

HIGHLIGHTS OF PRESCRIBING INFORMATION

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

COAGADEX® (Coagulation Factor X (Human))
Lyophilized Powder for Solution for Intravenous Injection
Initial U.S. Approval: [2015]

INDICATIONS AND USAGE

COAGADEX, Coagulation Factor X (Human), is a plasma-derived human blood coagulation factor indicated in adults and children (aged 12 years and above) with hereditary Factor X deficiency for:

- On-demand treatment and control of bleeding episodes (1)
- Perioperative management of bleeding in patients with mild hereditary Factor X deficiency (1).

Limitation of Use

Perioperative management of bleeding in major surgery in patients with moderate and severe hereditary Factor X deficiency has not been studied.

DOSAGE AND ADMINISTRATION

For intravenous use only after reconstitution.

- Each vial of COAGADEX contains the labeled amount of Factor X in international units (IU) (2).
- The dosage and duration of treatment depend on the severity of the Factor X deficiency, on the location and extent of the bleeding and on the patient's clinical condition (2.1).
- For treatment of bleeding episodes: use 25 IU per kg body weight, repeated at intervals of 24 hours until the bleed stops (2.1).
- For perioperative management:
 - Pre-surgery, raise plasma Factor X levels to 70-90 IU/dL.
 - Post-surgery, maintain plasma Factor X levels at a minimum of 50 IU/dL until the patient is no longer at risk of bleeding due to surgery.
 - Required dose (IU) = Body weight (kg) x Desired Factor X rise (IU/dL or % of normal) x 0.5

DOSAGE FORMS AND STRENGTHS

COAGADEX is available as a lyophilized powder for reconstitution in single-use vials containing nominally (approximately) 250 IU or 500 IU of Factor X activity. When reconstituted using the Sterile Water for Injection supplied with the kit, the final concentration is approximately 100 IU/mL (3).

CONTRAINDICATIONS

Do not use in patients who have had life-threatening hypersensitivity reactions to COAGADEX or any of the components (4).

WARNINGS AND PRECAUTIONS

- Hypersensitivity reactions, including anaphylaxis, are possible. Should symptoms occur, discontinue COAGADEX and administer appropriate treatment (5.1).
- Development of neutralizing antibodies (inhibitors) may occur. If expected plasma Factor X activity levels are not attained, or if bleeding is not controlled with an appropriate dose, perform an assay that measures Factor X inhibitor concentration (5.2).
- COAGADEX is made from human blood and therefore carries a risk of transmitting infectious agents, e.g. viruses, the variant Creutzfeldt-Jakob disease (vCJD) agent and, theoretically, the Creutzfeldt-Jakob Disease (CJD) agent (5.4).

ADVERSE REACTIONS

The most common adverse drug reactions (frequency ≥ 5% of subjects) observed in clinical trials were infusion site erythema, infusion site pain, fatigue and back pain (6).

To report SUSPECTED ADVERSE REACTIONS, contact BPL Inc, at 1-866-398-0825 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

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

Revised: [10/2015]

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FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

COAGADEX, Coagulation Factor X (Human), is a plasma-derived human blood coagulation Factor indicated in adults and children (aged 12 years and above) with hereditary Factor X deficiency for:

- On-demand treatment and control of bleeding episodes
- Perioperative management of bleeding in patients with mild hereditary Factor X deficiency.

Limitation of Use

Perioperative management of bleeding in major surgery in patients with moderate and severe hereditary Factor X deficiency has not been studied.

2 DOSAGE AND ADMINISTRATION

For intravenous use after reconstitution only.

2.1 Dose

- Dose and duration of the treatment depend on the severity of the Factor X deficiency, location and extent of the bleeding, and on the patient's clinical condition.
- Base the dose and frequency on the individual clinical response. Do not administer more than 60 IU/kg daily.
- Each vial of COAGADEX is labeled with the actual Factor X potency/content in International Units (IU).
- Estimate the expected *in vivo* peak increase in Factor X level expressed as IU/dL (or % of normal) using the following formula:

$$\text{Estimated Increment of Factor X (IU/dL or \% of normal)} = [\text{Total Dose (IU)/Body Weight (kg)}] \times 2$$

The dose to achieve a desired *in vivo* peak increase in Factor X level may be calculated using the following formula:

$$\text{Dose (IU)} = \text{Body Weight (kg)} \times \text{Desired Factor X Rise (IU/dL)} \times 0.5$$

Note: The desired Factor X rise is the difference between the patient's plasma Factor X level and the desired level. The dosing formula is based on the observed recovery of 2 IU/dL per IU/kg.

On-demand Treatment and Control of Bleeding Episodes

Infuse 25 IU/kg of COAGADEX when the first sign of bleeding occurs. Repeat at intervals of 24 hours until the bleed stops.

Perioperative Management of Bleeding

Measure post-infusion plasma Factor X levels for each patient before and after surgery, to ensure that hemostatic levels are obtained and maintained.

Pre-surgery: Calculate the dose of COAGADEX to raise plasma Factor X levels to 70-90 IU/dL using the following formula:

$$\text{Required dose (IU)} = \text{Body Weight (kg)} \times \text{Desired Factor X Rise (IU/dL)} \times 0.5$$

Post-surgery: Repeat dose as necessary to maintain plasma Factor X levels at a minimum of 50 IU/dL until the patient is no longer at risk of bleeding due to surgery.

2.2 Preparation and Reconstitution

The procedures below are provided as general guidelines for the preparation and reconstitution of COAGADEX.

- Always work on a clean surface and wash your hands before performing the following procedures.
- To reconstitute, use the diluent (Sterile Water for Injection) and transfer device (Mix2Vial) provided in the COAGADEX carton.
- To administer, you will also need a syringe and suitable needle (not provided in the COAGADEX carton).
- Bring the vials of COAGADEX and the Sterile Water for Injection to room temperature before mixing.
- The reconstitution is performed as follows:

Table 1 COAGADEX Reconstitution Instructions



Step 1

- Remove the cap from the vial of COAGADEX and clean the top of the rubber stopper with an alcohol swab (not supplied) and allow to dry prior to opening the Mix2Vial package.
- Repeat this step with the vial of sterile water.

Step 2

- Peel back the top of the Mix2Vial package. Do not remove the device from the package.



Step 3

- Place the blue end of the Mix2Vial over the water vial and push straight down until the spike penetrates the rubber stopper and snaps into place.
- Remove the plastic outer packaging from the Mix2Vial and discard it. Do not touch the exposed end of the device.



Step 4

- With the COAGADEX vial placed on a flat surface, invert the water vial with the Mix2Vial device still attached.
- Place the clear end of the Mix2Vial on the product vial and push straight down until the spike penetrates the rubber stopper and snaps into place.
- The water will automatically transfer into the COAGADEX vial by the vacuum contained within it. Do not use if the water is not pulled into the vial of COAGADEX.



Step 5

- Gently swirl the COAGADEX vial to make sure that the powder is fully dissolved. Do not shake the vial.
- The reconstituted solution should be clear or a slightly pearl-like solution. Do not use if particulate matter or discoloration is observed and contact BPL.



Step 6

- Separate the empty water vial and blue part of the Mix2Vial from the clear part that is attached to the COAGADEX vial by unscrewing counter-clockwise.

Step 7

- Draw air into an empty, sterile syringe (not supplied) by pulling the plunger to the volume of water added.
- Connect the syringe to the clear part of the Mix2Vial and push the air in the syringe into the vial.



Step 8

- Immediately invert the COAGADEX vial. The solution will automatically be drawn into the syringe. Draw the remaining solution into the syringe by pulling the plunger back slowly.
- Disconnect the filled syringe from the device.
- Use the product immediately after reconstitution. Do not store the reconstituted product.

2.3 Administration

For intravenous administration only

- If the dose requires more than one vial of COAGADEX:
 - Reconstitute each vial (steps 1 to 5) using a new Mix2Vial for each vial.
 - Draw up all the solution into a single syringe (steps 6 to 8).
- Visually inspect the final solution for particulate matter and discoloration prior to administration, and whenever solution and container permit. Do not use if particulate matter or discoloration is observed.
- Attach a suitable needle to the syringe.
- Administer by intravenous infusion at a rate of 10 mL/min, but no more than 20 mL/min.

3 DOSAGE FORMS AND STRENGTHS

COAGADEX is available as lyophilized powder for reconstitution in single-use vials containing nominally (approximately) 250 IU or 500 IU of Factor X activity. The exact potency/content is listed on the vial label. When reconstituted using the Sterile Water for Injection supplied with the kit, the final concentration is approximately 100 IU per mL.

Factor X activity in COAGADEX is defined in IU and determined using an *in vitro* chromogenic assay and a Factor X concentrate reference standard calibrated against the World Health Organization (WHO) 3rd International Standard for Blood Coagulation Factors II and X, Concentrate.

4 CONTRAINDICATIONS

COAGADEX is contraindicated in patients who have had life-threatening hypersensitivity reactions to COAGADEX or any of the components [see *Description (11)*].

5 WARNINGS AND PRECAUTIONS

5.1 Hypersensitivity Reactions

Allergic type hypersensitivity reactions, including anaphylaxis, are possible. Early signs of hypersensitivity reactions including angioedema, infusion site inflammation (e.g. burning, stinging, erythema), chills, cough, dizziness, fever, flushing, generalized urticaria, headache, hives, hypotension, lethargy, musculoskeletal pains, nausea, pruritus, rash, restlessness, tachycardia, tightness of the chest, tingling, vomiting, wheezing. If hypersensitivity symptoms occur, discontinue use of the product immediately and administer appropriate emergency treatment.

COAGADEX contains traces of human proteins other than Factor X.

5.2 Neutralizing Antibodies

The formation of neutralizing antibodies (inhibitors) to Factor X may occur. Monitor all patients treated with COAGADEX for the development of inhibitors by appropriate clinical observations and laboratory tests. If expected Factor X activity levels are not attained, or if bleeding is not controlled with an expected dose, perform an assay that measures Factor X inhibitor concentration.

5.3 Transmissible Infectious Agents

As COAGADEX is made from human blood, it may carry a risk of transmitting infectious agents, e.g. viruses, the variant Creutzfeldt-Jakob disease (vCJD) agent and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent. There is also the possibility that unknown infectious agents may be present in the product. The risk that the product will transmit viruses has been reduced by screening plasma donors for prior exposure to certain viruses, by testing for the presence of certain current virus infections, and by inactivating and removing certain viruses during manufacture. Despite these measures, this product may still potentially transmit diseases.

All infections suspected by a physician possibly to have been transmitted by this product should be reported by the physician or other healthcare providers to BPL Inc. at 1-866-398-0825.

5.4 Monitoring and Laboratory Tests

- Monitor plasma Factor X activity by performing a validated test (e.g. one-stage clotting assay), to confirm that adequate Factor X levels have been achieved and maintained [see *Dosage and Administration (2)*].
- Monitor for the development of Factor X inhibitors. Perform a Nijmegen-Bethesda inhibitor assay if expected Factor X plasma levels are not attained, or if bleeding is not controlled with the expected dose of COAGADEX. Use Nijmegen-Bethesda Units (BU) to report inhibitor levels.

6 ADVERSE REACTIONS

The most common adverse drug reactions (frequency \geq 5% of subjects) observed in clinical trials were infusion site erythema, infusion site pain, fatigue, and back pain.

6.1 Clinical Trials Experience

As 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 trial of another drug and may not reflect the rates observed in clinical practice.

During the clinical development of COAGADEX involving two multicenter, open-label, non-randomized clinical studies, 18 individual subjects with hereditary Factor X deficiency received at least one dose of COAGADEX.

Sixteen subjects aged 12 to 58 years with moderate to severe hereditary Factor X deficiency (basal FX:C < 5 IU/dL) received doses of COAGADEX for pharmacokinetic evaluation, on-demand treatment and control of bleeding episodes, and/or perioperative management of minor surgical or dental procedures. A total of 468 infusions were administered, including 242 for on-demand treatment and control of bleeding episodes, 6 for perioperative management and 31 for PK assessments. Spontaneous, traumatic and menorrhagic bleeding episodes were treated with an on-demand dose of 25 IU/kg for up to 2 years.

Two subjects aged 55 and 59 years with mild hereditary Factor X deficiency (basal FX:C 6 IU/dL and 8 IU/dL) received COAGADEX for perioperative management of four major surgical procedures. There were 40 exposure days to COAGADEX.

Six adverse reactions were reported in 2 of the 18 subjects. These were infusion site erythema (2 reports in 1 subject [5.6%]), fatigue (2 reports in 1 subject [5.6%]), back pain (1 report [5.6%]) and infusion site pain (1 report [5.6%]).

6.2 Immunogenicity

All subjects underwent Factor X inhibitor testing (inhibitor screen and Nijmegen-Bethesda assay) at baseline, end of study and at 3-monthly intervals in between. For subjects who underwent surgery, inhibitor testing was done pre-surgery and on discharge. All inhibitor tests were negative. Additionally, comparison of pharmacokinetic (PK) parameters at the repeat PK assessment with those at first dose did not suggest development of any inhibitors to Factor X.

The detection of antibody formation is highly dependent on the sensitivity and specificity of the assay. Additionally, the observed incidence of antibody (including neutralizing 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, it may be misleading to compare the incidence of antibodies to COAGADEX in the studies described above with the incidence of antibodies in other studies or to other products.

7 DRUG INTERACTIONS

Drug interaction studies have not been performed. Use with caution in patients who are receiving other plasma products that may contain Factor X, (e.g. fresh frozen plasma, prothrombin complex concentrates). Based on the mechanism of action, COAGADEX is likely to be counteracted by direct and indirect Factor Xa inhibitors [see *Clinical Pharmacology* (12.1)].

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

There are no data with COAGADEX use in pregnant women to inform on drug-associated risk. Animal reproduction studies have not been conducted using COAGADEX. It is not known whether COAGADEX can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. COAGADEX should be given to a pregnant woman only if clearly needed. 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.

8.2 Lactation

Risk Summary

There is no information regarding the presence of COAGADEX in human milk, the effects on the breastfed infant, or the effects on milk production. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for COAGADEX and any potential adverse effects on the breast-fed infant from COAGADEX or from the underlying maternal condition.

8.4 Pediatric Use

Safety and efficacy in patients under the age of 12 years have not been studied.

8.5 Geriatric Use

Clinical studies of COAGADEX did not include any subjects aged 65 and over to determine whether they respond differently from younger subjects. Individualize dose selection for geriatric patients.

10 OVERDOSAGE

One case of accidental overdosage was reported in the clinical trials, in which a subject received approximately 80 IU/kg Factor X to treat a bleed. No adverse events were reported relating to this overdose.

11 DESCRIPTION

COAGADEX is a plasma-derived, sterile, purified concentrate of human coagulation Factor X that contains sucrose as a stabilizer. It is formulated as a lyophilized powder for solution for intravenous administration. When reconstituted with Sterile Water for Injection, COAGADEX contains nominally (approximately) 100 IU/mL of coagulation Factor X and the following inactive ingredients: chloride, phosphate, citrate, sucrose and sodium. Each vial of COAGADEX is labeled with the actual Factor X activity/content expressed in IU per vial. Factor X activity in IU is determined using an *in vitro* chromogenic assay and a Factor X concentrate reference standard calibrated against the WHO 3rd International Standard for Blood Coagulation Factors II and X, Concentrate.

COAGADEX contains no added biological components such as heparin, albumin or anti-thrombin. The content of Factor II and Factor IX are ≤ 1 IU/mL of the reconstituted product. Factor Xa and Factor IIa were not detectable by Non-activated Partial Thromboplastin Time (NaPTT) or Fibrinogen Clotting Time (FCT) tests for potential thrombogenicity, and comprised < 10 parts per million by weight when tested by more sensitive analytical methods. The specific activity of COAGADEX is typically 80-137 IU per mg protein. The product contains no preservatives.

COAGADEX is manufactured from plasma, obtained from healthy US donors, who have passed viral screening tests. All donors are subjected to medical examinations, laboratory tests, and a review of their medical history before being allowed to donate blood or plasma.

All plasma donations are screened for antibody to human immunodeficiency virus (HIV)-1/2 and hepatitis C virus (HCV), and hepatitis B surface antigen (HBsAg). Additional testing of donations is carried out in plasma mini-pools (512 donations per pool) with nucleic acid amplification testing (NAT) for HIV, hepatitis B virus (HBV), HCV, hepatitis A virus (HAV) and human parvovirus B19. Furthermore, each manufacturing pool is tested to be negative for HBsAg and anti-HIV-1/2 antibodies. Also, manufacturing pools are non-reactive by nucleic acid test for HAV, HBV, HCV, and HIV-1. The limit for human parvovirus B19 in the manufacturing pools is set not to exceed 10^4 IU/mL.

Three processing steps specifically designed to remove or inactivate viruses are:

- 1) Solvent/detergent treatment targeted to inactivate enveloped viruses;
- 2) A 15-nm filtration step designed to remove small viruses including non-enveloped viruses; and
- 3) Terminal dry-heat treatment at 80°C for 72 hours in the final container to inactivate enveloped and non-enveloped viruses.

The capacity of the manufacturing process to remove and/or inactivate enveloped and non-enveloped viruses has been validated by laboratory spiking studies on a scaled-down process model. Overall virus

reduction was calculated only from steps that were mechanistically independent from each other. Table 2 presents the contribution of each process step to virus reduction and the overall process reduction.

Table 2 Viral Reduction by Process Step

Virus	Type (Envelope/ Genome)	Size (nm)	Process Log ₁₀ Reduction of Virus (LRV) over manufacturing step			Total LRV
			Solvent/detergent	15-nm filtration	Terminal dry-heat treatment	
HIV	Env/RNA	80-100	> 4.6	> 6.8	5.5	> 16.9
SIN	Env/RNA	60-70	6.0	NT	NT	6.0
BVDV	Env/RNA	50-70	> 5.1	> 4.5	> 5.2	> 14.8
HSV	Env/DNA	120-200	> 5.4	5.8	3.5	> 14.7
IBR	Env/DNA	120-200	> 5.3	NT	NT	> 5.3
WNV	Env/RNA	40-60	4.9	NT	NT	4.9
HAV	Non-Env/RNA	25-30	NA	> 5.0	> 6.1	> 11.1
CPV	Non-Env/RNA	18-24	NA	4.3*	4.2	8.5

*Studies using human parvovirus B19, which are considered experimental in nature, have demonstrated a virus reduction factor of > 5.9 log₁₀ by 15-nm filtration using a PCR method

HIV: Human immunodeficiency virus

SIN: Sindbis virus, model for HCV

WNV: West Nile Virus

BVDV: Bovine viral diarrhea virus, model for HCV

IBR: Infectious bovine rhinotracheitis, bovine herpesvirus model for enveloped DNA viruses including HBV

HAV: Hepatitis A virus

HSV: Herpes simplex virus

CPV: Canine parvovirus, model for human parvovirus B19

NA: Not applicable, solvent/detergent treatment step is limited to the inactivation of enveloped viruses

NT: Not tested

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

COAGADEX temporarily replaces the missing Factor X needed for effective hemostasis. Factor X is an inactive zymogen, which can be activated by Factor IXa (via the intrinsic pathway) or by Factor VIIa (via the extrinsic pathway). Factor X is converted from its inactive form to the active form (Factor Xa) by the cleavage of a 52-residue peptide from the heavy chain. Factor Xa associates with Factor Va on a phospholipid surface to form the prothrombinase complex, which activates prothrombin to thrombin in the presence of calcium ions. Thrombin then acts upon soluble fibrinogen and Factor XIII to generate a cross-linked fibrin clot.

12.2 Pharmacodynamics

The administration of COAGADEX increases plasma levels of Factor X and can temporarily correct the coagulation defect in these patients, as reflected by decrease in the aPTT and PT.

12.3 Pharmacokinetics

In a clinical study of COAGADEX in subjects with severe or moderate Factor X deficiency (basal FX:C <5 IU/dL), the pharmacokinetics of COAGADEX were assessed after intravenous infusion (mean [range] infusion rate 5.9 [1.3-17.1] mL/min) of 25 IU/kg COAGADEX. Pharmacokinetic (PK) parameters were calculated from plasma Factor X:C activity measurements after subtraction of the pre-dose value. The PK assessment was repeated at least 6 months after the first dose. The PK parameters following a single dose are summarized in Table 3. The pharmacokinetics of COAGADEX were similar following the single and repeat dosing.

Table 3 Mean PK Parameters of COAGADEX Following a Single 25 IU/kg Dose

	First Dose Mean (CV%) (n=16)
C _{max} (IU/mL)	0.504 (17.2)
Half-life (hr)	30.3 (22.8)
AUC _{0-144h} (IU.hr/mL)	17.1 (21.0)
AUC _(0-∞) (IU.hr/mL)	18.0 (20.9)
V _{ss} (mL/kg)	56.3 (24.0)
CL (mL/kg/hr)	1.35 (21.7)
MRT (hr)	41.8 (21.7)
Incremental recovery (IU/dL per IU/kg) [§]	2.08 (18.1)

[§] Using peak increment within 1 hour post-dose

CV: Coefficient of variation

Studies were not conducted to evaluate the impact of gender or renal/hepatic function on the pharmacokinetics of COAGADEX.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Nonclinical studies evaluating the carcinogenic or mutagenic potential of COAGADEX have not been conducted. No animal studies regarding impairment of fertility following COAGADEX dosing were conducted; however, no macroscopic or microscopic pathologies in reproductive organs were observed in rats dosed every other day with 6 times the maximum recommended clinical dose of 60 IU/kg COAGADEX for 28 days.

14 CLINICAL STUDIES

On-demand Treatment and Control of Bleeding Episodes

In a multicenter, open-label, non-randomized clinical trial to evaluate the pharmacokinetics, safety and efficacy of COAGADEX, 16 subjects with moderate to severe hereditary Factor X deficiency (FX:C < 5 IU/dL) received a dose of 25 IU/kg COAGADEX to treat spontaneous, traumatic and menorrhagic bleeding episodes. If hemostasis was not achieved with a single dose of COAGADEX, additional doses could be given until the bleed stopped. Subjects could also continue with treatment after the bleed had stopped to reduce the risk of recurrence of a given bleed. Subjects were aged 12-58 years, including 6 pediatric subjects aged 12 to 17 years. Six subjects were male, 10 were female, and 12 were Caucasian.

The efficacy of COAGADEX in treating bleeding episodes was assessed by the subject and/or investigator for each new bleeding episode, using a bleed-specific ordinal rating scale of excellent, good, poor and unassessable. This rating scale was based on the number of infusions required to treat the bleed and the interval between infusions, and differed for each type of bleed (overt, covert or menorrhagic). Each bleed was reviewed by a Data Review Committee for its suitability for the efficacy evaluation. Of the 208 bleeding episodes treated with COAGADEX, 187 bleeding episodes in 15 subjects were evaluated for efficacy. Of these 187 bleeding episodes, 79 (42%) occurred spontaneously, 47 (25%) were traumatic and 61 (33%) were menorrhagic. Seventy three (39%) were mucosal in origin, 63 (34%) were joint bleeds, 26 (14%) were muscle bleeds, and 25 (13%) were located elsewhere.

Ninety eight (53%) were major bleeding episodes, and 88 (47%) were minor bleeds (one bleed not assessed). COAGADEX was considered to be good (7%) or excellent (91%) in treating 98% of bleeding episodes. Of the 187 bleeding episodes in the efficacy analysis, 155 bleeds (83%) were treated with one infusion, 28 bleeds (15%) with two infusions, 3 bleeds (2%) with three infusions and 1 bleed (0.5%) with four infusions. The mean dose per infusion and total dose of Coagadex were 25.4 IU/kg and 30.4 IU/kg, respectively. Four bleeding episodes in two subjects were considered treatment failures.

The recommended dose of 25 IU/kg COAGADEX to treat a bleed was maintained during the study for 14 of the 16 subjects. The other two subjects used doses up to 30 IU/kg and 33 IU/kg.

Perioperative Management of Bleeding

The safety and efficacy of COAGADEX for perioperative management was evaluated in five subjects aged 14-59 years with mild (n=2), moderate (n=1), and severe (n=2) disease, who underwent a total of seven surgical procedures.

For all surgical procedures, COAGADEX was assessed as excellent (no post-operative bleeding, no requirement of blood transfusions, and blood loss was no more than 'as expected') in controlling blood loss during and after surgery. For major surgeries, a median of 13 infusions (range 2 to 15 infusions) and a median cumulative dose of 181 IU/kg (range 45 to 210 IU/kg) were required to maintain hemostasis. For minor surgeries, a median of 2.5 infusions (range 1 to 4 infusions) and a median cumulative dose of 89 IU/kg (range 51 to 127 IU/kg) were required to maintain hemostasis.

16 HOW SUPPLIED/STORAGE AND HANDLING

How Supplied

COAGADEX is supplied in single-use glass vials containing a nominal (approximate) 250 IU or 500 IU (approximately 100 IU/mL after reconstitution) of Factor X activity, packaged with 2.5 mL or 5 mL of Sterile Water for Injection, respectively, and a Mix2Vial transfer device.

The vials are closed with a synthetic rubber stopper. The stopper is secured with an aluminum overseal with a flip-off polypropylene cap.

Strength	Kit NDC Number
250 IU Range	64208-7752-1
500 IU Range	64208-7753-1

Storage and Handling

- Store COAGADEX in its original package to protect it from light.
- Store the COAGADEX package in a refrigerator or at room temperature (36°F to 86°F). Do not freeze.
- Do not use COAGADEX or the Sterile Water for Injection after the expiration date printed on the vial and carton labels.
- Use reconstituted COAGADEX within one hour of reconstitution.
- Do not use COAGADEX if the reconstituted solution is cloudy or contains any particles.

17 PATIENT COUNSELING INFORMATION

- Advise the patients to read the FDA-approved patient labeling (Patient Information and Instructions for Use).
- Inform patients to immediately report the following early signs and symptoms of hypersensitivity reactions to their healthcare professional: angioedema, infusion site inflammation (e.g. burning, stinging, erythema), chills, cough, dizziness, fever, flushing, generalized urticaria, headache, hives, hypotension, lethargy, musculoskeletal pains, nausea, pruritus, rash, restlessness, tachycardia, tightness of the chest, tingling, vomiting, wheezing [*see Warnings and Precautions (5.1)*].
- Inform patients that the development of inhibitors to Factor X is a possible complication of treatment with COAGADEX. Advise the patients to contact their healthcare provider for further treatment and/or

assessment if they experience a lack of clinical response to COAGADEX because this may be a manifestation of an inhibitor [see *Warnings and Precautions (5.2)*].

- Inform patients that COAGADEX is made from human plasma and may contain infectious agents that can cause diseases. While the risk that COAGADEX can transmit an infection has been reduced by screening plasma donors for prior exposure, testing donated plasma, and inactivating or removing certain viruses during manufacturing, patients should report any symptoms that concern them [see *Warnings and Precautions (5.3)*].

Manufactured by:

Bio Products Laboratory Limited,
Dagger Lane,
Elstree,
Herts., WD6 3BX,
United Kingdom.
U.S. Licence No:1811

U.S. Distributor:

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302 East Pettigrew Street,
Suite C-190,
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COAGADEX® is a registered trade mark of Bio Products Laboratory Limited. Mix2Vial™ is a trade mark of West Pharmaceutical services.

Patient Information

COAGADEX® (co-ag-a-dex) Coagulation Factor X (Human)

This Patient Information leaflet summarizes important information about COAGADEX. Please read it carefully before using COAGADEX and each time you get a refill, as there may be new information. This Patient Information does not take the place of talking with your healthcare provider about your medical condition or treatment, and it does not include all of the important information about COAGADEX. If you have any questions about COAGADEX after reading this information, ask your healthcare provider.

What is the most important information I need to know about COAGADEX?

Do not attempt to do an infusion yourself unless you have been taught how by your healthcare provider or hemophilia center.

You must carefully follow your healthcare provider's instructions regarding the dose and schedule for infusing COAGADEX so that your treatment will work best for you.

What is COAGADEX?

COAGADEX is an injectable medicine used to replace the clotting factor that is missing in people with Factor X deficiency. Factor X deficiency is an inherited bleeding disorder that prevents blood from clotting normally.

COAGADEX is used to treat and control bleeding in patients aged 12 years and over with hereditary Factor X deficiency.

Your healthcare provider may give you COAGADEX when you have surgery.

Who should not use COAGADEX?

You should not use COAGADEX if you are allergic (hypersensitive) to any of the ingredients in COAGADEX.

Tell your healthcare provider if you are pregnant or breast-feeding because COAGADEX may not be right for you.

What should I tell my healthcare provider before I use COAGADEX?

You should tell your healthcare provider if you

- Have or have had any medical problems.
- Have any allergies.
- Take any prescription and non-prescription medicines, including over-the-counter medicines, supplements or herbal medicines.
- Are breast-feeding. It is not known if COAGADEX passes into your milk and if it can harm your baby.

- Are pregnant or planning to become pregnant. It is not known if COAGADEX may harm your unborn baby.
- Have been told you have inhibitors to Factor X.

How should I use COAGADEX?

You get COAGADEX as an infusion into your vein.

You may infuse COAGADEX at a hemophilia treatment center, at your healthcare provider's office or in your home. You should be trained on how to do infusions by your healthcare provider or hemophilia treatment center. Many people with coagulation factor deficiencies learn to infuse their treatment by themselves or with the help of a family member.

Your healthcare provider will tell you how much COAGADEX to use based on your weight, the severity of your Factor X deficiency, and where you are bleeding.

You may need blood tests done after using COAGADEX to be sure that your blood level of Factor X is high enough to clot your blood.

Call your healthcare provider right away if your bleeding does not stop after using COAGADEX.

What are the possible side-effects of COAGADEX?

You can have an allergic reaction to COAGADEX.

Stop treatment and call your healthcare provider right away if you have any of the following symptoms: difficulty breathing, chest tightness, swelling of the face, rash or hives.

Common side effects of COAGADEX are infusion site redness, infusion site pain, tiredness, and back pain.

Your body can also make antibodies, called "inhibitors," against COAGADEX, which may stop COAGADEX from working properly. Your healthcare provider may give you blood tests to check for inhibitors.

These are not all the possible side effects of COAGADEX. Tell your healthcare provider, about any side effects that bother you or do not go away.

What are the COAGADEX dosage strengths?

COAGADEX is packaged with a suitable volume (2.5 mL or 5 mL) of Sterile Water for Injection, and one Mix2Vial transfer device.

COAGADEX comes in two different dosage strengths:

Approximately 250 International Units (IU) – to be reconstituted with 2.5 mL of sterile

water.

Approximately 500 International Units (IU) - to be reconstituted with 5 mL of sterile water.

The actual strength will be printed on the vial label and on the box. Once dissolved, the concentrations in these two vials will be the same, 100 IU per mL.

Always check the actual dosage printed on the label to make sure you are using the vial size prescribed by your healthcare provider.

Always check the expiration date printed on the box. Do not use the product after the expiration date printed on the box.

How do I store COAGADEX?

- Keep COAGADEX in its original package to protect it from light.
- Store COAGADEX refrigerated [not below 2°C (36°F)] or at room temperature [not to exceed 30°C (86°F)]. Do not freeze.
- Do not use after the expiration date printed on the box. The expiration date refers to the last day of that month.
- Do not use the sterile water if any small bits can be seen in it.
- After reconstitution (mixing with the sterile water), COAGADEX must be used within one hour. Discard any COAGADEX left in the vial at the end of your infusion.

What else should I know about COAGADEX?

Medicines are sometimes prescribed for purposes other than those listed here. Do not use COAGADEX for a condition for which it is not prescribed. Do not share COAGADEX with other people, even if they have the same symptoms or condition that you have.

For further information or if you have any questions about COAGADEX, please contact BPL Inc. at the address below or through BPLinfo@LashGroup.com.

Instructions for Use

COAGADEX® (co-ag-a-dex) Coagulation Factor X (Human)

Important: Do not attempt to give an infusion to yourself unless you have been taught how to by your healthcare provider or hemophilia center.

Always follow the specific instructions given by your healthcare provider. The steps listed below are general guidelines for using COAGADEX. If you are unsure of the procedures, please call your healthcare provider before using.

Your healthcare provider will prescribe the dose that you should take. Contact your healthcare provider right away if you accidentally take more than the prescribed dose.

Your healthcare provider may need to take blood tests from time to time.

Talk to your healthcare provider before travelling. Plan to take enough COAGADEX for your treatment during this time.

Dispose of all materials, including any leftover reconstituted COAGADEX product, in an appropriate container.

When should I inject Coagadex?

Inject COAGADEX when the first sign of bleeding occurs, before surgery as a precaution, and before the onset of menstrual bleeding, if appropriate and advised by your healthcare provider.

Repeat the injection at intervals of 24 hours to stop the bleeding. Each individual bleed should be judged on its own severity.

Contact your healthcare provider right away if bleeding does not stop after using COAGADEX.

How should I dissolve COAGADEX before use?

COAGADEX must be dissolved in the sterile water provided with the product using the provided transfer device called Mix2Vial™.

To administer this medicine you will also need a syringe and suitable needle (not provided in the COAGADEX carton).

See below for step-by-step instructions for reconstituting COAGADEX.



Step 1

- Bring the vials of COAGADEX and sterile water to room temperature before mixing.
- Remove the cap from the vial of COAGADEX and clean the top of the stopper with an alcohol swab.
- Repeat this step with the vial of sterile water.

Step 2

- Peel back the top of the Mix2Vial package but leave the device in the package.



Step 3

- Place the blue end of the Mix2Vial on the sterile water vial and push straight down until the spike penetrates the rubber stopper and snaps into place.
- Remove the plastic outer packaging from the Mix2Vial and discard it. Do not touch the exposed end of the device.



Step 4

- Turn the sterile water vial upside down with the device still attached.
- Place the clear end of the Mix2Vial on the product vial and push straight down until the spike penetrates the rubber stopper and snaps into place.



Step 5

- The sterile water will be pulled into the vial of COAGADEX by the vacuum contained within it.
- Gently swirl the vial to make sure the powder is thoroughly mixed. Do not shake the vial.
- A clear or slightly pearl-like solution should be obtained, usually in less than 1 minute (5 minutes maximum).

Note: If the water is not pulled into the vial of COAGADEX. This indicates a loss of vacuum in the vial, do not use the product.



Step 6

- Separate the empty sterile water vial and blue part from the clear part by unscrewing counter-clockwise.

Step 7

- Draw air into the syringe by pulling the plunger to the required volume of sterile water added.
- Connect the syringe to the clear part of the Mix2Vial.

- Push the air in the syringe into the vial.



Step 8

- Immediately invert the COAGADEX vial. The solution will be drawn into the syringe.
- Disconnect the filled syringe from the device.
- Use the product immediately or within one hour of reconstitution. Do not store the reconstituted product.

Note: If there are any particles in the syringe, or if the solution is cloudy, or if a gel or clot forms, contact the manufacturer to report the batch number printed on the vial.

If you have to use more than one vial of COAGADEX to make up your dose, repeat step 1 to 5 to reconstitute each vial and draw up all the solution into one syringe for your injection. You must use a new Mix2Vial to draw the contents of each vial up into the plastic syringe.

How do I inject COAGADEX?

Inspect the solution before injection. Do not use if there are any particles in the syringe, or if the solution is cloudy, or if a gel or clot forms.

Do not add the solution to any other fluids and do not mix it together with any other medicine.

To inject the medicine:

- Attach a suitable needle to the syringe containing COAGADEX solution.
- Inject the dose at a suggested rate of 10mL/min, but no more than 20mL/min into your vein.

Dispose of any solution that remains, along with used syringes, needles and containers. Do not throw it out with the ordinary household trash.

Important: Contact your healthcare provider or local hemophilia treatment center if you experience any problems.

Manufactured by:

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