



• 1차 치료 / Combi •

# KEYNOTE 407

# Selected Safety Information (SSI)

MSD's promotional materials are mandated to present Selected Safety Information aiming for balanced delivery of product advantages and limitations.

Here you can find **the latest version of KEYTRUDA's Selected Safety Information.**

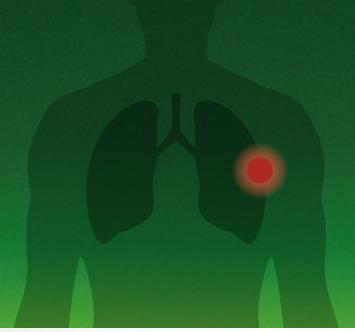
Please read before entering.

SSI  바로가기

KR-KEY-00229

## Final Analysis of KEYNOTE-407 Study design

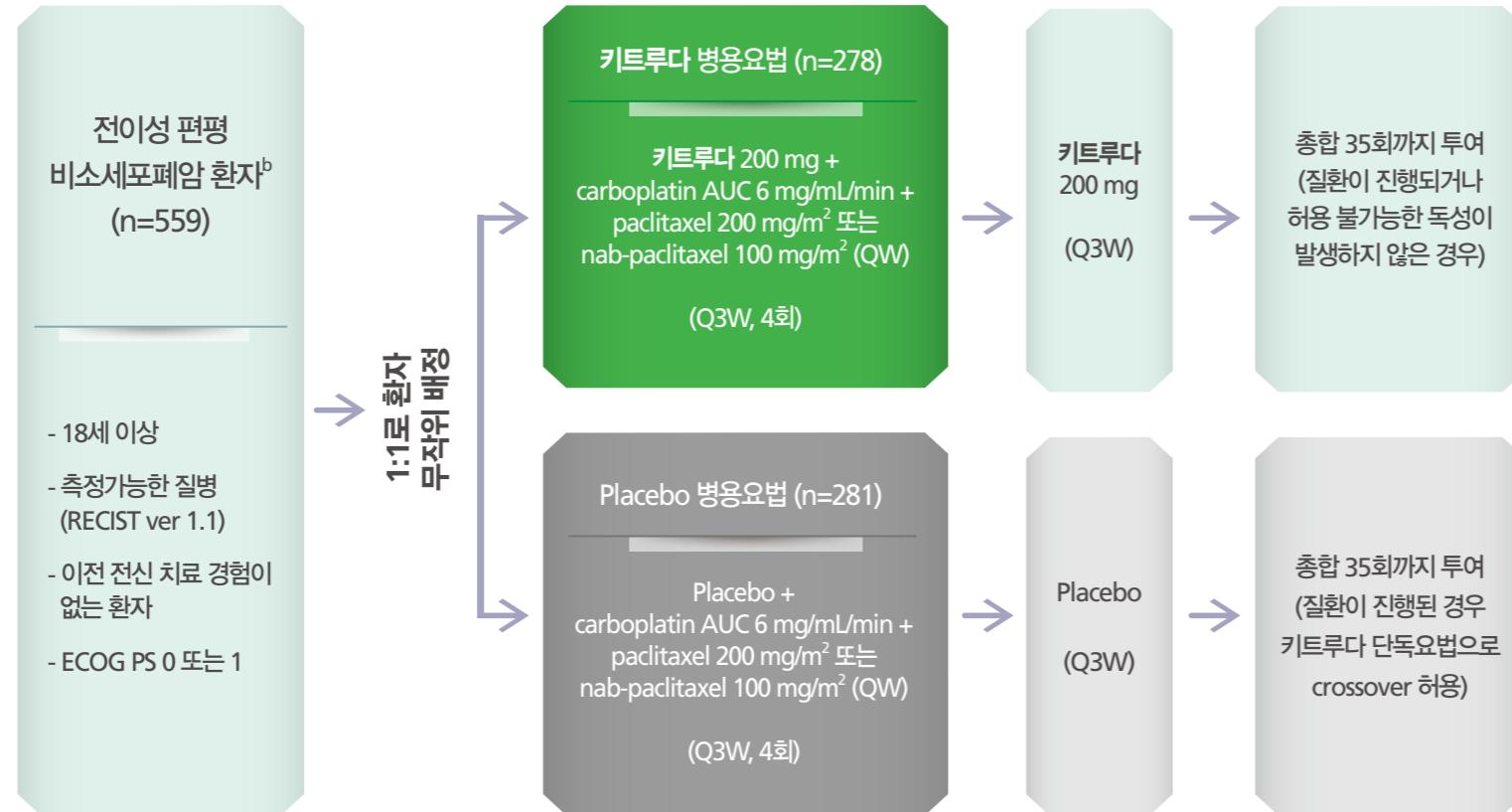
# PD-L1 발현율에 관계없이 전이성 편평 비소세포폐암의 1차 치료로서 키트루다 병용요법에 대한 연구<sup>1</sup>



## KEYNOTE-407

### 전이성 편평 비소세포폐암에 대한 무작위, 이중눈가림, 다기관, 위약 대조, 3상 임상연구<sup>a</sup>

▶ The primary endpoint : 전체 생존기간(OS), 무진행 생존기간(PFS) ▶ Secondary endpoint : 객관적 반응률(ORR), 반응기간(DOR), 안전성(Safety)



- Stratification factors :
  - PD-L1 발현비율 (TPS ≥1% vs. <1%)
  - Taxane (paclitaxel vs. nab-paclitaxel)
  - Geographic region (East Asia vs. non-East Asia)
- 기존 연구에서 추가된 사항 :
  - 16개월 추가 follow-up
  - 후속 치료에 대한 1차 치료로서의 키트루다 병용요법의 임상적 이점 평가(PFS-2<sup>c</sup>)
  - Simplified two-stage model을 이용한 crossover adjusted OS 분석

**a.** As of the data cutoff for this analysis (May 9, 2019), median (range) time from randomization to death or the date of data cutoff for those who were alive was 14.3 (0.1-31.3) months **b.** Intention-to-treat population **c.** Defined as the time from randomization to objective tumor progression on next-line treatment or death, whichever occurred first

PD-L1 : Programmed death ligand 1, OS : Overall survival, PFS : Progression free survival, ORR : Objective response rate, DOR : Duration of response, RECIST : Response Evaluation Criteria in Solid Tumors, ECOG PS : Eastern Cooperative Oncology Group performance status, AUC : Area under the curve, QW : Once weekly, Q3W : Once every 3 weeks, TPS : Tumor proportion score, PFS-2 : Progression-free survival in the next line

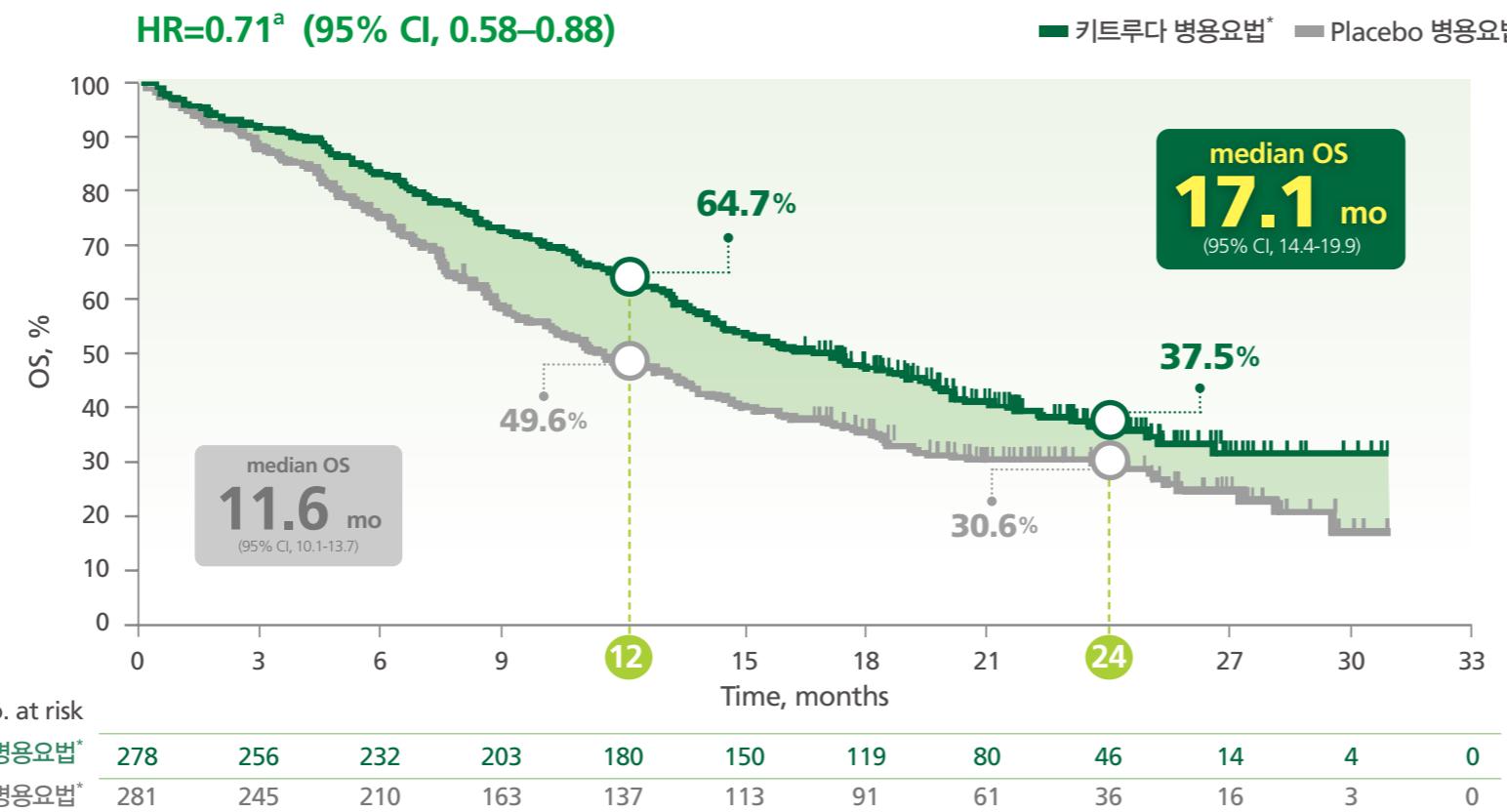
Reference &  
Study design

Final Analysis of KEYNOTE-407 Primary endpoint : Overall survival



## 전체 생존기간 (OS) - Overall population

### Kaplan-Meier Estimates of OS in KEYNOTE-407<sup>1</sup>



- 전체 생존기간의 중앙값은 키트루다 병용요법\* 투여군에서 17.1개월(95% CI, 14.4-19.9), Placebo 병용요법\* 투여군에서 11.6개월(95% CI, 10.1-13.7) 이었습니다.

- Placebo 병용요법\* 투여군 중 **114명의 환자(40.6%)**가 질병 진행 후 키트루다 단독요법으로 **crossover**하였습니다

**키트루다 병용요법\* 투여군은, Placebo 병용요법\* 투여군 대비  
사망 위험 29% 감소 & mOS 1.5배 연장**

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

OS : Overall survival, HR : Hazard ratio, CI : Confidence interval, mOS : median OS

Reference  
&  
Study design

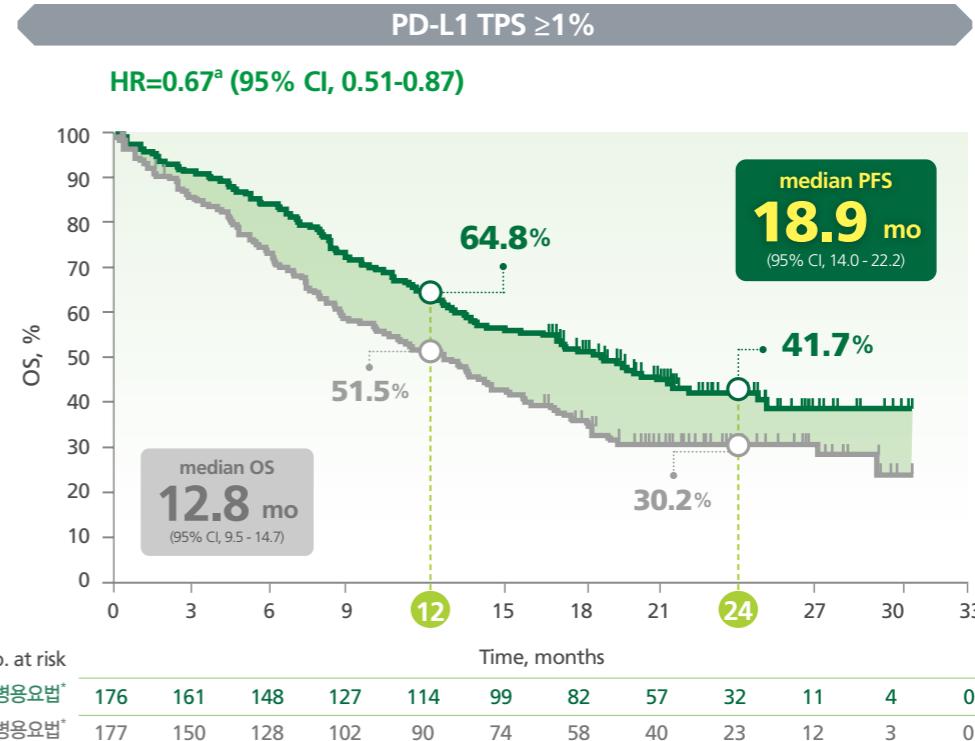
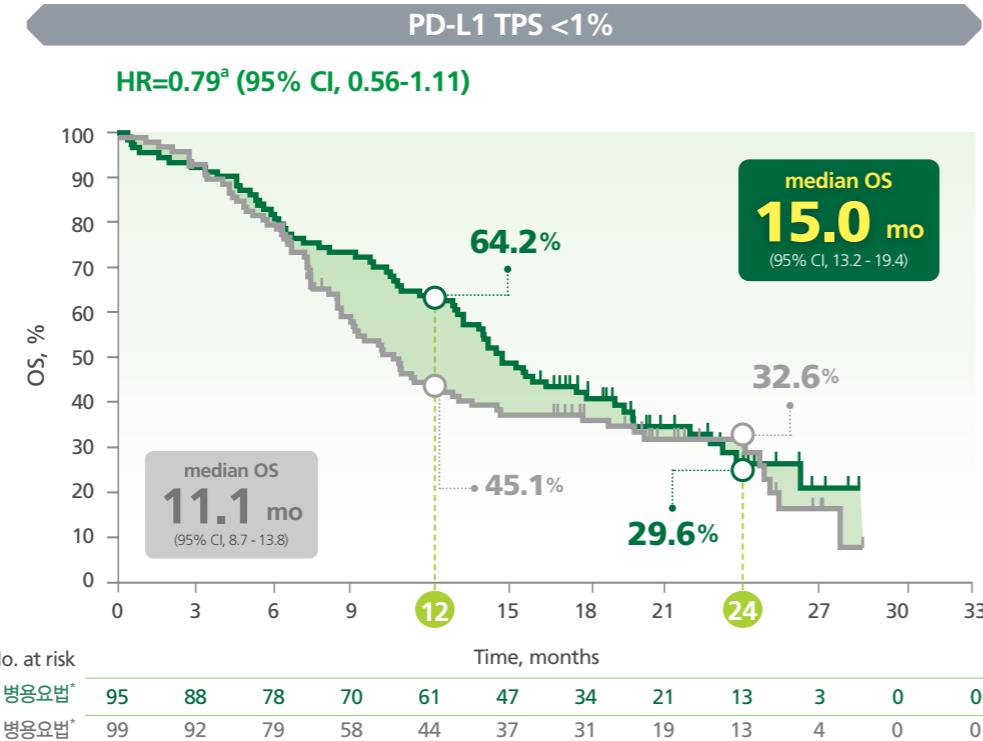
Final Analysis of KEYNOTE-407 Primary endpoint : Overall survival



## 전체 생존기간 (OS) - According to PD-L1 TPS

### Kaplan-Meier Estimates of OS in KEYNOTE-407<sup>1</sup>

■ 키트루다 병용요법\* ■ Placebo 병용요법\*



Adapted from Paz-Ares L, et al.<sup>1</sup>

키트루다 병용요법\* 투여군은, Placebo 병용요법\* 투여군 대비  
PD-L1 발현율에 관계없이 사망 위험 감소 및 mOS 연장

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

OS : Overall survival, HR : Hazard ratio, CI : Confidence interval, mo : Month, mOS : median OS, PD-L1 : Programmed death ligand 1, TPS : Tumor proportion score

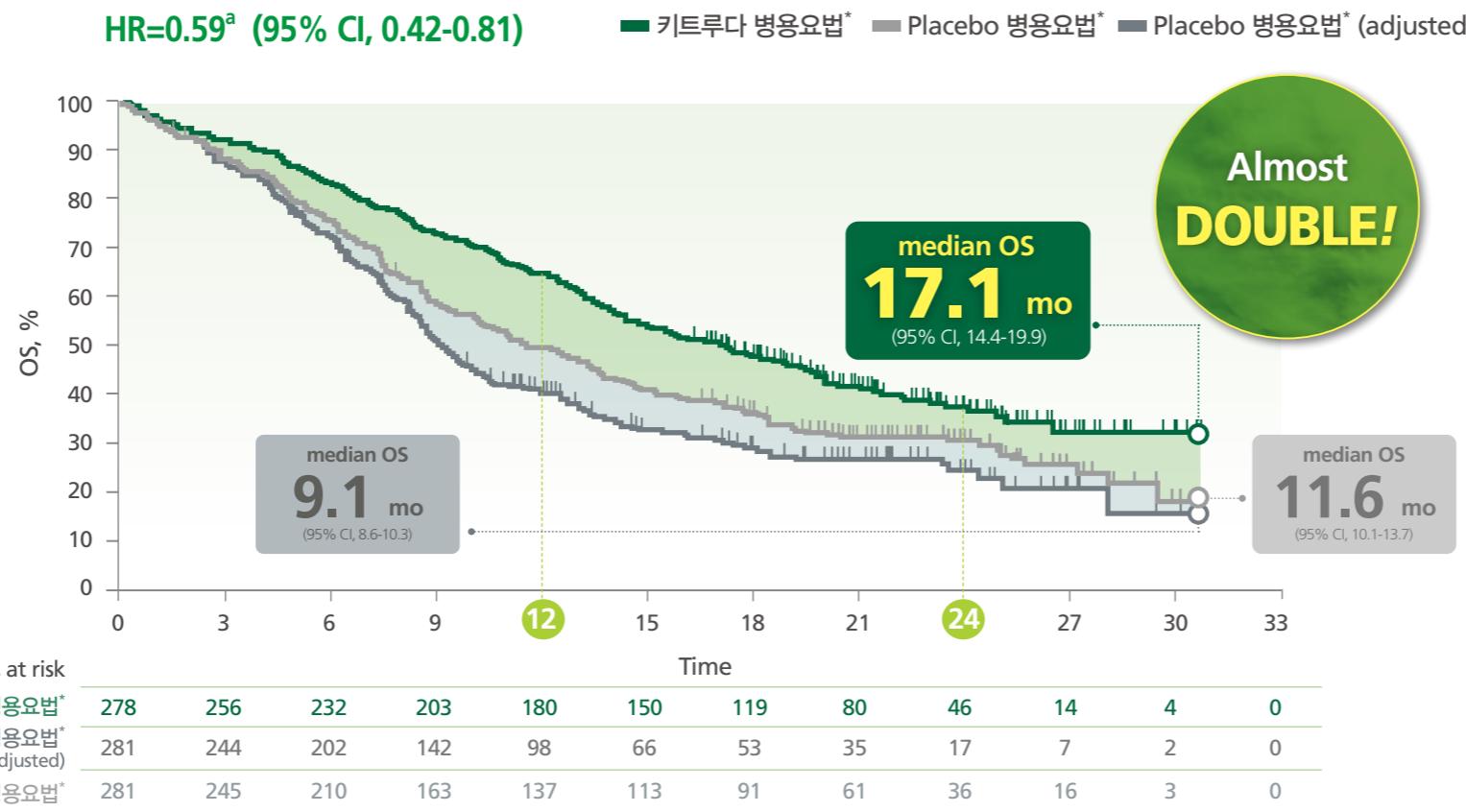
Reference  
&  
Study design

Final Analysis of KEYNOTE-407 Primary endpoint : Overall survival



# Crossover adjusted OS - Overall population

## Crossover-adjusted OS in KEYNOTE-407<sup>1</sup>



- On-study crossover에 따른 영향을 평가하고 bias를 조정하기 위해, simplified two-stage model을 이용한 OS에 대한 추가 분석이 수행되었습니다.

- Placebo 병용요법\* 투여군에서 114명(40.6%)의 환자가 키트루다로 crossover 하였습니다.<sup>b</sup>

Crossover-adjustment 결과, 키트루다 병용요법\* 투여군은 Placebo 병용요법\* 투여군 대비

**사망 위험 41% 감소 & mOS 약 2배 연장**

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model b. 73 patients in the placebo plus chemotherapy group experienced disease progression per RECIST version 1.1, but did not receive on-study crossover

OS : Overall survival, HR : Hazard ratio, CI : Confidence interval, mOS : median OS

Reference  
&  
Study design

Final Analysis of KEYNOTE-407 Primary endpoint : Overall survival

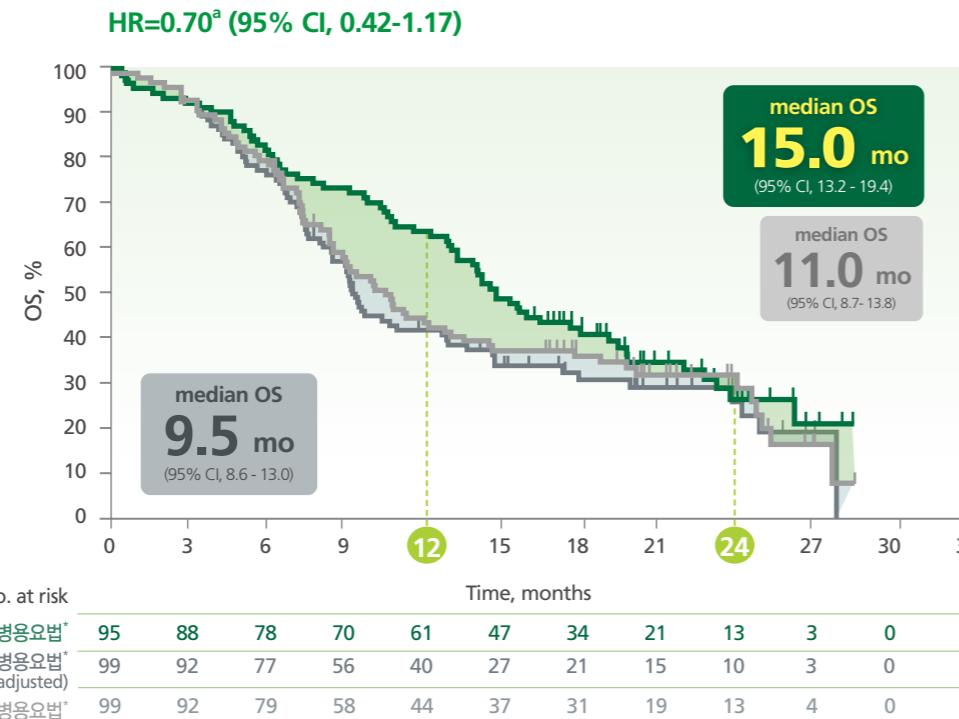


# Crossover adjusted OS - According to PD-L1 TPS

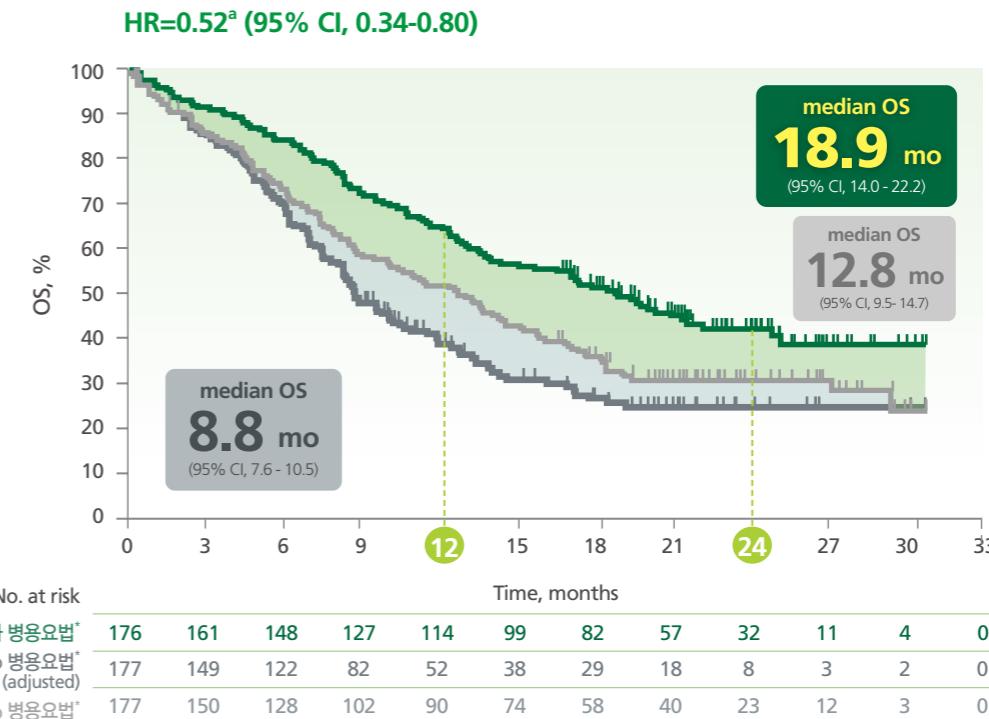
## Crossover-adjusted OS in KEYNOTE-407<sup>1</sup>

■ 키트루다 병용요법\* ■ Placebo 병용요법\* ■ Placebo 병용요법\* (adjusted)

### PD-L1 TPS <1%



### PD-L1 TPS ≥1%



Adapted from Paz-Ares L, et al.<sup>1</sup>

Crossover-adjustment 결과, 키트루다 병용요법\* 투여군은 Placebo 병용요법\* 투여군 대비

**PD-L1 발현율에 관계없이 사망 위험 감소 및 mOS 연장**

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

OS : Overall survival, HR : Hazard ratio, CI : Confidence interval, mo : Month, mOS : median OS, PD-L1 : Programmed death ligand 1, TPS : Tumor proportion score

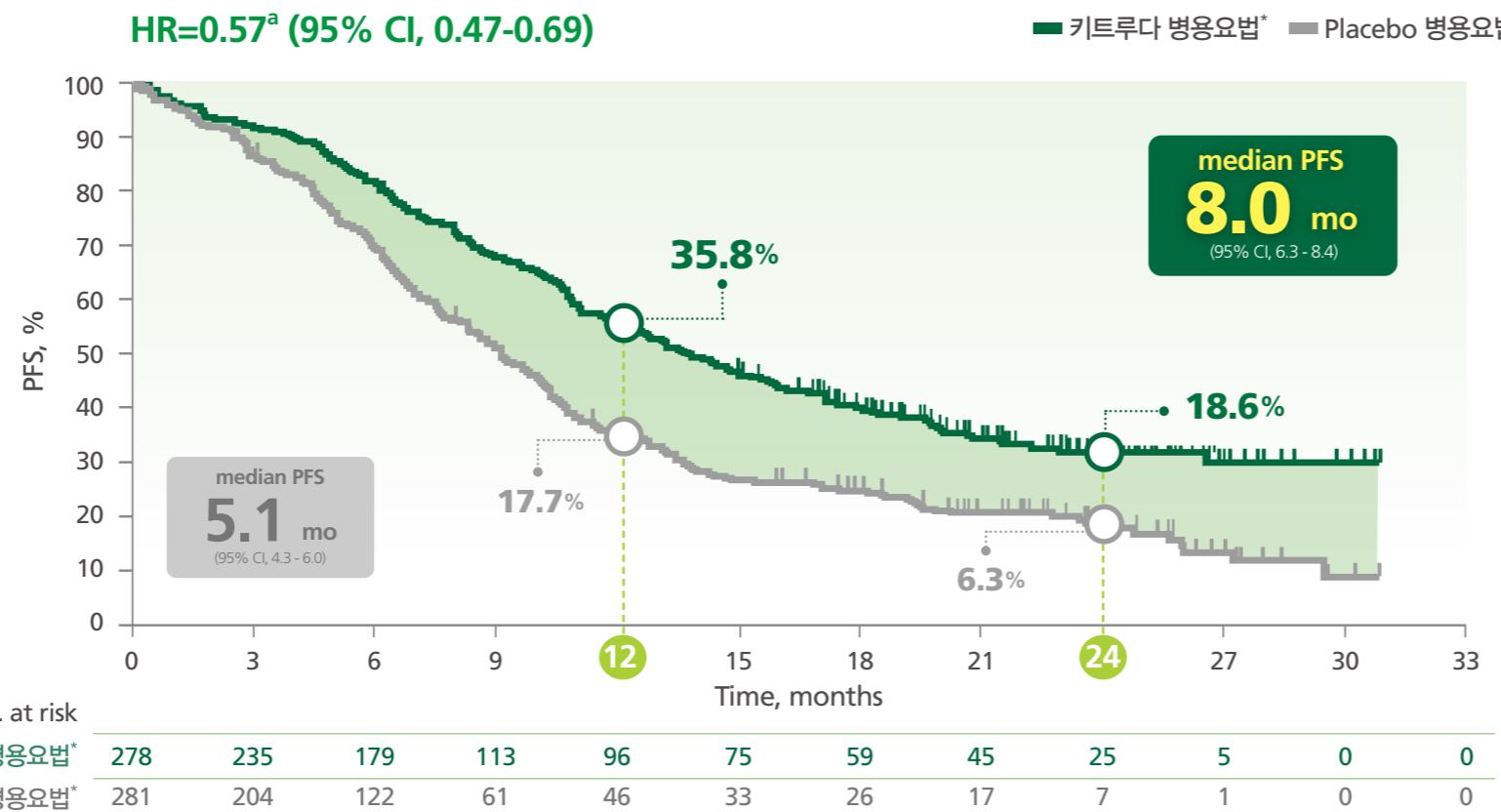
Reference  
&  
Study design

Final Analysis of KEYNOTE-407 Primary endpoint : Progression free survival



## 무진행 생존기간 (PFS) - Overall population

### Kaplan-Meier Estimates of PFS in KEYNOTE-407<sup>1</sup>



- 무진행 생존기간 중앙값은 Keytruda 병용요법\* 투여군에서 8.0개월(95% CI, 6.3-8.4), Placebo 병용요법\* 투여군에서 5.1개월 (95% CI, 4.3-6.0)이었습니다.

Keytruda 병용요법\* 투여군은, Placebo 병용요법\* 투여군 대비  
질병 진행 또는 사망 위험 43% 감소 & mPFS 약 1.6배 연장

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

PFS : Progression free survival, HR : Hazard ratio, CI : Confidence interval, mPFS : median PFS

Reference  
&  
Study design

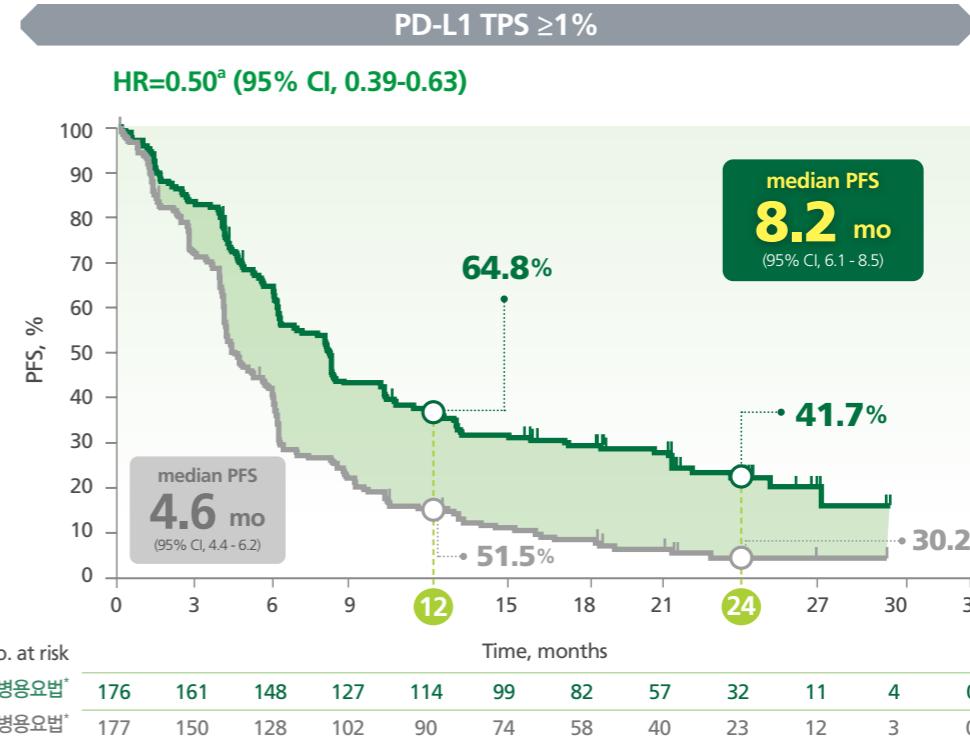
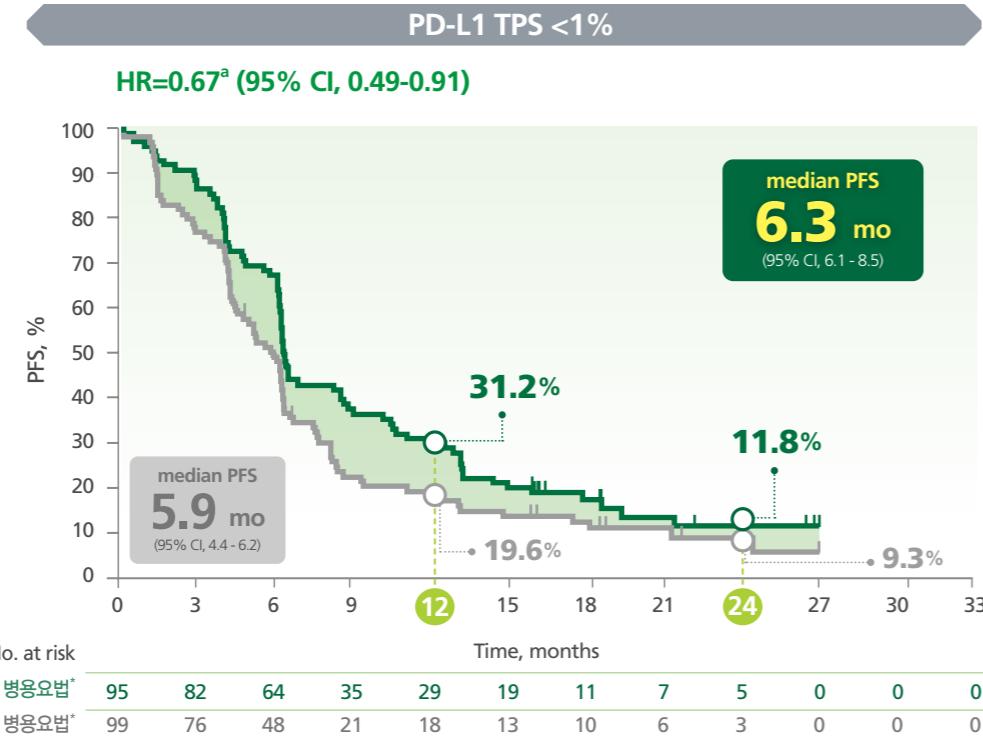
Final Analysis of KEYNOTE-407 Primary endpoint : Progression free survival



# 무진행 생존기간 (PFS) - According to PD-L1 TPS

## Kaplan-Meier Estimates of PFS in KEYNOTE-407<sup>1</sup>

■ 키트루다 병용요법\* ■ Placebo 병용요법\*



Adapted from Paz-Ares L, et al.<sup>1</sup>

키트루다 병용요법\* 투여군은 Placebo 병용요법\* 투여군 대비

**PD-L1 발현율에 관계없이 질병 진행 또는 사망 위험 감소 & mPFS 연장**

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

PFS : Progression free survival, HR : Hazard ratio, CI : Confidence interval, mo : Month, mPFS : median PFS, PD-L1 : Programmed death ligand 1, TPS : Tumor proportion score

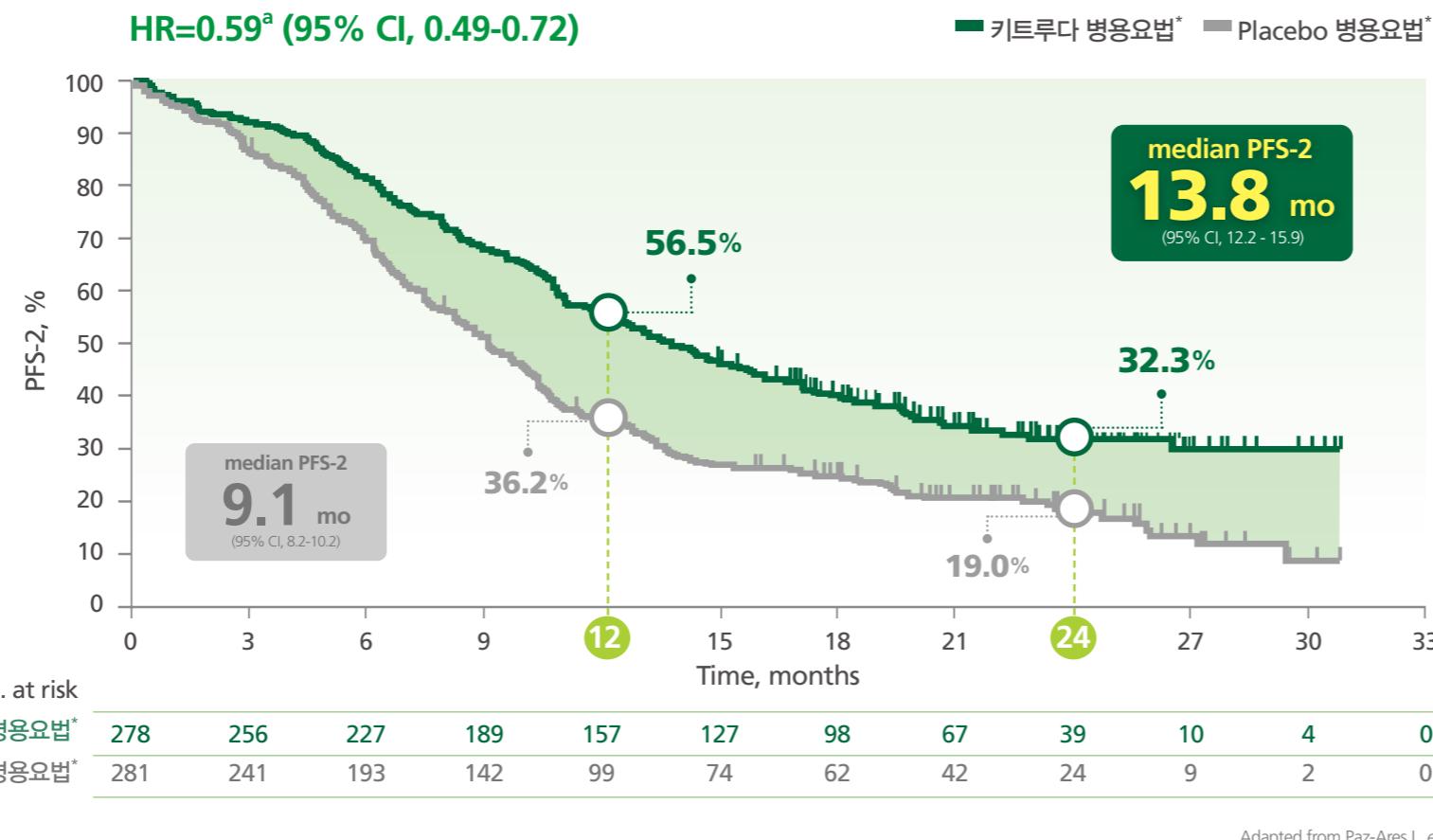
Reference  
&  
Study design

Final Analysis of KEYNOTE-407 exploratory endpoint : Progression free survival in the next line



## 무진행 생존기간-2 (PFS-2) - Overall population

### Kaplan-Meier Estimates of PFS-2 in KEYNOTE-407<sup>1</sup>



- PFS-2 중앙값은 키트루다 병용요법\* 투여군에서 13.8개월(95% CI, 12.2-15.9), Placebo 병용요법\* 투여군에서 9.1개월 (95% CI, 8.2-10.2) 이었습니다.

- 1차부터 키트루다 병용요법\*으로 시작하는 것은 다음 차수의 치료 효과에도 긍정적 영향을 줍니다.

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

PFS-2 : Progression-free survival in the next line, HR : Hazard ratio, CI : Confidence interval, mPFS-2 : median PFS-2

Reference & Study design

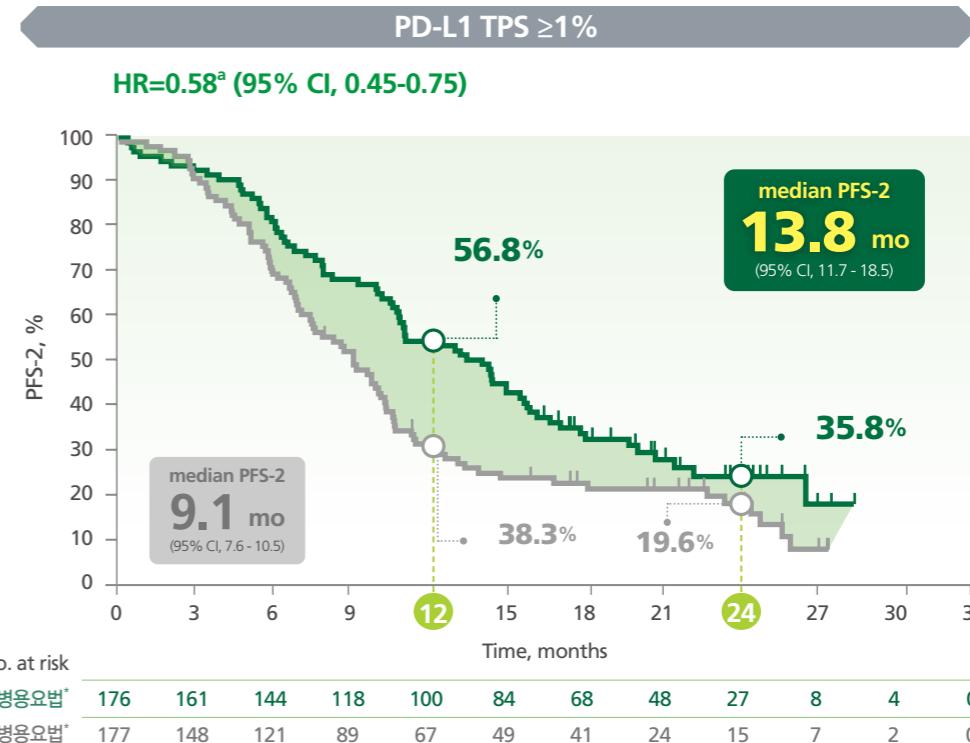
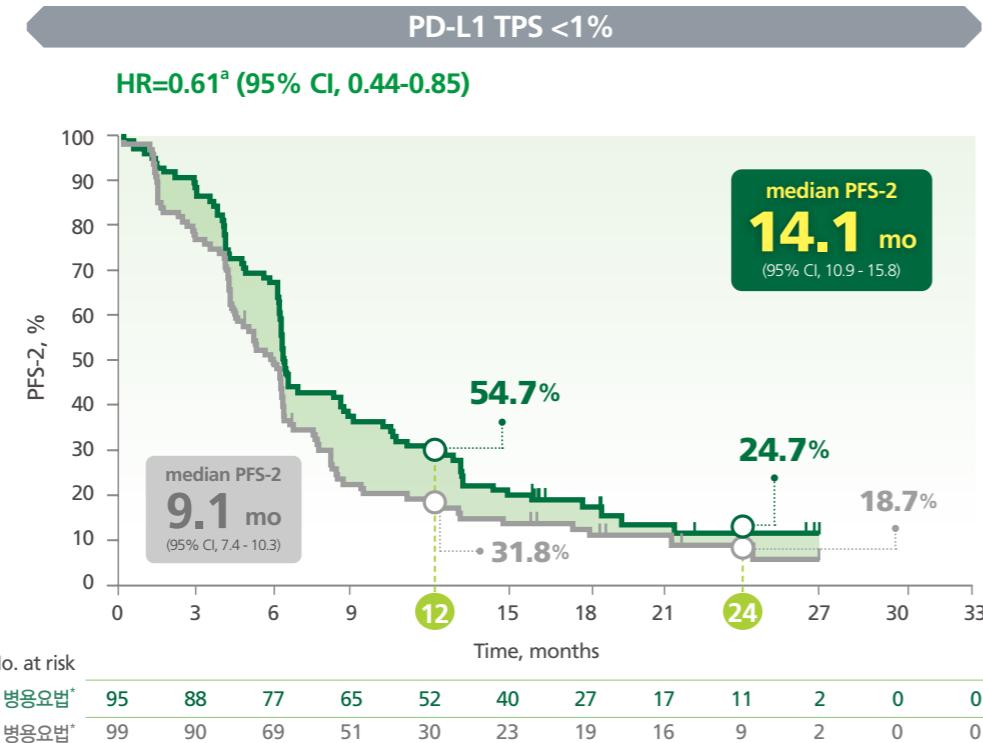
Final Analysis of KEYNOTE-407 exploratory endpoint : Progression free survival in the next line



## 무진행 생존기간-2 (PFS-2) - According to PD-L1 TPS

### Kaplan-Meier estimates of PFS-2 in KEYNOTE-407<sup>1</sup>

■ 키트루다 병용요법\* ■ Placebo 병용요법\*



Adapted from Paz-Ares L, et al.<sup>1</sup>

키트루다 병용요법\* 투여군은, Placebo 병용요법\* 투여군 대비  
PD-L1 발현율에 관계없이 다음 차수 치료 중 질병 진행 또는 사망 위험 감소 & mPFS-2 연장

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. Assessed with a stratified Cox proportional hazards model

PFS-2 : Progression-free survival in the next line, HR : Hazard ratio, CI : Confidence interval, mo : Month, PD-L1 : Programmed death ligand 1, TPS : Tumor proportion score,

mPFS-2 : median PFS-2

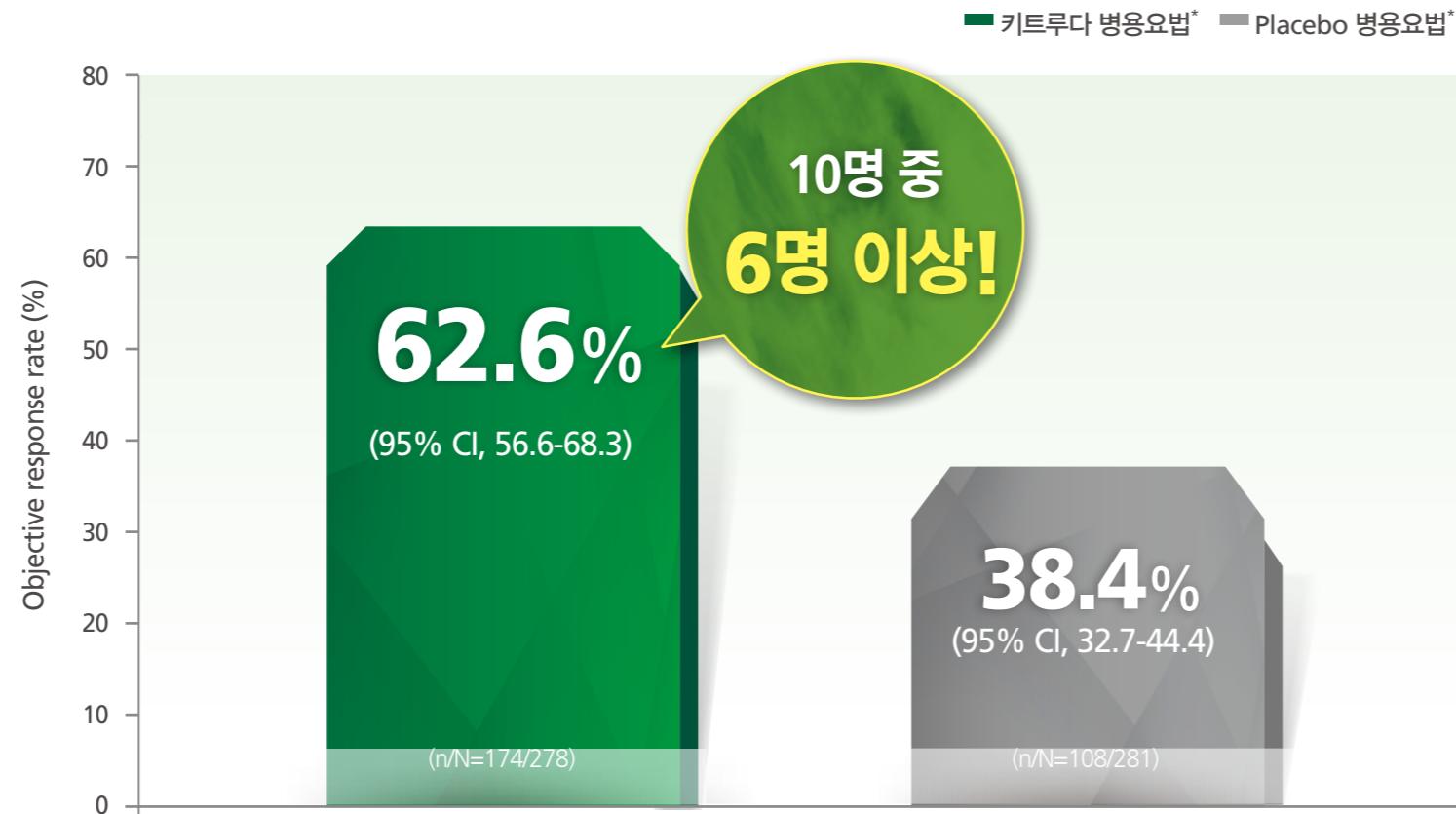
Reference  
&  
Study design

Final Analysis of KEYNOTE-407 Secondary endpoint : Objective response rate



## 객관적 반응률 (ORR) - Overall population

### ORR from KEYNOTE-407<sup>1</sup>



- 객관적 반응률은  
Keytruda 병용요법\* 투여군에서  
62.6%(95% CI, 56.6-68.3),  
Placebo 병용요법\* 투여군에서  
38.4% (95% CI, 32.7-44.4)  
이었습니다.

- 반응 지속기간의 중앙값은  
Keytruda 병용요법\* 투여군에서  
8.8개월 (Range, 1.3+ to 28.4+),  
Placebo 병용요법\* 투여군에서  
4.9개월(Range, 1.3+ to 28.3+)  
이었습니다.<sup>a</sup>

**키트루다 병용요법\* 투여군은 10명 중 6명 이상이 반응**  
(Placebo 병용요법\* 투여군 대비 약 1.6배의 ORR)

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

a. "+" indicates there was no progressive disease as of last assessment before the data cutoff date

ORR : Objective response rate, CI : Confidence interval

Reference  
&  
Study design

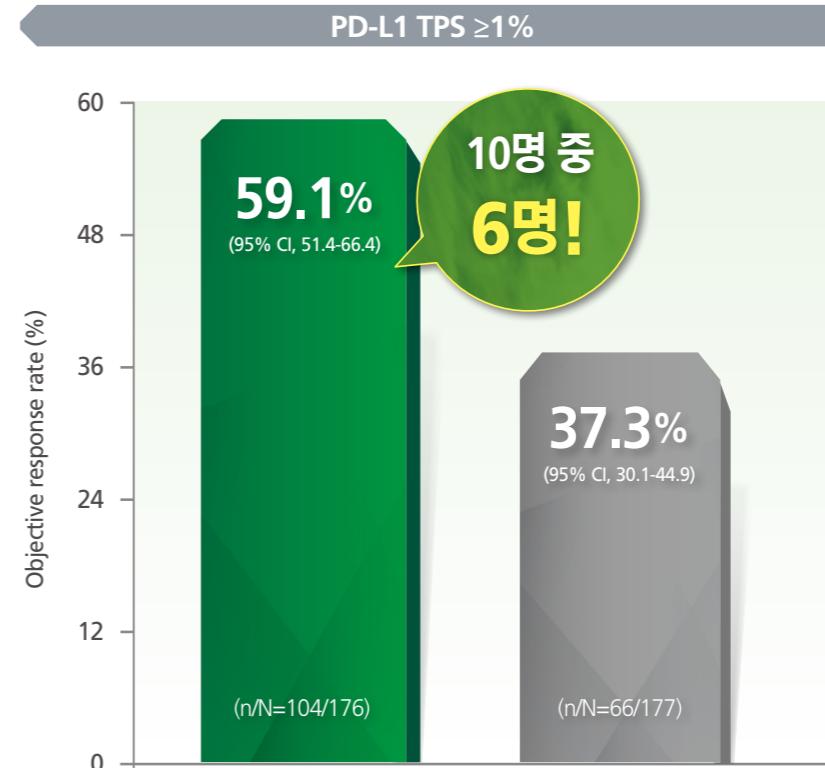
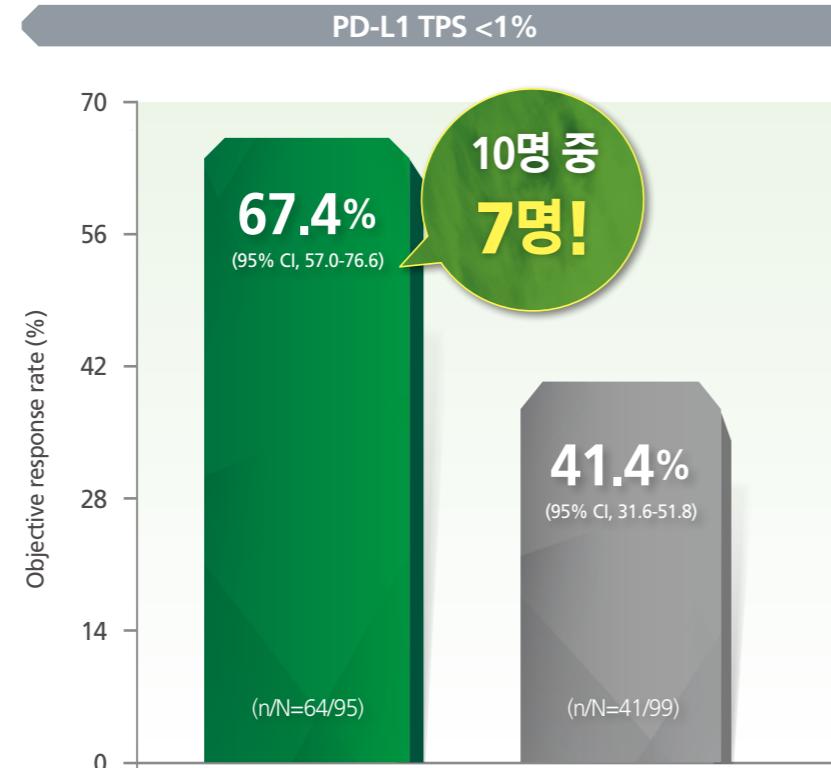
Final Analysis of KEYNOTE-407 Secondary endpoint : Objective response rate



## 객관적 반응률 (ORR) - According to PD-L1 TPS

### ORR from KEYNOTE-407<sup>1</sup>

■ 키트루다 병용요법\* ■ Placebo 병용요법\*



키트루다 병용요법\* 투여군은, Placebo 병용요법\* 투여군 대비  
PD-L1 발현율에 관계없이 ORR 증가 (약 1.6배)

[Median DOR(months)] TPS <1%: 6.9(range; 1.4+ to 25.4+) vs. 5.7(range; 1.4+ to 25.6+), TPS ≥1%: 10.4(range; 1.3+ to 28.4+) vs. 4.7(range; 1.3+ to 28.3+), in the KEYTRUDA combination group and placebo combination group, respectively ("+" indicates there was no progressive disease as of last assessment before the data cutoff date)

\* Carboplatin AUC 6 mg·mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

ORR : Objective response rate, CI : Confidence interval, PD-L1 : Programmed death ligand 1, TPS : Tumor proportion score

Reference  
&  
Study design

# Y 안전성 프로파일

## Incidence of All-Cause AEs, Immune-Mediated AEs, and Infusion Reactions, Safety Population<sup>1</sup>

Event	키트루다 병용요법*	Placebo 병용요법*
	(N = 278)	(N = 280)
	number of patients (%)	
1회 이상 발생한 이상반응	274 (98.6)	275 (98.2)
3등급 이상	206 (74.1)	195 (69.6)
치료 중단으로 이어진 이상반응		
1개 이상의 치료 중단	76 (27.3)	37 (13.2)
모든 치료 중단 <sup>a</sup>	45 (16.2)	20 (7.1)
5등급	31 (11.2)	19 (6.8)
사망으로 이어진 치료관련 이상반응	12 (4.3)	5 (1.8)
면역-매개 이상반응 및 주입 관련 반응	98 (35.3)	25 (8.9)
3등급 이상	37 (13.3)	9 (3.2)

- 키트루다 병용요법\* 투여군에서 가장 흔한 이상반응은 빈혈(54.7%), 탈모증(46.0%), 호중구 감소증(37.8%), 오심(36.0%) 등이었습니다.
- 키트루다 병용요법\* 투여군의 가장 흔한 면역-매개 이상반응 및 주입 관련 이상반응은 갑상선 저하증(12.2%), 갑상선기능항진증(6.8%), 폐렴(8.3%) 등이었습니다.

**키트루다 병용요법\* 투여군은  
전반적으로 양호한 내약성을 보임**

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

**a.** Includes patients who discontinued pembrolizumab or placebo, carboplatin, and taxane owing to an AE at any time and patients who discontinued pembrolizumab or placebo owing to an AE after completing four 3-week cycles of carboplatin and taxane.

**AE :** Adverse event

**Reference  
&  
Study design**

# PD-L1 발현율에 관계없이 전이성 편평 비소세포폐암의 1차 치료로서 키트루다 병용요법\* 연구<sup>1</sup>

Crossover-adjusted  
전체 생존기간  
중앙값(mOS) 연장

Almost  
**DOUBLE!**

(vs. Placebo 병용요법\* 투여군)

객관적  
반응률(ORR) 증가

**6** 10명 중  
명 이상

PD-L1 발현이 음성이거나, PD-L1 검사결과가 없는 환자를 포함한 모든 squamous mNSCLC 환자에게  
"키트루다 1차 병용요법\*으로 More TOMORROWS의 가능성을 열어주세요!"

\* Carboplatin AUC 6 mg/mL/min (Q3W) + Paclitaxel 200 mg/m<sup>2</sup> (Q3W) or nab-paclitaxel 100 mg/m<sup>2</sup> (QW)

PD-L1 : Programmed death ligand 1, mOS : median OS, ORR : Objective response rate, mNSCLC : metastatic non-small cell lung cancer

Reference  
&  
Study design

**KEYNOTE-407 용법·용량**

# 키트루다®와 Carboplatin 및 Paclitaxel(혹은 Nab-paclitaxel)과의 병용요법



**치료 용량<sup>1,2,a-d</sup>**



**KEYTRUDA®**

200 mg IV over 30 minutes (매 3주마다)

**C**

**Carboplatin**

AUC 6 mg/mL/min IV over 15-60 minutes (매 3주마다)



**Paclitaxel with pre-medications**

200 mg/m<sup>2</sup> IV over 3 hours (매 3주마다)



**Nab-paclitaxel without pre-medications**

100 mg/m<sup>2</sup> IV over 30 minutes  
(매 3주 주기의 제 1일, 8일, 15일)

※ 이 약을 화학요법제와 병용하여 투여하는 경우 이 약이 먼저 투여되어야 합니다. 병용하여 투여하는 화학요법제의 허가사항을 함께 참고합니다.

1. 초기 4 cycles은 KEYTRUDA + Carboplatin + Paclitaxel 요법으로 투여합니다.

2. 이후엔 KEYTRUDA 단독 유지 요법으로 투여하며, 초기 4 cycles를 포함하여 총 35 cycles까지 투여 가능합니다.

**전처치 용법·용량<sup>3,4,\*</sup>**

**D/D**

**Dexamethasone(or equivalent)**

20 mg PO (Paclitaxel 투여 12시간과 6시간 전)

**C**

**Cimetidine**

300 mg IV (Paclitaxel 투여 30-60분 전)

**D**

**Diphenhydramine(or equivalent)**

50 mg IV (Paclitaxel 투여 30-60분 전)

**R**

**Ranitidine**

50 mg IV (Paclitaxel 투여 30-60분 전)

\* All subjects should be pre-medicated with oral or intravenous steroid and anti-histamines according to the approved product label and/or standard practice. Additional pre-medications should be administered as per standard practice.

a. KEYTRUDA + carboplatin or and paclitaxel or nab-paclitaxel Q3W for 4 cycles b. KEYTRUDA was given Q3W for up to a total of 35 cycles c. Patients in placebo combination group who had disease progression verified by BICR were eligible to cross over. d. Treatment with KEYTRUDA continued until disease progression, unacceptable toxicity, or up to a total of 35 cycles.

AUC : area under the curve, IV : intravenous, PO : by mouth

**Reference**

## KEYNOTE-407 투여 스케줄

### 투여 스케줄<sup>2-4</sup>



\* 기관마다 infusion pump의 다양성을 고려하여 30분 투여 시간에서 -5 mins ~ +10 mins window는 허용되었습니다.

Cycle 1-4	day 1	day 2	day 3	day 4	day 5	day 6	day 7
	Paclitaxel only requires pre-medications						
	day 8	day 9	day 10	day 11	day 12	day 13	day 14
	nab-P						
	day 15	day 16	day 17	day 18	day 19	day 20	day 21
	nab-P						

a. Treatment with KEYTRUDA continued until disease progression, unacceptable toxicity, or up to a total of 35 cycles.  
**D/D** : dexamethasone, **D** : diphenhydramine, **C** : cimetidine, **R** : ranitidine

Reference

## KEYNOTE-407 투여 스케줄

### 투여 스케줄<sup>2-4</sup>

Cycle 1~4	day 1	day 2	day 3	day 4	day 5	day 6	day 7
	      						
	Paclitaxel only requires pre-medications						
	day 8	day 9	day 10	day 11	day 12	day 13	day 14
							
	day 15	day 16	day 17	day 18	day 19	day 20	day 21
							
Maintenance therapy	day 1	day 2	day 3	day 4	day 5	day 6	21 -day cycle continues
							
	Maintenance therapy up to a total of 35 cycles <sup>a</sup>						

a. Treatment with KEYTRUDA continued until disease progression, unacceptable toxicity, or up to a total of 35 cycles.  
**D/D** : dexamethasone, **D** : diphenhydramine, **C** : cimetidine, **R** : ranitidine

Reference

## Reference

1. Paz-Ares L, et al. A Randomized, Placebo-Controlled Trial of Pembrolizumab Plus Chemotherapy in Patients With Metastatic Squamous NSCLC: Protocol-Specified Final Analysis of KEYNOTE-407. *J Thorac Oncol.* 2020 Oct;15(10):1657-1669.
2. Paz-Ares L, et al. A Randomized, Placebo-Controlled Trial of Pembrolizumab Plus Chemotherapy in Patients With Metastatic Squamous NSCLC: Protocol-Specified Final Analysis of KEYNOTE-407(protocol). *J Thorac Oncol.* 2020 Oct;15(10):1657-1669.
3. Paclitaxel 제품허가사항. 식품의약품안전처.
4. 대한폐암학회. 폐암진료지침 2011. Available at <[https://www.lungca.or.kr/upload/LungCancer\\_Clinical\\_Practice\\_Guideline\\_2011.pdf](https://www.lungca.or.kr/upload/LungCancer_Clinical_Practice_Guideline_2011.pdf)> Accessed Nov. 03, 2020.

## Study design

This study was conducted to evaluate the final efficacy and safety outcomes of KEYNOTE-407 study. A multicenter, randomized, double-blind, placebo-controlled, phase 3 KEYNOTE-407 trial was conducted to determine whether the addition of the PD-1 inhibitor (pembrolizumab) to platinum-based chemotherapy improves outcomes in patients with squamous NSCLC of any level of PD-L1 expression. Eligible patients were at least 18 years of age and had a histologically or cytologically confirmed diagnosis of stage IV squamous NSCLC. 559 patients were randomly assigned (1:1) to receive carboplatin (AUC 6 mg/mL/min Q3W) and either paclitaxel (200 mg/m<sup>2</sup> Q3W) or nab-paclitaxel (100 mg/m<sup>2</sup> Q1W), plus either 200 mg of pembrolizumab (n=278) or placebo (n=281) every 3 weeks for 4 cycles, followed by pembrolizumab or placebo for up to a total of 35 cycles. Randomization was stratified according to PD-L1 tumor proportion score ( $\geq 1\%$  vs.  $< 1\%$ ), choice of taxane (paclitaxel vs.nab-paclitaxel), and geographic region of enrollment (East Asia vs. the rest of the world). Crossover to pembrolizumab monotherapy was permitted among the patients in the placebo-combination group who had verified disease progression. The median duration of follow-up was 14.3 months. Primary end points were overall survival and progression-free survival.<sup>1</sup>