



October 30th, 2023

**[C2H2203] Summary of cost-effectiveness evaluation  
of bimekizumab (BIMZELX®)**

1. Indication

The treatment of plaque psoriasis, generalized pustular psoriasis, and psoriatic erythroderma in patients who are not sufficiently responding to existing treatments

2. Price of the drug

Bimekizumab has been reimbursed since April 2022. Drug prices were Japanese Yen (JPY) 156,587 for syringe for subcutaneous (SC) injection and JPY 156,820 for autoinjector for SC injection (as of October 2023). The price is calculated based on a similar efficacy comparison method (I), with a 10% usefulness premium (II) and a price maintenance premium. This product is designated as an H1 cost-effectiveness evaluation item.

3. Scope of cost-effectiveness evaluation

This product is indicated for the treatment of plaque psoriasis, generalized pustular psoriasis, and psoriatic erythroderma in patients who are not sufficiently responding to existing treatments. The scope of evaluation agreed upon at the first session of the Expert Committee of Cost-Effectiveness Evaluation (ECCEE) is described below. The target population was patients with plaque psoriasis who were not sufficiently responding to existing treatments. The comparator selected for the target population was ixekizumab because it is less expensive.

Population	Patients with plaque psoriasis who are not sufficiently responding to existing treatments
Comparator	Select the less expensive of risankizumab and ixekizumab

4. Evaluation of additional benefits

The results of network meta-analysis (NMA) conducted by the academic group were as follows: The Psoriasis Area and Severity Index (PASI) response rate of bimekizumab were higher for PASI 75: 0.920, PASI 90: 0.837, and PASI 100: 0.574 compared with ixekizumab, PASI 75: 0.896, PASI 90: 0.739, and PASI 100: 0.392. The odds ratio (95%CI) of PASI 50, PASI 75, PASI 90, and PASI 100 (vs. ixekizumab) was 1.18 (0.41-3.27), 1.40 (0.91-2.14), 1.79 (1.18-2.72), and 1.15 (0.63-2.14) for

bimekizumab, respectively. The academic group was concerned about uncertainty regarding the NMA methodology; however, they concluded that bimekizumab has additional benefits compared with the comparator.

### 5. Results of the cost-effectiveness analysis

The manufacturer performed a lifetime cost-effectiveness analysis comparing bimekizumab with ixekizumab for a Markov model. The academic group considered the following 3 points:

- The mean medical costs per 2-week maintenance period were estimated, because the estimation method for the ratio of maintaining initial treatment interval had some challenges related to validity.
- The secondary treatment setting was an obvious cause of increased uncertainty in the model. Therefore, the academic group decided to conduct the base case analysis considering parameters up to primary treatment, and the scenario analysis was also conducted varying the secondary treatment initiation rate and time horizons.
- The PASI response rates were based on the results of the NMA recalculated during the evaluation of additional benefits.

The table below shows the results of the cost-effectiveness analysis conducted by the academic group. Slight changes in the key parameters had varied the results of the analysis from dominant to positive incremental cost-effectiveness ratio (ICER). The academic group considered the estimating cost of bimekizumab and the comparator to be approximately comparable. Therefore, there is some question as to whether it is appropriate to calculate point estimation for ICER. Finally, the academic group concluded that it is most probable that ICER was included in the less-than-2-million Japanese Yen/quality-adjusted-life-year (QALY) range.

Secondary treatment initiation rate	Time horizons (years)	Incremental effect (QALY)	Incremental cost (JPY)	ICER (JPY/QALY)
<b>Base case analysis</b>				
0%	Lifetime	0.1832	360,189	1,965,600
<b>Scenario analysis</b>				
100%	Lifetime	0.0195	-18,807	Dominant
	10y	0.0171	-13,427	Dominant
	5y	0.0126	-3,274	Dominant
	3y	0.0089	4,998	562,248
90%	Lifetime	0.0211	14,745	698,524
	10y	0.0185	16,132	872,394
	5y	0.0136	18,750	1,383,284
	3y	0.0095	20,884	2,190,871

80%	Lifetime	0.0227	48,297	2,127,212
	10y	0.0199	45,692	2,299,254
	5y	0.0145	40,775	2,806,555
	3y	0.0102	36,769	3,613,937

JPY: Japanese Yen, QALY: quality-adjusted life year, ICER: incremental cost-effectiveness ratio

The ECCEE accepted the following:

Population	Comparator	ICER (JPY/QALY)
Patients with plaque psoriasis who are not sufficiently responding to existing treatments	Ixekizumab	1,965,600