ClinicalTrials.gov Protocol Registration and Results System (PRS) Receipt
Release Date: 05/19/2016

ClinicalTrials.gov ID: NCT00545571

Study Identification

Unique Protocol ID:	ML20826
Brief Title:	MIRACLE Study: A Study of Once-Monthly Intravenous Mircera in Hemodialysis Participants With Chronic Renal Anemia
Official Title:	A Single Arm, Open Label, Interventional Multicenter Study to Assess the Efficacy, Safety, and Tolerability of Once-Monthly Administration of Intravenous C.E.R.A. for the Maintenance of Hemoglobin Levels in Hemodialysis Patients With Chronic Renal Anemia
Secondary IDs:	

Study Status

Record Verification:	May 2016
Overall Status:	Completed
Study Start:	October 2007
Primary Completion:	October 2009 [Actual]
Study Completion:	October 2009 [Actual]

Sponsor/Collaborators

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

Oversight

FDA Regulated?:	Yes

Applicable Trial?:	Section 801 Clinical Trial? No Delayed Posting? No
IND/IDE Protocol?:	No
Review Board:	Approval Status: Approved Approval Number: 703 Board Name: Ethikkommission des Kantons Luzern Board Affiliation: Unknown Phone: +41 41 4402667 Email: kek@ksl.ch
Data Monitoring?:	
Plan to Share Data?:	
Oversight Authorities:	Switzerland: Swissmedic

Study Description

Brief Summary:	This single-arm study will assess the long-term maintenance of hemoglobin levels, safety, and tolerability of once-monthly intravenous administration of Mircera in hemodialysis participants with chronic renal anemia. Those currently receiving darbepoetin alfa, epoetin alfa, or epoetin beta maintenance treatment will receive intravenous Mircera at a starting dose of 120, 200, or 360 micrograms (mcg) per month (based on the erythropoiesis stimulating agent [ESA] dose administered on Week -1). Subsequent doses will be adjusted to maintain hemoglobin levels within the country-specific target range (11 to 13 grams per deciliter [g/dL] for Switzerland and 10 to 12 g/dL for Austria).
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:	120 [Actual]

Arms and Interventions

Arms	Assigned Interventions
Experimental: Mircera in Renal Anemia Participants will receive intravenous Mircera every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 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 a country-specific target range.	Drug: Methoxy polyethylene glycol-epoetin beta Mircera will be administered intravenously every 4 weeks for a total of 52 weeks. The first dose of 120, 200, or 360 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 a country-specific target range. Other Names: • Mircera

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 renal anemia
- Hemoglobin concentration in country-specific target range (Switzerland: 11 to 13 g/dL; Austria: 10 to 12 g/dL)
- Regular long-term hemodialysis therapy with the same mode of dialysis for ≥3 months
- Continuous intravenous or subcutaneous maintenance ESA treatment during previous 2 months

Exclusion Criteria:

- Transfusion of red blood cells during previous 2 months
- Significant acute or chronic bleeding, such as overt gastrointestinal bleeding

- Active malignant disease (except non-melanoma skin cancer)

Contacts/Locations

Study Officials: Clinical Trials
Study Director
Hoffmann-La Roche

Locations: Switzerland
Lugano, Switzerland, 6903

Austria
Kufstein, Austria, 6330

Switzerland
Sion, Switzerland, 1951

Zürich, Switzerland, 8091

Basel, Switzerland, 4031

Geneve, Switzerland, 1205

Burgdorf, Switzerland, 3400

Austria
Steyr, Austria, 4400

Bregenz, Austria, 6900

Switzerland
Bellinzona, Switzerland, 6500

Austria
Wien, Austria, 1160

St Pölten, Austria, 3100

Wien, Austria, 1030

Wien, Austria, 1220

Feldkirch, Austria, 6807

Switzerland

Luzern, Switzerland, 6004

Austria
Salzburg, Austria, 5020

Graz, Austria, 8020

Switzerland
Mendrisio, Switzerland, 6850

St. Gallen, Switzerland, 9007

Zürich, Switzerland, 8037

Lausanne, Switzerland, 1011

Locarno, Switzerland, 6600

Austria
Wien, Austria, 1100

Linz, Austria, 4020

Wien, Austria, 1130

Switzerland
Liestal, Switzerland, 4410

References

Citations:

Links:

Study Data/Documents:

Participant Flow

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with erythropoiesis-stimulating agent (ESA) therapy received intravenous methoxy polyethylene glycol-epoetin beta (Mircera), also known as continuous erythropoietin receptor activator (CERA), every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 micrograms (mcg) was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week dose titration period (DTP) to maintain hemoglobin (Hb) concentrations within a country-specific target: 11.0 to 13.0 grams per deciliter (g/dL) in Switzerland and 10.0 to 12.0 g/dL in Austria.

Overall Study

	Mircera in Renal Anemia
Started	120
Completed	53
Not Completed	67
Administrative Reasons	1
Adverse Event	2
Death	5
Lack of Efficacy	1
Protocol Violation	2
Refused Treatment	1
Screen Failure	16
Transfusion	12
Early Termination of Study	24
Kidney Transplantation	3

Baseline Characteristics

Analysis Population Description

Intent-to-Treat (ITT) Population: All participants who received at least one dose of study drug and for whom data were available from at least one follow-up variable.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Baseline Measures

	Mircera in Renal Anemia
Number of Participants	91
Age, Continuous [units: Years] Mean (Standard Deviation)	67.9 (13.34)
Gender, Male/Female [units: participants]	
Female	37
Male	54

Outcome Measures

1. Primary Outcome Measure:

Measure Title	Percentage of Participants Who Maintained Average Hb Within Plus/Minus (±) 1 g/dL of Reference Hb or Within Target Range During the Efficacy Evaluation Period (EEP)
Measure Description	Reference Hb was determined individually per participant as the average of all Hb values during a pre-treatment stability assessment (Weeks -4 to 0). During the EEP (Weeks 18 to 24), participants provided a total of four pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. The average Hb during the EEP was calculated per participant and assessed against the reference value. The percentage of participants who had average Hb during the EEP in the country-specific target range (11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria) and within ±1 g/dL of their individual reference Hb 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	At Weeks -4, -3, -2, -1, 0; pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24
Safety Issue?	No

Analysis Population Description

Per Protocol (PP) Population: All participants from the Intent-to-Treat (ITT) Population who fulfill select criteria per study protocol.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	45
Percentage of Participants Who Maintained Average Hb Within Plus/Minus (±) 1 g/dL of Reference Hb or Within Target Range During the Efficacy Evaluation Period (EEP) [units: percentage of participants] Number (95% Confidence Interval)	75.6 (60.5 to 87.1)

2. Secondary Outcome Measure:

Measure Title	Mean Change in Time-Adjusted Hb From Baseline to EEP
Measure Description	Reference Hb was determined individually per participant as the average of all Hb values during a pre-treatment stability assessment (Weeks -4 to 0). During the EEP (Weeks 18 to 24), participants provided a total of four pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. The average Hb during the EEP 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	At Weeks -4, -3, -2, -1, 0; pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24
Safety Issue?	No

Analysis Population Description
ITT Population.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	91
Mean Change in Time-Adjusted Hb From Baseline to EEP [units: g/dL] Mean (Standard Deviation)	-0.4 (1.09)

3. Secondary Outcome Measure:

Measure Title	Mean Time Spent in the Target Range for Hb During the Long-Term Safety Period (LTSP)
Measure Description	During the LTSP (Weeks 18 to 52), participants provided a total of 16 pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. Time spent in the country-specific target range (11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria) was defined as time from first on-target Hb to time of last known on-target Hb, as collected during the EEP. Time spent in the target range was averaged among all participants and expressed in days.
Time Frame	Pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48
Safety Issue?	No

Analysis Population Description
ITT Population; only participants who entered the LTSP were included in the analysis.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	73
Mean Time Spent in the Target Range for Hb During the Long-Term Safety Period (LTSP) [units: days] Mean (Standard Deviation)	130 (67.5)

4. Secondary Outcome Measure:

Measure Title	Percentage of Participants Who Maintained Average Hb Within Target Range Throughout the EEP
Measure Description	During the EEP (Weeks 18 to 24), participants provided a total of four pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. The percentage of participants who had average Hb during the EEP in the country-specific target range (11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria) was determined. The 95% CI was calculated using the Pearson-Clopper method for exact confidence bounds.
Time Frame	Pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24
Safety Issue?	No

Analysis Population Description

ITT Population.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	91
Percentage of Participants Who Maintained Average Hb Within Target Range Throughout the EEP [units: percentage of participants] Number (95% Confidence Interval)	48.4 (37.7 to 59.1)

5. Secondary Outcome Measure:

Measure Title	Percentage of Hb Values Above or Below the Target Range During the LTSP
Measure Description	During the LTSP (Weeks 18 to 52), participants provided a total of 16 pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. The percentage of all Hb values outside of the country-specific target range was determined and reported separately as Hb values above the upper bound (13.0 g/dL in Switzerland and 12.0 g/dL in Austria) and Hb values below the lower bound (11.0 g/dL in Switzerland and 10.0 g/dL in Austria).
Time Frame	Pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48
Safety Issue?	No

Analysis Population Description

ITT Population; only those participants (n = number) who entered the LTSP and had at least one Hb excursion during the LTSP were included in the analysis.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	51

	Mircera in Renal Anemia
Percentage of Hb Values Above or Below the Target Range During the LTSP [units: percentage of Hb values]	
Above (n=32)	22
Below (n=51)	38

6. Secondary Outcome Measure:

Measure Title	Mean Time Spent Above or Below the Target Range for Hb During the LTSP
Measure Description	During the LTSP (Weeks 18 to 52), participants provided a total of 16 pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. Time spent outside the country-specific target range was defined as time from each off-target Hb to time of next on-target Hb, as collected during the LTSP. Time spent outside the target range was averaged among all participants and expressed in days, reported separately as time spent above the upper bound (13.0 g/dL in Switzerland and 12.0 g/dL in Austria) and time spent below the lower bound (11.0 g/dL in Switzerland and 10.0 g/dL in Austria).
Time Frame	Pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48
Safety Issue?	No

Analysis Population Description

ITT Population; only those participants (n = number) who entered the LTSP and had at least one Hb excursion during the LTSP or at the last DTP visit were included in the analysis.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	51

	Mircera in Renal Anemia
Mean Time Spent Above or Below the Target Range for Hb During the LTSP [units: days] Mean (Standard Deviation)	
Above (n=35)	43 (45.3)
Below (n=51)	48 (41.2)

7. Secondary Outcome Measure:

Measure Title	Mean Excursions Above or Below Target Range for Hb During the LTSP
Measure Description	During the LTSP (Weeks 18 to 52), participants provided a total of 16 pre-dose blood samples for Hb monitoring while on treatment with Mircera/CERA. Sampling was also performed prior to each dialysis session. Deviation from the country-specific target range was calculated as [Hb value minus country-specific upper bound] for deviations above the target range and [Hb value minus country-specific lower bound] for deviations below the target range. Deviations were averaged among all Hb values from all participants and expressed in g/dL, reported separately as mean deviation above the upper bound (13.0 g/dL in Switzerland and 12.0 g/dL in Austria) and mean deviation below the lower bound (11.0 g/dL in Switzerland and 10.0 g/dL in Austria).
Time Frame	Pre-dose (0 hours) and immediately before dialysis (minimum 3 sessions per week) during Weeks 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48
Safety Issue?	No

Analysis Population Description

ITT Population; only those participants (n = number) who entered the LTSP and had at least one Hb excursion during the LTSP were included in the analysis.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	51

	Mircera in Renal Anemia
Mean Excursions Above or Below Target Range for Hb During the LTSP [units: g/dL] Mean (Standard Deviation)	
Above (n=32)	0.5 (0.42)
Below (n=51)	-0.7 (0.61)

8. Secondary Outcome Measure:

Measure Title	Mean Number of Months a Participant Required Dose Adjustment of Mircera/CERA During the DTP and LTSP
Measure Description	Study drug administration occurred monthly during the DTP (Weeks 0 to 16), which began with a pre-specified dose of Mircera/CERA according to the dose of ESA administered during Week -1. Subsequent doses could be adjusted throughout the study including during the LTSP (Weeks 18 to 52) on the basis of Hb levels or other modification criteria. The mean number of months required for dose adjustment for any reason was calculated and averaged among all participants during the DTP and LTSP.
Time Frame	Weeks 0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
Safety Issue?	No

Analysis Population Description

Safety Population: All participants who received at least one dose of trial medication and at least one safety follow-up assessment, whether prematurely withdrawn or not; only those participants (n = number) who provided evaluable data were included in the analysis.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	90
Mean Number of Months a Participant Required Dose Adjustment of Mircera/CERA During the DTP and LTSP	

	Mircera in Renal Anemia
[units: months] Mean (Standard Deviation)	
DTP: Any Dose Change (n=90)	1.1 (1.11)
DTP: Dose Increase (n=90)	0.4 (0.75)
DTP: Dose Decrease (n=90)	0.6 (0.87)
LTSP: Any Dose Change (n=67)	1.5 (1.32)
LTSP: Dose Increase (n=67)	0.7 (0.99)
LTSP: Dose Decrease (n=67)	0.8 (0.93)

9. Secondary Outcome Measure:

Measure Title	Mean Dose of Mircera/CERA During the DTP and LTSP
Measure Description	Study drug administration occurred monthly during the DTP (Weeks 0 to 16), which began with a pre-specified dose of Mircera/CERA according to the dose of ESA administered during Week -1. Subsequent doses could be adjusted throughout the study including during the LTSP (Weeks 18 to 52) on the basis of Hb levels or other modification criteria. The dose received at each administration visit was averaged among all participants during the DTP and LTSP and expressed in mcg.
Time Frame	Weeks 0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
Safety Issue?	No

Analysis Population Description

Safety Population; only those participants (n = number) who provided evaluable data were included in the analysis.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	91

	Mircera in Renal Anemia
Mean Dose of Mircera/CERA During the DTP and LTSP [units: mcg] Mean (Standard Deviation)	
DTP (n=91)	140 (48.6)
LTSP (n=72)	133.8 (70.7)

10. Secondary Outcome Measure:

Measure Title	Percentage of Participants Who Received Blood Transfusions During the DTP and LTSP
Measure Description	The number of participants who received blood transfusion during the DTP (Weeks 0 and 16) and LTSP (Weeks 18 to 52) was reported.
Time Frame	From Week 0 (every week until Week 2, every 2 weeks until Week 48) through the final visit at Week 52
Safety Issue?	No

Analysis Population Description

ITT Population.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Measured Values

	Mircera in Renal Anemia
Number of Participants Analyzed	91
Percentage of Participants Who Received Blood Transfusions During the DTP and LTSP [units: percentage of participants]	15.4

Reported Adverse Events

Time Frame	From Week -4 (every week until Week 2, every 2 weeks until Week 48) through the final visit at Week 52
Additional Description	Safety Population.

Reporting Groups

	Description
Mircera in Renal Anemia	Participants with chronic renal anemia who were previously treated with ESA therapy received intravenous Mircera/CERA, every 4 weeks for a total of 52 weeks in this single-arm study. The first dose of 120, 200, or 360 mcg was based upon the dose of ESA received prior to administration of study treatment, while subsequent doses were adjusted during a 16-week DTP to maintain Hb concentrations within a country-specific target: 11.0 to 13.0 g/dL in Switzerland and 10.0 to 12.0 g/dL in Austria.

Serious Adverse Events

	Mircera in Renal Anemia
	Affected/At Risk (%)
Total	43/91 (47.25%)
Cardiac disorders	
Acute myocardial infarction [A] *	2/91 (2.2%)
Angina pectoris [A] *	1/91 (1.1%)
Angina unstable [A] *	1/91 (1.1%)
Cardiac arrest [A] *	1/91 (1.1%)
Cardiac failure [A] *	2/91 (2.2%)
Cardiac failure acute [A] *	1/91 (1.1%)
Myocardial infarction [A] *	2/91 (2.2%)
Pleuropericarditis [A] *	1/91 (1.1%)
Right ventricular failure [A] *	1/91 (1.1%)
Endocrine disorders	
Hyperparathyroidism [A] *	1/91 (1.1%)

	Mircera in Renal Anemia
	Affected/At Risk (%)
Hyperparathyroidism secondary [A] *	1/91 (1.1%)
Gastrointestinal disorders	
Abdominal pain [A] *	2/91 (2.2%)
Abdominal wall haematoma [A] *	1/91 (1.1%)
Acute abdomen [A] *	1/91 (1.1%)
Colitis ischaemic [A] *	1/91 (1.1%)
Diarrhoea [A] *	1/91 (1.1%)
Gastric haemorrhage [A] *	1/91 (1.1%)
Gastrointestinal haemorrhage [A] *	4/91 (4.4%)
Nausea [A] *	1/91 (1.1%)
Pancreatitis acute [A] *	1/91 (1.1%)
Upper gastrointestinal haemorrhage [A] *	1/91 (1.1%)
General disorders	
Chest pain [A] *	2/91 (2.2%)
Disease progression [A] *	1/91 (1.1%)
General physical health deterioration [A] *	1/91 (1.1%)
Malaise [A] *	1/91 (1.1%)
Pyrexia [A] *	1/91 (1.1%)
Hepatobiliary disorders	
Cholecystitis [A] *	1/91 (1.1%)
Cholelithiasis [A] *	1/91 (1.1%)
Infections and infestations	
Diverticulitis [A] *	2/91 (2.2%)

	Mircera in Renal Anemia
	Affected/At Risk (%)
Enterococcal sepsis [A] *	1/91 (1.1%)
Escherichia sepsis [A] *	1/91 (1.1%)
Escherichia urinary tract infection [A] *	1/91 (1.1%)
Gastroenteritis [A] *	1/91 (1.1%)
Infection [A] *	1/91 (1.1%)
Muscle abscess [A] *	1/91 (1.1%)
Oesophageal candidiasis [A] *	1/91 (1.1%)
Pneumonia [A] *	3/91 (3.3%)
Subcutaneous abscess [A] *	1/91 (1.1%)
Urinary tract infection [A] *	1/91 (1.1%)
Urosepsis [A] *	1/91 (1.1%)
Injury, poisoning and procedural complications	
Arteriovenous fistula occlusion [A] *	2/91 (2.2%)
Arteriovenous fistula site complication [A] *	2/91 (2.2%)
Fall [A] *	1/91 (1.1%)
Femur fracture [A] *	1/91 (1.1%)
Hip fracture [A] *	1/91 (1.1%)
Radius fracture [A] *	1/91 (1.1%)
Scapula fracture [A] *	1/91 (1.1%)
Shunt occlusion [A] *	1/91 (1.1%)
Shunt thrombosis [A] *	1/91 (1.1%)
Tibia fracture [A] *	1/91 (1.1%)

	Mircera in Renal Anemia
	Affected/At Risk (%)
Investigations	
Haemoglobin decreased [A] *	4/91 (4.4%)
Metabolism and nutrition disorders	
Decreased appetite [A] *	1/91 (1.1%)
Overweight [A] *	1/91 (1.1%)
Musculoskeletal and connective tissue disorders	
Osteoarthritis [A] *	1/91 (1.1%)
Pain in extremity [A] *	1/91 (1.1%)
Spinal osteoarthritis [A] *	1/91 (1.1%)
Neoplasms benign, malignant and unspecified (incl cysts and polyps)	
Breast cancer in situ [A] *	1/91 (1.1%)
Nervous system disorders	
Encephalopathy [A] *	1/91 (1.1%)
Epilepsy [A] *	1/91 (1.1%)
Syncope [A] *	1/91 (1.1%)
Psychiatric disorders	
Confusional state [A] *	1/91 (1.1%)
Renal and urinary disorders	
Renal failure [A] *	1/91 (1.1%)
Respiratory, thoracic and mediastinal disorders	
Chronic obstructive pulmonary disease [A] *	1/91 (1.1%)
Dyspnoea [A] *	1/91 (1.1%)
Pulmonary embolism [A] *	1/91 (1.1%)

	Mircera in Renal Anemia
	Affected/At Risk (%)
Social circumstances	
Social problem [A] *	1/91 (1.1%)
Surgical and medical procedures	
Catheter placement [A] *	1/91 (1.1%)
Eye operation [A] *	1/91 (1.1%)
Nephrectomy [A] *	1/91 (1.1%)
Vascular disorders	
Haemodynamic instability [A] *	1/91 (1.1%)
Hypertension [A] *	1/91 (1.1%)
Hypotension [A] *	1/91 (1.1%)

* 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 Renal Anemia
	Affected/At Risk (%)
Total	62/91 (68.13%)
Cardiac disorders	
Angina pectoris [A] *	5/91 (5.49%)
Gastrointestinal disorders	
Abdominal pain [A] *	5/91 (5.49%)
Diarrhoea [A] *	13/91 (14.29%)
Nausea [A] *	14/91 (15.38%)
Vomiting [A] *	7/91 (7.69%)

	Mircera in Renal Anemia
	Affected/At Risk (%)
General disorders	
Oedema peripheral [A] *	5/91 (5.49%)
Infections and infestations	
Bronchitis [A] *	7/91 (7.69%)
Nasopharyngitis [A] *	11/91 (12.09%)
Injury, poisoning and procedural complications	
Fall [A] *	14/91 (15.38%)
Musculoskeletal and connective tissue disorders	
Arthralgia [A] *	5/91 (5.49%)
Back pain [A] *	9/91 (9.89%)
Muscle spasms [A] *	11/91 (12.09%)
Musculoskeletal pain [A] *	5/91 (5.49%)
Pain in extremity [A] *	9/91 (9.89%)
Nervous system disorders	
Headache [A] *	10/91 (10.99%)
Respiratory, thoracic and mediastinal disorders	
Cough [A] *	11/91 (12.09%)
Dyspnoea [A] *	10/91 (10.99%)
Skin and subcutaneous tissue disorders	
Pruritus [A] *	6/91 (6.59%)
Vascular disorders	
Hypertension [A] *	12/91 (13.19%)

* Indicates events were collected by non-systematic methods.

A Term from vocabulary, MedDRA (12.0)

Limitations and Caveats

The Study was prematurely terminated in Austria as a consequence of Mircera reimbursement denial. However, the Study completed regularly in Switzerland and the overall status of the Study is considered completed.

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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