# Long-Term Efficacy of Certolizumab Pegol Dosed at 400 mg Every Two Weeks in Patients with Plaque Psoriasis: Pooled 128-Week Data from Two Phase 3 Trials (CIMPASI-1 and CIMPASI-2)

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## OBJECTIVE

- To report long-term clinical responses for patients with plaque psoriasis who received treatment with 400 mg certolizumab pegol every two weeks for up to 128 weeks.

## BACKGROUND

- Plaque psoriasis (PSO) is an immune-mediated, inflammatory disease that affects around 2–4% of adults.[1]
- Certolizumab pegol (CZP) is a unique, Fc-free, PEGylated anti-tumor necrosis factor (TNF) approved by the FDA and EMA for the treatment of moderate to severe PSO.[2,3]
- In phase 3 trials, patients with moderate to severe PSO have demonstrated a durable response to CZP over one year (48 weeks) of double-blind treatment.[4]
- Here, we report the long-term clinical responses for patients with PSO who received open-label treatment with CZP dosed at 400 mg every two weeks (Q2W) for up to 128 weeks.

## METHODS

### Study Design

- Data were pooled from two phase 3 trials: CIMPASI-1 (NCT02326298) and CIMPASI-2 (NCT02326272). Full study designs have been reported previously.[4]
- At Week 0, patients were randomized 2:2:1 to CZP 400 mg Q2W, CZP 200 mg Q2W (CZP 400 mg loading dose at Weeks 0, 2 and 4), or placebo.
- This analysis only includes patients who:
  - Were randomized to placebo at Week 0
  - Did not achieve a 50% improvement from baseline in Psoriasis Area and Severity Index (PASI 50) at Week 16
  - Entered the open-label escape arm where they received CZP 400 mg Q2W for up to 128 weeks **(Figure 1)**.
- Dosing adjustment was permitted from Week 48 of the study based on PASI response and the Investigator's discretion.
- Patients who did not achieve PASI 50 at any visit after receiving unblinded CZP 400 mg Q2W for 16 weeks were withdrawn from the study.

### Patients

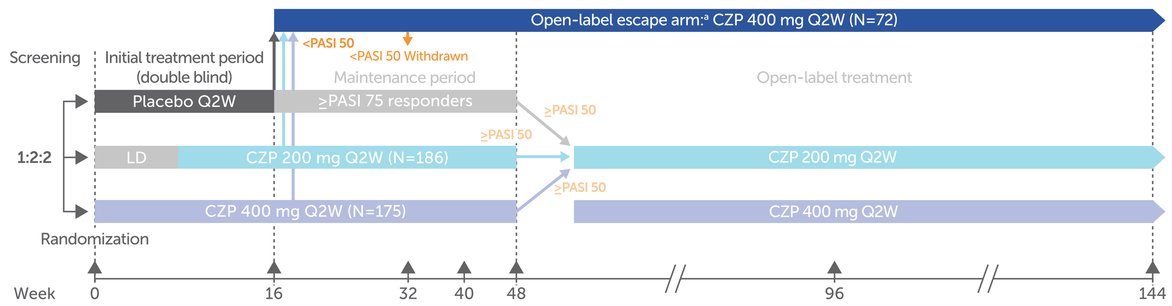
- ≥18 years of age with moderate to severe PSO for ≥6 months, defined by PASI ≥12, ≥10% body surface area affected, and Physician's Global Assessment ≥3 on a 5-point scale.
- Candidates for systemic PSO therapy, phototherapy and/or photochemotherapy.
- Exclusion criteria: previous treatment with CZP or >2 biologics; history of primary failure to any biologic or secondary failure to >1 biologic; erythrodermic, guttate or generalized PSO types; current or history of chronic or recurrent viral, bacterial or fungal infections.

### Table 1. Demographics and baseline characteristics

| | CZP 400 mg Q2W Open-label Escape (N=72) |
|---|---|
| Age, years, mean (SD) | 46.7 (13.1) |
| Male, n (%) | 48 (66.7) |
| BMI, kg/m$^2$, mean (SD) | 31.1 (7.2) |
| Prior biologic use, n (%) | 23 (31.9) |
| Anti-TNF | 14 (19.4) |
| PSO duration, years, mean (SD) | 16.9 (11.9) |
| PASI, mean (SD) | 18.3 (6.3) |
| BSA affected, %, mean (SD) | 22.4 (13.8) |
| PGA score, n (%) | |
| 3 (moderate) | 53 (73.6) |
| 4 (severe) | 19 (26.4) |
| DLQI Total Score, mean (SD)[a] | 12.9 (7.4) |

[a]N=70 for DLQI Total Score at baseline. BMI: body mass index; BSA: body surface area; CZP: certolizumab pegol; DLQI: Dermatology Life Quality Index; PASI: Psoriasis Area and Severity Index; PGA: Physician's Global Assessment; PSO: psoriasis; SD: standard deviation; TNF: tumor necrosis factor.

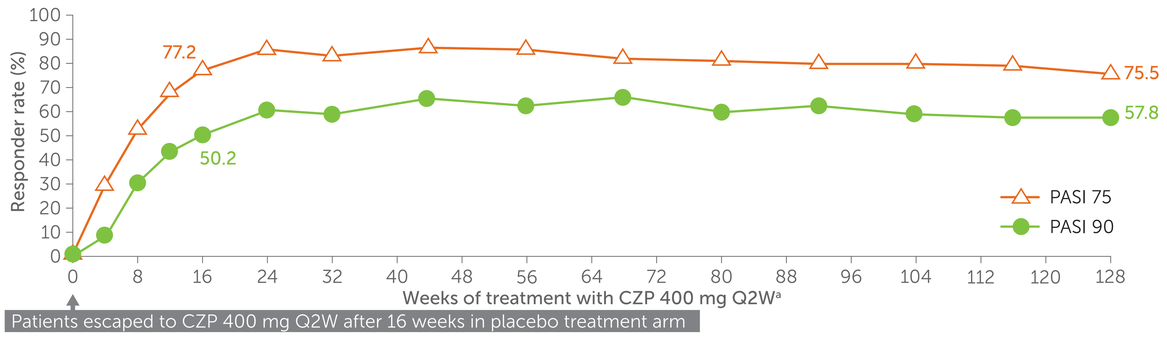
### Figure 1. Treatment arms of CIMPASI-1 and CIMPASI-2




[a]Dosing adjustment permitted: in patients who achieved PASI 75 at Week 48, dose could be decreased to 200 mg Q2W at the Investigator's discretion, thereafter dosing adjustment permitted to Week 144 based on PASI response and Investigator's discretion (dose adjusters n=22, non-adjusters n=50). CZP: certolizumab pegol; LD: loading dose of CZP 400 mg Q2W at Weeks 0/2/4; PASI: Psoriasis Area and Severity Index; PGA: Physician's Global Assessment; Q2W: every two weeks.

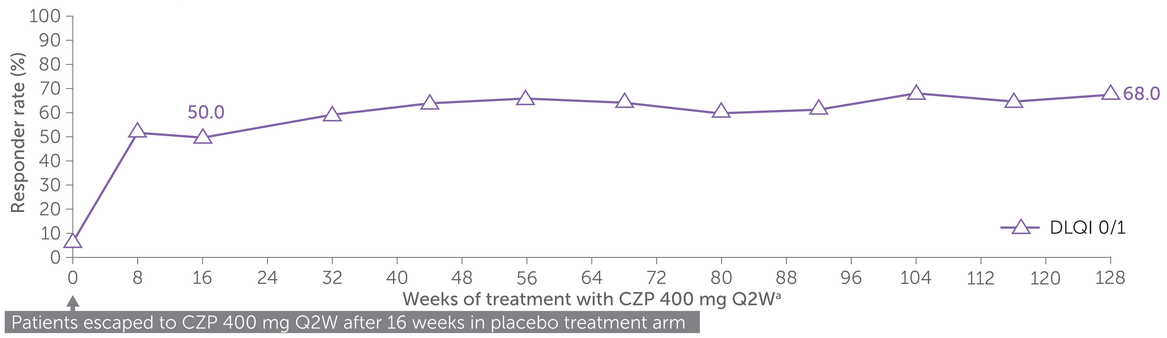
### Figure 2. Response over 128 weeks of treatment with CZP 400 mg Q2W

#### A) PASI 75 and PASI 90 response (N=72)




Patients escaped to CZP 400 mg Q2W after 16 weeks in placebo treatment arm

#### B) DLQI 0/1 response (N=72)

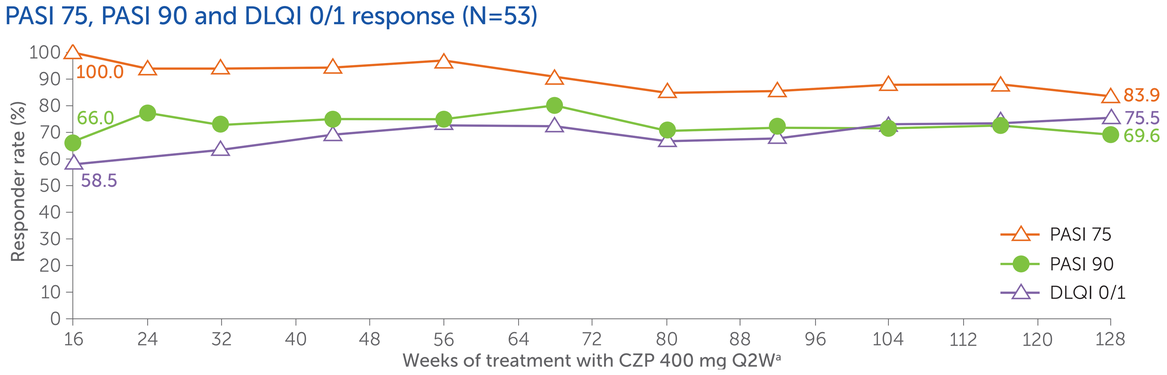



Patients escaped to CZP 400 mg Q2W after 16 weeks in placebo treatment arm

Estimates of responder rate reflect the simple average response across the multiply imputed data sets, with missing data imputed using Markov Chain Monte Carlo (MCMC) methodology. [a]Week 0 of treatment with CZP as shown is equivalent to Week 16 of the whole study. Dosing adjustment was permitted through Weeks 32–116 of treatment based on PASI response and the Investigator's discretion; this analysis includes both adjusters and non-adjusters. CZP: certolizumab pegol; DLQI 0/1: Dermatology Life Quality Index 0/1; MCMC: Markov Chain Monte Carlo; PASI 75/90: ≥75/90% improvement from baseline in Psoriasis Area and Severity Index; Q2W: every two weeks.

### Figure 3. Maintenance of response in patients who achieved PASI 75 following 16 weeks of treatment with CZP 400 mg Q2W

#### PASI 75, PASI 90 and DLQI 0/1 response (N=53)




Estimates of responder rate reflect the simple average response across the multiply imputed data sets, with missing data imputed using Markov Chain Monte Carlo (MCMC) methodology. [a]Week 16 of treatment with CZP as shown is equivalent to Week 32 of the whole study. Dosing adjustment was permitted from Week 32 of treatment based on PASI response and the Investigator's discretion; this analysis includes both adjusters and non-adjusters. CZP: certolizumab pegol; DLQI 0/1: Dermatology Life Quality Index 0/1; MCMC: Markov Chain Monte Carlo; PASI 75/90: ≥75/90% improvement from baseline in Psoriasis Area and Severity Index; Q2W: every two weeks.

### Study Assessments and Statistical Analyses

- The proportions of patients achieving 75% or 90% improvement from baseline in PASI (PASI 75/PASI 90) and Dermatology Life Quality Index (DLQI) 0/1 through 128 weeks of treatment with CZP 400 mg Q2W (Weeks 16–144 of the study) are reported.
- Responder rates in the subset of patients who achieved a PASI 75 response following 16 weeks of treatment with CZP 400 mg Q2W in the escape arm are also reported.
- Estimates of responder rate reflect the simple average response across the multiply imputed data sets, with missing data imputed using Markov Chain Monte Carlo (MCMC) methodology.

## RESULTS

### Patient Demographics and Baseline Characteristics

- 72 patients did not achieve PASI 50 after 16 weeks of placebo treatment, and entered the CZP 400 mg Q2W open-label escape arm. Patient baseline characteristics are shown in **Table 1**.

### Response to CZP Treatment

- Following 16 weeks of treatment with CZP 400 mg Q2W, 77.2% of patients achieved PASI 75 and 50.2% achieved PASI 90 **(Figure 2A)**.
- Responder rates were maintained over 128 weeks of treatment with CZP 400 mg Q2W, demonstrating long-term efficacy **(Figure 2A)**.
- Similar trends were reported for DLQI 0/1 **(Figure 2B)**.

### Maintenance of Response

- Of patients who achieved PASI 75 after 16 weeks of treatment with CZP 400 mg Q2W:
  - The majority (83.9%) maintained PASI 75 over 128 weeks of CZP 400 mg Q2W treatment **(Figure 3)**;
  - Two thirds (66.0%) also reached PASI 90 after 16 weeks of treatment, which increased to 69.6% over 128 weeks **(Figure 3)**;
  - 58.5% also reported DLQI 0/1 remission at Week 16, which increased to 75.5% over 128 weeks **(Figure 3)**.

## CONCLUSIONS

- These data demonstrate durable, long-term efficacy of CZP 400 mg Q2W in patients with moderate to severe PSO.
- The response of patients who achieved PASI 75 after 16 weeks of CZP treatment was maintained over 128 weeks of treatment; PASI 90 and DLQI 0/1 responder rates were also maintained in these patients.

### References

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### Author Contributions

Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: KG, RBW, ABG, AB, DT, CL, YP, MB, SK, CA, KR; Drafting of the publication, or revising it critically for important intellectual content: KG, RBW, ABG, AB, DT, CL, YP, MB, SK, CA, KR; Final approval of the publication: KG, RBW, ABG, AB, DT, CL, YP, MB, SK, CA, KR.

### Author Disclosures

**KG:** Honoraria and or research support from: AbbVie, Almirall, Amgen, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Dermira Inc., Eli Lilly, Janssen, Novartis, Pfizer, Sun Pharma, and UCB Pharma. **RBW:** Grants and/or honoraria from AbbVie, Almirall, Amgen, Boehringer Ingelheim, Celgene, Janssen, Eli Lilly, LEO Pharma, Novartis, Pfizer, Sanofi, UCB Pharma, Xenoport. **ABG:** Research/Educational Grants: Janssen, Incyte, Eli Lilly, Novartis, Allergan and LEO Pharma. Current Consulting/Advisory Board Agreements/Speakers Bureau: Janssen; Celgene, Bristol-Myers Squibb, Beiersdorf, AbbVie, UCB Pharma, Novartis, Incyte, Eli Lilly, Dr. Reddy's Laboratories, Valeant, Dermira Inc., Allergan, Sun Pharma, Sienna Pharma. **AB:** Consulting honoraria and clinical investigator: AbbVie; Aclaris; Almirall; Amgen; Boehringer Ingelheim; Celgene; Dermavant; Dermira Inc.; Eli Lilly; Genentech/Roche; GSK; Janssen; LEO Pharma; Meiji; Merck; Novartis; Pfizer; Purdue Pharma, Regeneron, Sandoz, Sanofi Genzyme, Sienna Pharma, Sun Pharma, UCB Pharma, Valeant, Vidac. Speaker's fees: Eli Lilly, Janssen, Regeneron, Sanofi Genzyme. **DT:** Research grants from Celgene and Novartis; honoraria for participation on ad boards, and speaker/consultancy fees for AbbVie, Almiral, Amgen, Boehringer Ingelheim, Celgene, Dignity, Dr. Reddy's Laboratories, Galapagos, GSK, Janssen, Leo, Morphosis, MSD, Eli Lilly, Novartis, Pfizer, Sandoz-Hexal, Pfizer, Regeneron/Sanofi, UCB Pharma; **CL:** Speaker (honoraria) for AbbVie; Celgene; Novartis; Eli Lilly. Investigator for Actavis; AbbVie; Amgen; Boehringer Ingelheim; Celgene; Coherus; Corrona; Dermira Inc; Eli Lilly; Galderma; Glenmark; Janssen; LEO Pharma; Merck; Novartis; Novella; Pfizer; Sandoz; Stiefel; Wyeth. Consulting and Advisory board honoraria for AbbVie; Amgen; Boehringer Ingelheim; Dermira Inc.; Eli Lilly; Janssen; LEO Pharma; Pfizer; Sandoz; UCB Pharma; Vitae; **YP:** Speaker (honoraria) from: AbbVie; Celgene; Janssen; Eli Lilly; LEO Pharma; Novartis; Regeneron Sanofi Genzyme. Investigator (Research grants) from AbbVie; Baxter; Boehringer Ingelheim Pharma; Celgene; Centocor/Janssen; Eli Lilly; EMD Serono; GSK; Leo Pharma; MedImmune; Merck; Novartis; Pfizer; Regeneron; Takeda; UCB Pharma. **MB, CA:** Employees of UCB Pharma; **SK:** Employee of UCB Pharma; Consulting fees from AveXis, Colorado Prevention Center, DiaMedica, PureTech, UCB Pharma, Zosano; **KR:** Advisor and/or paid speaker for and/or participated in clinical trials sponsored by: Abbvie, Affibody, Amgen, Biogen, Boehringer Ingelheim, Celgene, Centocor, Covagen, Forward Pharma, GSK, Janssen-Cilag, Kyowa Kirin, LEO Pharma, Eli Lilly, Medac, Merck Sharp & Dohme, Novartis, Ocean Pharma, Pfizer, Regeneron, Samsung Biopepis, Sanofi, Takeda, UCB Pharma, Valeant, Xenoport.

### Acknowledgements

The studies were funded by Dermira Inc. in collaboration with UCB Pharma. UCB is the regulatory sponsor of certolizumab pegol in psoriasis. We thank the patients and their caregivers in addition to the investigators and their teams who contributed to this study. The authors acknowledge Bartosz Łukowski, MSc, UCB Pharma, Brussels, Belgium, for publication coordination and Sophie Caseby, MSc, Costello Medical, Cambridge, UK for medical writing and editorial assistance. All costs associated with development of this poster were funded by UCB Pharma.

Presented at Fall Clinical Dermatology Conference 2019 | Las Vegas, NV, USA | 17–20 October, 2019

Previously presented at 28th EADV Congress 2019