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February 2, 2016

Dave Campana, RPh
Montana Medicaid
1400 Broadway
Helena, Montana 59620

Dear Mr. Campana,

Thank you for your request for clinical and other relevant information regarding Repatha® (evolocumab) for the Montana Medicaid Preferred Drug List (PDL). Based on your request, the following clinical information is being provided in response to your unsolicited request for information on Repatha® (evolocumab) for the purpose of formulary review:

- Repatha® (evolocumab) Clinical Fact Sheet (as of 01/2016)
- Repatha® (evolocumab) Prescribing Information, Amgen Inc. (v2 09/2015)
- Repatha® (evolocumab) Patient Information: Injection, for Subcutaneous Injection, Amgen Inc. (v1 08/2015)
- Repatha® (evolocumab) Instructions for use: Single-Use Prefilled SureClick® Autoinjector, Amgen Inc. (v1 08/2015)
- Repatha® (evolocumab) Instructions for use: Single-Use Prefilled Syringe, Amgen Inc. (v1 08/2015)

Amgen recommends the use of its products only in accordance with the US FDA-approved Prescribing Information (package insert). Please refer to the Repatha® (evolocumab) full Prescribing Information attached for approved product labeling and important safety information.

Amgen is providing you with referenced information. If you would like a reprint of a reference, contact Amgen Medical Information. Please note that if you are a covered recipient as defined by the Affordable Care Act (ACA) and Amgen provides you with the requested reprint(s), Amgen's cost to obtain such reprint(s) may need to be disclosed and reported in accordance with the requirements under the ACA, state law and related disclosure obligations by Amgen. If you are a non-covered recipient requesting information on behalf of or the benefit of a covered recipient (physician or teaching hospital), the same requirements may apply.

This information has been provided to you in response to your unsolicited request. If we may provide further information or assistance, or if you did not request this information, please contact Amgen Medical Information at 800-77-AMGEN (26436), MedInfo@Amgen.com or visit our website at www.amgenmedinfo.com.

Sincerely,

Handwritten signature of Casey A. Dobie in cursive script.

Casey A. Dobie, PharmD
Senior Manager, Medical Information

MIR-321815

Repatha™ (evolocumab) Clinical Fact Sheet

Medical Information request (MIR-321815) prepared for Dave Campana on February 2, 2016

Indication¹

- Repatha™ is indicated as an adjunct to diet and maximally tolerated statin therapy for the treatment of adults with heterozygous familial hypercholesterolemia (HeFH) or clinical atherosclerotic cardiovascular disease (CVD), who require additional lowering of low density lipoprotein cholesterol (LDL-C).
- Repatha™ is indicated as an adjunct to diet and other LDL-lowering therapies (e.g., statins, ezetimibe, LDL apheresis) for the treatment of patients with homozygous familial hypercholesterolemia (HoFH) who require additional lowering of LDL-C.

Limitations of Use¹

- The effect of Repatha™ on cardiovascular morbidity and mortality has not been determined.
- The safety and effectiveness of Repatha™ have not been established in pediatric patients with HoFH who are younger than 13 years old or in pediatric patients with primary hyperlipidemia or HeFH.

Hypercholesterolemia

- Elevated cholesterol is a major risk factor for cardiovascular disease. About 71 million adult Americans have high LDL-C levels with only about 50% being treated, and only approximately 1/3 having LDL-C levels well controlled.²
- HeFH is the most common genetic disease in the US, affecting 1 in 200 to 500 patients, and these patients typically have twice normal LDL-C levels (190-350 mg/dL) along with a high incidence of premature coronary heart disease.^{3,4} HoFH is less prevalent (1/1,000,000 in the US) but results in up to four-fold increases in LDL-C (400-1,000 mg/dL), and patients may develop coronary artery disease in their teens or younger.³

Efficacy – The Repatha™ Clinical Trial Summary¹

- The safety and efficacy of Repatha™ was assessed in four multicenter, double-blind, randomized, placebo-controlled trials (see **Table 1**). These studies included patients with primary hyperlipidemia with clinical atherosclerotic CVD and/or patients with FH. The primary endpoint for all studies was percent change in LDL-C from baseline.
- As shown in **Figure 2**, in the three multicenter, double-blind, randomized, placebo-controlled, 12-week studies (Studies 1, 3, and 4) of Repatha™ in patients with primary hyperlipidemia with clinical atherosclerotic CVD, HeFH, or HoFH, respectively, Repatha™ significantly reduced LDL-C from baseline to 12 weeks compared with placebo ($p < 0.0001$).¹

IMPORTANT SAFETY INFORMATION¹

Repatha™ is contraindicated in patients with a history of a serious hypersensitivity reaction to Repatha™. Hypersensitivity reactions (e.g. rash, urticaria) have been reported in patients treated with Repatha™, including some that led to discontinuation of therapy.

Please see additional Important Safety Information on the next page.

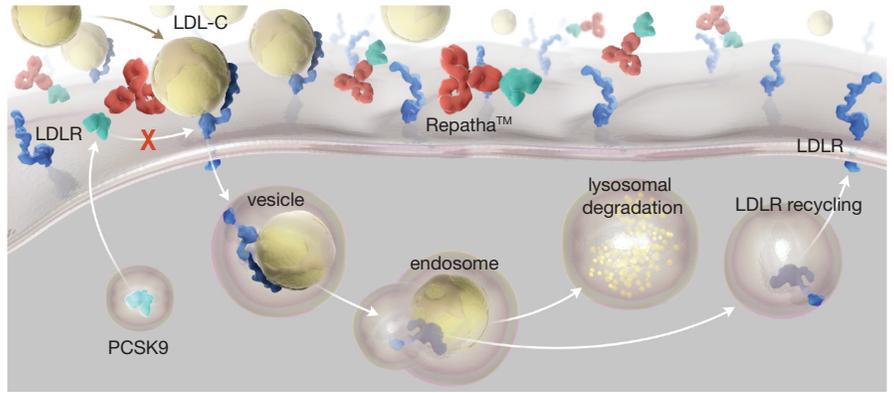
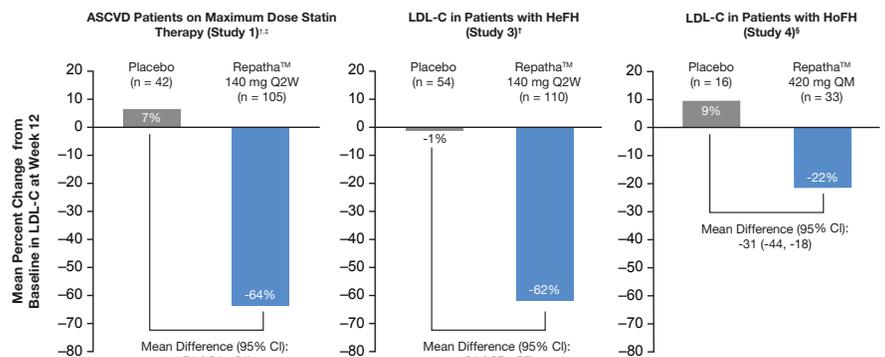


Figure 1: Repatha™ Mechanism of Action. Repatha™, a human mAb directed against PCSK9, binds to PCSK9 and inhibits circulating PCSK9 from binding to the LDLR, preventing PCSK9 mediated LDLR degradation and permitting LDLR to recycle back to the liver cell surface. The increased number of LDLRs available to clear LDL from the blood results in lower LDL-C levels.^{1,5-8}

Table 1: Repatha™ Clinical Trial Summary¹

Study Description	
Primary Hyperlipidemia in Patients with Clinical Atherosclerotic CVD	
Study 1 (N = 296)	<ul style="list-style-type: none"> • Multicenter, double-blind, randomized controlled trial • Patients were initially randomized to an open-label maximum-dose statin regimen • After a 4-week lipid stabilization period patients were randomized to Repatha™ 140 mg every 2 weeks, 420 mg once monthly or placebo for 12 weeks • Mean baseline LDL-C = 108 mg/dL
Study 2 (N = 139)	<ul style="list-style-type: none"> • Multicenter, double-blind, randomized placebo-controlled, 52-week trial • After stabilization on background therapy, patients were randomly assigned to the addition of placebo or Repatha™ 420 mg administered SC once monthly • Mean baseline LDL-C = 105 mg/dL
Familial Hypercholesterolemia (FH)	
Study 3 (N = 329)	<ul style="list-style-type: none"> • Multicenter, double-blind, randomized placebo-controlled, 12 week trial • Patients with HeFH on stable lipid lowering therapy (statins with or without other lipid-lowering therapies) for 4 weeks were randomized to receive SC Repatha™ 140 mg every two weeks, 420 mg once monthly, or placebo • Mean baseline LDL-C = 156 mg/dL; 76% of patients were on high-intensity statin therapy
Study 4 (N = 49)	<ul style="list-style-type: none"> • Multicenter, double-blind, randomized placebo-controlled, 12 week trial • Patients with HoFH (not on lipid-apheresis therapy) received 420 mg of Repatha™ once monthly or placebo as an adjunct to other lipid-lowering therapies (e.g., statins, ezetimibe) • Mean baseline LDL-C = 349 mg/dL

Figure 2: LDL-C Reduction with Repatha™ 12 Week Trials – Patients with Atherosclerotic CVD, HeFH, and HoFH^{1,*}



[†] Daily doses of atorvastatin 80 mg, rosuvastatin 40 mg or simvastatin 40 mg.

^{*} Estimates based on multiple imputation model that accounts for treatment adherence ($p < 0.0001$).

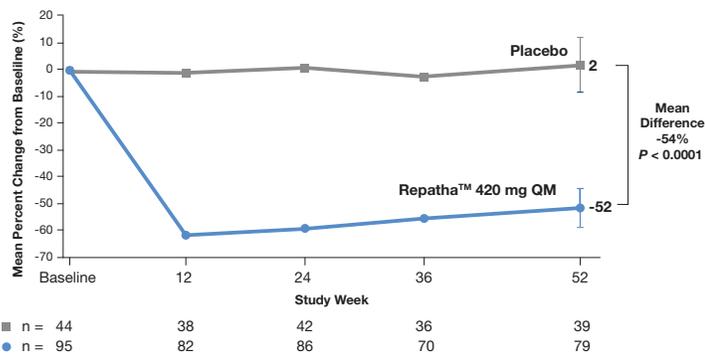
[†] 140 mg every 2 weeks or 420 mg once monthly yield similar reductions in LDL-C ($p < 0.0001$).

[§] The safety and effectiveness of Repatha™ have not been established in pediatric patients with HoFH who are younger than 13 years old. The safety and effectiveness of Repatha™ have not been established in pediatric patients with primary hyperlipidemia or HeFH.

Repatha™ (evolocumab) Clinical Fact Sheet

- In the long-term Repatha™ trial (Study 2), a multicenter, double-blind, randomized, placebo-controlled, 52-week trial that included 139 patients with atherosclerotic CVD who received protocol-determined background lipid-lowering therapy of atorvastatin 80 mg daily with or without ezetimibe 10 mg daily, Repatha™ 420 mg administered subcutaneously once monthly significantly reduced LDL-C from baseline at 52 weeks compared with placebo ($p < 0.0001$). (Figure 3).

Figure 3: Percent Change in LDL-C at Week 52: Placebo vs. Repatha™



Estimates based on multiple imputation model that accounts for treatment adherence. Error bars indicate 95% CI.

Table 2: Effect of Repatha™ on Mean Difference in Lipid Parameters from Placebo

Endpoint (week 12)	Mean Percent Change From Baseline vs Placebo (%)			
	Study 1* 140 mg Q2W [‡] (N = 105)	Study 2 [†] 420 mg QM (N = 95)	Study 3 140 mg Q2W [‡] (N = 110)	Study 4 [§] 420 mg QM (N = 33)
TC	-42%	-31%	-40%	-25%
Non-HDL-C	-58%	-44%	-54%	-28%
ApoB	-55%	-40%	-49%	-21%

Estimates based on a multiple imputation model that accounts for treatment adherence.
 * Atorvastatin 80 mg, rosuvastatin 40 mg or simvastatin 40 mg. † 80 mg atorvastatin with or without ezetimibe; ‡ Similar percent changes in all lipid parameters seen with 420 QM dosing.
 § The safety and effectiveness of Repatha™ have not been established in pediatric patients with HoFH who are younger than 13 years old.

The safety and effectiveness of Repatha™ have not been established in pediatric patients with primary hyperlipidemia or HeFH
 Apo = apolipoprotein; HDL-C = high-density lipoprotein cholesterol; TC = total cholesterol.

- Repatha™ additionally resulted in the reduction of other lipid particles versus placebo including non-HDL-C, ApoB, and TC. (Table 2).

IMPORTANT SAFETY INFORMATION¹

Contraindication: Repatha™ is contraindicated in patients with a history of a serious hypersensitivity reaction to Repatha™.

Allergic reactions: Hypersensitivity reactions (e.g. rash, urticaria) have been reported in patients treated with Repatha™, including some that led to discontinuation of therapy. If signs or symptoms of serious allergic reactions occur, discontinue treatment with Repatha™, treat according to the standard of care, and monitor until signs and symptoms resolve.

Adverse Reactions: The most common adverse reactions (> 5% of Repatha™-treated patients and more common than placebo) were: nasopharyngitis, upper respiratory tract infection, influenza, back pain, and injection site reactions.

In a 52-week trial, adverse reactions led to discontinuation of treatment in 2.2% of Repatha™-treated patients and 1% of placebo-treated patients. The most common adverse reaction that led to Repatha™ treatment discontinuation and occurred at a rate greater than placebo was myalgia (0.3% versus 0% for Repatha™ and placebo, respectively).

Adverse reactions from a pool of the 52-week trial and seven 12-week trials: Local injection site reactions occurred in 3.2% and 3.0% of Repatha™-treated and placebo-treated patients, respectively. The most common injection site reactions were erythema, pain, and bruising. The proportions of patients who discontinued treatment due to local injection site reactions in Repatha™-treated patients and placebo-treated patients were 0.1% and 0%, respectively.

Allergic reactions occurred in 5.1% and 4.7% of Repatha™-treated and placebo-treated patients, respectively. The most common allergic reactions were rash (1.0% versus 0.5% for Repatha™ and placebo, respectively), eczema (0.4% versus 0.2%), erythema (0.4% versus 0.2%), and urticaria (0.4% versus 0.1%).

Neurocognitive events were reported in less than or equal to 0.2% in Repatha™-treated and placebo-treated patients.

In a pool of placebo- and active-controlled trials, as well as open-label extension studies that followed them, a total of 1988 patients treated with Repatha™ had at least one LDL-C value < 25 mg/dL. Changes to background lipid-altering therapy were not made in response to low LDL-C values, and Repatha™ dosing was not modified or interrupted on this basis. Although adverse consequences of very low LDL-C were not identified in these trials, the long-term effects of very low levels of LDL-C induced by Repatha™ are unknown.

Musculoskeletal adverse reactions were reported in 14.3% of Repatha™-treated patients and 12.8% of placebo-treated patients. The most common adverse reactions that occurred at a rate greater than placebo were back pain (3.2% versus 2.9% for Repatha™ and placebo, respectively), arthralgia (2.3% versus 2.2%), and myalgia (2.0% versus 1.8%).

Homozygous familial hypercholesterolemia (HoFH): In 49 patients with HoFH studied in a 12-week, double-blind, randomized, placebo-controlled trial, 33 patients received 420 mg of Repatha™ subcutaneously once monthly. The adverse reactions that occurred in at least two (6.1%) Repatha™-treated patients, and more frequently than in placebo-treated patients, included upper respiratory tract infection (9.1% versus 6.3%), influenza (9.1% versus 0%), gastroenteritis (6.1% versus 0%), and nasopharyngitis (6.1% versus 0%).

Immunogenicity: Repatha™ is a human monoclonal antibody. As with all therapeutic proteins, there is a potential for immunogenicity with Repatha™.

REFERENCES

- Repatha™ (evolocumab) Prescribing Information, Amgen.
- Centers for Disease Control and Prevention (CDC). Vital signs: prevalence, treatment, and control of high levels of low-density lipoprotein cholesterol—United States, 1999–2002 and 2005–2008. *MMWR Morb Mortal Wkly Rep.* 2011;60(4):109–114.
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- Nordstgaard BG, et al. *Eur Heart J.* 2013;34(45):3478–3490a.
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- McNutt MC, et al. *J Biol Chem.* 2009;284:10561–10570.
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HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use REPATHA™ safely and effectively. See full prescribing information for REPATHA.

REPATHA (evolocumab) injection, for subcutaneous use
Initial U.S. Approval: 2015

-----**INDICATIONS AND USAGE**-----

REPATHA is a PCSK9 (proprotein convertase subtilisin kexin type 9) inhibitor antibody indicated as an adjunct to diet and:

- Maximally tolerated statin therapy for treatment of adults with heterozygous familial hypercholesterolemia (HeFH) or clinical atherosclerotic cardiovascular disease (CVD), who require additional lowering of low density lipoprotein cholesterol (LDL-C). (1.1)
- Other LDL-lowering therapies (e.g., statins, ezetimibe, LDL apheresis) in patients with homozygous familial hypercholesterolemia (HoFH) who require additional lowering of LDL-C. (1.2)

Limitations of Use

- The effect of REPATHA on cardiovascular morbidity and mortality has not been determined. (1.3)

-----**DOSAGE AND ADMINISTRATION**-----

- Administer by subcutaneous injection. (2.1)
- Primary hyperlipidemia with established clinical atherosclerotic CVD or HeFH: 140 mg every 2 weeks or 420 mg once monthly in abdomen, thigh, or upper arm. (2.1)
- HoFH: 420 mg once monthly. (2.1)
- To administer 420 mg, give 3 REPATHA injections consecutively within 30 minutes. (2.2)
- See Dosage and Administration for important administration instructions. (2.2)

FULL PRESCRIBING INFORMATION: CONTENTS*

1 INDICATIONS AND USAGE

- 1.1 Primary Hyperlipidemia
- 1.2 Homozygous Familial Hypercholesterolemia
- 1.3 Limitations of Use

2 DOSAGE AND ADMINISTRATION

- 2.1 Recommended Dosage
- 2.2 Important Administration Instructions

3 DOSAGE FORMS AND STRENGTHS

4 CONTRAINDICATIONS

5 WARNINGS AND PRECAUTIONS

- 5.1 Allergic Reactions

6 ADVERSE REACTIONS

- 6.1 Clinical Trials Experience
- 6.2 Immunogenicity

8 USE IN SPECIFIC POPULATIONS

- 8.1 Pregnancy
- 8.2 Lactation
- 8.4 Pediatric Use

-----**DOSAGE FORMS AND STRENGTHS**-----

- Injection: 140 mg/mL in a single-use prefilled syringe (3)
- Injection: 140 mg/mL in a single-use prefilled SureClick® autoinjector (3)

-----**CONTRAINDICATIONS**-----

Patients with a history of a serious hypersensitivity reaction to REPATHA. (4)

-----**WARNINGS AND PRECAUTIONS**-----

Allergic Reactions: Rash and urticaria have occurred. If signs or symptoms of serious allergic reactions occur, discontinue treatment with REPATHA, treat according to the standard of care, and monitor until signs and symptoms resolve. (5.1)

-----**ADVERSE REACTIONS**-----

Common adverse reactions in clinical trials (> 5% of patients treated with REPATHA and occurring more frequently than placebo): nasopharyngitis, upper respiratory tract infection, influenza, back pain, and injection site reactions. (6)

To report SUSPECTED ADVERSE REACTIONS, contact Amgen Medical Information at 1-800-77-AMGEN (1-800-772-6436) or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 09/2015

8.5 Geriatric Use

8.6 Renal Impairment

8.7 Hepatic Impairment

11 DESCRIPTION

12 CLINICAL PHARMACOLOGY

- 12.1 Mechanism of Action
- 12.2 Pharmacodynamics
- 12.3 Pharmacokinetics

13 NONCLINICAL TOXICOLOGY

- 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility
- 13.2 Animal Toxicology and/or Pharmacology

14 CLINICAL STUDIES

- 14.1 Primary Hyperlipidemia in Patients with Clinical Atherosclerotic Cardiovascular Disease
- 14.2 Heterozygous Familial Hypercholesterolemia (HeFH)
- 14.3 Homozygous Familial Hypercholesterolemia (HoFH)

16 HOW SUPPLIED/STORAGE AND HANDLING

17 PATIENT COUNSELING INFORMATION

* Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

1.1 Primary Hyperlipidemia

REPATHA™ is indicated as an adjunct to diet and maximally tolerated statin therapy for the treatment of adults with heterozygous familial hypercholesterolemia (HeFH) or clinical atherosclerotic cardiovascular disease (CVD), who require additional lowering of low density lipoprotein cholesterol (LDL-C).

1.2 Homozygous Familial Hypercholesterolemia

REPATHA is indicated as an adjunct to diet and other LDL-lowering therapies (e.g., statins, ezetimibe, LDL apheresis) for the treatment of patients with homozygous familial hypercholesterolemia (HoFH) who require additional lowering of LDL-C.

1.3 Limitations of Use

The effect of REPATHA on cardiovascular morbidity and mortality has not been determined.

2 DOSAGE AND ADMINISTRATION

2.1 Recommended Dosage

The recommended subcutaneous dosage of REPATHA in patients with HeFH or patients with primary hyperlipidemia with established clinical atherosclerotic CVD is either 140 mg every 2 weeks OR 420 mg once monthly. When switching dosage regimens, administer the first dose of the new regimen on the next scheduled date of the prior regimen.

The recommended subcutaneous dosage of REPATHA in patients with HoFH is 420 mg once monthly. In patients with HoFH, measure LDL-C levels 4 to 8 weeks after starting REPATHA, since response to therapy will depend on the degree of LDL-receptor function.

If an every 2 week or once monthly dose is missed, instruct the patient to:

- Administer REPATHA as soon as possible if there are more than 7 days until the next scheduled dose, or,
- Omit the missed dose and administer the next dose according to the original schedule.

2.2 Important Administration Instructions

- To administer the 420 mg dose, give 3 REPATHA injections consecutively within 30 minutes.
- Provide proper training to patients and/or caregivers on how to prepare and administer REPATHA prior to use, according to the Instructions for Use, including aseptic technique. Instruct patients and/or caregivers to read and follow the Instructions for Use each time they use REPATHA.
- Keep REPATHA in the refrigerator. Prior to use, allow REPATHA to warm to room temperature for at least 30 minutes. Do not warm in any other way. Alternatively, for patients and caregivers, REPATHA can be kept at room temperature (up to 25°C (77°F)) in the original carton. However,

under these conditions, REPATHA must be used within 30 days [*see How Supplied/Storage and Handling (16)*].

- Visually inspect REPATHA for particles and discoloration prior to administration. REPATHA is a clear to opalescent, colorless to pale yellow solution. Do not use if the solution is cloudy or discolored or contains particles.
- Administer REPATHA by subcutaneous injection into areas of the abdomen, thigh, or upper arm that are not tender, bruised, red, or indurated using a single-use prefilled syringe or single-use prefilled autoinjector.
- Do not co-administer REPATHA with other injectable drugs at the same injection site.
- Rotate the injection site with each injection.

3 DOSAGE FORMS AND STRENGTHS

REPATHA is a sterile, clear to opalescent, colorless to pale yellow solution available as follows:

- Injection: 140 mg/mL solution in a single-use prefilled syringe
- Injection: 140 mg/mL solution in a single-use prefilled SureClick® autoinjector

4 CONTRAINDICATIONS

REPATHA is contraindicated in patients with a history of a serious hypersensitivity reaction to REPATHA [*see Warnings and Precautions (5.1)*].

5 WARNINGS AND PRECAUTIONS

5.1 Allergic Reactions

Hypersensitivity reactions (e.g., rash, urticaria) have been reported in patients treated with REPATHA, including some that led to discontinuation of therapy. If signs or symptoms of serious allergic reactions occur, discontinue treatment with REPATHA, treat according to the standard of care, and monitor until signs and symptoms resolve.

6 ADVERSE REACTIONS

The following adverse reactions are also discussed in other sections of the label:

- Allergic Reactions [*see Warnings and Precautions (5.1)*]

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in clinical practice.

Adverse Reactions in Patients with Primary Hyperlipidemia and in Patients with Heterozygous Familial Hypercholesterolemia

REPATHA is not indicated for use in patients without familial hypercholesterolemia or atherosclerotic CVD [see *Indications and Usage (1.1)*].

The data described below reflect exposure to REPATHA in 8 placebo-controlled trials that included 2651 patients treated with REPATHA, including 557 exposed for 6 months and 515 exposed for 1 year (median treatment duration of 12 weeks). The mean age of the population was 57 years, 49% of the population were women, 85% White, 6% Black, 8% Asians, and 2% other races.

Adverse Reactions in a 52-Week Controlled Trial

In a 52-week, double-blind, randomized, placebo-controlled trial (Study 2), 599 patients received 420 mg of REPATHA subcutaneously once monthly [see *Clinical Studies (14.1)*]. The mean age was 56 years (range: 22 to 75 years), 23% were older than 65 years, 52% women, 80% White, 8% Black, 6% Asian, and 6% Hispanic. Adverse reactions reported in at least 3% of REPATHA-treated patients, and more frequently than in placebo-treated patients in Study 2, are shown in Table 1. Adverse reactions led to discontinuation of treatment in 2.2% of REPATHA-treated patients and 1% of placebo-treated patients. The most common adverse reaction that led to REPATHA treatment discontinuation and occurred at a rate greater than placebo was myalgia (0.3% versus 0% for REPATHA and placebo, respectively).

Table 1. Adverse Reactions Occurring in Greater than or Equal to 3% of REPATHA-treated Patients and More Frequently than with Placebo in Study 2

	Placebo (N = 302) %	REPATHA (N = 599) %
Nasopharyngitis	9.6	10.5
Upper respiratory tract infection	6.3	9.3
Influenza	6.3	7.5
Back pain	5.6	6.2
Injection site reactions [†]	5.0	5.7
Cough	3.6	4.5
Urinary tract infection	3.6	4.5
Sinusitis	3.0	4.2
Headache	3.6	4.0
Myalgia	3.0	4.0
Dizziness	2.6	3.7
Musculoskeletal pain	3.0	3.3
Hypertension	2.3	3.2
Diarrhea	2.6	3.0
Gastroenteritis	2.0	3.0

[†]includes erythema, pain, bruising

Adverse Reactions in Seven Pooled 12-Week Controlled Trials

In seven pooled 12-week, double-blind, randomized, placebo-controlled trials, 993 patients received 140 mg of REPATHA subcutaneously every 2 weeks and 1059 patients received 420 mg of REPATHA subcutaneously monthly. The mean age was 57 years (range: 18 to 80 years), 29% were older than 65 years, 49% women, 85% White, 5% Black, 9% Asian, and 5% Hispanic. Adverse reactions reported in

at least 1% of REPATHA-treated patients, and more frequently than in placebo-treated patients, are shown in Table 2.

Table 2. Adverse Reactions Occurring in Greater than 1% of REPATHA-treated Patients and More Frequently than with Placebo in Pooled 12-Week Studies

	Placebo (N = 1224)	REPATHA[†] (N = 2052)
	%	%
Nasopharyngitis	3.9	4.0
Back pain	2.2	2.3
Upper respiratory tract infection	2.0	2.1
Arthralgia	1.6	1.8
Nausea	1.2	1.8
Fatigue	1.0	1.6
Muscle spasms	1.2	1.3
Urinary tract infection	1.2	1.3
Cough	0.7	1.2
Influenza	1.1	1.2
Contusion	0.5	1.0

[†]140 mg every 2 weeks and 420 mg once monthly combined

Adverse Reactions in Eight Pooled Controlled Trials (Seven 12-Week Trials and One 52-Week Trial)

The adverse reactions described below are from a pool of the 52-week trial (Study 2) and seven 12-week trials. The mean and median exposure durations of REPATHA in this pool of eight trials were 20 weeks and 12 weeks, respectively.

Local Injection Site Reactions

Injection site reactions occurred in 3.2% and 3.0% of REPATHA-treated and placebo-treated patients, respectively. The most common injection site reactions were erythema, pain, and bruising. The proportions of patients who discontinued treatment due to local injection site reactions in REPATHA-treated patients and placebo-treated patients were 0.1% and 0%, respectively.

Allergic Reactions

Allergic reactions occurred in 5.1% and 4.7% of REPATHA-treated and placebo-treated patients, respectively. The most common allergic reactions were rash (1.0% versus 0.5% for REPATHA and placebo, respectively), eczema (0.4% versus 0.2%), erythema (0.4% versus 0.2%), and urticaria (0.4% versus 0.1%).

Neurocognitive Events

In placebo-controlled trials, neurocognitive events were reported in less than or equal to 0.2% in REPATHA-treated and placebo-treated patients.

Low LDL-C Levels

In a pool of placebo- and active-controlled trials, as well as open-label extension studies that followed them, a total of 1988 patients treated with REPATHA had at least one LDL-C value < 25 mg/dL. Changes to background lipid-altering therapy were not made in response to low LDL-C values, and REPATHA dosing was not modified or interrupted on this basis. Although adverse consequences of very low LDL-C

were not identified in these trials, the long-term effects of very low levels of LDL-C induced by REPATHA are unknown.

Musculoskeletal Events

Musculoskeletal adverse reactions were reported in 14.3% of REPATHA-treated patients and 12.8% of placebo-treated patients. The most common adverse reactions that occurred at a rate greater than placebo were back pain (3.2% versus 2.9% for REPATHA and placebo, respectively), arthralgia (2.3% versus 2.2%), and myalgia (2.0% versus 1.8%).

Adverse Reactions in Patients with Homozygous Familial Hypercholesterolemia

In a 12-week, double-blind, randomized, placebo-controlled trial of 49 patients with HoFH (Study 4), 33 patients received 420 mg of REPATHA subcutaneously once monthly [see *Clinical Studies (14.3)*]. The mean age was 31 years (range: 13 to 57 years), 49% were women, 90% White, 4% Asian, and 6% other. The adverse reactions that occurred in at least two (6.1%) REPATHA-treated patients, and more frequently than in placebo-treated patients, included:

- Upper respiratory tract infection (9.1% versus 6.3%)
- Influenza (9.1% versus 0%)
- Gastroenteritis (6.1% versus 0%)
- Nasopharyngitis (6.1% versus 0%)

6.2 Immunogenicity

As with all therapeutic proteins, there is potential for immunogenicity. The immunogenicity of REPATHA has been evaluated using an electrochemiluminescent bridging screening immunoassay for the detection of binding anti-drug antibodies. For patients whose sera tested positive in the screening immunoassay, an in vitro biological assay was performed to detect neutralizing antibodies.

In a pool of placebo- and active-controlled clinical trials, 0.1% of patients treated with at least one dose of REPATHA tested positive for binding antibody development. Patients whose sera tested positive for binding antibodies were further evaluated for neutralizing antibodies; none of the patients tested positive for neutralizing antibodies.

There was no evidence that the presence of anti-drug binding antibodies impacted the pharmacokinetic profile, clinical response, or safety of REPATHA, but the long-term consequences of continuing REPATHA treatment in the presence of anti-drug binding antibodies are unknown.

The detection of antibody formation is highly dependent on the sensitivity and specificity of the assay. Additionally, the observed incidence of antibody positivity in an assay may be influenced by several factors including assay methodology, sample handling, timing of sample collection, concomitant medications, and underlying disease. For these reasons, comparison of the incidence of antibodies to REPATHA with the incidence of antibodies to other products may be misleading.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

There are no data available on use of REPATHA in pregnant women to inform a drug-associated risk. In animal reproduction studies, there were no effects on pregnancy or neonatal/infant development when

monkeys were subcutaneously administered evolocumab from organogenesis through parturition at dose exposures up to 12 times the exposure at the maximum recommended human dose of 420 mg every month. In a similar study with another drug in the PCSK9 inhibitor antibody class, humoral immune suppression was observed in infant monkeys exposed to that drug in utero at all doses. The exposures where immune suppression occurred in infant monkeys were greater than those expected clinically. No assessment for immune suppression was conducted with evolocumab in infant monkeys. Measurable evolocumab serum concentrations were observed in the infant monkeys at birth at comparable levels to maternal serum, indicating that evolocumab, like other IgG antibodies, crosses the placental barrier. FDA's experience with monoclonal antibodies in humans indicates that they are unlikely to cross the placenta in the first trimester; however, they are likely to cross the placenta in increasing amounts in the second and third trimester. Consider the benefits and risks of REPATHA and possible risks to the fetus before prescribing REPATHA to pregnant women.

In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

Data

Animal Data

In cynomolgus monkeys, no effects on embryo-fetal or postnatal development (up to 6 months of age) were observed when evolocumab was dosed during organogenesis to parturition at 50 mg/kg once every 2 weeks by the subcutaneous route at exposures 30- and 12-fold the recommended human doses of 140 mg every 2 weeks and 420 mg once monthly, respectively, based on plasma AUC. No test of humoral immunity in infant monkeys was conducted with evolocumab.

8.2 Lactation

Risk Summary

There is no information regarding the presence of evolocumab in human milk, the effects on the breastfed infant, or the effects on milk production. The development and health benefits of breastfeeding should be considered along with the mother's clinical need for REPATHA and any potential adverse effects on the breastfed infant from REPATHA or from the underlying maternal condition. Human IgG is present in human milk, but published data suggest that breast milk antibodies do not enter the neonatal and infant circulation in substantial amounts.

8.4 Pediatric Use

The safety and effectiveness of REPATHA in combination with diet and other LDL-C-lowering therapies in adolescents with HoFH who require additional lowering of LDL-C were established based on data from a 12-week, placebo-controlled trial that included 10 adolescents (ages 13 to 17 years old) with HoFH [see *Clinical Studies (14.3)*]. In this trial, 7 adolescents received REPATHA 420 mg subcutaneously once monthly and 3 adolescents received placebo. The effect of REPATHA on LDL-C was generally similar to that observed among adult patients with HoFH. Including experience from open-label, uncontrolled studies, a total of 14 adolescents with HoFH have been treated with REPATHA, with a median exposure duration of 9 months. The safety profile of REPATHA in these adolescents was similar to that described for adult patients with HoFH.

The safety and effectiveness of REPATHA have not been established in pediatric patients with HoFH who are younger than 13 years old.

The safety and effectiveness of REPATHA have not been established in pediatric patients with primary hyperlipidemia or HeFH.

8.5 Geriatric Use

In controlled studies, 1420 patients treated with REPATHA were ≥ 65 years old and 171 were ≥ 75 years old. No overall differences in safety or effectiveness were observed between these patients and younger patients, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

8.6 Renal Impairment

No dose adjustment is needed in patients with mild to moderate renal impairment. No data are available in patients with severe renal impairment [see *Clinical Pharmacology* (12.3)].

8.7 Hepatic Impairment

No dose adjustment is needed in patients with mild to moderate hepatic impairment (Child-Pugh A or B). No data are available in patients with severe hepatic impairment [see *Clinical Pharmacology* (12.3)].

11 DESCRIPTION

Evolocumab is a human monoclonal immunoglobulin G2 (IgG2) directed against human proprotein convertase subtilisin kexin 9 (PCSK9). Evolocumab has an approximate molecular weight (MW) of 144 kDa and is produced in genetically engineered mammalian (Chinese hamster ovary) cells.

REPATHA is a sterile, preservative-free, clear to opalescent, colorless to pale yellow solution for subcutaneous injection. Each 1 mL single-use prefilled syringe and single-use prefilled SureClick[®] autoinjector contains 140 mg evolocumab, acetate (1.2 mg), polysorbate 80 (0.1 mg), proline (25 mg) in Water for Injection, USP. Sodium hydroxide may be used to adjust to a pH of 5.0.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Evolocumab is a human monoclonal IgG2 directed against human proprotein convertase subtilisin kexin 9 (PCSK9). Evolocumab binds to PCSK9 and inhibits circulating PCSK9 from binding to the low density lipoprotein (LDL) receptor (LDLR), preventing PCSK9-mediated LDLR degradation and permitting LDLR to recycle back to the liver cell surface. By inhibiting the binding of PCSK9 to LDLR, evolocumab increases the number of LDLRs available to clear LDL from the blood, thereby lowering LDL-C levels.

12.2 Pharmacodynamics

Following single subcutaneous administration of 140 mg or 420 mg of evolocumab, maximum suppression of circulating unbound PCSK9 occurred by 4 hours. Unbound PCSK9 concentrations returned toward baseline when evolocumab concentrations decreased below the limit of quantitation.

12.3 Pharmacokinetics

Evolocumab exhibits non-linear kinetics as a result of binding to PCSK9. Administration of the 140 mg dose in healthy volunteers resulted in a C_{max} mean (standard deviation [SD]) of 18.6 (7.3) $\mu\text{g/mL}$ and AUC_{last} mean (SD) of 188 (98.6) $\text{day}\cdot\mu\text{g/mL}$. Administration of the 420 mg dose in healthy volunteers resulted in a C_{max} mean (SD) of 59.0 (17.2) $\mu\text{g/mL}$ and AUC_{last} mean (SD) of 924 (346) $\text{day}\cdot\mu\text{g/mL}$.

Following a single 420 mg intravenous dose, the mean (SD) systemic clearance was estimated to be 12 (2) mL/hr. An approximate 2- to 3-fold accumulation was observed in trough serum concentrations (C_{\min} [SD] 7.21 [6.6]) following 140 mg doses administered subcutaneously every 2 weeks or following 420 mg doses administered subcutaneously monthly (C_{\min} [SD] 11.2 [10.8]), and serum trough concentrations approached steady state by 12 weeks of dosing.

Absorption

Following a single subcutaneous dose of 140 mg or 420 mg evolocumab administered to healthy adults, median peak serum concentrations were attained in 3 to 4 days, and estimated absolute bioavailability was 72%.

Distribution

Following a single 420 mg intravenous dose, the mean (SD) steady-state volume of distribution was estimated to be 3.3 (0.5) L.

Metabolism and Elimination

Two elimination phases were observed for REPATHA. At low concentrations, the elimination is predominately through saturable binding to target (PCSK9), while at higher concentrations the elimination of REPATHA is largely through a non-saturable proteolytic pathway. REPATHA was estimated to have an effective half-life of 11 to 17 days.

Specific Populations

The pharmacokinetics of evolocumab were not affected by age, gender, race, or creatinine clearance, across all approved populations [see *Use in Specific Populations (8.5)*].

The exposure of evolocumab decreased with increasing body weight. These differences are not clinically meaningful.

Renal Impairment

Since monoclonal antibodies are not known to be eliminated via renal pathways, renal function is not expected to impact the pharmacokinetics of evolocumab. Patients with severe renal impairment (estimated glomerular filtration rate [eGFR] < 30 mL/min/1.73 m²) have not been studied.

Hepatic Impairment

Following a single 140 mg subcutaneous dose of evolocumab in patients with mild or moderate hepatic impairment, a 20-30% lower mean C_{\max} and 40-50% lower mean AUC were observed as compared to healthy patients; however, no dose adjustment is necessary in these patients.

Pregnancy

The effect of pregnancy on evolocumab pharmacokinetics has not been studied [see *Use in Specific Populations (8.1)*].

Drug Interaction Studies

An approximately 20% decrease in the C_{\max} and AUC of evolocumab was observed in patients co-administered with a high-intensity statin regimen. This difference is not clinically meaningful and does not impact dosing recommendations.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

The carcinogenic potential of evolocumab was evaluated in a lifetime study conducted in the hamster at dose levels of 10, 30, and 100 mg/kg administered every 2 weeks. There were no evolocumab-related tumors at the highest dose at systemic exposures up to 38- and 15-fold the recommended human doses of 140 mg every 2 weeks and 420 mg once monthly, respectively, based on plasma AUC. The mutagenic potential of evolocumab has not been evaluated; however, monoclonal antibodies are not expected to alter DNA or chromosomes.

There were no adverse effects on fertility (including estrous cycling, sperm analysis, mating performance, and embryonic development) at the highest dose in a fertility and early embryonic developmental toxicology study in hamsters when evolocumab was subcutaneously administered at 10, 30, and 100 mg/kg every 2 weeks. The highest dose tested corresponds to systemic exposures up to 30- and 12-fold the recommended human doses of 140 mg every 2 weeks and 420 mg once monthly, respectively, based on plasma AUC. In addition, there were no adverse evolocumab-related effects on surrogate markers of fertility (reproductive organ histopathology, menstrual cycling, or sperm parameters) in a 6-month chronic toxicology study in sexually mature monkeys subcutaneously administered evolocumab at 3, 30, and 300 mg/kg once weekly. The highest dose tested corresponds to 744- and 300-fold the recommended human doses of 140 mg every 2 weeks and 420 mg once monthly, respectively, based on plasma AUC.

13.2 Animal Toxicology and/or Pharmacology

During a 3-month toxicology study of 10 and 100 mg/kg once every 2 weeks evolocumab in combination with 5 mg/kg once daily rosuvastatin in adult monkeys, there were no effects of evolocumab on the humoral immune response to keyhole limpet hemocyanin (KLH) after 1 to 2 months exposure. The highest dose tested corresponds to exposures 54- and 21-fold higher than the recommended human doses of 140 mg every 2 weeks and 420 mg once monthly, respectively, based on plasma AUC. Similarly, there were no effects of evolocumab on the humoral immune response to KLH (after 3 to 4 months exposure) in a 6-month study in cynomolgus monkeys at dose levels up to 300 mg/kg once weekly evolocumab corresponding to exposures 744- and 300-fold greater than the recommended human doses of 140 mg every 2 weeks and 420 mg once monthly, respectively, based on plasma AUC.

14 CLINICAL STUDIES

14.1 Primary Hyperlipidemia in Patients with Clinical Atherosclerotic Cardiovascular Disease

Study 1 was a multicenter, double-blind, randomized controlled trial in which patients were initially randomized to an open-label specific statin regimen for a 4-week lipid stabilization period followed by random assignment to subcutaneous injections of REPATHA 140 mg every 2 weeks, REPATHA 420 mg once monthly, or placebo for 12 weeks. The trial included 296 patients with atherosclerotic CVD who received REPATHA or placebo as add-on therapy to daily doses of atorvastatin 80 mg, rosuvastatin 40 mg, or simvastatin 40 mg. Among these patients, the mean age at baseline was 63 years (range: 32 to 80 years), 45% were \geq 65 years old, 33% women, 98% White, 2% were Black, < 1% Asian and 5% Hispanic or Latino. After 4 weeks of statin therapy, the mean baseline LDL-C was 108 mg/dL.

In these patients with atherosclerotic CVD who were on maximum-dose statin therapy, the difference between REPATHA and placebo in mean percent change in LDL-C from baseline to Week 12 was -71%

(95% CI: -81%, -61%; $p < 0.0001$) and -63% (95% CI: -76%, -50%; $p < 0.0001$) for the 140 mg every 2 weeks and 420 mg once monthly dosages, respectively. For additional results see Table 3 and Figure 1.

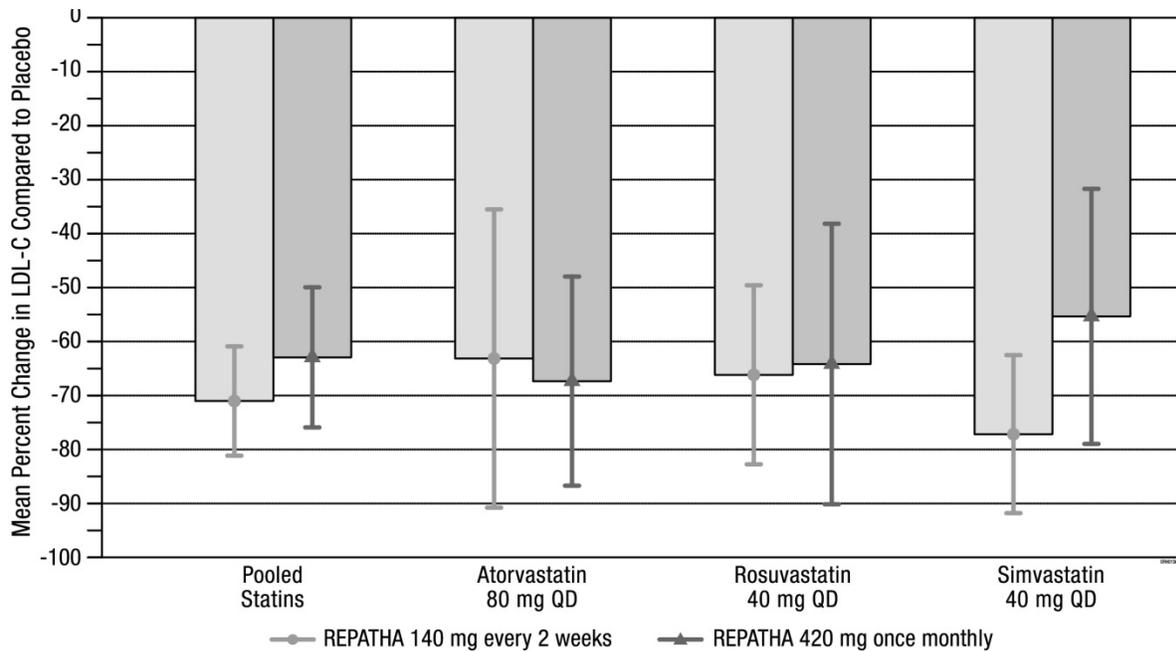
Table 3. Effect of REPATHA on Lipid Parameters in Patients with Atherosclerotic CVD on Atorvastatin 80 mg, Rosuvastatin 40 mg, or Simvastatin 40 mg (Mean % Change from Baseline to Week 12 in Study 1)

Treatment Group	LDL-C	Non-HDL-C	Apo B	Total Cholesterol
Placebo every 2 weeks (n = 42)	7	2	5	4
REPATHA 140 mg every 2 weeks [†] (n = 105)	-64	-56	-49	-38
Mean difference from placebo (95% CI)	-71 (-81, -61)	-58 (-67, -49)	-55 (-62, -47)	-42 (-48, -36)
Placebo once monthly (n = 44)	5	5	3	3
REPATHA 420 mg once monthly [†] (n = 105)	-58	-47	-46	-32
Mean difference from placebo (95% CI)	-63 (-76, -50)	-52 (-63, -41)	-49 (-58, -39)	-36 (-43, -28)

Estimates based on a multiple imputation model that accounts for treatment adherence

[†]140 mg every 2 weeks or 420 mg once monthly yield similar reductions in LDL-C

Figure 1. Effect of REPATHA on LDL-C in Patients with Atherosclerotic CVD when Combined with Statins (Mean % Change from Baseline to Week 12 in Study 1)



Estimates based on a multiple imputation model that accounts for treatment adherence

Error bars indicate 95% confidence intervals

Study 2 was a multicenter, double-blind, randomized, placebo-controlled, 52-week trial that included 139 patients with atherosclerotic CVD who received protocol-determined background lipid-lowering therapy of atorvastatin 80 mg daily with or without ezetimibe 10 mg daily. After stabilization on

background therapy, patients were randomly assigned to the addition of placebo or REPATHA 420 mg administered subcutaneously once monthly. Among these patients, the mean age at baseline was 59 years (range: 35 to 75 years), 25% were ≥ 65 years, 40% women, 80% White, 3% Black, 5% Asian, and $< 1\%$ Hispanic or Latino. After stabilization on the assigned background therapy, the mean baseline LDL-C was 105 mg/dL.

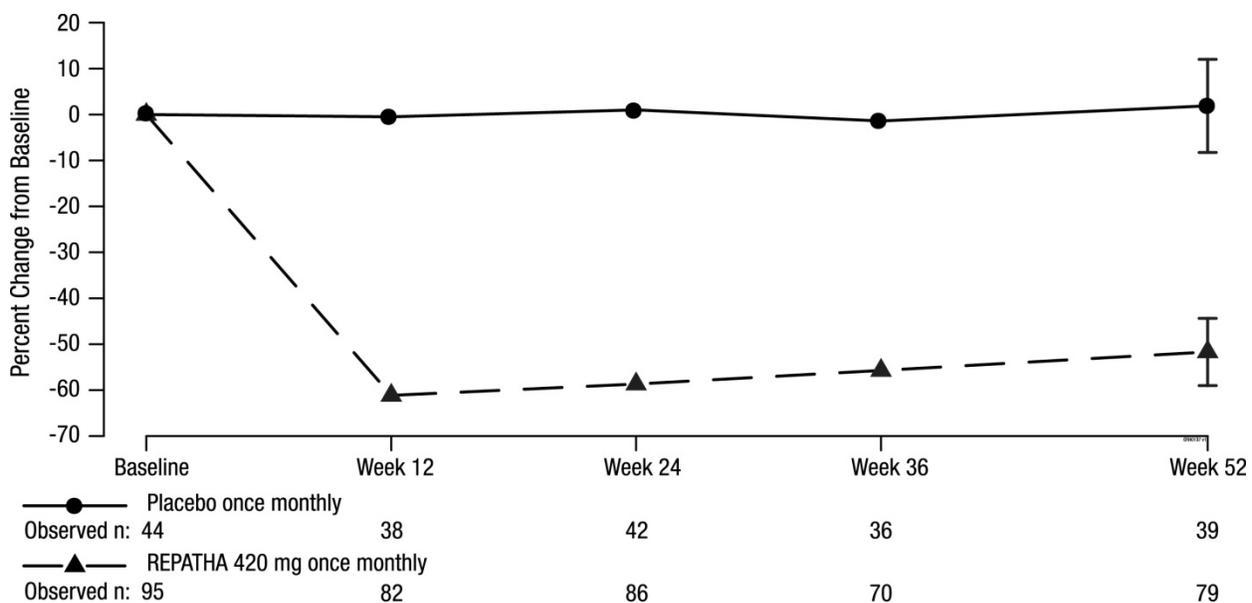
In these patients with atherosclerotic CVD on maximum-dose atorvastatin therapy with or without ezetimibe, the difference between REPATHA 420 mg once monthly and placebo in mean percent change in LDL-C from baseline to Week 52 was -54 % (95% CI: -65%, -42%; $p < 0.0001$) (Table 4 and Figure 2). For additional results see Table 4.

Table 4. Effect of REPATHA on Lipid Parameters in Patients with Atherosclerotic CVD on Atorvastatin 80 mg with or without Ezetimibe 10 mg daily (Mean % Change from Baseline to Week 52 in Study 2)

Treatment Group	LDL-C	Non-HDL-C	Apo B	Total Cholesterol
Placebo once monthly (n = 44)	2	3	0	3
REPATHA 420 mg once monthly (n = 95)	-52	-41	-40	-28
Mean difference from placebo (95% CI)	-54 (-65, -42)	-44 (-56, -32)	-40 (-50, -30)	-31 (-39, -24)

Estimates based on a multiple imputation model that accounts for treatment adherence

Figure 2. Effect of REPATHA 420 mg Once Monthly on LDL-C in Patients with Atherosclerotic CVD on Atorvastatin 80 mg with or without Ezetimibe 10 mg Daily



Estimates based on a multiple imputation model that accounts for treatment adherence
 Error bars indicate 95% confidence intervals

14.2 Heterozygous Familial Hypercholesterolemia (HeFH)

Study 3 was a multicenter, double-blind, randomized, placebo-controlled, 12-week trial in 329 patients with heterozygous familial hypercholesterolemia (HeFH) on statins with or without other lipid-lowering

therapies. Patients were randomized to receive subcutaneous injections of REPATHA 140 mg every two weeks, 420 mg once monthly, or placebo. HeFH was diagnosed by the Simon Broome criteria (1991). In Study 3, 38% of patients had clinical atherosclerotic cardiovascular disease. The mean age at baseline was 51 years (range: 19 to 79 years), 15% of the patients were ≥ 65 years old, 42% were women, 90% were White, 5% were Asian, and 1% were Black. The average LDL-C at baseline was 156 mg/dL with 76% of the patients on high-intensity statin therapy.

In these patients with HeFH on statins with or without other lipid lowering therapies, the differences between REPATHA and placebo in mean percent change in LDL-C from baseline to Week 12 was -61% (95% CI: -67%, -55%; $p < 0.0001$) and -60% (95% CI: -68%, -52%; $p < 0.0001$) for the 140 mg every 2 weeks and 420 mg once monthly dosages, respectively. For additional results see Table 5.

Table 5. Effect of REPATHA on Lipid Parameters in Patients with HeFH (Mean % Change from Baseline to Week 12 in Study 3)

Treatment Group	LDL-C	Non-HDL-C	Apo B	Total Cholesterol
Placebo every 2 weeks (n = 54)	-1	-1	-1	-2
REPATHA 140 mg every 2 weeks [†] (n = 110)	-62	-56	-49	-42
Mean difference from placebo 95% CI	-61 (-67, -55)	-54 (-60, -49)	-49 (-54, -43)	-40 (-45, -36)
Placebo once monthly (n = 55)	4	4	4	2
REPATHA 420 mg once monthly [†] (n = 110)	-56	-49	-44	-37
Mean difference from placebo 95% CI	-60 (-68, -52)	-53 (-60, -46)	-48 (-55, -41)	-39 (-45, -33)

Estimates based on a multiple imputation model that accounts for treatment adherence

[†]140 mg every 2 weeks or 420 mg once monthly yield similar reductions in LDL-C

14.3 Homozygous Familial Hypercholesterolemia (HoFH)

Study 4 was a multicenter, double-blind, randomized, placebo-controlled, 12-week trial in 49 patients (not on lipid-apheresis therapy) with homozygous familial hypercholesterolemia (HoFH). In this trial, 33 patients received subcutaneous injections of 420 mg of REPATHA once monthly and 16 patients received placebo as an adjunct to other lipid-lowering therapies (e.g., statins, ezetimibe). The mean age at baseline was 31 years, 49% were women, 90% White, 4% were Asian, and 6% other. The trial included 10 adolescents (ages 13 to 17 years), 7 of whom received REPATHA. The mean LDL-C at baseline was 349 mg/dL with all patients on statins (atorvastatin or rosuvastatin) and 92% on ezetimibe. The diagnosis of HoFH was made by genetic confirmation or a clinical diagnosis based on a history of an untreated LDL-C concentration > 500 mg/dL together with either xanthoma before 10 years of age or evidence of HeFH in both parents.

In these patients with HoFH, the difference between REPATHA and placebo in mean percent change in LDL-C from baseline to Week 12 was -31% (95% CI: -44%, -18%; $p < 0.0001$). For additional results see Table 6.

Patients known to have two LDL-receptor negative alleles (little to no residual function) did not respond to REPATHA.

Table 6. Effect of REPATHA on Lipid Parameters in Patients with HoFH (Mean % Change from Baseline to Week 12 in Study 4)

Treatment Group	LDL-C	Non-HDL-C	Apo B	Total Cholesterol
Placebo once monthly (n = 16)	9	8	4	8
REPATHA 420 mg once monthly (n = 33)	-22	-20	-17	-17
Mean difference from placebo	-31	-28	-21	-25
95% CI	(-44, -18)	(-41, -16)	(-33, -9)	(-36, -14)

Estimates based on a multiple imputation model that accounts for treatment adherence

16 HOW SUPPLIED/STORAGE AND HANDLING

REPATHA is a sterile, clear to opalescent, colorless to pale yellow solution for subcutaneous injection supplied in a single-use prefilled syringe or a single-use prefilled SureClick[®] autoinjector. Each single-use prefilled syringe or single-use prefilled SureClick[®] autoinjector of REPATHA is designed to deliver 1 mL of 140 mg/mL solution.

140 mg/mL single-use prefilled syringe	1 pack	NDC 55513-750-01
140 mg/mL single-use prefilled SureClick [®] autoinjector	1 pack	NDC 55513-760-01
140 mg/mL single-use prefilled SureClick [®] autoinjector	2 pack	NDC 55513-760-02
140 mg/mL single-use prefilled SureClick [®] autoinjector	3 pack	NDC 55513-760-03

Pharmacy

Store refrigerated at 2° to 8°C (36° to 46°F) in the original carton to protect from light. Do not freeze. Do not shake.

For Patients/Caregivers

Store refrigerated at 2° to 8°C (36° to 46°F) in the original carton. Alternatively, REPATHA can be kept at room temperature (up to 25°C (77°F)) in the original carton; however, under these conditions, REPATHA must be used within 30 days. If not used within the 30 days, discard REPATHA.

Protect REPATHA from direct light and do not expose to temperatures above 25°C (77°F).

17 PATIENT COUNSELING INFORMATION

Advise the patient and/or caregiver to read the FDA-approved patient labeling [**Patient Information and Instructions for Use (IFU)**] before the patient starts using REPATHA, and each time the patient gets a refill as there may be new information they need to know.

Provide guidance to patients and caregivers on proper subcutaneous injection technique, including aseptic technique, and how to use the single-use prefilled autoinjector or single-use prefilled syringe correctly (see **Instructions for Use** leaflet). Inform patients that it may take up to 15 seconds to inject REPATHA.

Advise latex-sensitive patients that the following components contain dry natural rubber (a derivative of latex) that may cause allergic reactions in individuals sensitive to latex: the needle cover of the glass prefilled syringe and the autoinjector.

For more information about REPATHA, go to www.REPATHA.com or call 1-844-REPATHA (1-844-737-2842).



REPATHA™ (evolocumab)

Manufactured by:

Amgen Inc.
One Amgen Center Drive
Thousand Oaks, California 91320-1799

U.S. License Number 1080

Patent: <http://pat.amgen.com/repatha/>

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v2

Patient Information
REPATHA™ (ri-PATH-a)
(evolocumab)
Injection, for Subcutaneous Injection

What is REPATHA?

REPATHA is an injectable prescription medicine called a PCSK9 inhibitor. REPATHA is used:

- along with diet and maximally tolerated statin therapy in adults with heterozygous familial hypercholesterolemia (an inherited condition that causes high levels of LDL) or atherosclerotic heart or blood vessel problems, who need additional lowering of LDL cholesterol.
- along with diet and other LDL lowering therapies in people with homozygous familial hypercholesterolemia (an inherited condition that causes high levels of LDL), who need additional lowering of LDL cholesterol.

The effect of REPATHA on heart problems such as heart attacks, stroke, or death is not known.

It is not known if REPATHA is safe and effective in children with homozygous familial hypercholesterolemia (HoFH) who are younger than 13 years of age or in children who do not have HoFH.

Who should not use REPATHA?

Do not use REPATHA if you are allergic to evolocumab or to any of the ingredients in REPATHA. See the end of this leaflet for a complete list of ingredients in REPATHA.

What should I tell my healthcare provider before using REPATHA?

Before you start using REPATHA, tell your healthcare provider about all your medical conditions, including allergies, and if you: are allergic to rubber or latex. The needle covers on the single-use prefilled syringes and within the needle caps on the single-use prefilled SureClick® autoinjectors contain dry natural rubber.

are pregnant or plan to become pregnant. It is not known if REPATHA will harm your unborn baby. Tell your healthcare provider if you become pregnant while taking REPATHA.

are breastfeeding or plan to breastfeed. You and your healthcare provider should decide if you will take REPATHA or breastfeed. You should not do both without talking to your healthcare provider first.

Tell your healthcare provider or pharmacist about any prescription and over-the-counter medicines you are taking or plan to take, including natural or herbal remedies.

How should I use REPATHA?

See the detailed “Instructions for Use” that comes with this patient information about the right way to prepare and give your REPATHA injections.

Use REPATHA exactly as your healthcare provider tells you to use it.

REPATHA is given as an injection under the skin (subcutaneously), every 2 weeks or 1 time each month.

REPATHA comes as a single-use (1 time) pre-filled autoinjector (SureClick® autoinjector), or as a single-use pre-filled syringe. Your healthcare provider will prescribe the type and dose that is best for you.

If your healthcare provider prescribes you the monthly dose, you will give yourself 3 separate injections in a row, using a different syringe or autoinjector for each injection. Give all of these injections within 30 minutes.

If your healthcare provider decides that you or a caregiver can give the injections of REPATHA, you or your caregiver should receive training on the right way to prepare and administer REPATHA. **Do not** try to inject REPATHA until you have been shown the right way by your healthcare provider or nurse.

Do not inject REPATHA together with other injectable medicines at the same injection site.

Always check the label of your autoinjector or syringe to make sure you have the correct medicine and the correct dose of REPATHA before each injection.

If you forget to use REPATHA or are not able to take the dose at the regular time, inject your missed dose as soon as you remember, as long as there are more than 7 days until the next scheduled dose. If there are 7 days or less until your next scheduled dose, administer the next dose according to the original schedule. This will put you back on your original schedule.

If you are not sure when to take REPATHA after a missed dose, ask your healthcare provider or pharmacist.

If you use more REPATHA than you should, talk to your healthcare provider or pharmacist.

Do not stop using REPATHA without talking with your healthcare provider. If you stop using REPATHA, your cholesterol levels can increase.

What are possible side effects of REPATHA?

REPATHA can cause side effects including:

- **allergic reactions.** REPATHA may cause allergic reactions. Call your healthcare provider or go to the nearest hospital emergency room right away if you have any symptoms of an allergic reaction including a severe rash, redness, severe itching, a swollen face, or trouble breathing.

The most common side effects of REPATHA include: runny nose, sore throat, symptoms of the common cold, flu or flu-like symptoms, back pain, and redness, pain, or bruising at the injection site.

Tell your healthcare provider if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of REPATHA. Ask your healthcare provider or pharmacist for more information.

Call your healthcare provider for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about the safe and effective use of REPATHA.

Medicines are sometimes prescribed for purposes other than those listed in Patient Information leaflets. **Do not** use REPATHA for a condition for which it was not prescribed. **Do not** give REPATHA to other people, even if they have the same symptoms that you have. It may harm them.

This Patient Information leaflet summarizes the most important information about REPATHA. If you would like more information, talk with your healthcare provider. You can ask your pharmacist or healthcare provider for information about REPATHA that is written for healthcare professionals.

For more information about REPATHA, go to www.REPATHA.com or call 1-844-REPATHA (1-844-737-2842).

What are the ingredients in REPATHA?

- Active Ingredient: evolocumab
- Inactive Ingredients: proline, glacial acetic acid, polysorbate 80, water for injection, and sodium hydroxide.

Manufactured by: Amgen Inc. One Amgen Center Drive, Thousand Oaks, California 91320-1799.

Patent: <http://pat.amgen.com/repatha/>

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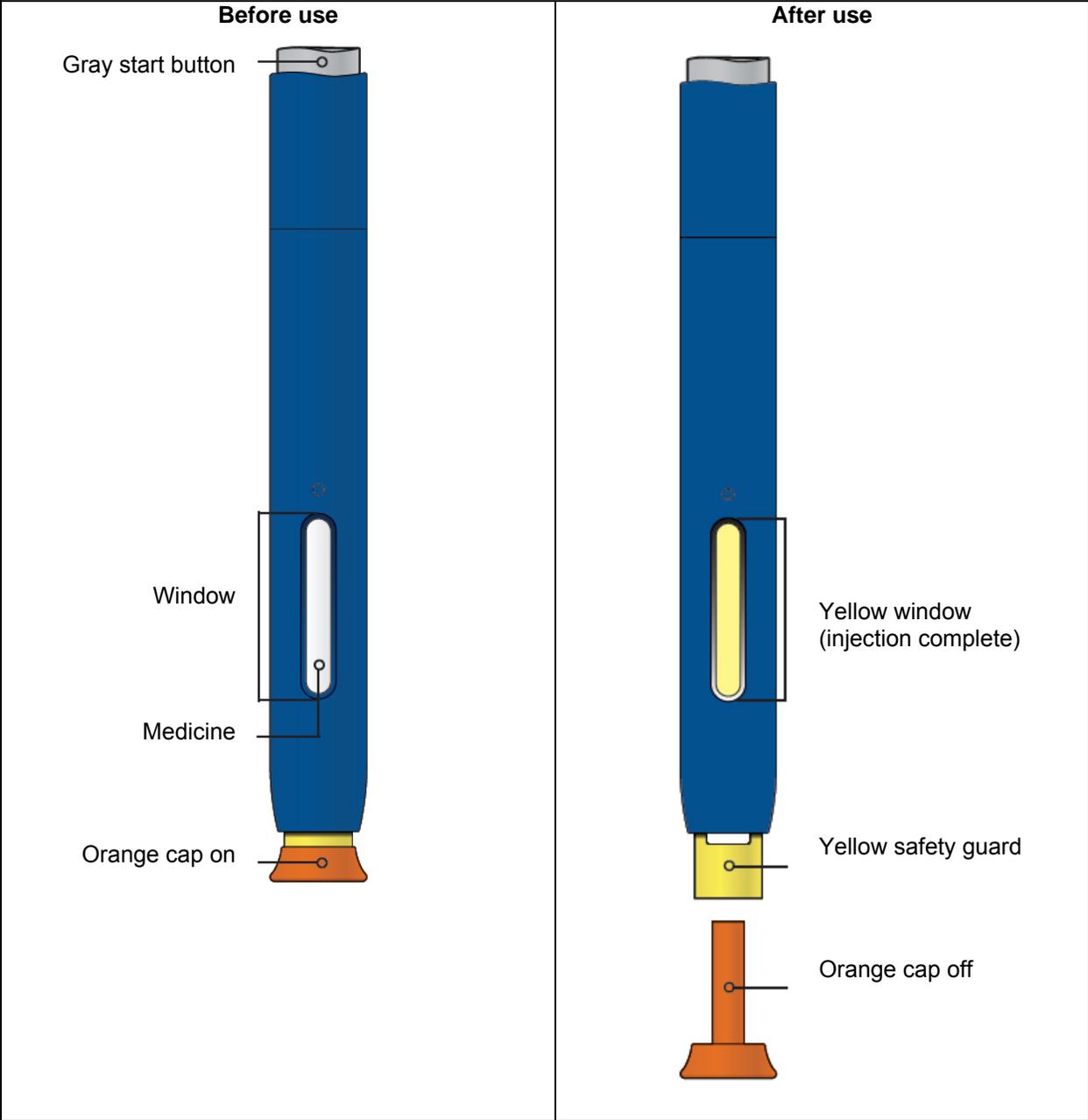
This Patient Information has been approved by the U.S. Food and Drug Administration.

Issue Date: August 2015

Medical Information request (MIR-321815) prepared for Dave Campana on February 2, 2016

Instructions for use:
Repatha™ (ri-PAth-a)
(evolocumab)
Single-Use Prefilled SureClick® Autoinjector

Guide to parts



Needle is inside

Important

Before you use a Single-Use Repatha SureClick autoinjector, read this important information:

- It is important that you do not try to give yourself or someone else the injection unless you have received training from your healthcare provider.
- The orange cap on the Repatha SureClick autoinjector contains a needle cover (located inside the cap) that contains dry natural rubber, which is made from latex. Tell your healthcare provider if you are allergic to latex.

Storage of Repatha:

- Keep the Repatha SureClick autoinjector in the original carton to protect from light during storage.
- Keep the Repatha SureClick autoinjector in the refrigerator between 36°F to 46°F (2°C to 8°C).
- If removed from the refrigerator, the Repatha SureClick autoinjector should be kept at room temperature up to 77°F (25°C) in the original carton and must be used within **30** days.
- **Do not** freeze the Repatha SureClick autoinjector or use a Repatha SureClick autoinjector that has been frozen.

Do not:

- **Do not** shake the Repatha SureClick autoinjector.
- **Do not** remove the orange cap from the Repatha SureClick autoinjector until you are ready to inject.
- **Do not** use the Repatha SureClick autoinjector if it has been dropped on a hard surface. Part of the Repatha SureClick autoinjector may be broken even if you cannot see the break. Use a new Repatha SureClick autoinjector, and call 1-844-REPATHA (1-844-737-2842).
- **Do not** use the Repatha SureClick autoinjector after the expiration date.

A healthcare provider who knows how to use the Repatha SureClick autoinjector should be able to answer your questions. For more information, call 1-844-REPATHA (1-844-737-2842) or visit www.REPATHA.com

Keep the Repatha SureClick autoinjector out of the sight and reach of children.

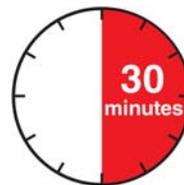
Step 1: Prepare

1 A Remove one Repatha SureClick autoinjector from the package.

Carefully lift the autoinjector straight up out of the box.

Put the original package with any unused autoinjectors back in the refrigerator.

Wait at least **30 minutes** for the autoinjector to reach room temperature before injecting.



This is important for administering the entire dose and helps minimize discomfort. Repatha may take longer to inject if it has not reached room temperature. **Do not** heat the autoinjector. Let it warm up on its own.

- Do not** try to warm the autoinjector by using a heat source such as hot water or microwave
- Do not** leave the autoinjector in direct sunlight
- Do not** shake the autoinjector
- Do not** remove the orange cap from the autoinjector yet

1 B | Inspect the Repatha SureClick autoinjector.



Check the expiration date: **do not** use if this date has passed.

Make sure the medicine in the window is clear and colorless to slightly yellow.

Do not use the autoinjector if the medicine is cloudy or discolored or contains particles.

Do not use the autoinjector if any part appears cracked or broken

Do not use the autoinjector if the autoinjector has been dropped

Do not use the autoinjector if the orange cap is missing or not securely attached

In all cases, use a new autoinjector, and call 1-844-REPATHA (1-844-737-2842).

1 C | Gather all materials needed for your injection.

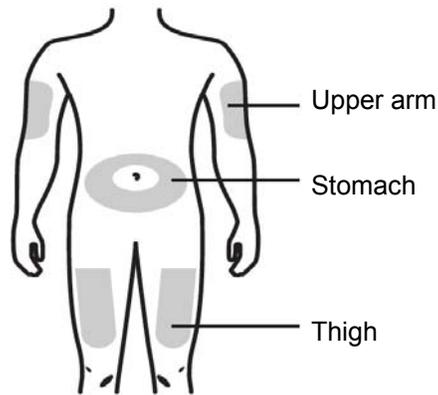
Wash your hands thoroughly with soap and water.

On a clean, well-lit work surface, place the:

- 1 new autoinjector
- Alcohol wipes
- Cotton ball or gauze pad
- Adhesive bandage
- Sharps disposal container (see Step 4: Finish)



1 D Prepare and clean your injection site.



You can use:

- Thigh
- Stomach (abdomen), except for a 2 inch area around your belly button

If someone else is giving you the injection, they can also use the outer area of the upper arm.

Clean your injection site with an alcohol wipe. Let your skin dry.

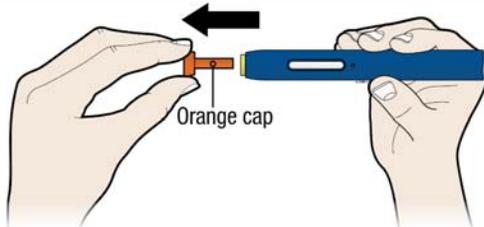
Do not touch this area again before injecting.

Choose a different site each time you give yourself an injection. If you need to use the same injection site, just make sure it is not the same spot on that site you used last time.

Do not inject into areas where the skin is tender, bruised, red, or hard. Avoid injecting into areas with scars or stretch marks.

Step 2: Get ready

2 A Pull the orange cap straight off when you are ready to inject.



It is normal to see a drop of liquid at the end of the needle or yellow safety guard

Do not twist, bend, or wiggle the orange cap.

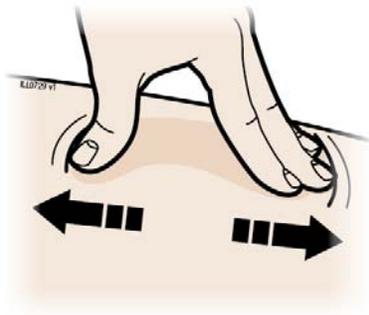
Do not put the orange cap back onto the autoinjector.

Do not put fingers into the yellow safety guard.

Do not remove the orange cap from the autoinjector until you are ready to inject.

2 B Stretch or pinch your injection site to create a firm surface.

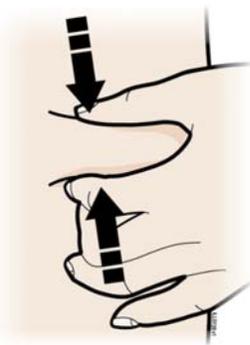
Thigh:
Stretch method



Stretch skin firmly by moving your thumb and fingers in opposite directions, creating an area about **2** inches wide.

or

Stomach or upper arm:
Pinch method

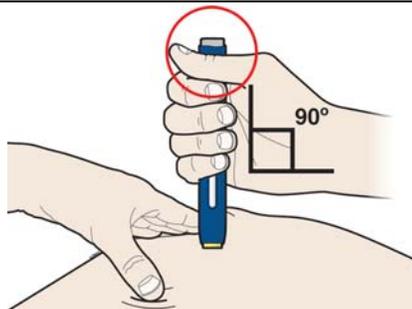


Pinch skin firmly between your thumb and fingers, creating an area about **2** inches wide.

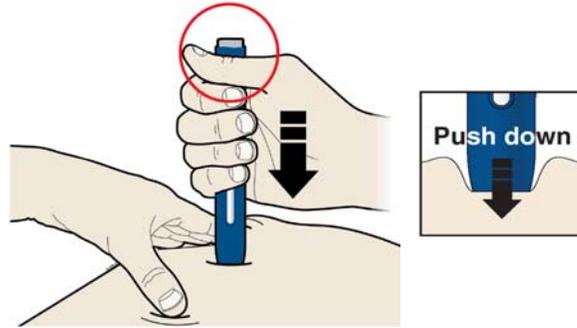
It is important to keep skin stretched or pinched while injecting.

Step 3: Inject

3 A Hold the stretch or pinch. With the orange cap off, **place** autoinjector on skin at 90 degrees. **Do not** touch the gray start button yet.

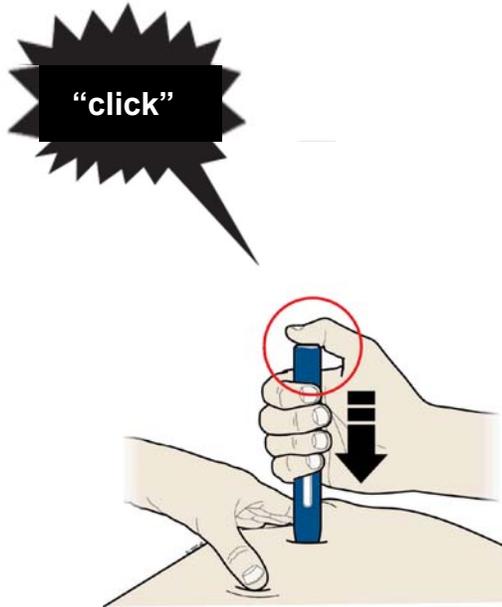


3 B Firmly **push** down autoinjector onto skin until it stops moving.

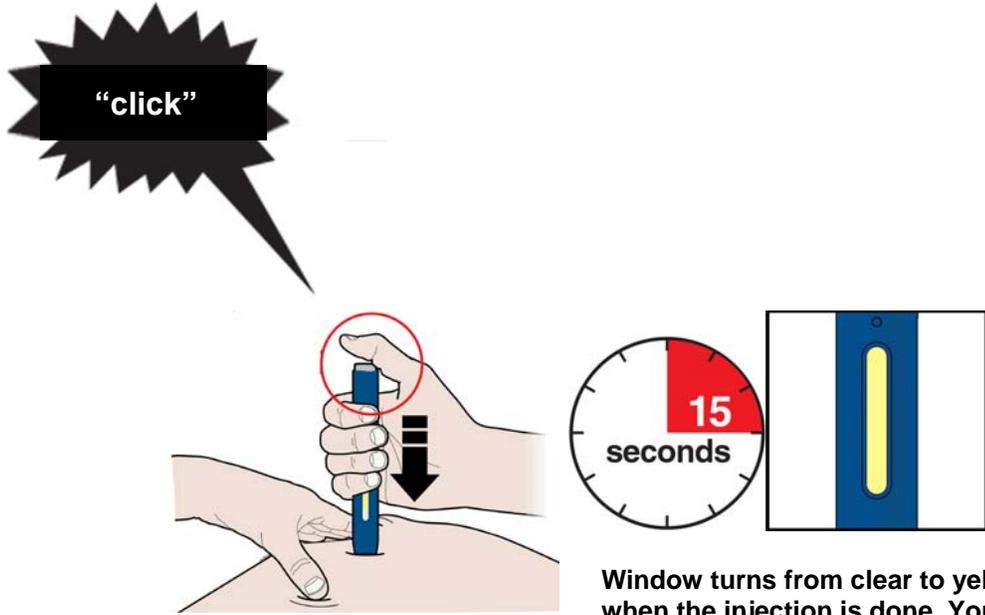


You must push all the way down but **do not** touch the gray start button until you are ready to inject.

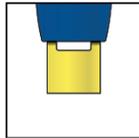
3 C When you are ready to inject, **press** the gray start button. You will hear a click.



3 D Keep **pushing** down on skin. Then **lift** your thumb. Your injection could take about 15 seconds. The time required for injection to give the entire dose may be longer than for other injectable medicines.



Window turns from clear to yellow when the injection is done. You may hear a 2nd click.



NOTE: After you remove the autoinjector from your skin, the needle will be automatically covered.

Step 4: Finish

4 A Throw away the used autoinjector and orange needle cap.

- **Do not** reuse the autoinjector.
- **Do not** recap the autoinjector or put fingers into the yellow safety guard.



- Put the used autoinjector and orange needle cap in a FDA-cleared sharps disposal container right away after use. **Do not** throw away (dispose of) the autoinjector or orange cap in your household trash.
- If you do not have a FDA-cleared sharps disposal container, you may use a household container that is:
 - made of a heavy-duty plastic,
 - can be closed with a tight-fitting, puncture-resistant lid, without sharps being able to come out,
 - upright and stable during use,
 - leak-resistant, and
 - properly labeled to warn of hazardous waste inside the container.
- When your sharps disposal container is almost full, you will need to follow your community guidelines for the right way to dispose of your sharps disposal container. There may be state or local laws about how you should throw away used needles and syringes. For more information about safe sharps disposal, and for specific information about sharps disposal in the state that you live in, go to the FDA's website at: <http://www.fda.gov/safesharpsdisposal>

Keep the autoinjector and the sharps disposal container out of the sight and reach of children.

4 B Check the injection site.

If there is blood, press a cotton ball or gauze pad on your injection site. Apply an adhesive bandage if needed.

Do not rub the injection site.

Commonly Asked Questions

What will happen if I press the gray start button before I am ready to do the injection on my skin?

You can lift your finger up off the gray start button and place the prefilled autoinjector back on your injection site. Then, you can push the gray start button again.

Can I move the autoinjector around on my skin while I am choosing an injection site?

It is okay to move the autoinjector around on the injection site as long as you do not press the gray start button. However, if you press the gray start button and the yellow safety guard is pushed into the autoinjector, the injection will begin.

Can I release the gray start button after I start my injection?

You can release the gray start button, but continue to hold the autoinjector firmly against your skin during the injection.

Will the gray start button pop up after I release my thumb?

The gray start button may not pop up after you release your thumb if you held your thumb down during the injection. This is okay.

What do I do if I did not hear a second click?

If you did not hear a second click, you can confirm a complete injection by checking that the window has turned yellow.

Whom do I contact if I need help with the autoinjector or my injection?

A healthcare provider familiar with Repatha should be able to answer your questions. For more information, call 1-844-REPATHA (1-844-737-2842) or visit www.REPATHA.com.

This Instructions for Use has been approved by the U.S. Food and Drug Administration.



Manufactured by:
Amgen Inc.
Thousand Oaks, CA 91320-1799
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<part number> Issued: 08/2015 v1

Welcome!

The Repatha single-use prefilled SureClick autoinjector contains one 140 mg dose of Repatha.

Your healthcare provider has prescribed Repatha as part of your treatment. Your healthcare provider will tell you how much Repatha you need and how often it should be injected. Each Repatha prefilled SureClick autoinjector can only be used one time.

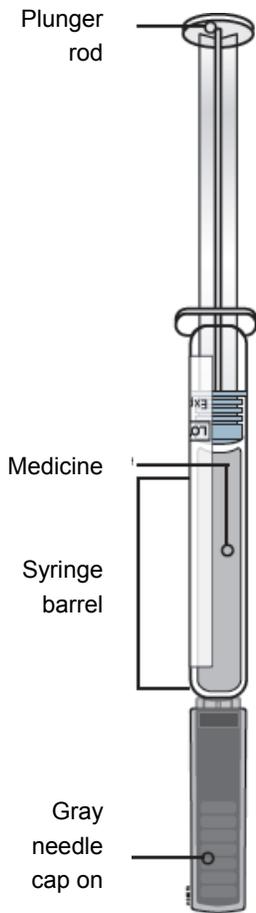
Side 2 of this sheet contains information on how to give an injection of Repatha. It is important that you do not try to give the injection unless you have received training from your healthcare provider.

Please read all of the instructions on side 2 before using the Repatha SureClick autoinjector.

**Instructions for use:
Repatha™ (ri-Path-a)
(evolocumab)
Single-Use Prefilled Syringe**

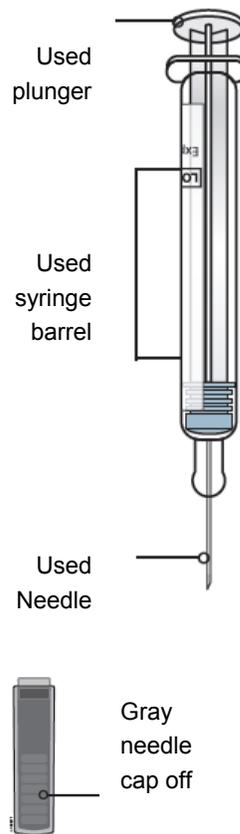
Guide to parts

Before use



Needle is inside

After use



Important

Before you use a Single-Use Repatha Prefilled Syringe, read this important information:

- It is important that you do not try to give yourself or someone else the injection unless you have received training from your healthcare provider.
- The gray needle cap on the Repatha prefilled syringe contains dry natural rubber, which is made from latex. Tell your healthcare provider if you are allergic to latex.

Storage of Repatha:

- Keep the Repatha prefilled syringe in the original carton to protect from light during storage.
- Keep the Repatha prefilled syringe in the refrigerator between 36°F to 46°F (2°C to 8°C).
- If removed from the refrigerator, the Repatha prefilled syringe should be kept at room temperature up to 77°F (25°C) in the original carton and must be used within **30** days.
- **Do not** freeze the Repatha prefilled syringe or use a Repatha prefilled syringe that has been frozen.

Do not:

- **Do not** use the Repatha prefilled syringe if the packaging is open or damaged.
- **Do not** remove the gray needle cap from the Repatha prefilled syringe until you are ready to inject.
- **Do not** use the Repatha prefilled syringe if it has been dropped onto a hard surface. Part of the Repatha prefilled syringe may be broken even if you cannot see the break. Use a new Repatha prefilled syringe, and call 1-844-REPATHA (1-844-737-2842).
- **Do not** use the Repatha prefilled syringe after the expiration date.

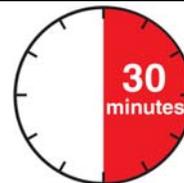
A healthcare provider who knows how to use the Repatha prefilled syringe should be able to answer your questions. For more information, call 1-844-REPATHA (1-844-737-2842) or visit www.REPATHA.com

Keep the Repatha prefilled syringe out of the sight and reach of children.

Step 1: Prepare

1 A Remove the Repatha prefilled syringe carton from the refrigerator and wait 30 minutes.

Wait at least **30 minutes** for the prefilled syringe in the carton to reach room temperature before injecting.



This is important for administering the entire dose and helps minimize discomfort. Repatha may take longer to inject if it has not reached room temperature. **Do not** heat the syringe. Let it warm up on its own.

Check that the name Repatha appears on the carton label.

Do not try to warm the Repatha prefilled syringe by using a heat source such as hot water or microwave.

Do not leave the Repatha prefilled syringe in direct sunlight.

Do not shake the Repatha prefilled syringe.

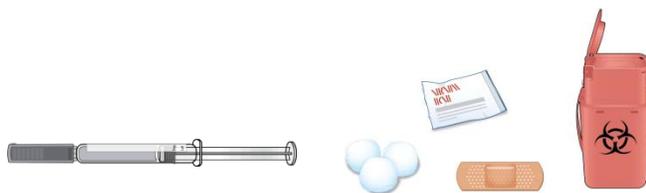
1 B Gather all materials needed for your injection.

Wash your hands thoroughly with soap and water.

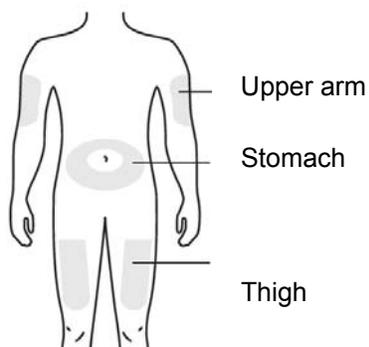
On a clean, well-lit, flat work surface, place:

- 1 Repatha prefilled syringe in carton
- Alcohol wipes
- Cotton ball or gauze pad
- Adhesive bandage
- Sharps disposal container (see Step 4: Finish)

Check the expiration date on the Repatha prefilled syringe carton: **do not** use if this date has passed.



1 C Choose your injection site.



You can use:

- Thigh
- Stomach (abdomen), except for a 2 inch area around your belly button

If someone else is giving you the injection, they can also use the outer area of the upper arm.

Do not choose an area where the skin is tender, bruised, red, or hard. Avoid injecting into areas with scars or stretch marks.

Choose a different site each time you give yourself an injection. If you need to use the same injection site, just make sure it is not the same spot on that site you used last time.

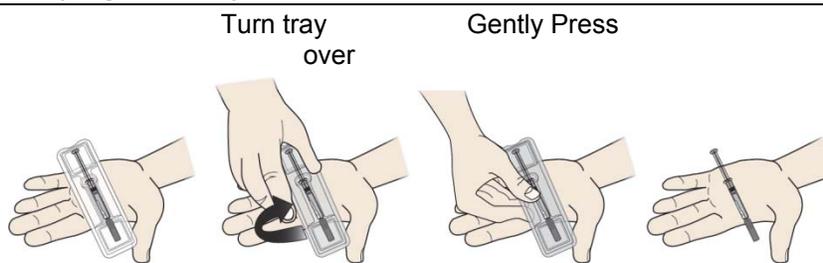
1 D Clean your injection site.



Clean your injection site with an alcohol wipe. Let your skin dry before injecting.

Do not touch this area of skin again before injecting.

1 E Remove prefilled syringe from tray.



To remove:

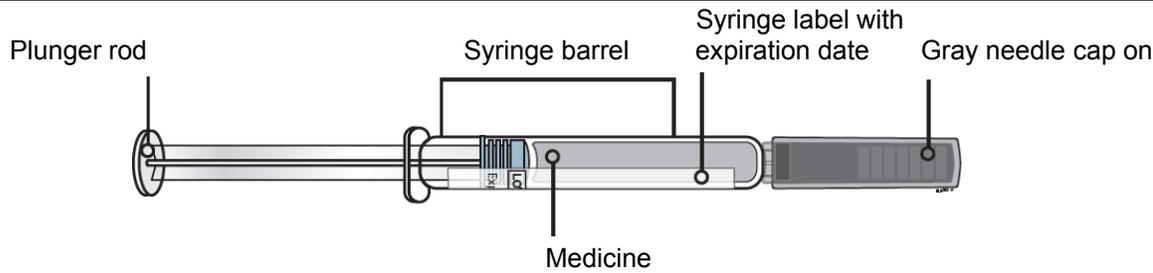
- Peel paper off of tray.
- Place the tray on your hand.
- Turn the tray over and gently press the middle of the tray's back to release the syringe into your palm.
- If prefilled syringe does not release from tray, gently press on back of tray

Do not pick up or pull the prefilled syringe by the plunger rod or gray needle cap. This could damage the syringe.

Do not remove the gray needle cap from the prefilled syringe until you are ready to inject.

Always hold the prefilled syringe by the syringe barrel.

1 F	Check the medicine and syringe.
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Always hold the prefilled syringe by the syringe barrel.
Check that:

- the name Repatha appears on the prefilled syringe label.
- the medicine in the prefilled syringe is clear and colorless to slightly yellow.
- the expiration date on the prefilled syringe has not passed. If the expiration date has passed, **do not** use the prefilled syringe.

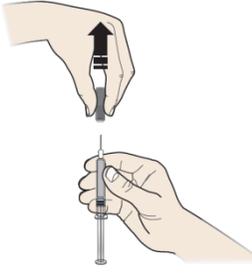
Do not use the prefilled syringe if any part of the prefilled syringe appears cracked or broken.

Do not use the prefilled syringe if the gray needle cap is missing or not securely attached.

Do not use the prefilled syringe if the medicine is cloudy or discolored or contains particles.

In any above cases, use a new prefilled syringe and call 1-844-REPATHA (1-844-737-2842) or visit www.REPATHA.com.

Step 2: Get ready	
2 A	Carefully pull the gray needle cap straight out and away from your body.



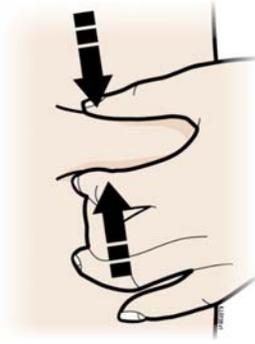
It is normal to see a drop of medicine at the end of the needle.



Place the cap in the sharps disposal container right away.

- Do not** twist or bend the gray needle cap. This can damage the needle.
- Do not** put the gray needle cap back onto the prefilled syringe.
- Do not** try to remove any air bubbles in the syringe before the injection.

2 B	Pinch your injection site to create a firm surface.
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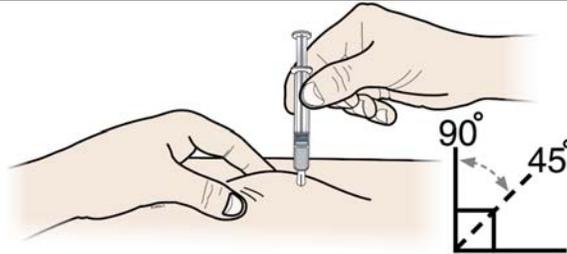


Pinch skin firmly between your thumb and fingers, creating an area about 2 inches wide.

It is important to keep the skin pinched while injecting.

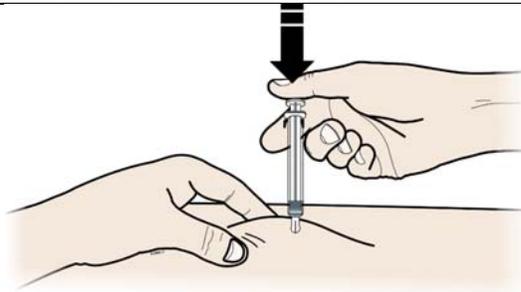
Step 3: Inject

3 A Hold the **pinch**. Insert the needle into skin using a 45 to 90 degree angle.

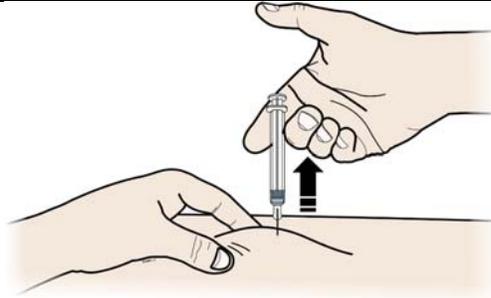


Do not place your finger on the plunger rod while inserting the needle.

3 B Using slow and constant pressure, **push** the plunger rod all the way down until the syringe is empty. You may have to push harder on the plunger than for other injectable medicines.



3 C When done, **release** your thumb, and gently lift the syringe off skin.



Do not put the gray needle cap back onto the used syringe.

Step 4: Finish

4 A Place the used syringe in a sharps disposal container right away.



Do not reuse the used syringe.

Do not use any medicine that is left in the used syringe.

- Put the used syringe in a FDA-cleared sharps disposal container right away after use. **Do not** throw away (dispose of) the syringe in your household trash.
- If you do not have a FDA-cleared sharps disposal container, you may use a household container that is:
 - made of a heavy-duty plastic,
 - can be closed with a tight-fitting, puncture-resistant lid, without sharps being able to come out,
 - upright and stable during use,
 - leak-resistant, and
 - properly labeled to warn of hazardous waste inside the container.
- When your sharps disposal container is almost full, you will need to follow your community guidelines for the right way to dispose of your sharps disposal container. There may be state or local laws about how you should throw away used needles and syringes. For more information about safe sharps disposal, and for specific information about sharps disposal in the state that you live in, go to the FDA's website at: <http://www.fda.gov/safesharpsdisposal>

Keep the used syringe and sharps container out of the sight and reach of children.

4 B Check the injection site.

If there is blood, press a cotton ball or gauze pad on your injection site. Apply an adhesive bandage if needed.

Do not rub the injection site.

This Instructions for Use has been approved by the U.S. Food and Drug Administration.

AMGEN®

Manufactured by:

Amgen Inc.

Thousand Oaks, CA 91320-1799

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<part number> Issued: 08/2015 v1

Welcome!

The Repatha single-use prefilled syringe contains one 140 mg dose of Repatha. Your healthcare provider has prescribed Repatha as part of your treatment. Your healthcare provider will tell you how much Repatha you need and how often it should be injected. **Each Repatha prefilled syringe can only be used one time.** Side 2 of this sheet contains information on how to give an injection of Repatha. It is important that you do not try to give the injection unless you have received training from your healthcare provider. **Please read all of the instructions on side 2 before using the Repatha prefilled syringe.**