Drugs

Coagulation factor VII human

Targets (3)

IDENTIFICATION

Name	Coagulation factor VII human
Accession Number	DB13150
Type	Biotech
Groups	Approved, Investigational
Biologic Classification	Protein Based Therapies Blood factors
Description	Coagulation factor VII is human serine protease type enzyme that is involved in the extrinsic coagulation cascade which results in blood clotting.
Protein chemical formula	Not Available
Protein average weight	Not Available
Sequences	Not Available
Synonyms	Coagulation factor VII (human) Factor VII Factor VII (proconvertin) Factor VII human Human coagulation factor VII Proconvertin Serum prothrombin conversion accelerator

Mixture Products

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NAME	INGREDIENTS	DOSAGE	ROUTE	LABELLER	MARKETING START	MARKETING END			
Beriplex	Coagulation	Powder, for	Intravenous	Csl Behring	2013-11-21	Not applicable			

NAME	INGREDIENTS	DOSAGE	ROUTE	LABELLER	MARKETING START	MARKETING END	
	factor VII [illegible]						

Drugs

	Human (1240 unit) + Coagulation factor X human (2040 unit) + Protein C (1640 unit) + Protein S human (1360 unit) + Prothrombin (1600 unit)						
Beriplex P/n 500	Coagulation factor VII human (500 unit) + Coagulation Factor IX Human (620 unit) + Coagulation factor X human (1020 unit) + Protein C (820 unit) + Protein S human (680 unit) + Prothrombin (800 unit)	Powder, for solution	Intravenous	Csl Behring	2011-07-28	Not applicable	
Kcentra	Coagulation factor VII human (700 U/40mL) + Coagulation Factor IX Human (1020 U/40mL) + Coagulation factor X human (1520 U/40mL) + Protein C (1240 U/40mL) + Protein S human (920 U/40mL) + Prothrombin (1180 U/40mL)	Kit		CSL Behring GmbH	2013-12-13	Not applicable	
Kcentra	Coagulation	Kit		CSL Behring	2013-04-29	Not applicable	

NAME	INGREDIENTS	DOSAGE	ROUTE	LABELLER	MARKETING START	MARKETING END	
	factor VII Human (510 U/20mL) + Coagulation factor X human (760 U/20mL) + Protein C (620 U/20mL) + Protein S human (460 U/20mL) + Prothrombin (590 U/20mL)						
Octaplex	Coagulation factor VII human (480 unit) + Coagulation Factor IX Human (500 unit) + Coagulation factor X human (600 unit) + Protein C (620 unit) + Protein S human (640 unit) + Prothrombin (760 unit)	Kit; Powder, for solution	Intravenous	Octapharma Pharmazeutika Produktionsges M B H	2008-07-08	Not applicable	
Octaplex	Coagulation factor VII human (960 unit) + Coagulation Factor IX Human (1000 unit) + Coagulation factor X human (1200 unit) + Protein C (1240 unit) + Protein S human (1280 unit) + Prothrombin (1520 unit)	Kit; Powder, for solution	Intravenous	Octapharma Pharmazeutika Produktionsges M B H	2015-08-11	Not applicable	

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Categories	Amino Acids, Peptides, and Proteins	Blood Coagulation Factors	Increased Coagulation Activity
	Biological Factors	Blood Proteins	Proteins
UNII	4156XVB4QD		
CAS number	Not Available		

PHARMACOLOGY

Indication May be administered in cases of uncontrolled bleeding. Factor VII alone can be used in the treatment of congenital hemophilia A or B, acquired hemophilia, congenital factor VII deficiency,

and Glanzmann's thrombasthenia. Off label use in the treatment of refractory bleeding after cardiac surgery and warfarin related intracerebral hemorrhage. Brands for human factor VII are

procedures.

Associated Conditions	Vitamin K antagonist induced major bleeding
Pharmacodynamics	Human Factor VII complexes with tissue factor resulting in its activation to VIIa. It is the activated Factor VIIa that then binds to Factor X activating it to Factor Xa, as well as coagulation Factor IX is activated to Factor IXa. Factor Xa continues the coagulation cascade to eventually convert prothrombin to thrombin, which leads to the formation of a clot by converting fibrinogen to fibrin.
Mechanism of action	Factor VII is required in the extrinsic clotting cascade. When there is vascular damage tissue factor (TF) is released which then interacts with Factor VII resulting in the formation of the activated complex VIIa. Factor VIIa then continues to activate coagulation factors in the cascade until a clot is formed.

TARGET	ACTIONS	ORGANISM
(A) Tissue factor	activator	Humans
(A) Coagulation factor X	activator	Humans
(A) Coagulation factor IX	activator	Humans

Absorption	No absorption since given IV.
Volume of distribution	45 ml/kg
Protein binding	Binds to coagulation factor X and IX and tissue factor.
Metabolism	Degraded by catabolism
Route of elimination	Catabolism
Half life	5 h
Clearance	7.4 ml/kgh
Toxicity	No evidence of toxicity. Adverse effect of excessive clotting in certain individuals.
Affected organisms	Not Available
Pathways	Not Available
Pharmacogenomic Effects/ADRs	Not Available

INTERACTIONS

Drug Interactions

ALL DRUGS | APPROVED | VET APPROVED | NUTRACEUTICAL | ILLICIT | WITHDRAWN | INVESTIGATIONAL | EXPERIMENTAL

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DRUG	INTERACTION
(R)-warfarin	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with (S)-Warfarin.
4-hydroxycoumarin	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with 4-hydroxycoumarin.
Abciximab	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with Abciximab.
Acenocoumarol	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with Acenocoumarol.
Acetylsalicylic acid	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with Acetylsalicylic acid.
Alpha-1-proteinase inhibitor	Alpha-1-proteinase inhibitor may increase the thrombogenic activities of Coagulation factor VII human.
Alteplase	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with Alteplase.
Amediplase	The therapeutic efficacy of Coagulation factor VII human can be decreased when used in combination with Amediplase.
Aminocaproic Acid	The risk or severity of adverse effects can be increased when Aminocaproic Acid is combined with Coagulation factor VII human.

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Food Interactions Not Available

REFERENCES

Synthesis Reference Björkman S, Berntorp E. Pharmacokinetics of coagulation factors: clinical relevance for patients with haemophilia. Clinical Pharmacokinetics [serial on the Internet]. (2001), [cited March 3, 2017]; 40(11): 815-832. Available from: MEDLINE.

Mackman, N. (2009). The Role of Tissue Factor and Factor VIIa in Hemostasis. Anesthesia and Analgesia, 108(5), 1447–1452. http://doi.org/10.1213/ane.0b013e31819bceb1

General References

1. Cartmill M, Dolan G, Byrne JL, Byrne PO: Prothrombin complex concentrate for oral anticoagulant reversal in neurosurgical emergencies. Br J Neurosurg. 2000 Oct;14(5):458-61. [PubMed:11198768]
2. Frontera JA, Lewin JJ 3rd, Rabinstein AA, Aisiku IP, Alexandrov AW, Cook AM, del Zoppo GJ, Kumar MA, Peerschke EI, Stiefel MF, Teitelbaum JS, Wartenberg KE, Zerfoss CL: Guideline for Reversal of Antithrombotics in Intracranial Hemorrhage: A Statement for Healthcare Professionals from the Neurocritical Care Society and Society of Critical Care Medicine. Neurocrit Care. 2016 Feb;24(1):6-46. doi: 10.1007/s12028-015-0222-x. [PubMed:26714677]
3. Broze GJ Jr, Majerus PW: Purification and properties of human coagulation factor VII. J Biol Chem. 1980 Feb 25;255(4):1242-7. [PubMed:7354023]
4. KCENTRA monograph [Link]

External Links PubChem Substance 347911434

CLINICAL TRIALS

Clinical Trials Show 10 entries Search

PHASE	STATUS	PURPOSE	CONDITIONS	COUNT
1	Completed	Treatment	Thrombotic events	1
2	Completed	Treatment	Haemorrhagic Cystitis / Other Haemostasis Disorder	1
3	Completed	Treatment	Acute Major Bleeding / Disorders, Blood Coagulation	1
3	Completed	Treatment	Reversal of Coagulopathy	1
3	Recruiting	Treatment	Significant Bleeding Risk	1

PHASE	STATUS	PURPOSE	CONDITIONS	COUNT
4	Enrolling by	Treatment	Bleeding / Blood Loss,Surgical / Cardiovascular Surgical	1
Not Available	Completed	Not Available	Acquired Bleeding Disorder / Traumas	1
Not Available	Completed	Not Available	Hemorrhage	1
Not Available	Recruiting	Not Available	Hemorrhage	1
Not Available	Withdrawn	Treatment	Intracranial Hemorrhage, Spontaneous / Intracranial Hemorrhage, Traumatic	1

Drugs

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PHARMACOECONOMICS

Manufacturers Not Available

Packagers Not Available

Dosage forms

Show 10 entries Search

FORM	ROUTE	STRENGTH
Powder, for solution	Intravenous	
Kit		
Kit; powder, for solution	Intravenous	

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Prices Not Available

Patents Not Available

PROPERTIES

State Solid

Experimental Properties Not Available

TAXONOMY

Description Not Available

Kingdom Organic Compounds

Super Class Organic Acids

Class Carboxylic Acids and Derivatives

Sub Class Amino Acids, Peptides, and Analogues

Direct Parent Peptides

Alternative Parents Not Available

Substituents Not Available

Molecular	Not Available
External Descriptors	Not Available

Drugs

TARGETS

1. Tissue factor

Details

Kind	Protein
Organism	Humans
Pharmacological action	Yes
Actions	Activator
General Function	Protease binding
Specific Function	Initiates blood coagulation by forming a complex with circulating factor VII or VIIa. The [TF:VIIa] complex activates factors IX or X by specific limited protolysis. TF plays a role in normal hemos...
Gene Name	F3
Uniprot ID	P13726
Uniprot Name	Tissue factor
Molecular Weight	33067.3 Da

2. Coagulation factor X

Details

Kind	Protein
Organism	Humans
Pharmacological action	Yes
Actions	Activator
General Function	Serine-type endopeptidase activity
Specific Function	Factor Xa is a vitamin K-dependent glycoprotein that converts prothrombin to thrombin in the presence of factor Va, calcium and phospholipid during blood clotting.
Gene Name	F10
Uniprot ID	P00742
Uniprot Name	Coagulation factor X
Molecular Weight	54731.255 Da

3. Coagulation factor IX

Details

Kind	Protein
Organism	Humans
Pharmacological action	Yes
Actions	Activator
General Function	Serine-type endopeptidase activity

Specific Function	Factor IX is a vitamin K-dependent plasma protein that participates in the intrinsic pathway of blood coagulation by converting factor X to its

Uniprot ID	P00740
Uniprot Name	Coagulation factor IX
Molecular Weight	51778.11 Da

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