**Supplementary Methods**

**Design of originating studies:** RA-BEGIN was a 52-week double-blind, active-controlled Phase 3 study assessing the efficacy and safety of baricitinib 4-mg as monotherapy or in combination with MTX compared with MTX monotherapy in patients with early RA who had limited or no treatment with DMARDs.[9] Patients were randomized 4:3:4 to MTX (titrated to 20-mg, orally, once weekly), baricitinib (4-mg orally, once daily), or baricitinib 4-mg plus MTX.[9] RA-BEAM was a 52-week double-blind, placebo- and active-controlled Phase 3 study assessing the efficacy and safety of baricitinib 4-mg in patients with active RA who had an inadequate response to MTX.[10] Patients with active RA receiving background MTX therapy were randomized 3:3:2 to placebo, baricitinib (4-mg orally, once daily) or adalimumab (40 mg, once every 2 weeks). Patients in the placebo group were switched to baricitinib 4-mg at 24 weeks.[10] RA-BUILD was a 24-week double-blind, placebo-controlled Phase 3 study assessing the efficacy and safety of baricitinib 2- and 4-mg in patients who had an inadequate response to csDMARDs.[8] Patients were randomized 1:1:1 to placebo or baricitinib 2-mg or 4-mg.[8] Concomitant csDMARDs were allowed in RA-BUILD and RA-BEAM but were not permitted in RA-BEGIN.[8-10] In RA-BUILD[8] and RA-BEAM,[10] at Week 16 or subsequent visits, inadequate responders who showed less than 20% improvement from baseline in tender and swollen joint counts could be rescued to baricitinib 4-mg. In RA-BEGIN, inadequate responders were eligible for rescue therapy (baricitinib 4-mg+MTX) starting at Week 24.[9]

Design of dosage step-down substudy: The design of RA-BEYOND included a randomized, blinded substudy on baricitinib dose step-down in patients who had achieved sustained disease control on baricitinib 4-mg.[12] In brief, patients in RA-BEYOND were eligible to participate in the step-down substudy if they had received baricitinib 4-mg for ≥15 months and achieved sustained low disease activity (LDA, defined by CDAI ≤10 for patients from RA-BEAM, RA-BUILD, RA-BEACON) or remission (CDAI ≤2.8 for patients from RA-BEGIN) at two consecutive visits ≥3 months apart. Patients were not eligible if rescued in either the originating study or RA-BEYOND. Eligible patients were randomized 1:1 to continue on baricitinib 4-mg or to step-down to the 2-mg dose. Investigators could provide rescue to open-label baricitinib 4-mg (plus escalation of background csDMARDs allowed) at any time for patients who failed to retain LDA or remission or at any time for patients from RA-BEGIN.