



Aflibercept

Targets (3)

Biointeractions (3)

IDENTIFICATION

Name

Aflibercept

Accession Number

DB08885

Type

Biotech

Groups

Approved

Biologic Classification

Protein Based Therapies

Fusion proteins

Description

Aflibercept is a recombinant fusion protein that comprises of two main components: the vascular endothelial growth factor (VEGF) binding portions from the extracellular domains of human VEGF receptors 1 and 2 which is then fused to the Fc portion of human IgG1. Structurally, Aflibercept is a dimeric glycoprotein with a protein molecular weight of 96.9 kilo Daltons (kDa). It contains approximately 15% glycosylation to give a total molecular weight of 115 kDa. All five putative N-glycosylation sites on each polypeptide chain predicted by the primary sequence can be occupied with carbohydrate and exhibit some degree of chain heterogeneity, including heterogeneity in terminal sialic acid residues, except at the single unsialylated site associated with the Fc domain. Aflibercept, as an ophthalmic agent, is used in the treatment of macular edema following Central Retinal Vein Occlusion (CRVO) and neovascular Age-Related Macular Degeneration (AMD). Ziv-aflibercept, under the brand name Zaltrap, was developed as an injection for treatment of metastatic colorectal cancer. FDA approved in November 18, 2011 and EMA approved in November 2012.

Protein chemical formula

 $C_{4318}H_{6788}N_{1164}O_{1304}S_{32}$

Protein average weight

115000.0 Da (with glycosylation)

Sequences

> Protein sequence for aflibercept
SDTGRPFVEMYSEIPEIIHMTEGRELVIPCRVTSPNITVTLKKFPLDTLIPDGKRIIWD

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TPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDNLN
GKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPS
DIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFCFSVMHEALHNNH
YTQKSLSLSPG

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[Download FASTA Format](#)

Synonyms

VEGF Trap

VEGF Trap-Eye

Ziv-Aflibercept

External IDs [i](#)

AVE 0005 / AVE 005 / AVE-0005

Prescription Products

NAME ↑↓	DOSAGE ↑↓	STRENGTH ↑↓	ROUTE ↑↓	LABELLER ↑↓	MARKETING		MARKETING		
					START ↑↓	END ↑↓	↑↓	↑↓	↑↓
Eylea	Solution	40 mg	Intravitreal	Bayer	2013-12-23	Not Applicable			
Eylea	Injection, solution	40 mg/mL	Intravitreal	Regeneron Pharmaceuticals	2011-11-21	Not Applicable			
Eylea	Injection, solution	40 mg/ml	Intravitreal	Bayer Ag	2012-11-22	Not Applicable			
Eylea	Injection, solution	40 mg/ml	Intravitreal	Bayer Ag	2012-11-22	Not Applicable			
Zaltrap	Solution	100 mg	Intravenous	Sanofi Aventis	2014-05-08	Not Applicable			
Zaltrap	Injection, solution, concentrate	25 mg/ml	Intravenous	Sanofi Aventis Groupe	2013-02-01	Not Applicable			
Zaltrap	Solution, concentrate	200 mg/8mL	Intravenous	Sanofi Aventis	2012-08-03	Not Applicable			
Zaltrap	Solution, concentrate	100 mg/4mL	Intravenous	Sanofi Aventis	2012-08-03	Not Applicable			
Zaltrap	Injection, solution, concentrate	25 mg/ml	Intravenous	Sanofi Aventis Groupe	2013-02-01	Not Applicable			
Zaltrap	Solution	200 mg	Intravenous	Sanofi Aventis	2014-05-08	Not Applicable			
Zaltrap	Injection, solution, concentrate	25 mg/ml	Intravenous	Sanofi Aventis Groupe	2013-02-01	Not Applicable			

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Categories

[Amino Acids, Peptides, and Proteins](#)

[Antineoplastic Agents](#)

[Antineovascularisation Agents](#)

[EENT Drugs, Miscellaneous](#)

[Enzymes](#)

[Membrane Proteins](#)[Ocular Vascular Disorder Agents](#)[Ophthalmics](#)[Ophthalmologicals](#)[Phosphotransferases](#)[Phosphotransferases \(Alcohol Group Acceptor\)](#)[Protein Kinases](#)[Protein-Tyrosine Kinases](#)[Proteins](#)[Receptor Protein-Tyrosine Kinases](#)[Receptors, Cell Surface](#)[Receptors, Growth Factor](#)[Receptors, Peptide](#)[Recombinant Proteins](#)[Sensory Organs](#)[Transferases](#)[Vascular Endothelial Growth Factor Inhibitor](#)**UNII**[15C2VL427D](#)**CAS number**

862111-32-8

PHARMACOLOGY**Indication**

The ophthalmic agent is used for the treatment of neovascular (wet) age-related macular degeneration (AMD) and macular edema following central retinal vein occlusion (CRVO). The systemic injection, known as ziv-aflibercept, in combination with 5-fluorouracil, leucovorin, irinotecan-(FOLFIRI), is for the treatment of metastatic colorectal cancer that is resistant to or progressed following treatment with oxaliplatin.

Structured Indications ⓘ[Diabetic Macular Edema \(DME\)](#)[Macular Edema \(ME\)](#)[Metastatic Colorectal Cancers](#)[Retinopathy, Diabetic](#)[Wet Age-Related Macular Degeneration](#)



Compared to other anti-VEGF drugs like bevacizumab and ranibizumab, aflibercept has a higher binding affinity to VEGF-A ($K_d = 0.5 \text{ pM}$).

Mechanism of action

Aflibercept is a recombinant fusion protein that acts as a decoy receptor for the ligands, vascular endothelial growth factor-A (VEGF-A) and placental growth factor (PlGF). It prevents these ligands to binding to endothelial receptors, VEGFR-1 and VEGFR-2, to suppress neovascularization and decrease vascular permeability. This ultimately will slow vision loss or the progression of metastatic colorectal cancer.

A Vascular endothelial growth factor A
binder
Human
A Placenta growth factor
binder
Human
A Vascular endothelial growth factor B
binder
Human

Absorption

In patients with wet AMD and CRVO, the mean peak plasma concentration (C_{max}) was 0.02 mcg/mL and 0.05 mcg/mL respectively. These concentrations were reached in 1 to 3 days. Aflibercept did not accumulate when administered as repeated doses intravitreally every 4 weeks.

Volume of distribution

After intravenous injection of aflibercept, the volume of distribution is 6 L.

Protein binding

Not Available

Metabolism

Because aflibercept is a protein, it is expected to be broken down via proteolysis into smaller peptides and amino acids. The cytochrome P450 enzyme system is not involved in the metabolism of aflibercept.

Route of elimination

Via kidney and liver

Half life

Intravitreal half-life= 7.13 days in humans; Terminal elimination half-life of free aflibercept in plasma was 5 to 6 days after IV injection of 2 - 4 mg/kg dose.

Clearance

When cancer patients were given 2-9 mg/kg every 2 or 3 week; 1 hour IV infusion of aflibercept the typical estimated clearances were as follows: CL of free aflibercept (CL_f) = 0.88 L/day; CL of bound aflibercept (CL_b) = 0.19 L/day; Patients clear free aflibercept faster if they had low albumin



Toxicity

For all intravitreal VEGF inhibitors, there is increased risk of stroke and myocardial infarction. An increase in intraocular pressure may also occur. When used intravenously, most common adverse reactions were leukopenia, diarrhea, neutropenia, proteinuria, AST increased, stomatitis, fatigue, thrombocytopenia, ALT increased, hypertension, weight decreased, decreased appetite, epistaxis, abdominal pain, dysphonia, serum creatinine increased, and headache.

Affected organisms

Humans and other mammals

Pathways

Not Available

Pharmacogenomic Effects/ADRs ⓘ

Not Available

INTERACTIONS

Drug Interactions ⓘ

DRUG	↕ INTERACTION	↕ DRUG GROUP
Acetyldigitoxin	Acetyldigitoxin may decrease the cardiotoxic activities of Aflibercept.	Approved
Acetyldigoxin	Acetyldigoxin may decrease the cardiotoxic activities of Aflibercept.	Experimental
Ancestim	The risk or severity of cytotoxicity can be increased when Ancestim is combined with Aflibercept.	Approved, Investigational, Withdrawn
Bevacizumab	Bevacizumab may increase the cardiotoxic activities of Aflibercept.	Approved, Investigational
Cabazitaxel	The risk or severity of adverse effects can be increased when Cabazitaxel is combined with Aflibercept.	Approved
Cyclophosphamide	Cyclophosphamide may increase the cardiotoxic activities of Aflibercept.	Approved, Investigational
Cymarin	Cymarin may decrease the cardiotoxic activities of Aflibercept.	Experimental
Deslanoside	Deslanoside may decrease the cardiotoxic activities of Aflibercept.	Approved
Digitoxin	Digitoxin may decrease the cardiotoxic activities of Aflibercept.	Approved, Investigational
Digoxin	Digoxin may decrease the cardiotoxic activities of Aflibercept.	Approved
Digoxin Immune Fab (Ovine)	Digoxin Immune Fab (Ovine) may decrease the cardiotoxic activities of Aflibercept.	Approved
Docetaxel	The risk or severity of adverse effects can be increased when Docetaxel is combined with Aflibercept.	Approved, Investigational
Gitoformate	Gitoformate may decrease the cardiotoxic activities of Aflibercept.	Experimental
Lanatoside C	Lanatoside C may decrease the cardiotoxic activities of Aflibercept.	Experimental
Metildigoxin	Metildigoxin may decrease the cardiotoxic activities of Aflibercept.	Experimental
Oleandrin	Oleandrin may decrease the cardiotoxic activities of Aflibercept.	Experimental, Investigational
Ouabain	Ouabain may decrease the cardiotoxic activities of Aflibercept.	Approved
Paclitaxel	The risk or severity of adverse effects can be increased when Paclitaxel is combined with Aflibercept.	Approved, Vet Approved
Peruvoside	Peruvoside may decrease the cardiotoxic activities of Aflibercept.	Experimental



Proscillaridin	Proscillaridin may decrease the cardiotoxic activities of Aflibercept.	Experimental
Trastuzumab	Trastuzumab may increase the cardiotoxic activities of Aflibercept.	Approved, Investigational

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Food Interactions

Not Available

REFERENCES

General References

1. Freund KB, Mrejen S, Gallego-Pinazo R: An update on the pharmacotherapy of neovascular age-related macular degeneration. Expert Opin Pharmacother. 2013 Jun;14(8):1017-28. doi: 10.1517/14656566.2013.787410. Epub 2013 Apr 8. [[PubMed:23560774](#)]
2. Thai HT, Veyrat-Follet C, Mentre F, Comets E: Population pharmacokinetic analysis of free and bound aflibercept in patients with advanced solid tumors. Cancer Chemother Pharmacol. 2013 Jul;72(1):167-80. doi: 10.1007/s00280-013-2182-1. Epub 2013 May 15. [[PubMed:23673444](#)]

External Links

KEGG Drug

[D09574](#)

PubChem Substance

[347910379](#)

ChEMBL

[CHEMBL1742982](#)

RxList

[RxList Drug Page](#)

Drugs.com

[Drugs.com Drug Page](#)

Wikipedia

[Aflibercept](#)

ATC Codes

L01XX44 – Aflibercept

- [L01XX – Other antineoplastic agents](#)
- [L01X – OTHER ANTINEOPLASTIC AGENTS](#)
- [L01 – ANTINEOPLASTIC AGENTS](#)
- [L – ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS](#)

S01LA05 – Aflibercept

- [S01LA – Antineovascularisation agents](#)
- [S01L – OCULAR VASCULAR DISORDER AGENTS](#)
- [S01 – OPHTHALMOLOGICALS](#)
- [S – SENSORY ORGANS](#)

AHFS Codes

**FDA label**[Download](#) (325 KB)**MSDS**[Download](#) (91.1 KB)

CLINICAL TRIALS

Clinical Trials ⓘ

Search

PHASE	STATUS	PURPOSE	CONDITIONS	COUNT
1	Active Not Recruiting	Treatment	Macular Edema (ME) / Radiation Retinopathy	1
1	Active Not Recruiting	Treatment	Neovascular Age-Related Macular Degeneration	1
1	Completed	Basic Science	Diabetic Macular Edema (DME) / Neovascular Age-Related Macular Degeneration	1
1	Completed	Other	Neovascular Macular Degeneration	1
1	Completed	Treatment	Adult Anaplastic Astrocytoma / Adult Anaplastic Oligodendroglioma / Adult Giant Cell Glioblastoma / Adult Glioblastoma / Adult Gliosarcoma / Adult Mixed Glioma / Recurrent Adult Brain Tumor	1
1	Completed	Treatment	Cancers	1
1	Completed	Treatment	Diabetic Macular Edema (DME)	1
1	Completed	Treatment	Macular Degeneration	1
1	Completed	Treatment	Metastatic Biliary Cancers / Metastatic Breast Cancer (MBC) / Metastatic Colorectal Cancers / Metastatic Gastric Cancers / Metastatic Oesophageal Cancers / Pancreatic Cancer Metastatic	1
1	Completed	Treatment	Neoplasms	2
1	Completed	Treatment	Neoplasms Malignant	1
1	Completed	Treatment	Neoplasms Metastasis / Neoplasms, Colorectal	1
1	Completed	Treatment	Neovascular Age Related Macular Degeneration	1
1	Completed	Treatment	Non-Hodgkin's Lymphoma (NHL)	1
1	Completed	Treatment	Tumors, Solid	1
1	Completed	Treatment	Unspecified Childhood Solid Tumor, Protocol Specific	1
1	Not Yet Recruiting	Treatment	Pseudophakic Cystoid Macular Edema	1
1	Recruiting	Treatment	Adult Solid Neoplasm / Metastatic Melanoma / Metastatic Renal Cell Cancer / Recurrent Colorectal Carcinoma / Recurrent Melanoma / Recurrent Ovarian Carcinoma / Renal Cell Carcinoma Recurrent / Stage IV Ovarian Cancer / Stage IV Ovarian Cancer AJCC v6 and v7 / Stage IVA Colorectal Cancer / Stage IVA Colorectal Cancer AJCC v7 / Stage IVB Colorectal Cancer / Stage IVB Colorectal Cancer AJCC v7	1
1	Recruiting	Treatment	Advanced Malignant Solid Neoplasm / Metastatic Malignant Solid Neoplasm / Metastatic Solid Neoplasm / Neoplasms, Advanced Solid / Ovarian Carcinoma / Progressive Neuroendocrine Tumors of pancreatic origin / Recurrent Malignant Solid Neoplasm / Recurrent Solid Neoplasm / Solid Neoplasms / Unresectable	1



1	Recruiting	Treatment	Macular Edema (ME) / Retinal Artery Macroaneurysm	1
1	Terminated	Treatment	Corneal Neovascularization	1
1	Terminated	Treatment	Neoplasms	1
1	Unknown Status	Treatment	Age Related Macular Degeneration (ARMD) / Central Retinal Vein Occlusion (CRVO)	1
1, 2	Completed	Basic Science	Age-Related Macular Degeneration (ARMD) / Diabetic Macular Edema (DME) / Retinal Vein Occlusions(RVO)	1
1, 2	Completed	Treatment	Advanced Carcinoma / Lung Cancer Non-Small Cell Cancer (NSCLC)	1
1, 2	Completed	Treatment	Fallopian Tube Cancer / Malignant Tumor of Peritoneum / Recurrent Ovarian Epithelial Cancer	1
1, 2	Completed	Treatment	Metastatic Colorectal Cancers	1
1, 2	Completed	Treatment	Neovascular Age-Related Macular Degeneration	1
1, 2	Not Yet Recruiting	Treatment	Corneal Neovascularization	1
1, 2	Recruiting	Prevention	Retinopathy, Diabetic	1
1, 2	Recruiting	Treatment	Diabetic Macular Edema (DME)	1
1, 2	Recruiting	Treatment	Neovascular Age-Related Macular Degeneration	1
1, 2	Recruiting	Treatment	Proliferative Diabetic Retinopathy (PDR)	1
1, 2	Terminated	Treatment	Metastatic Colorectal Cancers	1
1, 2	Unknown Status	Treatment	Histoplasmosis retinitis	1
2	Active Not Recruiting	Treatment	Age-Related Macular Degeneration (AMD) / AMD / Eye Diseases / Macular Degeneration / Macular Degeneration, Age-related, 10 / Neovascular Age-Related Macular Degeneration / Retinal Degenerations / Retinal Diseases	1
2	Active Not Recruiting	Treatment	Age-Related Macular Degeneration (ARMD)	1
2	Active Not Recruiting	Treatment	Esophageal Cancers / Malignant Neoplasm of Stomach	1
2	Active Not Recruiting	Treatment	Macular Oedema / Retinitis Pigmentosa (RP)	1
2	Active Not Recruiting	Treatment	Metastatic Colorectal Cancers	1
2	Active Not Recruiting	Treatment	Metastatic Melanoma / Recurrent Melanoma / Stage III Cutaneous Melanoma AJCC v7 / Stage IIIA Cutaneous Melanoma AJCC v7 / Stage IIIA Skin Melanoma / Stage IIIB Cutaneous Melanoma AJCC v7 / Stage IIIB Skin Melanoma / Stage IIIC Cutaneous Melanoma AJCC v7 / Stage IIIC Skin Melanoma / Stage IV Cutaneous Melanoma AJCC v6 and v7 / Stage IV Skin Melanoma	1
2	Active Not Recruiting	Treatment	Mucinous Adenocarcinoma of the Colon / Mucinous Adenocarcinoma of the Rectum / Signet Ring Adenocarcinoma of the Colon / Signet Ring Adenocarcinoma of the Rectum / Stage IV Colon Cancer / Stage IV Rectal Cancer	1
2	Active Not Recruiting	Treatment	Multiple Endocrine Neoplasia Type 1 / Pancreatic Neuroendocrine Carcinoma	1
2	Active Not Recruiting	Treatment	Proliferative Diabetic Retinopathy (PDR)	1
2	Active Not Recruiting	Treatment	Rectal Carcinoma	1
2	Completed	Treatment	Adult Anaplastic Astrocytoma / Adult Anaplastic Oligodendroglioma / Adult Giant Cell Glioblastoma / Adult Gliosarcoma / Recurrent Adult Brain Tumor	1
2	Completed	Treatment	Cancer of the Ovary / Neoplasms	1



2	Completed	Treatment	Ciliary Body and Choroid Melanoma, Medium/Large Size / Extraocular Extension Melanoma / Iris Melanoma / Metastatic Intraocular Melanoma / Recurrent Intraocular Melanoma / Recurrent Melanoma / Stage III Melanoma / Stage IV Melanoma	1
2	Completed	Treatment	Clear Cell Renal Cell Carcinoma / Renal Cell Carcinoma Recurrent / Stage III Renal Cell Cancer / Stage IV Renal Cell Cancer	1
2	Completed	Treatment	Diabetic Macular Edema (DME)	2
2	Completed	Treatment	Extensive Stage Small Cell Lung Cancer / Recurrent Small Cell Lung Cancer	1
2	Completed	Treatment	Exudative Age Related Macular Degeneration	1
2	Completed	Treatment	Fallopian Tube Cancer / Female Reproductive Cancer / Ovarian Carcinosarcoma / Ovarian Sarcoma / Recurrent Ovarian Epithelial Cancer / Recurrent Uterine Sarcoma / Stage III Ovarian Epithelial Cancer / Stage III Uterine Sarcoma / Stage IV Ovarian Epithelial Cancer / Stage IV Uterine Sarcoma / Uterine Carcinosarcoma / Uterine Leiomyosarcoma	1
2	Completed	Treatment	Idiopathic Polypoidal Choroidal Vasculopathy	1
2	Completed	Treatment	Macular Degeneration	2
2	Completed	Treatment	Metastatic Breast Cancer (MBC) / Recurrent Breast Cancer / Stage IV Breast Cancer	1
2	Completed	Treatment	Metastatic Colorectal Cancers	2
2	Completed	Treatment	Neoplasms Metastasis / Neoplasms, Colorectal	1
2	Completed	Treatment	Neoplasms, Lung / Pulmonary Diseases	1
2	Completed	Treatment	Neoplasms, Ovarian	1
2	Completed	Treatment	Neovascular Age-Related Macular Degeneration	3
2	Completed	Treatment	Rectal Carcinoma	1
2	Completed	Treatment	Recurrent Colon Cancer / Recurrent Rectal Cancer / Stage IV Colon Cancer / Stage IV Rectal Cancer	1
2	Completed	Treatment	Recurrent Endometrial Carcinoma	1
2	Completed	Treatment	Recurrent Thyroid Gland Carcinoma / Stage III Thyroid Gland Follicular Carcinoma / Stage III Thyroid Gland Papillary Carcinoma / Stage IV Thyroid Gland Follicular Carcinoma / Stage IV Thyroid Gland Papillary Carcinoma	1
2	Completed	Treatment	Unresectable Metastatic Colorectal Cancer	1
2	Completed	Treatment	Vitreous Hemorrhage	1
2	Not Yet Recruiting	Treatment	Adverse Effect of Radiation Therapy	1
2	Not Yet Recruiting	Treatment	Metastatic Colorectal Cancers / MSI	1
2	Not Yet Recruiting	Treatment	Proliferative Diabetic Retinopathy (PDR)	1
2	Not Yet Recruiting	Treatment	Radiation Retinopathy	1
2	Recruiting	Prevention	Age-Related Macular Degeneration (ARMD)	1
2	Recruiting	Treatment	Carcinoid Tumors	1
2	Recruiting	Treatment	Cystoid Macular Edema / Macular Degeneration / Neovascularization / Recurrent Pterygium / Retinal Neovascularization / Retinal Vein Occlusions(RVO) / Retinopathy, Diabetic / Subfoveal Choroidal Neovascularization	1
2	Recruiting	Treatment	Idiopathic Choroidal Neovascularization	1
2	Recruiting	Treatment	Idiopathic Polypoidal Choroidal Vasculopathy	1
2	Recruiting	Treatment	Inflammatory Choroidal Neovascularization	1



2	Recruiting	Treatment	Metastatic Colorectal Cancers	4
2	Recruiting	Treatment	Neoplasms, Colorectal	1
2	Recruiting	Treatment	Pseudoxanthoma Elasticum	1
2	Recruiting	Treatment	Rectal Carcinoma / Rectosigmoid Cancer	1
2	Recruiting	Treatment	Retinopathy, Diabetic	1
2	Recruiting	Treatment	Wet Age-Related Macular Degeneration / Wet Macular Degeneration	1
2	Terminated	Treatment	Age-Related Macular Degeneration (ARMD)	1
2	Terminated	Treatment	Atypical Chronic Myeloid Leukemia, BCR-ABL1 Negative / Chronic Myelomonocytic Leukemia / De Novo Myelodysplastic Syndromes / Myelodysplastic/Myeloproliferative Neoplasm, Unclassifiable / Previously Treated Myelodysplastic Syndromes / Secondary Myelodysplastic Syndromes	1
2	Terminated	Treatment	Metastatic Colorectal Cancers	2
2	Terminated	Treatment	Neovascular Age-Related Macular Degeneration	1
2	Terminated	Treatment	Stage II Multiple Myeloma / Stage III Multiple Myeloma	1
2	Unknown Status	Treatment	Central Serous Chorioretinopathy (CSC)	1
2	Withdrawn	Treatment	Choroidal Neovascularization in Angioid Streaks	1
2	Withdrawn	Treatment	Colorectal Cancers	1
2	Withdrawn	Treatment	Colorectal Cancers / Metastatic Colorectal Cancers	1
2	Withdrawn	Treatment	Leukemias	1
2	Withdrawn	Treatment	Metastatic Colorectal Cancers	1
2	Withdrawn	Treatment	Mucinous Adenocarcinoma of the Colon / Mucinous Adenocarcinoma of the Rectum / Recurrent Colon Cancer / Recurrent Rectal Cancer / Signet Ring Adenocarcinoma of the Colon / Signet Ring Adenocarcinoma of the Rectum / Stage IVA Colon Cancer / Stage IVA Rectal Cancer / Stage IVB Colon Cancer / Stage IVB Rectal Cancer	1
2, 3	Completed	Treatment	Ascites / Neoplasms, Ovarian	1
2, 3	Completed	Treatment	Diabetic Macular Edema (DME)	1
2, 3	Completed	Treatment	Proliferative Diabetic Retinopathy (PDR)	1
2, 3	Recruiting	Basic Science	Age Related Macular Degeneration (ARMD)	1
2, 3	Recruiting	Treatment	Proliferative Diabetic Retinopathy (PDR) / Vitreous Hemorrhage	1

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PHARMACOECONOMICS

Manufacturers

Not Available

Packagers

Not Available

Dosage forms

Search



Solution	Intravitreal	40 mg
Injection, solution, concentrate	Intravenous	25 mg/ml
Solution	Intravenous	100 mg
Solution	Intravenous	200 mg
Solution, concentrate	Intravenous	100 mg/4mL
Solution, concentrate	Intravenous	200 mg/8mL

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Prices

Not Available

Patents

Search

PATENT NUMBER	↕	PEDIATRIC EXTENSION	↕	APPROVED	↕	EXPIRES (ESTIMATED)	↕	↕
US7306799		No		2005-03-25		2020-05-23		
US7531173		No		2009-05-12		2026-02-02		
US7374758		No		2008-05-20		2020-05-23		
US7608261		No		2009-10-27		2027-06-14		
US7070959		No		2006-07-04		2020-05-23		
US7374757		No		2008-05-20		2020-05-23		

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PROPERTIES**State**

Liquid

Experimental Properties

PROPERTY	VALUE	SOURCE
water solubility	>100 mg/mL	MSDS

TAXONOMY**Description**

Not Available

Kingdom

Organic Compounds

**Class**

Carboxylic Acids and Derivatives

Sub Class

Amino Acids, Peptides, and Analogues

Direct Parent

Peptides

Alternative Parents

Not Available

Substituents

Not Available

Molecular Framework

Not Available

External Descriptors

Not Available

TARGETS

1. Vascular endothelial growth factor A**Kind**

Protein

Organism

Human

Pharmacological action

Yes

Actions

Binder

General Function

Vascular endothelial growth factor receptor binding

Specific Function

Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. Induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis and induces permeabilization of...

Gene Name

VEGFA

**Uniprot Name**

Vascular endothelial growth factor A

Molecular Weight

27042.205 Da

References

1. Browning DJ, Kaiser PK, Rosenfeld PJ, Stewart MW: Aflibercept for age-related macular degeneration: a game-changer or quiet addition? Am J Ophthalmol. 2012 Aug;154(2):222-6. doi: 10.1016/j.ajo.2012.04.020. [[PubMed:22813448](#)]

2. Placenta growth factor**Kind**

Protein

Organism

Human

Pharmacological action Yes**Actions** Binder**General Function**

Heparin binding

Specific Function

Growth factor active in angiogenesis and endothelial cell growth, stimulating their proliferation and migration. It binds to the receptor FLT1/VEGFR-1. Isoform PlGF-2 binds NRP1/neuropilin-1 and NR...

Gene Name

PGF

Uniprot ID[P49763](#)**Uniprot Name**

Placenta growth factor

Molecular Weight

24788.45 Da

References

1. Browning DJ, Kaiser PK, Rosenfeld PJ, Stewart MW: Aflibercept for age-related macular degeneration: a game-changer or quiet addition? Am J Ophthalmol. 2012 Aug;154(2):222-6. doi: 10.1016/j.ajo.2012.04.020. [[PubMed:22813448](#)]

3. Vascular endothelial growth factor B