A Phase II study to evaluate the safety and efficacy of prasinezumab in early Parkinson's disease (PASADENA): Results from Part 1 Week 52

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Disclosures and Disclaimer

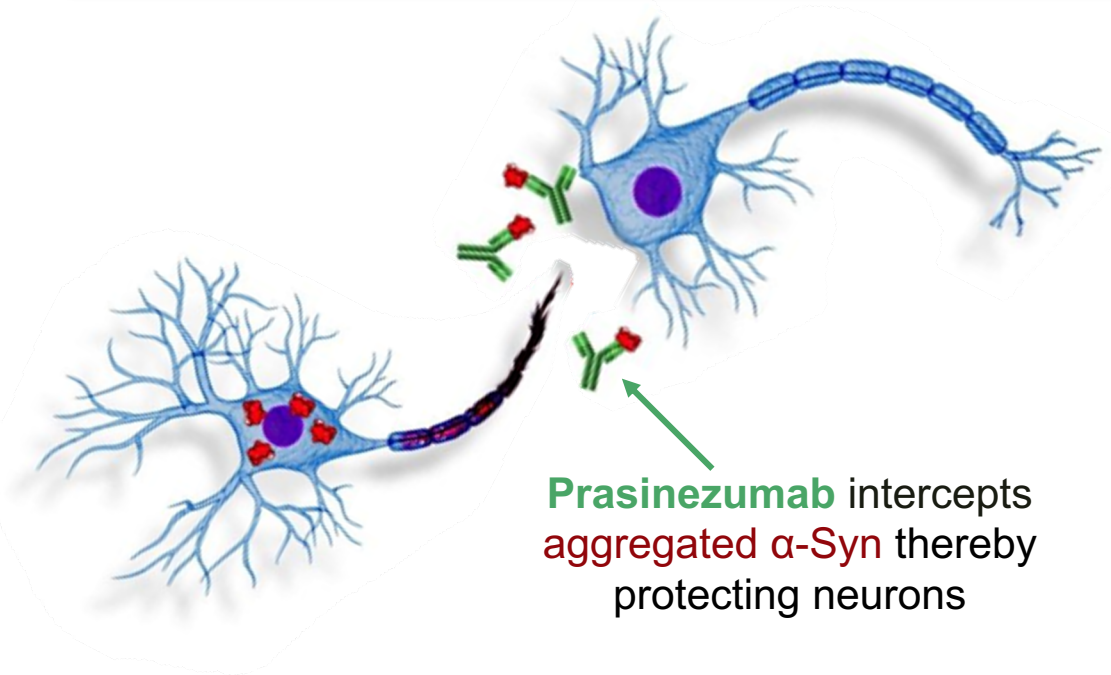
Gennaro Pagano is a full-time employee and shareholder of F. Hoffmann-La Roche Ltd.

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Prasinezumab is a humanized monoclonal antibody, designed to target aggregated α-Syn in PD

No treatments exist that can affect the underlying cause of PD[1–3]
Currently available treatments have powerful effects on symptoms but do not prevent or slow disease progression[2,3]



- **α-Syn** is genetically and neuropathologically validated as a **key target in PD[4]**
- **Prasinezumab binds aggregated α-Syn at the C-terminus[5–7]**
  - The targeted epitope results in higher selectivity for aggregated α-Syn, as well as consistently high levels of efficacy across several preclinical models
- **Prasinezumab demonstrated efficacy in multiple *in vivo* and cellular α-synucleinopathy models:[5–9]**
  - Reducing build-up of intracellular α-Syn pathology and protecting neurons
  - Blocking cell-to-cell transmission of α-Syn
  - Protecting synapses and reduceing gliosis
  - Ameliorating motor and cognitive behavioral deficits

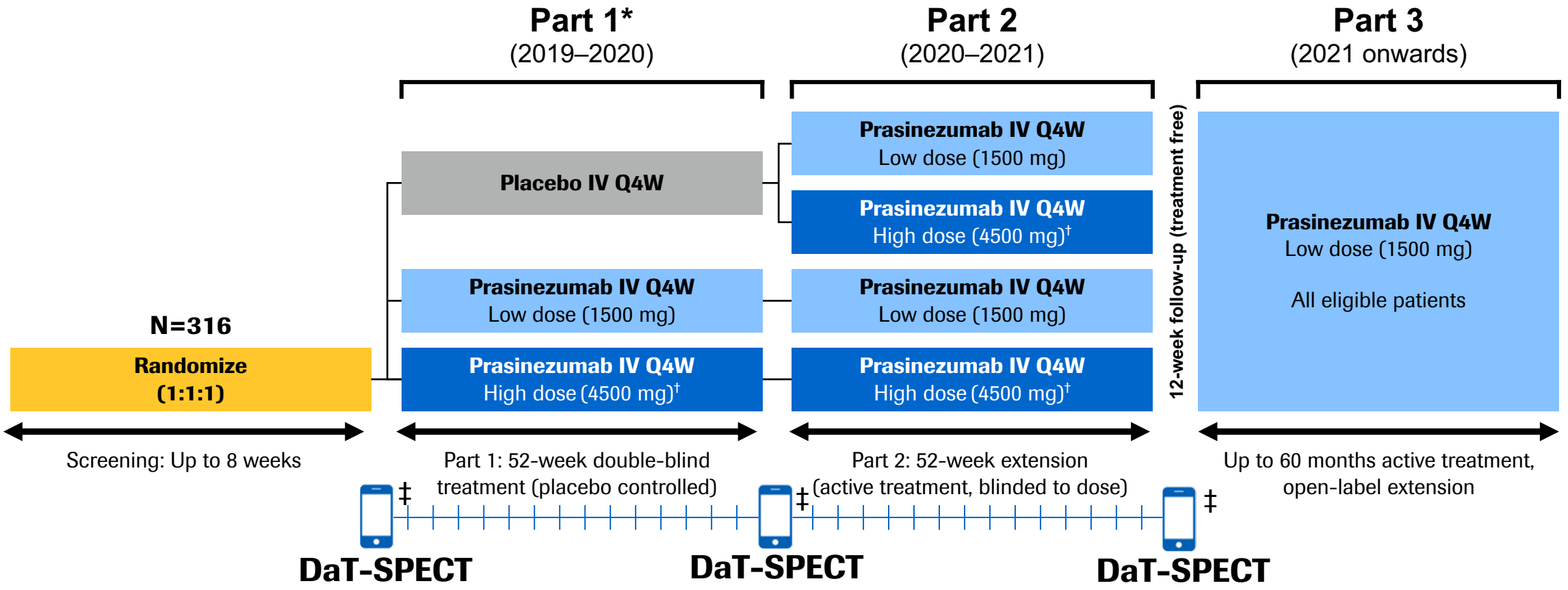
Prasinezumab has the potential to slow disease progression by protecting neurons from toxic α-Syn species

α-Syn, alpha-synuclein; PD, Parkinson's disease.

1. Verschuur CVM, et al. *N Engl J Med*. 2019; 380:315–324; 2. Lang AE & Espay AJ. *Mov Disord*. 2018; 33:660–677; 3. Cheng H, et al. *Ann Neurol*. 2010; 67: 715–725; 4. Dehay B, et al. *Lancet* Neurol. 2015; 14:855–866; 5. Masliah E, et al. *Neuron*. 2005; 46:857–868; 6. Masliah E, et al. *PLoS ONE*. 2011; 6:e19338; 7. Games D, et al. *J Neurosci*. 2014; 34:9441–9454; 8. Spencer B, et al. *Acta Neuropathol Commun*. 2017; 5:7; 9. Jankovic J et al. *JAMA Neurol*. 2018; 75:1206–1214.

PASADENA Phase II study in individuals with early PD

A 52-week multicenter, randomized, double-blind, placebo-controlled study



Signal-detection study designed to include ~100 patients/arm, resulting in 80% power and two-sided alpha of 0.20, to detect a 37.5% relative change in MDS-UPDRS Total score between groups from baseline to Week 52

*COVID-19 did not affect assessments during PASADENA Part 1 as these were completed before the pandemic. †High dose = 4500 mg for ≥65 kg; 3500 mg for <65 kg. ‡Digital biomarkers (smartphone and wrist-worn wearable assessments). COVID-19, coronavirus disease 2019; DaT-SPECT, dopamine transporter imaging with single-photon emission computed tomography; IV, intravenous; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; PD, Parkinson's disease; Q4W, every month. ClinicalTrials.gov. NCT03100149. (Accessed February 2021).

The mentioned compounds and their use are investigational and have not yet received regulatory approval in any country.

PASADENA Phase II study in individuals with early PD

Endpoints and inclusion/exclusion criteria

Primary endpoint

- Change from baseline at Week 52 in MDS-UPDRS Total score (sum of Parts I, II and III)

Key secondary endpoints

- Change from baseline at Week 52 in the following:
  - MDS-UPDRS Part I non-motor aspects
  - MDS-UPDRS Part II experiences of daily living (motor aspects)
  - MDS-UPDRS Part III motor examination and Part III sub-scores (bradykinesia, rigidity, tremor, axial signs)
  - MoCA total score
  - PGI-C, CGI-C and disability (SE-ADL)

Key exploratory endpoints

- Neurodegeneration of dopaminergic terminals (DaT-SPECT)
- Digital PASADENA Motor Score
- ASL-MRI for cerebral blood flow

Safety, tolerability, pharmacokinetics and immunogenicity

Key inclusion criteria

- Idiopathic PD with bradykinesia and one of the other cardinal signs of PD (resting tremor, rigidity) and no other known or suspected cause of PD
- Aged 40–80 years
- DaT-SPECT screening consistent with PD
- Either treatment naïve or on a stable dose of a MAO-B inhibitor for at least 90 days*

Key exclusion criteria

- Medical history indicating a Parkinson syndrome other than idiopathic PD
- Known carriers of certain familial PD genes (*Parkin, PINK1, DJ1*)
- MMSE ≤25

* Use of any of the following is not allowed for more than a total of 60 days or within 60 days of baseline: catechol-O-methyl transferase inhibitors (entacapone, tolcapone), amantadine or anticholinergics, or dopaminergic medication (levodopa and both ergot and non-ergot [pramipexole, ropinirole, rotigotine] dopamine agonists). Prior participation in any prasinezumab study is exclusionary.

ASL-MRI, arterial spin labelling-magnetic resonance imaging; CGI-C, Clinical Global Impressions-Change scale; DaT-SPECT, dopamine transporter single-photon emission computed tomography; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMSE, Mini Mental State Examination; MoCA, Montreal Cognitive Assessment; PD, Parkinson's disease; PGI-C, Patient Global Impressions-Change scale; SE-ADL, Schwab and England Activities of Daily Living.

PASADENA Phase II study in individuals with early PD

New data from subgroup analyses

Primary endpoint

- Change from baseline at Week 52 in MDS-UPDRS Total score (sum of Parts I, II and III)

Key secondary endpoints

- Change from baseline at Week 52 in the following:
  - MDS-UPDRS Part I non-motor aspects
  - MDS-UPDRS Part II experiences of daily living (motor aspects)
  - MDS-UPDRS Part III motor examination and Part III sub-scores (bradykinesia, rigidity, tremor, axial signs)
  - MoCA total score
  - PGI-C, CGI-C and disability (SE-ADL)

Key exploratory endpoints

- Neurodegeneration of dopaminergic terminals (DaT-SPECT)
- Digital PASADENA Motor Score
- ASL-MRI for cerebral blood flow

Safety, tolerability, pharmacokinetics and immunogenicity

Clinical pre-specified Subgroups at baseline

- **MAO-B Inhibitor-treated**
- **Diffuse malignant** vs. mild motor-predominant vs. intermediate sub-phenotypes (Data-driven)
- H&Y Stage (1 vs. 2)
- Presence of probable RBD (RBDSQ ≥5 vs. <5)

ASL-MRI, arterial spin labelling magnetic resonance imaging; CGI-C, Clinical Global Impressions scale - Change; DaT-SPECT, dopamine transporter single-photon emission computed tomography; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MAO-B, monoamine oxidase-B; MMSE, Mini Mental State Examination; PD, Parkinson's disease; PGI-C, Patient Global Impressions scale - Change; SE-ADL, Schwab and England Activities of Daily Living; RBD, Rapid Eye Movement Sleep Behavior Disorder; RBDSQ, RBD Screening Questionnaire.

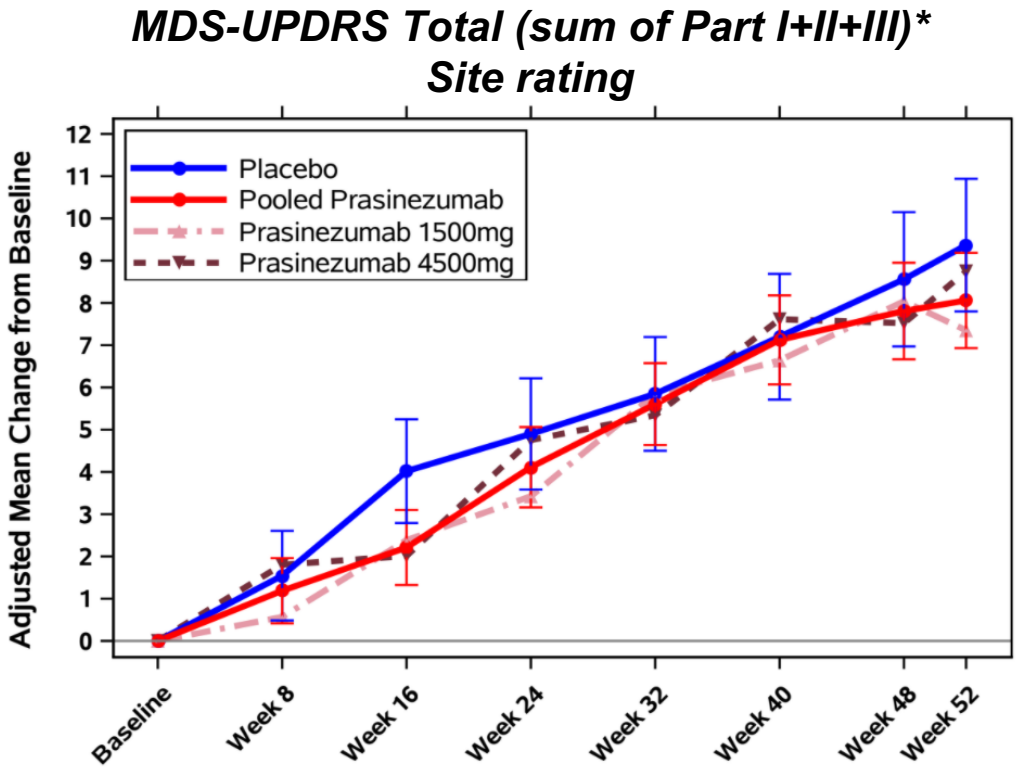
Baseline characteristics are generally well balanced among treatment arms

	Placebo (n=105)*	Prasinezumab 1500 mg (n=105)*	Prasinezumab 4500 mg† (n=106)*	All patients (N=316)
Age, years Mean (SD)	59.9 (8.7)	60.3 (8.8)	59.4 (9.8)	59.9 (9.1)
Gender, Male N (%)	71 (67.6)	71 (67.6)	71 (67.0)	213 (67.4)
Time from diagnosis Mean (SD)	9.9 (6.8)	10.2 (6.3)	10.1 (6.5)	10.1 (6.5)
MAO-B inhibitor				
Yes	38 (36.2)	38 (36.2)	39 (36.8)	115 (36.4)
No	67 (63.8)	67 (63.8)	67 (63.2)	201 (63.6)
Sub-phenotypes				
Diffuse malignant	15 (14.3)	21 (20.0)	23 (21.7)	59 (18.7)
Mild motor predominant	39 (37.1)	28 (26.7)	39 (36.8)	106 (33.5)
Intermediate	51 (48.6)	56 (53.3)	44 (41.5)	151 (47.8)
MDS-UPDRS Total Mean (SD)	32.01 (12.98)	31.49 (13.32)	30.75 (12.10)	31.41 (12.78)
MDS-UPDRS Part III Mean (SD)	21.54 (9.11)	21.90 (9.14)	20.97 (8.81)	21.47 (9.00)
MDS-UPDRS Part II Mean (SD)	5.55 (4.09)	4.94 (3.99)	5.50 (4.07)	5.33 (4.04)
MDS-UPDRS Part I Mean (SD)	4.91 (3.71)	4.64 (4.16)	4.27 (3.57)	4.61 (3.83)
H&Y Stage category				
I (%)	20 (19.0)	29 (27.6)	29 (27.4)	78 (24.7)
II (%)	85 (81.0)	76 (72.4)	77 (72.6)	238 (75.3)
Patients with evaluable data at Week 52‡	76 (72.4)	75 (73.5)	73 (70.9)	224 (70.9)

*n represents number of participants contributing to summary statistics. Percentages are based on n. †3500 mg for <65 kg. ‡Visits are time windowed. Non-evaluable data are considered as patient starting symptomatic PD treatment, an increase on MAO-B inhibitor (if the patient was on MAO-B inhibitor at baseline), or withdrawal from the study.

H&Y, Hoehn and Yahr; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; PD, Parkinson's disease; SD, standard deviation.

Primary endpoint not met and favorable safety profile in study

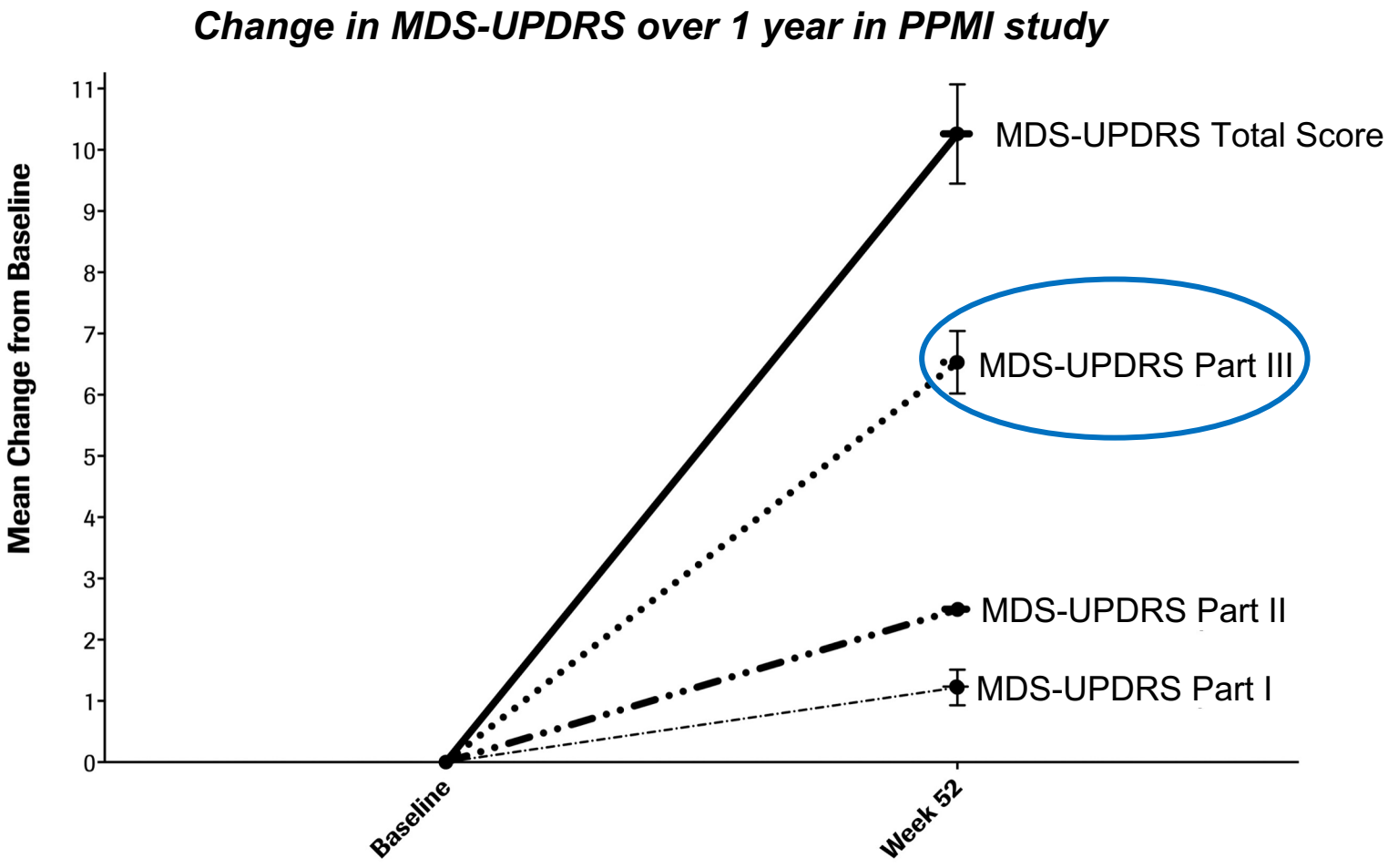


Pooled: –1.30, 80% CI=(–3.18, 0.58); **–14.0%**
Prasinezumab 1500 mg: –2.02, 80% CI=(–4.21, 0.18); **–21.5%**
Prasinezumab 4500 mg: –0.62, 80% CI=(–2.82, 1.58); **–6.6%**

	Placebo (n=105)	1500 mg (n=105)	4500 mg (n=106)
Total number of AEs†	411	428	549
Total number of AE with fatal outcome (Grade 5)*	0	0	0
Total number of patients with at least one (%):‡			
AE	87 (82.9)	98 (93.3)	97 (91.5)
SAE	5 (4.8)	7 (6.7)	8 (7.5)
Grade 3–5 AE	8 (7.6)	4 (3.8)	8 (7.5)
AE leading to withdrawal from treatment or dose interruption	1 (1.0)	2 (1.9)	5 (4.7)
All Grade IRR	17 (16.2)	20 (19.0)	36 (33.9)
Grade 1–2 IRR	17 (16.2)	20 (19.0)	35 (33.0)
Grade 3 IRR	0	0	1 (0.9)

*Patients who started symptomatic PD treatment contribute until the last visit before symptomatic PD treatment is started. Bars represent 80% CI. Estimates are based on a MMRM with the following covariates: MAO-B inhibitor at baseline (y/n), treatment, week, age <60 vs ≥60, sex, DaT-SPECT putamen binding ratio (contralateral to most clinically affected side), baseline MDS-UPDRS corresponding endpoint. Pooled dose analysis is a prespecified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg. †Most AEs were Grade 1–2. Only one Grade 4 AE (suicide attempt) was reported and considered unrelated to study treatment (high-dose group). The most frequently reported (>1.0%) Grade 3–4 AEs were: radius fracture - two patients (1.9%) in the placebo group (but no patient in the prasinezumab-treated groups) and anxiety - two patients (1.9%) in the 4500 mg dose group (no patients in the 1500 mg dose or Placebo group). ‡Percentages are based on N in the column headings. Only treatment-emergent AEs are displayed where the study medication adjustment case report form question is answered as “drug withdrawn”. For frequency counts by preferred term, multiple occurrences of the same AE in an individual are counted only once. For frequency counts of “total number of events” rows, multiple occurrences of the same AE in an individual are counted separately. 4500 mg for ≥65 kg; 3500 mg for <65 kg. AE, adverse event; CI, confidence interval; DaT-SPECT, dopamine transporter single-photon emission computed tomography; IRR, infusion-related reaction; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMRM, mixed-effect model repeated measures; PD, Parkinson’s disease. SAE, serious AE.

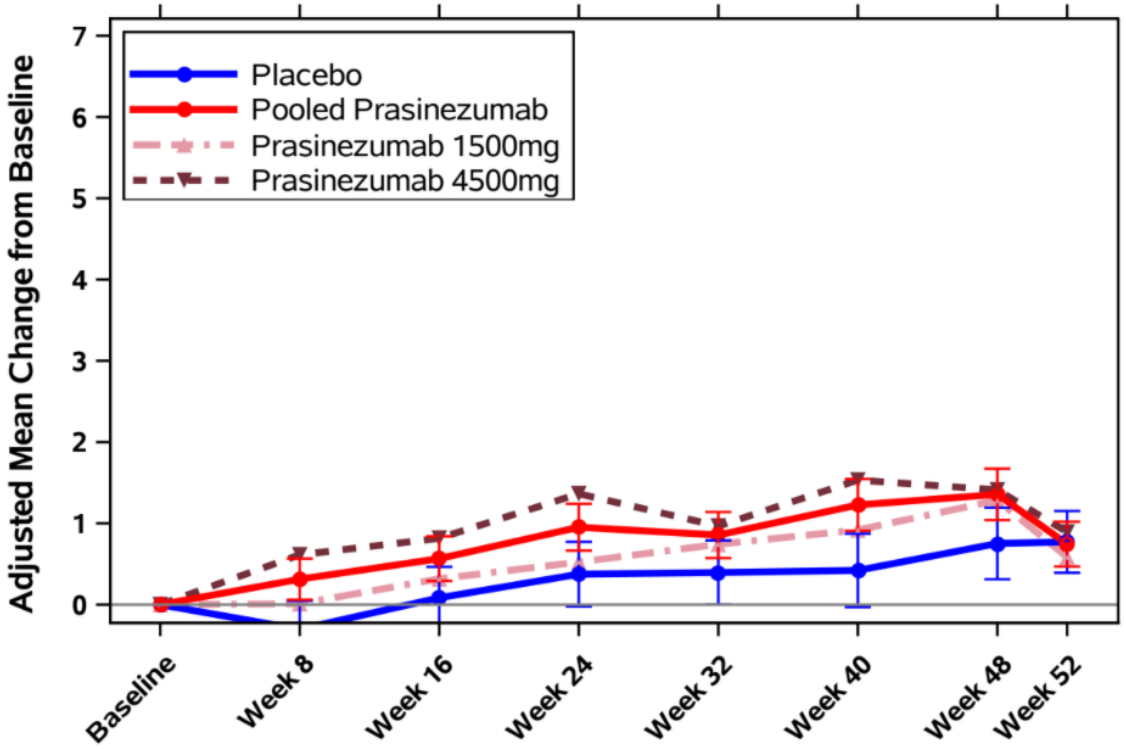
Progression of MDS-UPDRS total over 1 year is mostly driven by MDS-UPDRS Part III in an early stage population (PPMI study)



MDS-UPDRS, Movement Disorder Society-Unified Parkinson's Disease Rating Scale; PPMI, Parkinson's Progression Marker Initiative.
Graph developed using raw data, downloaded from the PPMI website (https://www.ppmi-info.org/) (Accessed February 2021).

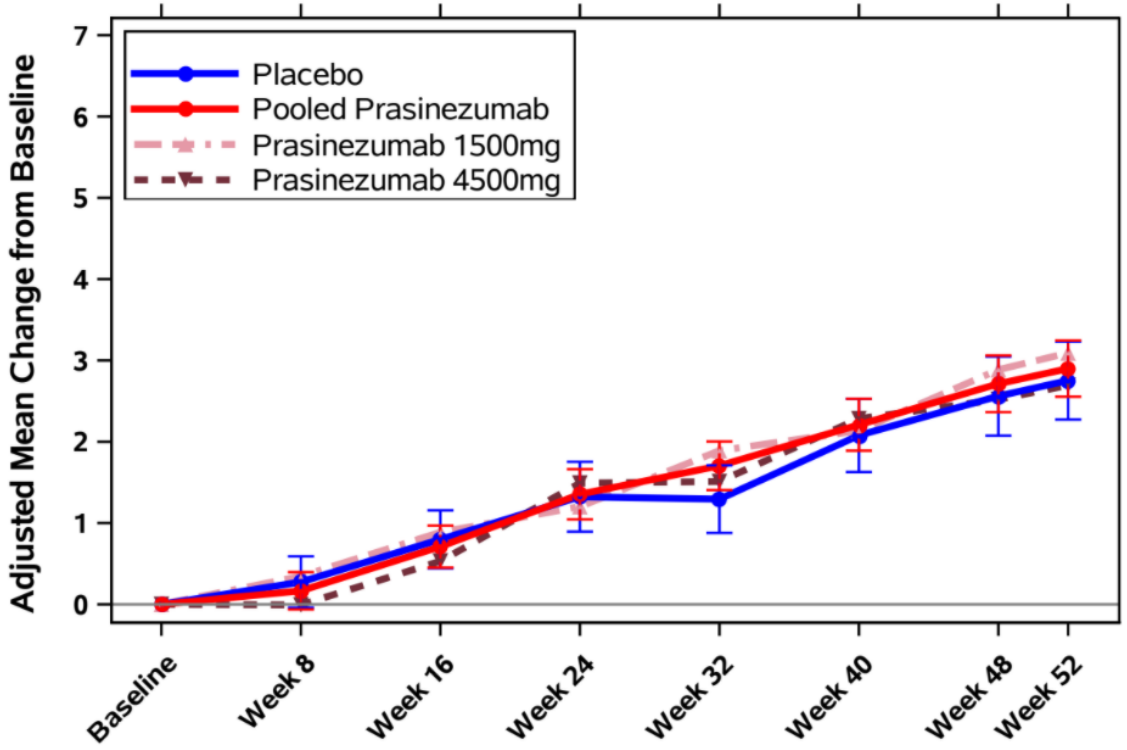
Progression on MDS-UPDRS Part I and II, on which to assess treatment effect, was minimal over the trial period

MDS-UPDRS Part I*



Pooled: –0.03, 80% CI=(–0.49, 0.43); **–3.9%**
Prasinezumab 1500 mg: –0.19, 80% CI=(–0.71, 0.34); **–24.7%**
Prasinezumab 4500 mg: 0.12, 80% CI=(–0.41, 0.65); **+15.6%**

MDS-UPDRS Part II*

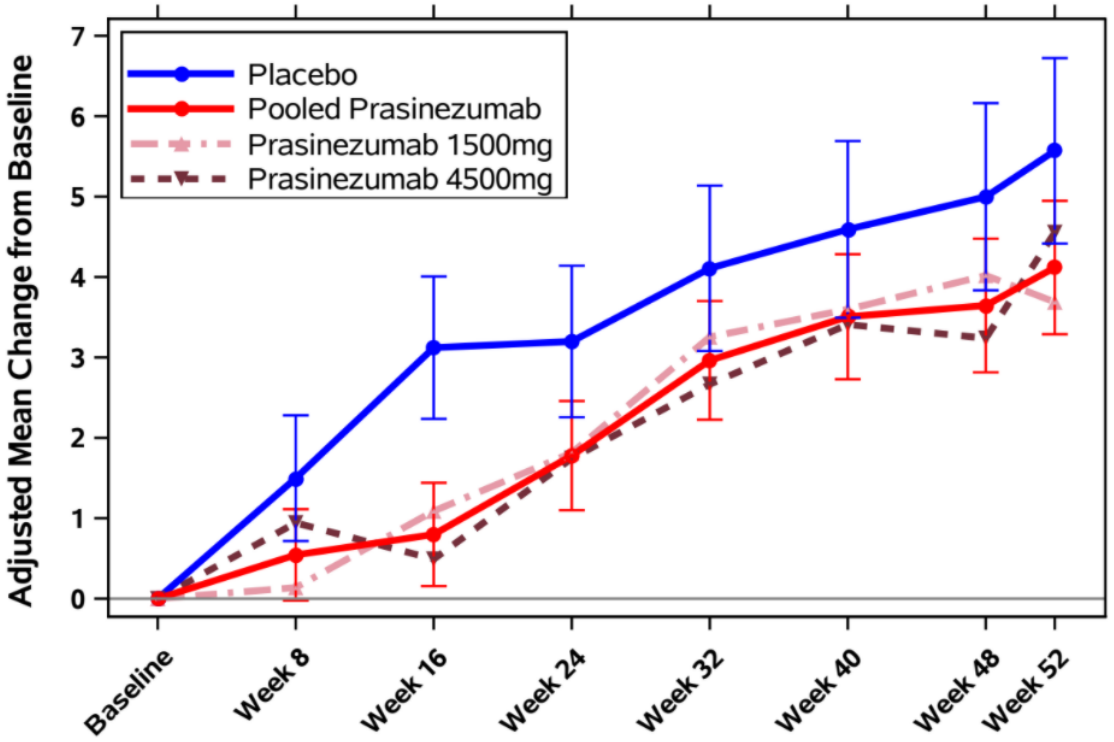


Pooled: 0.14, 80% CI=(–0.44, 0.73); **+6.1%**
Prasinezumab 1500 mg: 0.34, 80% CI=(–0.33, 1.01); **+12.4%**
Prasinezumab 4500 mg: –0.06, 80% CI=(–0.73, 0.61); **–2.0%**

*Patients who started symptomatic PD treatment contribute until the last visit before symptomatic PD treatment is started. Bars represent 80% CI. Estimates are based on a MMRM with the following covariates: MAO-B inhibitor at baseline (yes/no), treatment, week, age <60 vs ≥60, sex, DaT-SPECT putamen binding ratio (contralateral to most clinically affected side), baseline MDS-UPDRS corresponding endpoint. Pooled-dose analysis is a pre-specified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg. CI, confidence interval; DaT-SPECT, dopamine transporter imaging with single-photon emission computed tomography; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMRM, mixed-effect model repeated measures; PD, Parkinson's disease.

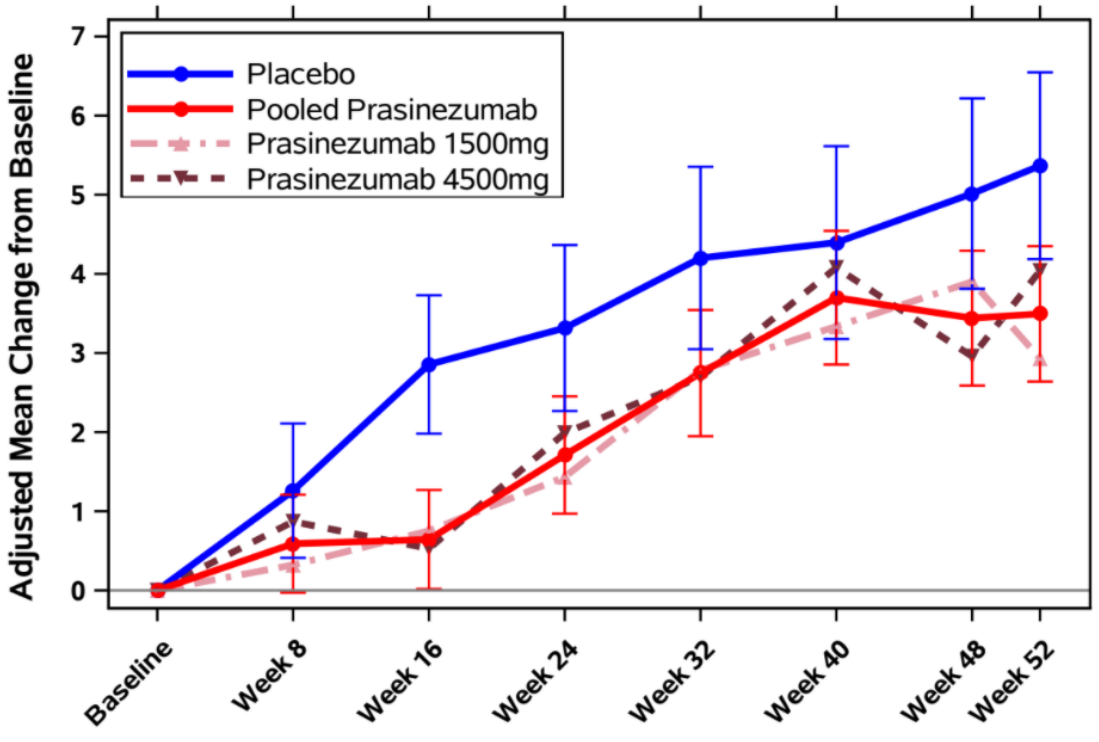
Prasinezumab reduced clinical decline in motor assessments compared to placebo, confirmed by central rating

MDS-UPDRS Part III*
Site rating



Pooled: –1.44, 80% CI=(–2.83, –0.06); **–25.0%**
Prasinezumab 1500 mg: –1.88, 80% CI=(–3.49, –0.27); **–33.8%**
Prasinezumab 4500 mg: –1.02, 80% CI=(–2.64, 0.61); **–18.2%**

MDS-UPDRS Part III*
Central rating



Pooled: –1.88, 80% CI=(–3.31, –0.45); **–35.0%**
Prasinezumab 1500 mg: –2.44, 80% CI=(–4.09, –0.78); **–45.4%**
Prasinezumab 4500 mg: –1.33, 80% CI=(–2.99, 0.34); **–24.7%**

*Patients who started symptomatic PD treatment contribute until the last visit before symptomatic PD treatment is started. Bars represent 80% CI. Estimates are based on a MMRM with the following covariates: MAO-B inhibitor at baseline (yes/no), treatment, week, age <60 vs ≥60, sex, DaT-SPECT putamen binding ratio (contralateral to most clinically affected side), baseline MDS-UPDRS corresponding endpoint. Pooled-dose analysis is a pre-specified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg. CI, confidence interval; DaT-SPECT, dopamine transporter imaging with single-photon emission computed tomography; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMRM, mixed-effect model repeated measures; PD, Parkinson's disease.

Prasinezumab reduced clinical decline confirmed by digital measures of progression (slope analysis)

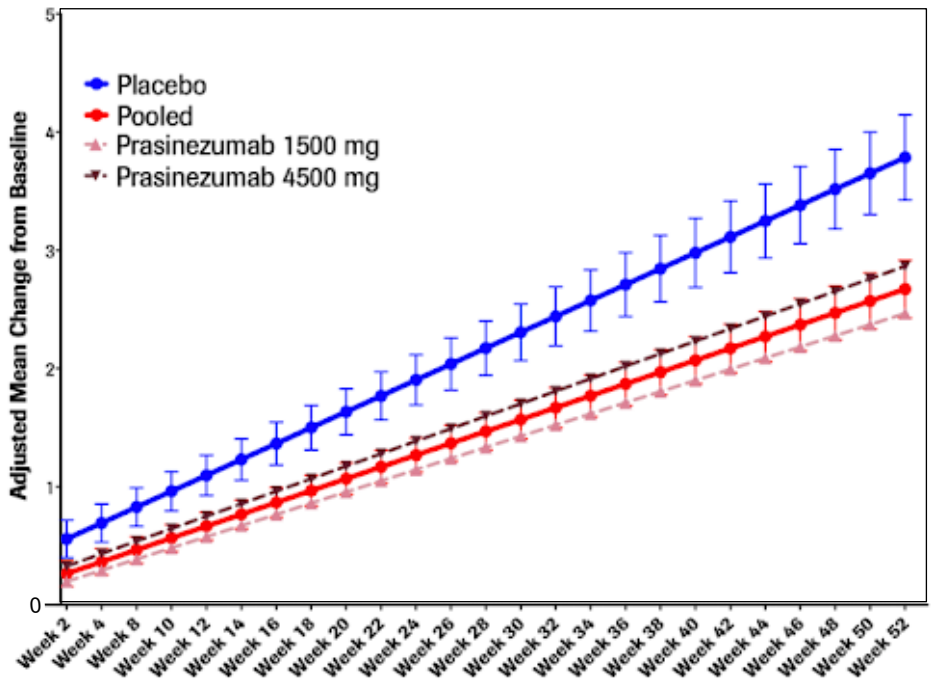
Digital measures included in the Roche Parkinson's Disease Mobile Application v2



PASSIVE MONITORING		
Bradykinesia and Activities of Daily Living		
Gait	Arm Swing & Tremor	Mobility & Sociability
Daily	Daily	Daily

ACTIVE TESTS									
Bradykinesia			*Tremor/ Bradykinesia*	*Tremor*			*Rigidity/ Postural Instability*		*Cognition*
Draw A Shape	Dexterity	Hand Turning	Speech	Phonation	Postural Tremor	Rest Tremor	Balance	U-Turn	Cognitive Test (SDMT)
Bradykinesia Days (Every 2nd Day)			Alternating		Tremor and Stability Days (Every 2nd Day)				Fortnightly

Digital PASADENA Motor Score



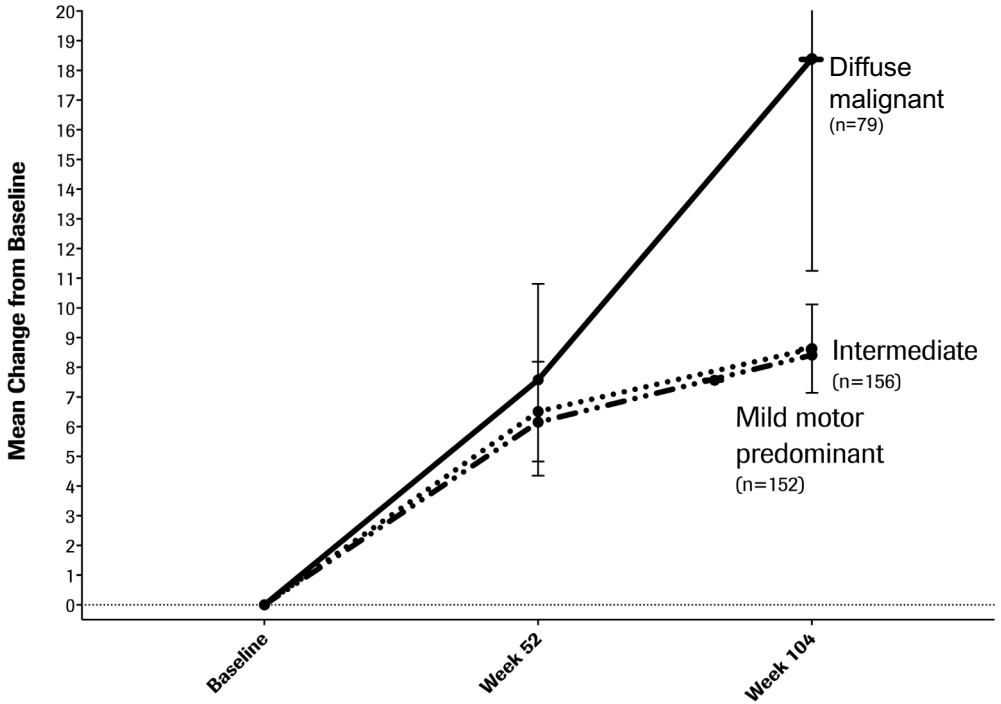
Pooled: –0.030, 80% CI=(–0.050, –0.010); **–25.0%**
Prasinezumab 1500 mg: –0.040, 80% CI=(–0.063, –0.017); **–30.3%**
Prasinezumab 4500 mg: –0.029, 80% CI= (–0.052, –0.006); **–21.5%**

Pooled-dose analysis is a pre-specified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg.
The digital PASADENA motor score was built from 80% bradykinesia features and 20% resting tremor features using blinded data from 150 PASADENA patients prior to unblinding.
CI, confidence interval; MDS-UPDRS, Movement Disorder Society Unified Parkinson's Disease Rating Scale; SDMT, Symbol Digit Modalities Test.

For further details on the PASADENA Digital Motor Score please see the presentation by Kirsten Taylor, et al. via the following link; https://bit.ly/370A68G

Opportunity to detect treatment effect is increased in fast-progressing individuals

Sub-phenotype progression in PPMI population[1]



In the PASADENA study population, the following subgroups* were defined for further analyses:

Mild motor predominant (n=106)
Motor and all non-motor scores <75th percentile

Diffuse malignant (n=59)
Score on motor scales > 75th percentile AND at least 1 score on a non-motor scale >75th percentile; OR all 3 non-motor scales > 75th percentile

Intermediate (n=151)
All other individuals

Treatment naive (n=201)

MAO-B inhibitor treated (n=115)

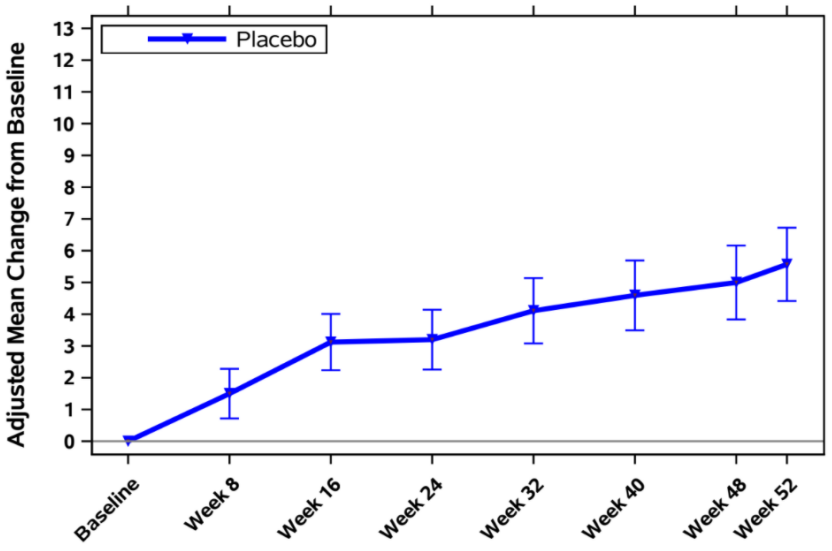
Diffuse malignant sub-phenotype showed faster motor progression on MDS-UPDRS Part III in PPMI[1,2]
PASADENA analyses were performed in diffuse malignant and MAO-B inhibitor subgroups

For the derivations of the data-driven sub-phenotypes, scales were classified into; motor scales (MDS-UPDRS Part II and MDS-UPDRS-Part III) and non-motor scales (SCOPA-AUT, RBDSQ and MoCA).
* Please note, the population sizes in the subgroup analyses are small. MAO-B monoamine oxidase B; MDS-UPDRS, Movement Disorder Society Unified Parkinson's Disease Rating Scale; MoCA, Montreal Cognitive Assessment; SCOPA-AUT, Scales for Outcomes in Parkinson's Disease-Autonomic Dysfunction; PPMI, Parkinson's Progression Marker Initiative; RBDSQ, Rapid Eye Movement Sleep Behaviour Disorder Questionnaire. 1. Pagano et al. *PPMI Unpublished;* 2. Fereshtehnejad S, et al. *JAMA Neurol.* 2015; 72:863-873.

MAO-B inhibitors-treated and diffuse malignant sub-phenotype showed faster disease progression on MDS-UPDRS Part III

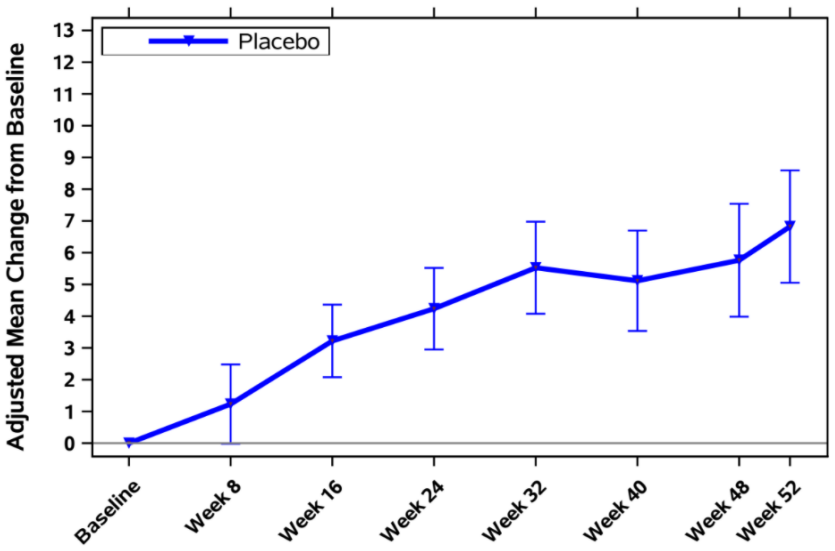
MDS-UPDRS Part III*

Total population – Placebo (n=105)



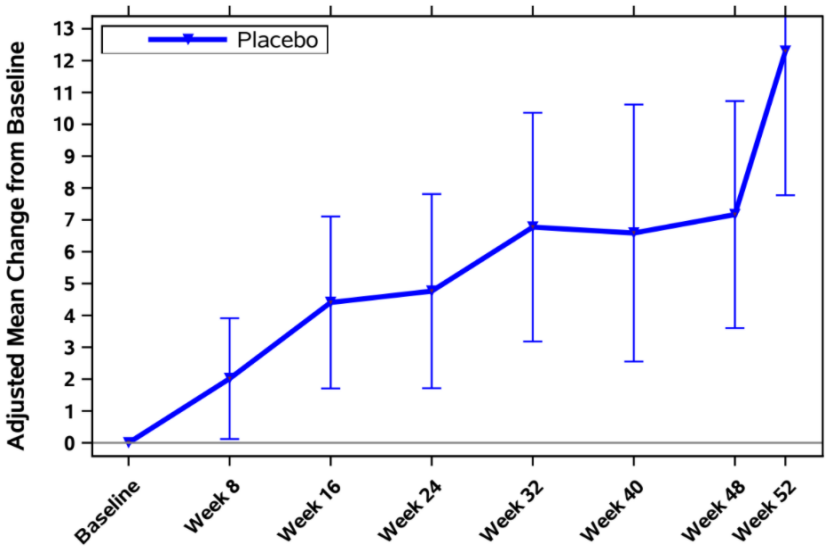
Change at Week 52 = **5.57** points (placebo)

MAO-B inhibitor treated – Placebo (n=38)



Change at Week 52 = **6.82** points (placebo)

Diffuse malignant– Placebo (n=15)



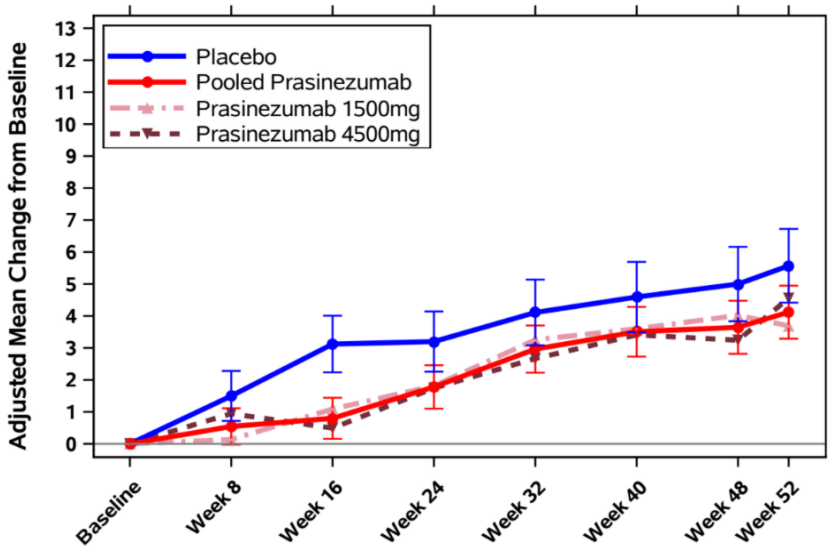
Change at Week 52 = **12.29** points (placebo)

*Patients who started symptomatic PD treatment contribute until the last visit before symptomatic PD treatment is started. Bars represent 80% CI. Estimates are based on a MMRM with the following covariates: MAO-B inhibitor at baseline (yes/no), treatment, week, age <60 vs ≥60, sex, DaT-SPECT putamen binding ratio (contralateral to most clinically affected side), baseline MDS-UPDRS corresponding endpoint. Pooled-dose analysis is a pre-specified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg. CI, confidence interval; DaT-SPECT, dopamine transporter imaging with single-photon emission computed tomography; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMRM, mixed-effect model repeated measures; PD, Parkinson's disease.

Slowing of clinical decline with prasinezumab was more evident in individuals with faster disease progression

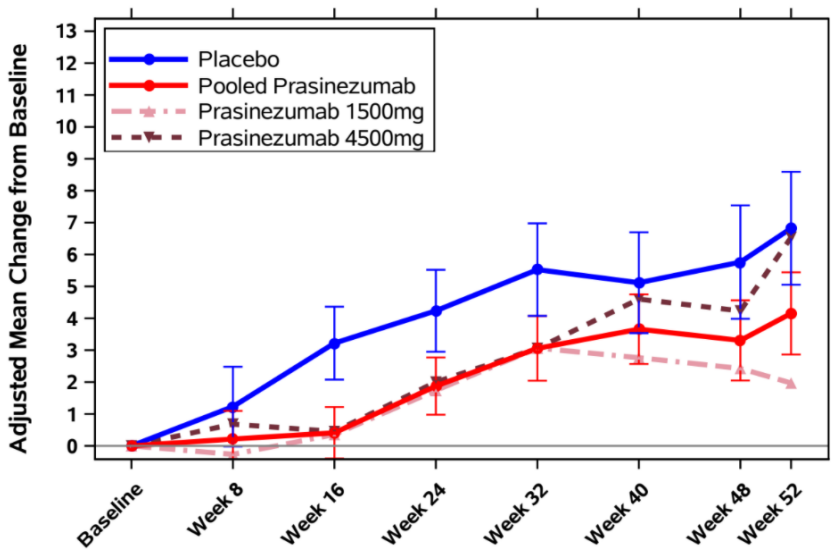
*MDS-UPDRS Part III**

Total population (N=316)



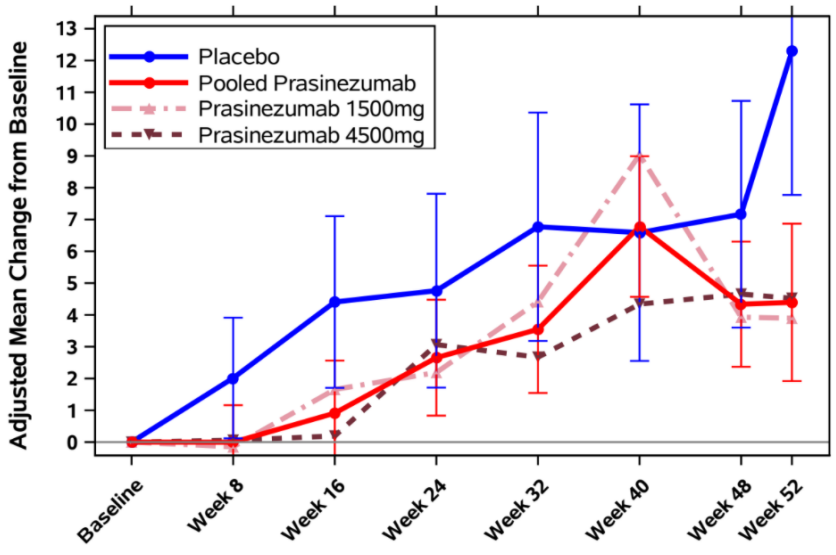
Pooled: –1.44, 80% CI=(–2.83, –0.06); **–25.0%**
Prasinezumab 1500 mg: –1.88, 80% CI=(–3.49, –0.27); **–33.8%**
Prasinezumab 4500 mg: –1.02, 80% CI=(–2.64, 0.61); **–18.2%**

MAO-B inhibitor treated (n=115)



Pooled: –2.66, 80% CI=(–4.87, –0.45); **–39.0%**
Prasinezumab 1500 mg: –4.85, 80% CI=(–7.33, –2.37); **–71.1%**
Prasinezumab 4500 mg: –0.28, 80% CI=(–2.82, 2.25); **–4.0%**

Diffuse malignant (n=59)



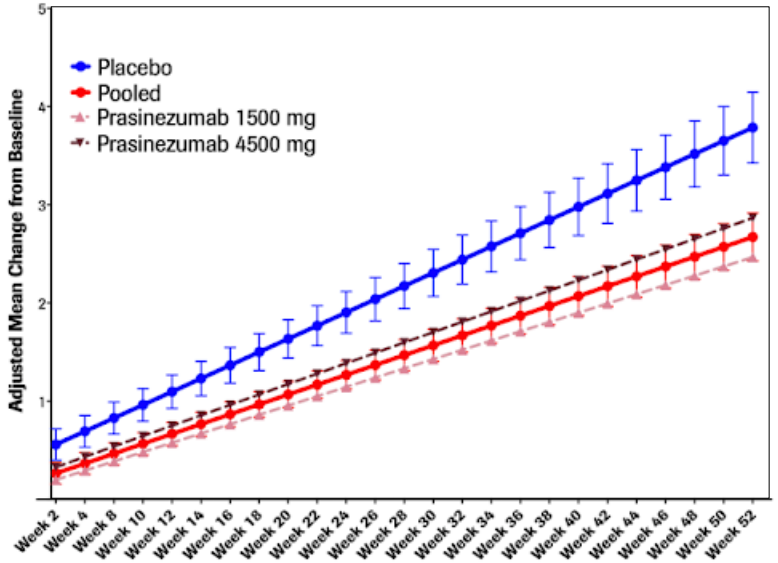
Pooled: –7.86, 80% CI=(–12.9, –2.82); **–63.9%**,
Prasinezumab 1500 mg: –8.4, 80% CI=(–14.2, –2.59); **–68.3%**
Prasinezumab 4500 mg: –7.77, 80% CI=(–13.4, –2.14); **–63.2%**

*Patients who started symptomatic PD treatment contribute until the last visit before symptomatic PD treatment is started. Bars represent 80% CI. Estimates are based on a MMRM with the following covariates: MAO-B inhibitor at baseline (yes/no), treatment, week, age <60 vs ≥60, sex, DaT-SPECT putamen binding ratio (contralateral to most clinically affected side), baseline MDS-UPDRS corresponding endpoint. Pooled-dose analysis is a pre-specified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg. CI, confidence interval; DaT-SPECT, dopamine transporter imaging with single-photon emission computed tomography; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMRM, mixed-effect model repeated measures; PD, Parkinson's disease.

Slowing of clinical decline with prasinezumab was more evident in individuals with faster progression in digital motor measures

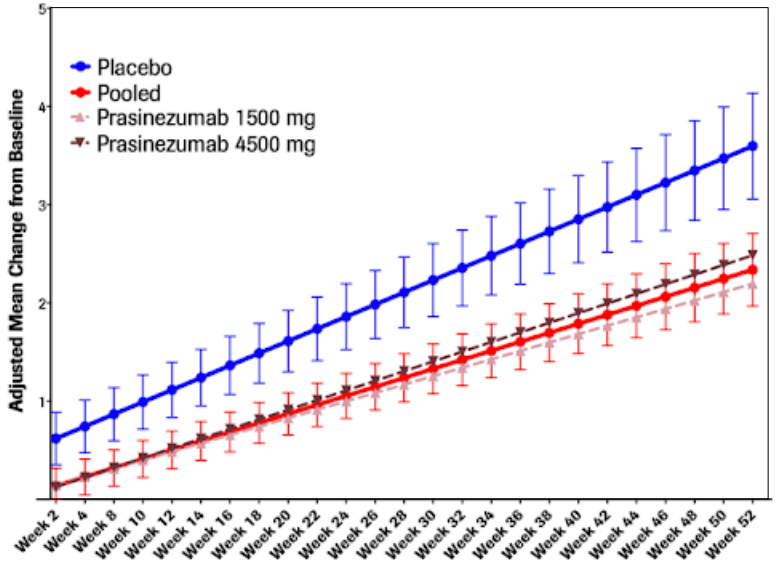
PASADENA Digital Motor Score

Total population (N=316)



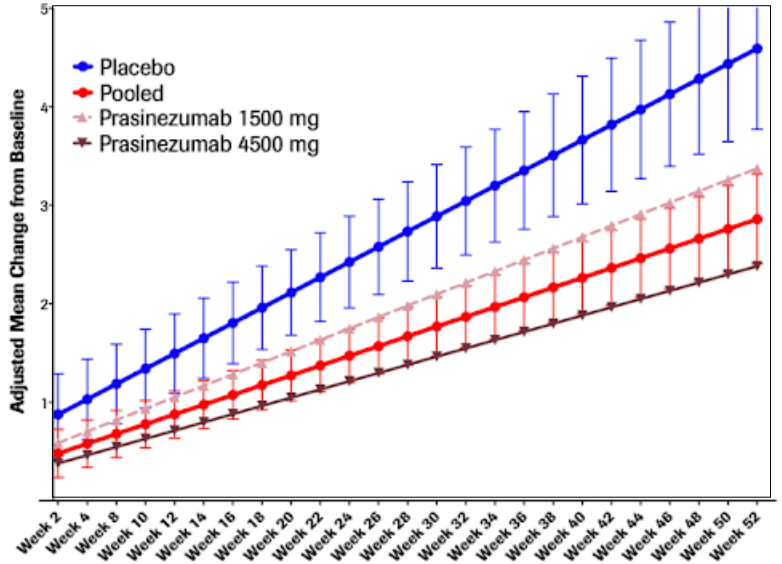
Pooled: –0.030, 80% CI=(–0.050, –0.010); **–25.0%**
Prasinezumab 1500 mg: –0.040, 80% CI=(–0.063, –0.017); **–30.3%**
Prasinezumab 4500 mg: –0.029, 80% CI= (–0.052, –0.006); **–21.5%**

MAO-B inhibitor treated (n=115)



Pooled: –0.032, 80% CI=(–0.062, –0.003); **–26.0%**
Prasinezumab 1500 mg: –0.039, 80% CI=(–0.072, –0.049); **–31.0%**
Prasinezumab 4500 mg: –0.026, 80% CI= (–0.060, 0.008); **–20.9%**

Diffuse malignant (n=56)



Pooled: –0.055, 80% CI=(–0.105, –0.005); **–35.7%**
Prasinezumab 1500 mg: –0.039, 80% CI=(–0.094, 0.017); **–25.2%**
Prasinezumab 4500 mg: –0.071, 80% CI= (–0.126, –0.017); **–46.2%**

*Patients who started symptomatic PD treatment contribute until the last visit before symptomatic PD treatment is started. Bars represent 80% CI. Estimates are based on a MMRM with the following covariates: MAO-B inhibitor at baseline (yes/no), treatment, week, age <60 vs ≥60, sex, DaT-SPECT putamen binding ratio (contralateral to most clinically affected side), baseline MDS-UPDRS corresponding endpoint. Pooled-dose analysis is a pre-specified exploratory analysis. 4500 mg for ≥65 kg; 3500 mg for <65 kg. CI, confidence interval; DaT-SPECT, dopamine transporter imaging with single-photon emission computed tomography; MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; MMRM, mixed-effect model repeated measures; PD, Parkinson's disease.

Conclusions

- Motor progression of PD in an untreated, early stage population is generally slow (≈5 points per year on MDS-UPDRS Part III)[1]

- Progression is faster in individuals requiring symptomatic therapy, such as MAO-B inhibitors (≈7 points per year), or in the diffuse malignant sub-phenotype (≈10 points per year)
  - Ability to demonstrate the beneficial effect of an intervention depends on the ability to measure disease progression

- Results of the PASADENA Part 1 study with prasinezumab showed greater effect in slowing clinical decline in subgroup populations with faster disease progression

- Based on these findings, a new Phase IIb (PADOVA) study is planned to start in 2021
  - The PADOVA study will test efficacy and safety of prasinezumab in an early stage population requiring symptomatic therapy
  - Across sites in North America (US and Canada) and Europe (UK, France, Spain, Italy, Austria and Poland).

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MAO-B, monoamine oxidase B; MDS-UPDRS, Movement Disorder Society-Unified PD Rating Scale; PD, Parkinson's disease.

1. Simuni T, et al. *Mov Disord.* 2018; 33:771–782.

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