# Kyowa Hakko Kirin Announces Top-Line Results of Phase 3 Study of Brodalumab (KHK4827) in Patients with Axial Spondyloarthritis and Oral Presentation at EULAR

**Tokyo, Japan, June 17, 2019 ---** Kyowa Hakko Kirin Co., Ltd. (Tokyo: 4151, President and CEO: Masashi Miyamoto, "Kyowa Hakko Kirin") today announces positive result of a 16-week efficacy and safety analysis of the phase 3 study of brodalumab (KHK4827)[*1] in patients with axial spondyloarthritis (axSpA, ankylosing spondylitis(AS) and non-radiographic axial spondyloarthritis(nr-axSpA))[*2] and that it has made an oral presentation of this study result at the Annual European Congress of Rheumatology 2019 (EULAR, 12-15 June, Madrid).

**EULAR 2019 Oral Presentation Number: OP0234**

Title: Efficacy and safety of brodalumab, an anti-interleukin-17 receptor A monoclonal antibody, in patients with axial spondyloarthritis: A 16 week results of a phase 3, multicenter, randomized, double-blind, placebo-controlled study.

A Phase 3, multi-regional, randomized, double-blind, placebo-controlled study was conducted in Japan, South Korea and Taiwan, to evaluate the efficacy and safety of brodalumab in patients with axSpA. A total of 159 subjects with axSpA were enrolled in this study and randomized into the brodalumab group or placebo group at a ratio of 1:1 (brodalumab group: 80 subjects, placebo group: 79 subjects). The primary efficacy endpoint was the percentage of axSpA subjects who achieved ASAS40[*3] at Week 16.

The percentage of axSpA subjects who achieved ASAS40 at Week 16 was 43.8% (n=35, 95%CI: 32.7, 55.3) in the brodalumab group and 24.1% (n=19, 95%CI: 15.1, 35.0) in the placebo group, and significantly higher in the brodalumab group than in the placebo group ($p<0.05$). Moreover, the percentages of AS subjects (N=125) and nr-axSpA subjects (N=33) who achieved ASAS40 also tended to be higher in the brodalumab group than in the placebo group, as in the axSpA subjects. There were no apparent differences in safety between the brodalumab group and placebo group.
These results demonstrated that brodalumab was well tolerated in 16 weeks and effective for the treatment of axSpA.

"I am delighted that the study showed positive data of brodalumab for axSpA patients," said Mitsuo Satoh, Ph.D., Executive Officer, Vice President Head of R&D Division of Kyowa Hakko Kirin. "I believe that brodalumab will be a novel option for the treatment of axSpA."

Based on the above results, Kyowa Hakko Kirin plans to file a supplemental application of brodalumab to add a new indication for the treatment of axSpA.

The Kyowa Hakko Kirin Group companies strive to contribute to the health and well-being of

people around the world by creating new value through the pursuit of advances in life sciences and technologies.

**Outline of this study**

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| Target Disease | Axial Spondyloarthritis (AS and nr-axSpA) |
| Phase | Phase 3 |
| Design | Multi-regional, randomized, double-blind, placebo-controlled study with an open-label extension study |
| Study Periods | 68 weeks (16-week double-blind phase + 52-week open-label phase) |
| Administration Group | brodalumab, placebo |
| Dosage | 210 mg, every two weeks, subcutaneous injection |
| Primary Endpoint | ASAS 40 at week 16 in axSpA (AS and nr-axSpA) subjects |
| Location | Japan, South Korea, Taiwan |

***1: About brodalumab (KHK4827)**
Brodalumab is a fully human anti-interleukin-17 (IL-17) receptor A antibody that inhibits biological activity of IL-17A, IL-17F and other IL-17s. Brodalumab has been approved in Japan in July 2016 for psoriasis (psoriasis vulgaris, psoriatic arthritis, pustular psoriasis, and psoriatic erythroderma) that respond inadequately to existing therapies.

***2: About Axial spondyloarthritis (axSpA)**
Axial spondyloarthritis, which characterized by predominant involvement of the chronic enthesitis of the spine and/or sacroiliac joints, include ankylosing spondylitis with sacroiliitis detected by X-ray radiography and non-radiographic axial spondyloarthritis without radiographic sacroiliitis.

***3: About Assessment of SpondyloArthritis international Society (ASAS) 40**
ASAS 40 response is defined as an improvement of ≥ 40% and absolute improvement of ≥ 2 units in at least three of the four main ASAS domains (patient global assessment, spinal pain, function, and inflammation), with no worsening at all in the remaining domain.