



## UCB's Key Pipeline Molecule Bimekizumab Demonstrated Improved Outcomes for Ankylosing Spondylitis Patients

- New Phase 2b bimekizumab data showed the novel investigational molecule delivered improvements in disease activity and in important patient-reported outcomes, such as pain, fatigue, morning stiffness, function and quality of life for patients with ankylosing spondylitis.
- Improvements are hypothesized to be associated with bimekizumab's mechanism of action, which potently and selectively neutralizes both IL-17A and IL-17F cytokines.<sup>i</sup>

**Brussels, Belgium – 14 June 2019** – UCB, a global biopharmaceutical company, announced new Phase 2b data on the company's key pipeline molecule, bimekizumab – a novel humanized monoclonal IgG1 antibody that potently and selectively neutralizes both IL-17A and IL-17F cytokines – that showed improvements in a range of important health-related domains and general well-being for patients with active ankylosing spondylitis (AS).<sup>ii</sup> Results from this study, which evaluated multiple treatment doses, were shared for the first time today at the Annual European Congress of Rheumatology (EULAR 2019), in Madrid.

"AS is a chronic immune-mediated inflammatory disease primarily affecting the sacroiliac joints and spine that can severely impair patients' lives.<sup>iii</sup> Bimekizumab, which selectively neutralizes both inflammatory cytokines IL-17A and IL-17F, has been shown to more potently suppress inflammation than targeting IL-17A alone in preclinical research.<sup>iv</sup> The new Week 12 data from the Phase 2b AS study suggest that bimekizumab may deliver results that improve disease activity and outcomes that are most important from the patient perspective, like pain, fatigue, stiffness, mobility, and function," said Emmanuel Caeymaex, Head of Immunology and Executive Vice President, Immunology Patient Value Unit, UCB.

The safety and efficacy of bimekizumab have not been established, and it is not approved by any regulatory authority worldwide. Bimekizumab is now in Phase 3 trials, where the safety and efficacy are being evaluated in AS, non-radiographic axial spondyloarthritis, psoriatic arthritis (PsA) and psoriasis.

Week 12 results from the Phase 2b trial showed that up to four-times the number of bimekizumab-treated patients achieved at least a 50% improvement in the key symptoms impacting patients with AS, including pain, fatigue, morning stiffness and function, compared to placebo.<sup>ii</sup> On the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) scale, which measures symptoms including fatigue, pain and stiffness, BASDAI 50 responses were achieved in 23.7–47.5% of patients across the different bimekizumab treatment doses, compared to 11.9% for placebo.<sup>ii</sup> Bimekizumab-treated patients also reported a higher level of improvement in physical function (i.e. felt less restricted by their condition) and a better quality of life, in addition to an improvement in their overall disease activity, compared to placebo.<sup>ii</sup> Improvements were observed in all bimekizumab-treated patients, irrespective of the dose regimen.<sup>ii</sup>

The safety profile was consistent with previous bimekizumab studies in AS and PsA, with no new safety findings observed.<sup>ii,iv,v</sup> The most frequent treatment emergent adverse events were nasopharyngitis and

headache.<sup>v</sup> The overall incidence of treatment emergent adverse events was similar for bimekizumab treated-patients compared to placebo.<sup>ii,v</sup>

### **About the Phase 2b trial NCT02963506<sup>ii,v</sup>**

The main purpose of this Phase 2b study was to assess the 12-week efficacy and safety of bimekizumab in patients with active AS across a range of treatment doses. The objective of this further analysis was to assess the impact of bimekizumab on patient-reported and quality of life (QoL) outcomes at Week 12 in these patients. In this 48-week study (double blind to Week 12 then dose blind to Week 48), 303 patients with active AS (Bath Ankylosing Spondylitis Disease Activity Index [BASDAI]  $\geq 4$ ; spinal pain  $\geq 4$  [0–10 numerical rating scale]) were randomized 1:1:1:1:1 to receive subcutaneous bimekizumab 16mg (n=61), 64mg (n=61), 160mg (n=60), 320mg (n=61) or placebo (n=60) every four weeks for 12 weeks. Secondary and other endpoints included BASDAI,  $\geq 50\%$  improvement in BASDAI (BASDAI 50), Bath Ankylosing Spondylitis Functional Index (BASFI), Ankylosing Spondylitis Quality of Life (ASQoL) and Patient's Global Assessment of Disease Activity (PGADA) at Week 12. Safety was also assessed.

Overall, 297 (98.0%) patients completed the 12-week double-blind period. Baseline scores on patient-reported and QoL outcomes were similar across treatment groups. All bimekizumab doses were associated with greater reductions from baseline in individual BASDAI components, as compared to placebo, including: fatigue (-1.6 to -2.5 vs -0.8 respectively); neck, back or hip pain (-2.0 to -3.3 vs -1.2) and discomfort due to tenderness to touch or pressure (-1.6 to -3.0 vs -1.1); level of morning stiffness (-2.5 to -3.5 vs -1.2) and duration of morning stiffness (-1.7 to -3.3 vs -1.4). There were also greater improvements with bimekizumab compared to placebo respectively for BASFI (-1.4 to -2.2 vs -0.6), ASQoL (-2.3 to -4.6 vs -1.3) and PGADA (-1.9 to -3.3 vs -1.0). The overall incidence of treatment-emergent adverse events was 89/243 (36.6%) for bimekizumab-treated patients compared to 23/60 (38.3%) for placebo; the majority were of mild or moderate intensity.

### **About Bimekizumab**

Bimekizumab is an investigational novel humanized monoclonal IgG1 antibody that potently and selectively neutralizes both IL-17A and IL-17F, two key cytokines driving inflammatory processes.<sup>i</sup> IL-17A and IL-17F have similar pro-inflammatory functions and independently cooperate with other inflammatory mediators to drive chronic inflammation and damage across multiple tissues.

Previous early phase clinical studies in psoriasis and psoriatic arthritis have suggested that bimekizumab's dual neutralization of both IL-17A and IL-17F may provide a new targeted approach for the treatment of immune-mediated inflammatory diseases.<sup>i,iv,vi</sup> Preclinical results in disease-relevant cells have shown that neutralizing IL-17F in addition to IL-17A reduces skin and joint inflammation, as well as pathological bone formation to an extent greater than inhibition of IL-17A alone.<sup>vi,vii,viii</sup>

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**About UCB**

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There is no guarantee that new product candidates in the pipeline will progress to product approval or that new indications for existing products will be developed and approved. Products or potential products which are the subject of partnerships, joint ventures or licensing collaborations may be subject to differences between the partners. Also, UCB or others could discover safety, side effects or manufacturing problems with

its products after they are marketed. Moreover, sales may be impacted by international and domestic trends toward managed care and health care cost containment and the reimbursement policies imposed by third-party payers as well as legislation affecting biopharmaceutical pricing and reimbursement.

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<sup>i</sup> Glatt S, Helmer E, Haier B, et al. First-in-human randomized study of bimekizumab, a humanized monoclonal antibody and selective dual inhibitor of IL-17A and IL-17F, in mild psoriasis. *Br J Clin Pharmacol*. 2017 May;83(5):991-1001. doi: 10.1111/bcp.13185. Epub 2017 Jan 10.

<sup>ii</sup> van der Heijde D, Gensler L, Deodhar A, et al. Dual neutralization of IL-17A and IL-17F with bimekizumab was associated with improvements in patient-reported and quality-of-life outcomes in patients with active ankylosing spondylitis: results from a Phase 2b, randomized, double-blind, placebo-controlled, dose-ranging study. Abstract presented at EULAR 2019.

<sup>iii</sup> Kotsis K, Voulgari PV, Drosos AA, et al. Health-related quality of life in patients with ankylosing spondylitis: a comprehensive review. *Expert Rev Pharmacoecon Outcomes Res*. 2014 Dec;14(6):857-72. doi: 10.1586/14737167.2014.957679. Epub 2014 Sep 5.

<sup>iv</sup> Glatt S, Baeten D, Baker T, et al. Dual IL-17A and IL-17F neutralisation by bimekizumab in psoriatic arthritis: evidence from preclinical experiments and a randomized placebo-controlled clinical trial that IL-17F contributes to human chronic tissue inflammation. *Ann Rheum Dis*. 2018 Apr;77(4):523-532. doi: 10.1136/annrheumdis-2017-212127. Epub 2017 Dec 23.

<sup>v</sup> van der Heijde D, Gensler L, Deodhar A, et al. LB0001 Dual neutralisation of il-17a and il-17f with bimekizumab in patients with active ankylosing spondylitis (AS): 12-week results from a phase 2b, randomised, double-blind, placebo-controlled, dose-ranging study. *Ann Rheum Dis*. 2018 Jun;77(Suppl 2):70. doi: 10.1136/annrheumdis-2018-eular.7889. Epub 2018 Jun 12.

<sup>vi</sup> Papp K, Merola J, Gottlieb A, et al. Dual neutralization of both interleukin 17A and interleukin 17F with bimekizumab in patients with psoriasis: Results from BE ABLE 1, a 12-week randomized, double-blinded, placebo-controlled phase 2b trial. *J Am Acad Dermatol*. 2018 Aug;79(2):277-286.e10. doi: 10.1016/j.jaad.2018.03.037. Epub 2018 Mar 30.

<sup>vii</sup> Shah M, Maroof A, Al-Hosni R, et al. Bimekizumab Blocks T Cell-Mediated Osteogenic Differentiation of Periosteal Stem Cells: Coupling Pathological Bone Formation to IL-17A and IL-17F Signaling [ACR abstract]. *Arthritis Rheumatol*. 2017; 69 (suppl 10).

<sup>viii</sup> Maroof A, Okoye R, Smallie T, et al. Bimekizumab dual inhibition of IL-17A and IL-17F provides evidence of IL-17F contribution to chronic inflammation in disease-relevant cells. *Ann Rheum Dis*. 201706;76 (suppl.2):213-213.