ClinicalTrials.gov Protocol Registration and Results System (PRS) Receipt
Release Date: 06/17/2016

ClinicalTrials.gov ID: NCT00737477

Study Identification

Unique Protocol ID:	ML21421
Brief Title:	A Study of Monthly Subcutaneous (SC) Mircera for Maintenance Treatment of Participants With Chronic Kidney Disease on Peritoneal Dialysis (MISTRAL)
Official Title:	A Single Arm, Open-Label, Multicentre Study to Assess the Maintenance of Haemoglobin Levels With Once Monthly Subcutaneous Administration of C.E.R.A (Continuous Erythropoietin Receptor Activator) in Patients With Chronic Kidney Disease on Peritoneal Dialysis
Secondary IDs:	2008-001747-18 [EudraCT Number]

Study Status

Record Verification:	June 2016
Overall Status:	Completed
Study Start:	September 2008
Primary Completion:	July 2011 [Actual]
Study Completion:	July 2011 [Actual]

Sponsor/Collaborators

Sponsor:	Hoffmann-La Roche
Responsible Party:	Sponsor
Collaborators:	

Oversight

FDA Regulated?:	Yes
Applicable Trial?:	Section 801 Clinical Trial? No Delayed Posting?
IND/IDE Protocol?:	No
Review Board:	Approval Status: Approved Approval Number: 0811776 Board Name: Ile-de-France Board Affiliation: Unknown Phone: +33 1 42 34 80 52 Email: ccp.prb@htd.ap-hop-paris.fr
Data Monitoring?:	
Plan to Share Data?:	
Oversight Authorities:	France: Agence Francaise de Securite Sanitaire des Produits de Sante (AFSSAPS)

Study Description

Brief Summary:	This single-arm study will assess the efficacy and safety of monthly administration of SC Mircera for the maintenance of hemoglobin levels in participants with chronic kidney disease on peritoneal dialysis. Participants currently receiving maintenance treatment with SC erythropoietin stimulating agents (ESAs) will receive monthly SC injections of Mircera, with the starting dose derived from the last weekly ESA they had been receiving.
Detailed Description:	

Conditions

Conditions:	Anemia
Keywords:	

Study Design

Study Type:	Interventional
Primary Purpose:	Treatment
Study Phase:	Phase 3
Intervention Model:	Single Group Assignment

Number of Arms:	1
Masking:	Open Label
Allocation:	N/A
Endpoint Classification:	Safety/Efficacy Study
Enrollment:	96 [Actual]

Arms and Interventions

Arms	Assigned Interventions
Experimental: Mircera in Renal Anemia Participants will receive SC methoxy polyethylene glycol-epoetin beta (Mircera) every 4 weeks for a total of 48 weeks in this single-arm study. The first dose of 120 or 200 micrograms (mcg) will be determined by the dose of ESA received prior to administration of study treatment, while subsequent doses will be adjusted to maintain hemoglobin within the target range.	Drug: Methoxy polyethylene glycol-epoetin beta Mircera will be administered SC every 4 weeks for a total of 48 weeks. The first dose of 120 or 200 mcg will be determined by the dose of ESA received prior to administration of study treatment, while subsequent doses will be adjusted to maintain hemoglobin within the target range. Other Names: • Mircera • CERA

Outcome Measures

[See Results Section.]

Eligibility

Minimum Age:	18 Years
Maximum Age:	
Gender:	Both
Accepts Healthy Volunteers?:	No
Criteria:	Inclusion Criteria: • Adults greater than or equal to (≥) 18 years of age • Chronic kidney disease-related anemia on peritoneal dialysis for ≥3 months • Continuous SC maintenance stable ESA therapy for 4 weeks prior to study start Exclusion Criteria: • Transfusion of red blood cells during previous 8 weeks • Poorly controlled hypertension requiring interruption of ESA treatment in previous 6 months

- Significant acute or chronic bleeding during previous 8 weeks

Contacts/Locations

Study Officials: Clinical Trials
Study Director
Hoffmann-La Roche

Locations: France

Soissons, France, 02209

Paris, France, 75877

Saint-Priest-en-Jarez, France, 42277

Annonay, France, 07103

Valence, France, 26953

Bordeaux, France, 33300

Auxerre, France, 89011

Chambery, France, 73001

Caen, France, 14033

Ajaccio, France, 20303

Dunkerque, France, 59385

Charleville-Mezieres, France, 08011

Evreux, France, 27023

Paris, France, 75013

Saint-Lo, France, 50009

Poitiers, France, 86021

Beuvry, France, 62660

Orleans, France, 45100

La Tronche, France, 38701

Reims, France, 51092

Saint-Denis, France, 97400

Vandoeuvre-les-Nancy, France, 54511

Chartres, France, 28000

Chalon-sur-Saone, France, 71100

Niort, France, 79021

Colmar, France, 68024

Creil, France, 60100

Lyon, France, 69437

Pontoise, France, 95300

Strasbourg, France, 67091

Cabestany, France, 66330

References

Citations:

Links:

Study Data/Documents:

Participant Flow

Reporting Groups

	Description
Mircera in Chronic Kidney Disease (CKD)-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with erythropoiesis-stimulating agent (ESA) therapy received subcutaneous (SC) methoxy polyethylene glycol-epoetin beta (Mircera), also known as continuous erythropoietin receptor activator (CERA), every 4 weeks in this single-arm study. The first dose of 120 or 200 micrograms (mcg) during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the dose adaptation period (DAP) to maintain target hemoglobin (Hb) concentrations within 10 to 12 grams per deciliter (g/dL). Treatment continued during a designated efficacy evaluation period (EEP) from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Overall Study

	Mircera in Chronic Kidney Disease (CKD)-Related Anemia
Started	96
Completed	62
Not Completed	34
Adverse Event	9
Death	9
Treatment Refusal	1
Withdrawal by Subject	1
Renal Transplantation	10
Not Specified	4

Baseline Characteristics

Analysis Population Description

Intent-to-Treat (ITT) Population: All participants who received at least one dose of Mircera and provided at least one Hb evaluation between Weeks 0 to 24, and for whom any follow-up information was available.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Baseline Measures

	Mircera in CKD-Related Anemia
Number of Participants	95
Age, Continuous [units: years] Mean (Standard Deviation)	67.9 (14.5)
Gender, Male/Female [units: participants]	
Female	38
Male	57

Outcome Measures

1. Primary Outcome Measure:

Measure Title	Percentage of Participants Who Maintained Average Hb Value Within Target Range During the EEP
Measure Description	Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. The average Hb during the EEP (Weeks 16 to 24) was calculated per participant and assessed against the target range. The percentage of participants who had average Hb during the EEP in the target range (10 to 12 g/dL) was determined as the primary endpoint. The 95 percent (%) confidence interval (CI) was calculated using the Pearson-Clopper method for exact confidence bounds.
Time Frame	Weeks 16 to 24
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	80
Percentage of Participants Who Maintained Average Hb Value Within Target Range During the EEP [units: percentage of participants] Number (95% Confidence Interval)	50.0 (39.0 to 61.0)

2. Secondary Outcome Measure:

Measure Title	Percentage of Participants With Hb Values Within Target Range During the EEP
Measure Description	During the EEP (Weeks 16 to 24), participants provided a total of three pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. The percentage of participants who had at least one, two, or all three Hb values during the EEP in the target range (10 to 12 g/dL) was determined.
Time Frame	Weeks 16 to 24
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data for at least one Hb value. The number of participants who provided sufficient data for each analysis (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	80
Percentage of Participants With Hb Values Within Target Range During the EEP [units: percentage of participants]	
At Least One Hb Value (n=80)	78.8
At Least Two Hb Values (n=77)	49.4
All Three Hb Values (n=74)	23.0

3. Secondary Outcome Measure:

Measure Title	Change in Hb Value From Baseline to the EEP
Measure Description	Reference Hb was determined individually per participant as the average of all Hb values during a pre-treatment screening period (Weeks -4 to 0). Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. The average Hb during the EEP (Weeks 16 to 24) was calculated per participant and assessed against the reference value. The mean change in Hb value between reference (i.e., "Baseline") Hb and the EEP average Hb was calculated and expressed in g/dL.
Time Frame	Baseline and Weeks 16 to 24
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	80
Change in Hb Value From Baseline to the EEP [units: g/dL] Mean (Standard Deviation)	0.4 (0.9)

4. Secondary Outcome Measure:

Measure Title	Time Spent in the Target Range for Hb During the EEP and the Overall Treatment Period
Measure Description	Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Time spent in the target range (10 to 12 g/dL) was defined as time from first on-target Hb measurement to time of last known on-target Hb measurement, as collected during the EEP (Weeks 16 to 24) and the overall treatment period (Weeks 0 to 48). Time spent in the target range was averaged among all participants and expressed in weeks.
Time Frame	Weeks 16 to 24 and Weeks 0 to 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data. The number of participants who provided sufficient data within each timeframe (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	94
Time Spent in the Target Range for Hb During the EEP and the Overall Treatment Period [units: weeks] Mean (Standard Deviation)	
EEP (Weeks 16 to 24; n=80)	5.9 (4.2)
Overall Study (Weeks 0 to 48; n=94)	22.0 (13.8)

5. Secondary Outcome Measure:

Measure Title	Percentage of Participants With Hb Value Within Plus/Minus (±) 1 g/dL of Reference Hb and Within the Target Range by Study Visit
Measure Description	Reference Hb was determined individually per participant as the average of all Hb values during a pre-treatment screening period (Weeks -4 to 0). Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. The percentage of participants who had average Hb during the EEP (Weeks 16 to 24) and follow-up (Weeks 28 to 48) in the target range (10 to 12 g/dL) and within ±1 g/dL of their individual reference Hb was determined by study visit.
Time Frame	Baseline and Weeks 16, 20, 24, 28, 32, 36, 40, 44, 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data. The number of participants who provided sufficient data at each timepoint (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Percentage of Participants With Hb Value Within Plus/ Minus (±) 1 g/dL of Reference Hb and Within the Target Range by Study Visit [units: percentage of participants]	
Week 16 (n=80)	37.5
Week 20 (n=76)	35.5
Week 24 (n=75)	44.0
Week 28 (n=73)	39.7
Week 32 (n=72)	44.4
Week 36 (n=68)	51.5
Week 40 (n=65)	44.6
Week 44 (n=63)	44.4
Week 48 (n=62)	38.7

6. Secondary Outcome Measure:

Measure Title	Percentage of Participants With Cycles or Excursions
Measure Description	Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Cycles were defined as a change in Hb greater than (>) 1.5 g/dL lasting longer than 8 weeks. Excursions were defined as half of one full cycle, or an increase ("up" excursions) or decrease ("down" excursions) >1.5 g/dL lasting longer than 4 weeks according to Hb measurements collected during the study. The percentage of participants with at least one cycle or excursion during Weeks 4 to 44 was calculated.

Time Frame	Weeks 4 to 44
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Percentage of Participants With Cycles or Excursions [units: percentage of participants]	
At Least One Cycle	5.3
At Least One Excursion	60.0
At Least One Up Excursion	46.3
At Least One Down Excursion	18.9

7. Secondary Outcome Measure:

Measure Title	Percentage of Participants With Up Excursions
Measure Description	Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA during the DAP, EEP, and follow-up. Excursions were defined as half of one full cycle, or an increase ("up" excursions) or decrease ("down" excursions) in Hb >1.5 g/dL lasting longer than 4 weeks. The percentage of participants with at least one up excursion was calculated for Weeks 4 to 16, Weeks 16 to 24, and Weeks 24 to 44.
Time Frame	Weeks 4 to 16, Weeks 16 to 24, Weeks 24 to 44
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants with at least one up excursion.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	44
Percentage of Participants With Up Excursions [units: percentage of participants]	
Weeks 4 to 16	31.8
Weeks 16 to 24	45.5
Weeks 24 to 44	22.7

8. Secondary Outcome Measure:

Measure Title	Percentage of Participants With Down Excursions
Measure Description	Participants provided pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA during the DAP, EEP, and follow-up. Excursions were defined as half of one full cycle, or an increase ("up" excursions) or decrease ("down" excursions) in Hb >1.5 g/dL lasting longer than 4 weeks. The percentage of participants with at least one down excursion was calculated for Weeks 4 to 16, Weeks 16 to 24, and Weeks 24 to 44.
Time Frame	Weeks 4 to 16, Weeks 16 to 24, Weeks 24 to 44
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants with at least one down excursion.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	18
Percentage of Participants With Down Excursions [units: percentage of participants]	
Weeks 4 to 16	16.7
Weeks 16 to 24	11.1
Weeks 24 to 44	72.2

9. Secondary Outcome Measure:

Measure Title	Percentage of Participants Who Required Any Dose Adjustment of Mircera/CERA
Measure Description	Study drug administration occurred monthly during treatment (Weeks 0 to 48), which began with a pre-specified dose of Mircera/CERA according to the dose of ESA administered during the initial 4-week screening period. Subsequent doses could be adjusted on the basis of Hb levels or other modification criteria. The percentage of participants who required any dose adjustment (including decreased dose, increased dose, and dose not performed) was calculated for Weeks 4 to 20, Weeks 24 to 48, and Weeks 4 to 48.
Time Frame	Weeks 4 to 20, Weeks 24 to 48, Weeks 4 to 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data. The number of participants who provided sufficient data for each analysis within each timeframe (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Percentage of Participants Who Required Any Dose Adjustment of Mircera/CERA [units: percentage of participants]	
Any Dose Adjustment, Weeks 4 to 20 (n=95)	84.2
Decreased Dose, Weeks 4 to 20 (n=75)	69.3
Increased Dose, Weeks 4 to 20 (n=75)	43.3
Dose Not Performed, Weeks 4 to 20 (n=95)	34.7
Any Dose Adjustment, Weeks 24 to 48 (n=76)	100
Decreased Dose, Weeks 24 to 48 (n=50)	74.0
Increased Dose, Weeks 24 to 48 (n=50)	46.0
Dose Not Performed, Weeks 24 to 48 (n=76)	30.3
Any Dose Adjustment, Weeks 4 to 48 (n=95)	96.8
Decreased Dose, Weeks 4 to 48 (n=94)	84.0
Increased Dose, Weeks 4 to 48 (n=94)	71.3
Dose Not Performed, Weeks 4 to 48 (n=95)	47.4

10. Secondary Outcome Measure:

Measure Title	Number of Dose Adjustments of Mircera/CERA

Measure Description	Study drug administration occurred monthly during treatment (Weeks 0 to 48), which began with a pre-specified dose of Mircera/CERA according to the dose of ESA administered during the initial 4-week screening period. Subsequent doses could be adjusted on the basis of Hb levels or other modification criteria. The number of dose adjustments performed for each participant was averaged among all participants for Weeks 4 to 20, Weeks 24 to 48, and Weeks 4 to 48.
Time Frame	Weeks 4 to 20, Weeks 24 to 48, Weeks 4 to 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data. The number of participants who provided sufficient data within each timeframe (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Number of Dose Adjustments of Mircera/CERA [units: dose adjustments] Mean (Standard Deviation)	
Weeks 4 to 20 (n=95)	2.0 (1.3)
Weeks 24 to 48 (n=76)	5.6 (1.3)
Weeks 4 to 48 (n=95)	3.3 (2.0)

11. Secondary Outcome Measure:

Measure Title	Absolute Change in Dose of Mircera/CERA by Study Week

Measure Description	Study drug administration occurred monthly during treatment (Weeks 0 to 48), which began with a pre-specified dose of Mircera/CERA according to the dose of ESA administered during the initial 4-week screening period. Subsequent doses could be adjusted on the basis of Hb levels or other modification criteria. The absolute difference in dose from the previous week was calculated at each visit and averaged among all participants.
Time Frame	Weeks 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data. The number of participants who provided sufficient data for each analysis at each timepoint (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Absolute Change in Dose of Mircera/CERA by Study Week [units: mcg] Mean (Standard Deviation)	
Week 4, Dose Decrease (n=25)	25.8 (11.9)
Week 4, Dose Increase (n=9)	37.8 (17.2)
Week 8, Dose Decrease (n=32)	28.4 (12.3)
Week 8, Dose Increase (n=14)	42.9 (24.6)
Week 12, Dose Decrease (n=21)	24.5 (3.5)
Week 12, Dose Increase (n=8)	52.5 (21.7)
Week 16, Dose Decrease (n=20)	24.0 (2.6)
Week 16, Dose Increase (n=8)	47.5 (29.0)
Week 20, Dose Decrease (n=11)	29.1 (15.3)

	Mircera in CKD-Related Anemia
Week 20, Dose Increase (n=10)	34.5 (11.2)
Week 24, Dose Decrease (n=18)	29.0 (12.2)
Week 24, Dose Increase (n=10)	50.5 (26.0)
Week 28, Dose Decrease (n=13)	38.5 (22.0)
Week 28, Dose Increase (n=7)	35.0 (20.2)
Week 32, Dose Decrease (n=10)	27.0 (8.8)
Week 32, Dose Increase (n=8)	37.5 (19.1)
Week 36, Dose Decrease (n=10)	28.5 (11.6)
Week 36, Dose Increase (n=2)	75.0 (35.4)
Week 40, Dose Decrease (n=11)	37.3 (26.8)
Week 40, Dose Increase (n=4)	22.5 (2.9)
Week 44, Dose Decrease (n=2)	18.5 (2.1)
Week 44, Dose Increase (n=5)	32.0 (10.9)
Week 48, Dose Decrease (n=0)	NA (NA) [1]
Week 48, Dose Increase (n=2)	40.0 (14.1)

[1] No dose decreases were performed at the designated visit.

12. Secondary Outcome Measure:

Measure Title	Percent Change in Dose of Mircera/CERA by Study Week
Measure Description	Study drug administration occurred monthly during treatment (Weeks 0 to 48), which began with a pre-specified dose of Mircera/CERA according to the dose of ESA administered during the initial 4-week screening period. Subsequent doses could be adjusted on the basis of Hb levels or other modification criteria. The percent difference in dose from the previous week was calculated at each visit as [(current dose minus previous week dose) divided by previous week dose] multiplied by 100, and averaged among all participants.
Time Frame	Weeks 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data. The number of participants who provided sufficient data for each analysis at each timepoint (n) is shown in the table.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Percent Change in Dose of Mircera/CERA by Study Week [units: percent change in dose] Mean (Standard Deviation)	
Week 4, Dose Decrease (n=25)	23.7 (9.0)
Week 4, Dose Increase (n=9)	22.2 (6.7)
Week 8, Dose Decrease (n=32)	33.3 (22.2)
Week 8, Dose Increase (n=14)	21.4 (4.9)
Week 12, Dose Decrease (n=21)	30.3 (10.0)
Week 12, Dose Increase (n=8)	22.0 (2.3)
Week 16, Dose Decrease (n=20)	41.1 (14.0)
Week 16, Dose Increase (n=8)	25.6 (7.7)
Week 20, Dose Decrease (n=11)	57.6 (60.7)
Week 20, Dose Increase (n=10)	21.5 (4.6)
Week 24, Dose Decrease (n=18)	45.0 (24.8)
Week 24, Dose Increase (n=10)	29.6 (14.5)
Week 28, Dose Decrease (n=13)	38.5 (12.0)
Week 28, Dose Increase (n=7)	29.7 (7.1)

	Mircera in CKD-Related Anemia
Week 32, Dose Decrease (n=10)	36.5 (16.4)
Week 32, Dose Increase (n=8)	24.6 (6.2)
Week 36, Dose Decrease (n=10)	43.7 (15.5)
Week 36, Dose Increase (n=2)	22.5 (3.5)
Week 40, Dose Decrease (n=11)	51.6 (29.3)
Week 40, Dose Increase (n=4)	26.7 (9.7)
Week 44, Dose Decrease (n=2)	35.8 (22.3)
Week 44, Dose Increase (n=5)	24.0 (8.9)
Week 48, Dose Decrease (n=0)	NA (NA) [1]
Week 48, Dose Increase (n=2)	22.5 (3.5)

[1] No dose decreases were performed at the designated visit.

13. Secondary Outcome Measure:

Measure Title	Percentage of Participants Requiring Blood Transfusions
Measure Description	The percentage of participants who received at least one red blood cell transfusion during the overall treatment period (Weeks 0 to 48) was calculated.
Time Frame	Weeks 0 to 48
Safety Issue?	No

Analysis Population Description

ITT Population. The "Number of Participants Analyzed" reflects the total number of participants who provided sufficient data.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Measured Values

	Mircera in CKD-Related Anemia
Number of Participants Analyzed	95
Percentage of Participants Requiring Blood Transfusions [units: percentage of participants]	3.2

Reported Adverse Events

Time Frame	Continuously from Weeks -4 to 48 and/or 30 days after last dose (up to approximately 1 year overall)
Additional Description	Safety Population: All participants who received at least one dose of Mircera and for whom any follow-up information was available.

Reporting Groups

	Description
Mircera in CKD-Related Anemia	Participants with CKD-related anemia undergoing peritoneal dialysis and who were previously treated with ESA therapy received SC Mircera/CERA every 4 weeks in this single-arm study. The first dose of 120 or 200 mcg during Week 0 was based upon the dose of ESA received during the initial 4-week screening period, while subsequent doses were adjusted from Weeks 4 to 12 during the DAP to maintain target Hb concentrations within 10 to 12 g/dL. Treatment continued during a designated EEP from Weeks 16 to 24 and an additional follow-up period from Weeks 28 to 48.

Serious Adverse Events

	Mircera in CKD-Related Anemia
	Affected/At Risk (%)
Total	48/96 (50%)
Cardiac disorders	
Acute coronary syndrome [A] *	1/96 (1.04%)
Angina unstable [A] *	1/96 (1.04%)
Arrhythmia [A] *	1/96 (1.04%)
Atrioventricular block [A] *	1/96 (1.04%)

	Mircera in CKD-Related Anemia
	Affected/At Risk (%)
Bradycardia [A] *	1/96 (1.04%)
Cardiac arrest [A] *	1/96 (1.04%)
Cardiac failure [A] *	1/96 (1.04%)
Cardiac failure acute [A] *	1/96 (1.04%)
Myocardial ischaemia [A] *	1/96 (1.04%)
Eye disorders	
Macular oedema [A] *	1/96 (1.04%)
Gastrointestinal disorders	
Abdominal pain [A] *	1/96 (1.04%)
Abdominal strangulated hernia [A] *	1/96 (1.04%)
Constipation [A] *	1/96 (1.04%)
Inguinal hernia [A] *	1/96 (1.04%)
Intestinal polyp [A] *	1/96 (1.04%)
Oesophagitis haemorrhagic [A] *	1/96 (1.04%)
Oesophagitis ulcerative [A] *	1/96 (1.04%)
Peritoneal haemorrhage [A] *	1/96 (1.04%)
Peritonitis [A] *	7/96 (7.29%)
Pneumoperitoneum [A] *	1/96 (1.04%)
Subileus [A] *	1/96 (1.04%)
Umbilical hernia [A] *	1/96 (1.04%)
Vomiting [A] *	1/96 (1.04%)
General disorders	

	Mircera in CKD-Related Anemia
	Affected/At Risk (%)
Asthenia [A] *	1/96 (1.04%)
General physical health deterioration [A] *	2/96 (2.08%)
Hyperthermia [A] *	1/96 (1.04%)
Oedema [A] *	1/96 (1.04%)
Oedema peripheral [A] *	1/96 (1.04%)
Product contamination microbial [A] *	1/96 (1.04%)
Hepatobiliary disorders	
Cholecystitis acute [A] *	2/96 (2.08%)
Infections and infestations	
Laryngitis [A] *	1/96 (1.04%)
Lung infection [A] *	1/96 (1.04%)
Peritoneal candidiasis [A] *	1/96 (1.04%)
Peritoneal infection [A] *	3/96 (3.12%)
Sepsis [A] *	2/96 (2.08%)
Injury, poisoning and procedural complications	
Post procedural complication [A] *	1/96 (1.04%)
Investigations	
Blood glucose fluctuation [A] *	1/96 (1.04%)
Metabolism and nutrition disorders	
Fluid overload [A] *	2/96 (2.08%)
Hypoglycaemia [A] *	1/96 (1.04%)
Hypokalaemia [A] *	1/96 (1.04%)
Musculoskeletal and connective tissue disorders	

	Mircera in CKD-Related Anemia
	Affected/At Risk (%)
Clavicle fracture [A] *	1/96 (1.04%)
Femoral neck fracture [A] *	1/96 (1.04%)
Spinal compression fracture [A] *	1/96 (1.04%)
Neoplasms benign, malignant and unspecified (incl cysts and polyps)	
Breast cancer [A] *	1/96 (1.04%)
Hepatic neoplasm [A] *	1/96 (1.04%)
Lung neoplasm malignant [A] *	1/96 (1.04%)
Nervous system disorders	
Coma [A] *	1/96 (1.04%)
Convulsion [A] *	1/96 (1.04%)
Mental impairment [A] *	1/96 (1.04%)
Sciatica [A] *	2/96 (2.08%)
Psychiatric disorders	
Confusional state [A] *	1/96 (1.04%)
Respiratory, thoracic and mediastinal disorders	
Acute pulmonary oedema [A] *	1/96 (1.04%)
Asthma [A] *	1/96 (1.04%)
Lung disorder [A] *	1/96 (1.04%)
Pleural effusion [A] *	1/96 (1.04%)
Surgical and medical procedures	
Removal of ambulatory peritoneal catheter [A] *	1/96 (1.04%)
Vascular disorders	

	Mircera in CKD-Related Anemia
	Affected/At Risk (%)
Arterial disorder [A] *	1/96 (1.04%)
Extremity necrosis [A] *	1/96 (1.04%)
Peripheral arterial occlusive disease [A] *	2/96 (2.08%)
Thrombosis [A] *	1/96 (1.04%)

* Indicates events were collected by non-systematic methods.
A Term from vocabulary, MedDRA (12.0)

Other Adverse Events

Frequency Threshold Above Which Other Adverse Events are Reported: 5%

	Mircera in CKD-Related Anemia
	Affected/At Risk (%)
Total	25/96 (26.04%)
Gastrointestinal disorders	
Constipation [A] *	5/96 (5.21%)
Diarrhoea [A] *	5/96 (5.21%)
General disorders	
Oedema peripheral [A] *	5/96 (5.21%)
Respiratory, thoracic and mediastinal disorders	
Bronchitis [A] *	11/96 (11.46%)
Vascular disorders	
Hypertension [A] *	8/96 (8.33%)

* Indicates events were collected by non-systematic methods.
A Term from vocabulary, MedDRA (12.0)

Limitations and Caveats

[Not specified]

More Information

Certain Agreements:

Principal Investigators are NOT employed by the organization sponsoring the study.

There IS an agreement between the Principal Investigator and the Sponsor (or its agents) that restricts the PI's rights to discuss or publish trial results after the trial is completed.

The Study being conducted under this Agreement is part of the Overall Study. Investigator is free to publish in reputable journals or to present at professional conferences the results of the Study, but only after the first publication or presentation that involves the Overall Study. The Sponsor may request that Confidential Information be deleted and/or the publication be postponed in order to protect the Sponsor's intellectual property rights.

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