumatoid arthritis (RA). Actemra/RoActemra can be used alone or with methotrexate (MTX) in adult RA patients who are intolerant to, or have failed to respond to, other disease-modifying anti-rheumatic drugs (DMARDs). In Europe, RoActemra IV and SC are also approved for use in adult patients with severe, active and progressive RA who previously have not been treated with MTX. Actemra/RoActemra IV formulation is approved in most major countries for polyarticular juvenile idiopathic arthritis (pJIA) and systemic juvenile idiopathic arthritis (sJIA) in children two years of age and older. Actemra/RoActemra SC injection is approved for the treatment of giant cell arteritis (GCA) in more than 40 countries, including the US and Europe, and is approved in the US for people two years of age and older with active pJIA. Actemra/RoActemra is the first therapy approved for the treatment of adult patients with GCA. Actemra IV injection is approved in the US for the treatment of chimeric antigen receptor (CAR) T cell-induced severe or life-threatening cytokine release syndrome (CRS) in people two years of age or older.

Actemra is the first approved treatment for CRS in this setting. In Japan, Actemra is also approved for the treatment of Castleman's Disease and Takayasu Arteritis. Actemra/RoActemra is part of a co-development agreement with Chugai Pharmaceutical Co., Ltd and has been approved in Japan since April 2005. Actemra/RoActemra is approved in more than 110 countries worldwide.

About Roche in immunology

The Roche Group's immunology medicines include: Actemra®/RoActemra® (tocilizumab) for rheumatoid arthritis, juvenile idiopathic arthritis, giant cell arteritis (GCA) and cytokine release syndrome (CRS, US only), and Castleman's Disease and Takayasu Arteritis (Japan only); Rituxan®/MabThera® (rituximab) for rheumatoid arthritis, granulomatosis with polyangiitis and microscropic polyangiitis; Xolair® (omalizumab) in allergic asthma; Pulmozyme® (dornase alfa) for cystic fibrosis; and Esbriet® (pirfenidone) for idiopathic pulmonary fibrosis. Roche's immunology pipeline includes: RG7625, a cathepsin S inhibitor; RG6125, a monoclonal antibody targeting cadherin-11; RG7845 (GDC-0853), a novel Bruton's tyrosine kinase (BTK) inhibitor; obinutuzumab for lupus nephritis; and etrolizumab for ulcerative colitis and Crohn's disease.

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.

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