



Glossary

> 10 disk diameters

Retinal capillary non-perfusion/ischemia is historically measured in disk areas. The disk areas are assessed from fluorescein angiograms and refer to the portions of the fundus devoid of retinal arterioles and/or capillaries. The threshold of 10 disk areas of retinal capillary non-perfusion has been generally accepted as a cut-off value for increased risk of neovascular events associated with eyes with RVO

20/40

Equivalent to 70 ETDRS letters, a decimal value of 0.501 and a LogMAR value of 0.3

95% confidence interval

Indicates that there is 95% confidence in the statement that the 'true' value of a measure lies between the upper and lower limits of a range of values

AAO

American Academy of Ophthalmology

Abducens nerve

Also known as cranial nerve VI and CN VI. Motor nerve that permits movement of the lateral rectus, a muscle that moves the eyeball

Abduct

To move the eye outward, away from the nose

Accessory lacrimal gland

Small tubular glands located in the palpebral conjunctiva, assumed to contribute to the production of tear fluid

Accommodation

The ability of the eye to adjust the focal length of the lens to focus on objects of varying distances

ACCORD-EYE

Action to Control Cardiovascular Risk in Diabetes Eye Study; study evaluating the importance of glycemic, lipid, and blood pressure control on the progression of diabetic retinopathy

Acoustic neuroma

Benign brain tumor that develops on the acoustic nerve

Active control

A reference drug, treatment procedure or clinical management regimen that is used for comparison against the experimental intervention

Adventitial sheath

Outer coating or sheath enclosing a part or tubular organ such as a blood vessel. Made up of connective tissue and elastic fibers

Adventitial sheathotomy

A surgical procedure that involves separating the common sheath that connects the artery and vein at an arteriovenous crossing

AE

Adverse event; any untoward medical occurrence in a patient or clinical investigation participant following the administration of pharmaceutical product. An adverse event does not necessarily have a causal relationship with the administered treatment

AF

Autofluorescence; a non-invasive imaging technique for mapping naturally or pathologically occurring fluorophores, such as lipofuscin, in the retina

Afferent

Bearing or conducting inward; specifically: conveying impulses toward the central nervous system

Afferent pupillary defect

Difference in dilation/constriction of the pupils in response to light between a normal eye and one affected by ischemic CRVO that occurs in response to varying amounts of light that are able to enter the optic nerve. A relative afferent pupillary defect occurs only in ischemic CRVO, and is a useful way of distinguishing ischemic from non-ischemic CRVO

Affinity maturation

The process by which B cells produce antibodies with increased affinity for antigen during the course of an immune response

Age-Related Eye Disease Study

AREDS; clinical trial sponsored by the National Eye Institute, which was undertaken in the United States to evaluate the effects of high levels of antioxidants and zinc on the progression of AMD

Age-related macular degeneration

Progressive chronic disease affecting people aged 50 years and over that can lead to loss of central vision due to damage to the macula

Amacrine cell

Interneurons located in the inner nuclear layer of the retina

AMD

Age-related macular degeneration; a progressive chronic disease, mainly affecting people aged 50 years and over, that can lead to loss of central vision due to damage to the macula

Amsler grid

A specialized visual assessment tool consisting of vertical and horizontal lines that tests for defects in central vision

Anastomosis

Communication between blood vessels by collateral channels

ANCHOR

Anti-VEGF Antibody for the Treatment of Predominantly Classic Choroidal Neovascularization in Age-Related Macular Degeneration; phase III study that compared monthly ranibizumab with verteporfin PDT in the treatment of predominantly classic wet AMD

Anterior

In human anatomical usage, anterior means 'in front of'

Anterior chamber

Fluid-filled space behind the cornea and in front of the iris

Anterior chamber angle

Lies at the junction of the peripheral cornea and the root of the iris

Anticholinergic

Substance that inhibits or blocks the binding of the neurotransmitter acetylcholine to receptor sites in nerve cells

Antiplatelet Trialists' Collaboration

APTC; a rigorous and independent evaluation of any patients presenting with a MedDRA (Medical Dictionary for Regulatory Activities)-defined adverse event

APD

Afferent pupillary defect; difference in dilation/constriction of the pupils in response to light between a healthy eye and one with less pupil constriction in the presence of a retinal or optic nerve disorder

Apex

Referring to the top or highest point of an object

Aphakic

An eye in which the crystalline lens is absent

Apical

Of, relating to, or situated at an apex

Aponeurosis

A whitish, fibrous membrane that connects a muscle to a bone or fascia

Apoptosis

Genetically controlled mechanisms of cell death

Applanation tonometer

Ophthalmologic instrument used to measure tension or pressure within the eye

Aptamer

Nucleic acid molecules that bind with high affinity to specific target molecules

APTC

Antiplatelet Trialists' Collaboration; a rigorous and independent evaluation of any patients presenting with a MedDRA (Medical Dictionary for Regulatory Activities)-defined adverse event

Aqueous

A solution in which the solvent is water

Aqueous humor

Secreted by the ciliary body to fill the anterior chamber of the eye

AREDS

Age-Related Eye Disease Study; a clinical trial sponsored by the National Eye Institute that was undertaken in the US to evaluate the effects of high levels of antioxidants and zinc on the progression of AMD

AREDS2

Age-Related Eye Disease Study 2; a follow-up trial to AREDS designed to assess whether forms of the AREDS nutritional supplement with reduced zinc and/or no beta-carotene would be as effective as the original supplement in reducing the risk of progression to advanced AMD

Arteriovenous

Of, relating to, or connecting the arteries and veins

Arteriovenous crossing

Point at which an arterial vessel and venous vessel cross

Arteriovenous nicking

Occurs when the more rigid walls of an arteriosclerotic arterial vessel press on the weaker walls of a venous vessel, causing compression of the venous vessel and increasing the likelihood of thrombus formation as a result of changes to hemodynamic and anatomical factors

Arteriovenous nicking

Compression of a vein by an adjacent, pathologically stiffened artery at an arteriovenous crossing point

Atrophy

Decrease in size or wasting away of a body part or tissue

AURA

Retrospective analysis of the 'real-life' use of ranibizumab in wet AMD

Autophosphorylation

The phosphorylation of a kinase protein catalyzed by its own enzymatic activity

Avascular

Not associated with or supplied by blood vessels

B cell

Type of white blood cell that secretes antibodies to bind specific foreign antigens

Basal lamina

Layer of extracellular matrix secreted by the epithelial cells found on the basal surface of epithelial cells

BCVA

Best-corrected visual acuity; best possible vision a person can achieve wearing corrective lenses and measured using Snellen lines or an eye chart; a person's best distance vision with visual aids (eyeglasses or contact lenses)

Beaver Dam Eye Study

Population-based cohort study on common eye diseases causing vision loss in an aging population in Beaver Dam, Wisconsin

Best-corrected visual acuity

Best possible vision a person can achieve wearing corrective lenses and measured using Snellen lines or an eye chart

Bevacizumab

Humanized monoclonal antibody that binds to all forms of VEGF-A

Biconvex

Convex on both sides

Blind spot

The small circular area in the retina where the optic nerve enters the eye that is devoid of rods and cones and is insensitive to light. Also called the optic disk

Blood–retinal barrier

A barrier comprised of retinal cells to regulate the movement of solutes and nutrients between the retinal capillaries and the retinal tissue

Blue Mountains Eye Study

Population-based cohort study of vision, common eye diseases, and other health outcomes in an older Australian community sample

BMPs

Bone morphogenetic proteins; a group of growth factors involved in inducing bone formation as well as orchestrating tissue architecture

Brainstem

Region of the brain that connects the spinal cord to the forebrain and cerebrum

Branch retinal vein occlusion

BRVO; a vein occlusion of a single branch of retinal venous vasculature, usually occurring at an arteriovenous crossing

Branch Vein Occlusion Study

BVOS; landmark trial that established the role of laser photocoagulation in the management of BRVO

BRAVO

Phase III trial that assessed the anti-VEGF agent ranibizumab for the treatment of macular edema secondary to BRVO

BRB

Blood-retina barrier; a barrier comprising retinal cells to regulate the movement of solutes and nutrients between the retinal capillaries and retinal tissue

Bruch's membrane

The innermost layer of the choroid

BRVO

Branch retinal vein occlusion; a vein occlusion of a single branch of retinal venous vasculature, usually occurring at an arteriovenous crossing

Bulbar conjunctiva

Clear membrane covering the anterior portion of the sclera

BVOS

The Branch Vein Occlusion Study; landmark trial that established the role of laser photocoagulation in the management of BRVO

CABERNET

A randomized, controlled trial evaluating the safety and efficacy of epimacular brachytherapy for the treatment of AMD

Caliber

Inside diameter of a tube or canal, such as a blood vessel

Cannula

Thin tube inserted into a vessel, duct, or cavity to drain fluid or administer medication

Cannulation

Insertion of a cannula, a thin tube inserted into a vessel, duct, or cavity to drain fluid or administer medication

Canthus

The angle or corner on each side of the eye, formed by the junction of the upper and lower lids

Capillary

The smallest blood vessels in the body that transport blood from arteries to veins

Capillary bed drop out

Areas of non-perfusion in the capillary bed

Capillary-free zone

Section of the fovea in which there are no blood vessels; this allows light to be sensed without dispersion or loss

Carotid plexus

A network of nerves of the sympathetic nervous system surrounding the internal carotid artery

Caruncle

Small, red portion of the corner of the eye containing modified sebaceous and sweat glands

Catalyze

To cause or accelerate a reaction by acting as a catalyst

Cataract

A clouding of the lens of the eye or its surrounding transparent membrane that obstructs the passage of light into the eye

CATT

Comparisons of Age-Related Macular Degeneration Treatments Trials; phase III, noninferiority trial comparing ranibizumab and bevacizumab in patients with wet AMD

Cauterize

To destroy tissue with a heated instrument or caustic substance, typically to stop bleeding and prevent the spread of infection

Cavernous sinus

A large channel of venous blood creating a cavity bordered by the sphenoid bone and the temporal bone of the skull

Central fovea

Depression in the center of the macula of the retina where cone photoreceptors are concentrated at maximum density

Central nervous system

The complex of nerve tissues that controls the activities of the body. Composed of the brain and spinal cord

Central retinal thickness

A measurement of the retina made in microns

Central retinal vein

Short vein that runs through the optic nerve and carries blood away from the retina

Central retinal vein occlusion

CRVO; condition in which the central retinal vein – the major venous outflow channel of the eye – is obstructed at or behind the lamina cribrosa. CRVO is typically the most severe form of retinal vein occlusion because it is characterized by intraretinal hemorrhages in all four retinal quadrants and can be associated with profound ischemia of the retina

Central Vein Occlusion Study

CVOS; landmark trial that established the role of laser photocoagulation in the management of CRVO

Central vision

A person's field of vision when looking straight ahead

Centripetally

Directed toward the center

Cerebrum

Superior-most region of the vertebrate central nervous system

CFH

Complement factor H; an element of the complement cascade that acts as a stimulus for inflammation

CFT

Central foveal thickness; retinal thickness measurement taken from the point of intersection of six radial scans

Chiasm

The crossing over of two parts or structures, such as the fibers of the optic nerves in the brain

Cholinergic

Resembling acetylcholine in pharmacological action

Choriocapillaris

The inner of the two vascular layers of the choroid of the eye that is composed largely of capillaries

Chorioretinal venous anastomosis

A surgically created shunt between a retinal vein and the choroid. In CRVO, it may be used with the aim of providing an alternative route for blood flow from the occluded vein, thereby improving venous outflow and relieving the venous obstruction

Choroid

Lines most of the internal surface of the sclera, and is highly vascularized, providing nutrients to the surface of the retina

Choroidal

Of or relating to the choroid

Choroidal detachment

Condition in which the choroid detaches itself from the underlying sclera

Choroidal neovascularization

CNV; growth of abnormal new blood vessels in the choroid layer of the eye

Cidofovir

Antiviral drug that is used to treat cytomegalovirus retinitis in patients with AIDS

Ciliary body

Consists of ciliary processes (folds in the surface) and ciliary muscle. The ciliary processes contain blood capillaries that secrete aqueous humor. The ciliary muscle controls the shape of the lens, adapting it for near or far vision

Ciliary ganglion

Small parasympathetic ganglion located in the posterior orbit

Classic choroidal neovascularization

Classification of choroidal neovascularization in which a 'net' of new blood vessels is clearly observed on a fluorescein angiogram

CLEAR-IT

Clinical Evaluation of Anti-angiogenesis in the Retina; studies designed to assess the safety and efficacy of intravitreally delivered aflibercept in the eyes of patients with wet AMD

CME

Cystoid macular edema; a disorder which affects the central retina or macular. Multiple cyst-like areas of fluid appear in the macular causing retinal swelling or edema

CNTF

Ciliary neurotrophic factor; nerve growth factor promoting neurotransmitter synthesis and neurite outgrowth in central neural populations

CNV

Choroidal neovascularization; growth of abnormal new blood vessels in the choroid layer of the eye

Coagulation cascade

The sequence of biochemical activities, involving clotting factors, that stop bleeding by forming a clot

Cohort

A group of subjects who have undergone a treatment during a specified time period

Collateral blood vessels

Extra blood vessels develop within the existing retinal vascular network, originating from capillaries and joining obstructed and non-obstructed vessels

Complement system

A powerful defense against infectious disease; part of the innate immune system, and 'complements' the antibody and leukocyte response of the adaptive immune system

Cone

Cells responsible for color vision: they are stimulated by brighter light than the rods. The retina has three types of cones, sensitive to blue, green and red light respectively. Color vision results from the stimulation of various combinations of these three types of cones

Confluent

Flowing or coming together

Conjunctiva

Thin translucent mucous membrane that lines the inner surface of the eyelid and the sclera, and facilitates lubrication of the eye

Conjunctival fornix

The junction between bulbar conjunctiva and palpebral conjunctiva

Contiguous

Sharing an edge or boundary

COPERNICUS

One of two large phase III clinical trials that assessed the efficacy and safety of aflibercept (EYLEA) for the treatment of macular edema secondary to CRVO

Cornea

The transparent curved structure through which light first passes on entering the eye

Corneal edema

Swelling and inflammation of the cornea caused by excess hydration or accumulation of fluid in the cornea portion

Corticosteroid

Class of chemicals that includes steroid hormones naturally produced by the adrenal cortex, or their synthetic equivalents produced in laboratories

Cotton-wool spot

White, fuzzy areas on the surface of the retina that represent localized ischemia of the nerve fiber layer

Cranial nerve

12 paired nerves that arise from the lower surface of the brain with one of each pair on each side and pass through openings in the skull to the periphery of the body

Cross-linking

The process of bonding one polymer chain to another by creating covalent bonds

CRT

Central retinal thickness; a measurement of the retina made in microns

CRUISE

Phase III trial that assessed the anti-VEGF agent ranibizumab for the treatment of macular edema secondary to CRVO

CRVO

Central retinal vein occlusion; condition in which the central retinal vein – the major venous outflow channel of the eye – is obstructed at or behind the lamina cribrosa. CRVO is typically the most severe form of retinal vein occlusion because it is characterized by intraretinal hemorrhages in all four retinal quadrants and can be associated with profound ischemia of the retina

CSME

Clinically significant macular edema; term introduced by the ETDRS to define morphological severity when DME threatens the center of the macula

CST

Central subfield thickness; average thickness in the central 1-mm subfield centered at the fovea

CVOS

Central Vein Occlusion Study; landmark trial that established the role of laser photocoagulation in the management of CRVO

Cystoid

Formed like or resembling a cyst

Cytokine

Regulatory proteins, such as interleukins and lymphokines, that are released by cells of the immune system and act as intercellular mediators in the generation of an immune response

Cytolytic

The dissolution or destruction of a cell

Cytomegalovirus retinitis

Inflammation of the retina caused by cytomegalovirus

DCCT

The Diabetes Control and Complications Trial; a study investigating the effect of intensive glycemic control on the frequency and severity of long-term diabetes-related complications

Deep vein thrombosis

Formation of a blood clot in a deep vein, usually in the legs

DENALI

Clinical trial designed to evaluate the efficacy of verteporfin PDT in combination with ranibizumab compared with ranibizumab monotherapy in patients with wet AMD

Desquamated

To shed, peel, or come off in scales

Dexamethasone

Corticosteroid used to treat many inflammatory and allergic conditions

Diabetic macular edema

Complication of diabetic retinopathy that occurs as a result of breakdown of the inner blood-retinal barrier, which allows leakage of fluid into the macula, causing it to thicken and swell. Diabetic macular edema can cause blurred vision or, in severe cases, profound vision loss

Diabetic retinopathy

The most serious complication of diabetes for the eye

Diabetic retinopathy

Retinal abnormalities resulting from diabetes

Diabetic Retinopathy Clinical Research Network

The Diabetic Retinopathy Clinical Research Network is a collaborative network dedicated to multicenter clinical research of diabetic retinopathy, diabetic macular edema, and associated conditions.

Dimer

A molecule comprised of two identical, simpler molecules

Dimerize

To form a dimer (two parts) through a process such as polymerization

Diopter

Unit of measurement of the optical power of a lens, equal to the reciprocal of the focal length in meters

Diplopia

Double vision; the occurrence of multiple images from a single object in the visual field

Direct ophthalmoscopy

Test performed to examine the interior of the eyes

DME

Diabetic macular edema; complication of diabetic retinopathy that occurs as a result of breakdown of the inner blood-retinal barrier, which allows leakage of fluid into the macula, causing it to thicken and swell. Diabetic macular edema can cause blurred vision or, in severe cases, profound vision loss

Drusen

Precursor lesion for advanced age-related macular degeneration

Dry AMD

Also known as non-exudative AMD. The most common form of macular degeneration. Dry AMD is generally slowly progressive, with visual function typically deteriorating over a period of many years

Dry eye

Also known as keratoconjunctivitis sicca. Dryness of the eye caused by inadequate tear production or abnormal tear composition leading to increased tear film evaporation

DSEK

Descemet's stripping endothelial keratoplasty; a surgical procedure used in the management of corneal endothelial disease

Dyscrasias

Nonspecific term that refers to any disease or disorder; usually refers to blood diseases

Dyslipidemia

An abnormal amount of lipids in the blood

Dysmorphia

Abnormality in the shape or size of a specified part of the body

Edema

Swelling caused by fluid accumulation in body tissues

Efferent

Conducting outward from a part or organ

EGF

Epidermal growth factor; a growth factor that stimulates cell growth, proliferation and differentiation

Endophthalmitis

Inflammation of the inner ocular tissues, caused by infection, trauma, or allergic reaction

Endothelium

A thin layer of flat epithelial cells that lines serous cavities, lymph vessels, and blood vessels

Enzyme

Complex proteins that catalyze specific biochemical reactions at body temperature

Epimacular brachytherapy

Procedure combining a standard pars plana vitrectomy with the delivery of a targeted dose of beta-radiation to the macula

Epiphenomena

A secondary phenomenon accompanying another and caused by it

Epiretinal membrane

Formation of a layer of scar tissue on the surface of the retina, specifically the macula, causing a disturbance in vision

Epithelium

Membranous cellular tissue that covers the body's surface and lines tubes or cavities within the body. The epithelium serves to enclose and protect parts of the body, to produce secretions and excretions, and to function in assimilation

EPO

Erythropoietin; a hormone secreted by the kidney that increases the rate of production of red blood cells in response to falling levels of oxygen in the tissues

EQ-5D

European Quality of Life-5 Dimensions questionnaire

Equivalence trial

A trial that is designed to show that one treatment is as effective as another

Esotropia

Condition in which one or both eyes turn inwards

ETDRS

Early Treatment for Diabetic Retinopathy Study; this chart is a standardized way to measure visual acuity, regardless of the environment in which the examination takes place

ETDRS chart

Developed for use in the Early Treatment for Diabetic Retinopathy Study, this chart is a standardized way to measure visual acuity, regardless of the environment in which the examination takes place

Ethmoid

One of seven bones that makes up the orbit; a light spongy bone that separates the nasal cavity from the brain

EVEREST

Efficacy and Safety of Verteporfin Photodynamic Therapy in Combination with Ranibizumab or Alone versus Ranibizumab Monotherapy in Patients with Symptomatic Macular Polypoidal Choroidal Vasculopathy

Excimer laser

Type of ultraviolet laser with the ability to evaporate microscopic amounts of tissue from the cornea's underlying stromal layer without causing any thermal damage to surrounding tissue

EXCITE

Phase IIIb study designed to evaluate the noninferiority of quarterly versus monthly dosing of ranibizumab in patients with subfoveal CNV secondary to wet AMD

Exocrine

Pertaining to the secretion of a substance out through a duct

Extraocular

Situated or occurring outside the eye

Exudative

Referring to fluid that oozes or filters from the circulatory system into the tissues

EYLEA

Aflibercept solution for injection

FA

Fluorescein angiography; method to obtain images of the eye which can then be used to categorize choroidal neovascularization based on the fluorescence patterns

Factor v leiden

Hereditary blood coagulation disorder

Factorial trial

Clinical study in which two or more series of treatments are tried in all combinations

Fascia bulbi

A thin membrane that envelops the eyeball from the optic nerve to the limbus, separating it from the orbital fat and forming a socket in which it moves

FAZ

Foveal avascular zone;; a capillary-free zone of the central fovea

Fc region

Tail region of an antibody that interacts with cell surface receptors

Fenestrated

Having one or more openings or pores

Fenestration

An opening in the surface of a structure, as in a membrane

FGF

Fibroblast growth factor; a growth factor involved in angiogenesis, wound healing, embryonic development and various endocrine signaling pathways

Fibroblast

A cell that contributes to the formation of connective tissue fibers

Fibrous

Consisting of, containing, or resembling fibers

Fibrous tunic

Outermost layer of the eye containing the sclera and cornea

Fibrovascular

Consisting of fibrous tissue and vascular tissue

Floaters

Small shapes that are sometimes seen floating in the field of vision. These are usually caused by debris that floats in the vitreous humor, and cast shadows onto the retina

Flt-1

High-affinity tyrosine kinase receptor for VEGF

Fluocinolone acetonide

Synthetic corticosteroid, injected as an intravitreal implant that is designed to release active drug for up to 3 years

Fluorescein

Orange-red compound that exhibits intense fluorescence in alkaline solution and is used in ophthalmology to study the circulation of the retina and choroid in normal and diseased states

Fluorescein angiography

Method to obtain images of the eye which can then be used to categorize choroidal neovascularization based on the fluorescence patterns

Fluorophore

Chemical compound that emits fluorescence following excitation with light

Focal arteriolar narrowing

A narrowing of an arteriole at a particular point

Fomivirsen

Antiviral drug that is used to treat cytomegalovirus retinitis

Foramen

Window; opening in the bone that allows blood vessels and/or nerves to pass through

Fornices

Conjunctival fornices are the loose arching folds that connect the conjunctival membrane lining the inside of the eyelid with the conjunctival membrane covering the eyeball

Fossa

Depression or hollow, usually in a bone

Fovea

Central depression within the macula in which the retina consists only of cones

Foveal avascular zone

Responsible for central vision

Foveal thickness

Thickness of the central depression within the macula in which the retina consists only of cones

FPG

Fasting plasma glucose; the FPG test may be used to verify a diagnosis of diabetes or for the diagnosis of pre-diabetes

Frontal nerve

Largest branch of the ophthalmic nerve

Fundoscopy

Examination of the fundus of the eye using an ophthalmoscope

Fundus autofluorescence

Noninvasive imaging technique for mapping naturally or pathologically occurring fluorophores, such as lipofuscin, in the retina

Fusion protein

Proteins created through the joining of two or more genes which originally coded for separate proteins. Translation of this fusion gene results in a single polypeptide with functional properties derived from each of the original proteins

GALILEO

One of two large phase III clinical trials that assessed the efficacy and safety of aflibercept (EYLEA) for the treatment of macular edema secondary to CRVO

Ganglion

Group of nerve cells forming a nerve center, especially one located outside the brain or spinal cord

Ganglion cell layer

A layer of the retina that consists of retinal ganglion cells and displaced amacrine cells

G-CSF

Granulocyte colony stimulating factor; a glycoprotein that stimulates the bone marrow to produce granulocytes and stem cells and release them into the bloodstream

GENEVA

Global Evaluation of implaNtable dExamethasone in retinal Vein occlusion with macular edema; phase III study that evaluated the intravitreal, bioerodable dexamethasone implant (DEX implant) Ozurdex in the treatment of vision loss resulting from macular edema secondary to CRVO and BRVO

GENEVA

Global Evaluation of implaNtable dExamethasone in retinal Vein occlusion with macular edema; phase III studies that evaluated the intravitreal, bioerodable dexamethasone implant (DEX implant) Ozurdex in the treatment of vision loss resulting from macular edema secondary to CRVO and BRVO

Geographic atrophy

Another term used to describe late-stage dry AMD

Glaucoma

A group of eye conditions that cause optic nerve damage and can affect vision

GM-CSF

Granulocyte-macrophage colony stimulating factor; a glycoprotein that functions as a cytokine, stimulating stem cells to produce granulocytes and monocytes

Goblet cell

Columnar epithelial cells found in the digestive and respiratory tracts that secrete mucus

Gold standard treatment

Any standardized clinical assessment, method, procedure, intervention or measurement of known validity and reliability that is generally accepted to be the best available for a specific disorder

Gray line

Indicates the anterior boundary of the tarsal plate and is often used as a landmark for eyelid surgery

Guillain-barré syndrome

Autoimmune disorder affecting the peripheral nervous system

Half-life

The time required for the activity of a substance taken into the body to lose half of its initial effectiveness

HbA1c

Glycated hemoglobin; over the lifespan of the red blood cells, glucose will cumulatively bind to hemoglobin, creating glycated hemoglobin. The HbA1c test may be used as a means of indicating average glucose blood levels over the period of 8–12 weeks

HDL

High density lipoprotein; lipoprotein that carries cholesterol. HDL-cholesterol (HDL-C; also referred to as 'good cholesterol') has been identified as a risk factor for cardiovascular disease, with high levels being protective

Head-to-head trial

A trial in which two different treatments are directly compared

Hemodynamic

Of or relating to the flow of blood within the body

Hemostatic

Acting to arrest bleeding or hemorrhage

Heparin

Anticoagulant that acts by preventing fibrin formation, and is typically used as prophylaxis against future thrombogenesis

Heterogeneous

Consists of dissimilar parts

HIF-1

Hypoxia-inducible factor-1; transcription factor triggered by low oxygen supply, located in the cell cytoplasm and nucleus. HIF-1 activates VEGF mRNA transcription

Hisayama Study

Prospective cohort study on cardiovascular disease and its risk factors in Hisayama, Japan

Holocrine

Of or relating to a gland whose output consists of disintegrated secretory cells along with the secretory product itself

Homodimer

Compound formed by the combination of two identical molecules

HORIZON

Extension study of ranibizumab in patients with primary or recurrent CNV secondary to wet AMD who completed the 2-year MARINA, ANCHOR, or FOCUS trials, in which they had received monthly ranibizumab or control therapy

Horizontal raphe

A line of demarcation passing through the fovea, and the midline between the superior and inferior nerve fibers

HRVO

Hemiretinal vein occlusion; variant of CRVO in which approximately 50% of venous outflow, from either the superior or inferior half of the venous system, is affected

Hyaloid

Vascular network that develops in the eye during embryonic and fetal life

Hyaluronic acid

Nonsulfated glycosaminoglycan distributed widely throughout connective, epithelial, and neural tissues

Hypercoagulability

Abnormally increased coagulability of the blood

Hyperlipidemia

High levels of lipids in the blood

Hyperopia

Condition in which visual images come to a focus behind the retina of the eye and vision is better for distant than for near objects (often referred to as 'far-sighted')

Hyperplasia

Increased cell production in a normal tissue or organ

Hypertrophy

An enlargement of an organ or tissue resulting from an increase in the size of the cells

Hyphema

Blood in the anterior chamber of the eye

Hypoxia

Insufficient levels of oxygen in blood or tissue

Hypoxia-inducible factor

HIF; transcription factor triggered by low oxygen tension

ICGA

Indocyanine green angiography (also referred to as ICG angiography); imaging technique used to study choroidal lesions, and involves the patient being injected with a green dye

ICO

International Council of Ophthalmology

Idiopathic

A disease of uncertain or unknown origin

IGF

Insulin-like growth factor; a protein with high sequence similarity to insulin

IgG1

The most abundant subclass of IgG, predominantly responsible for protection against re-infection

IL

Interleukin; a group of signaling cytokines that modulate cellular behavior. Inflammatory cytokines like IL-1 and IL-6 induce VEGF expression in several cell types

Immunogenicity

The ability of a particular substance to provoke an immune response in the body

Immunoglobulin

Ig; Any of several classes of structurally related proteins that function as antibodies or receptors and are found in plasma and other body fluids and in the membrane of certain cells

Indocyanine green angiography

Imaging technique used to study choroidal lesions, which involves the patient being injected with a green dye

Inferior oblique

Extraocular muscle with primary, secondary and tertiary role in extorsion, elevation and abduction of the eye, respectively

Inferior orbital fissure

Groove that lies between the lateral wall and floor of the orbit. Contains the infraorbital and zygomatic nerves, and branches from the pterygopalatine ganglion

Inferior rectus

Extraocular muscle with primary, secondary and tertiary role in depression, extorsion and adduction of the eye, respectively

Inferiorly

The lower surface of a structure

Inferotemporal fossae

Depression in the inferior or lower part of the temporal region of the skull

Inferotemporal quadrant

Of, relating to, or being the lower lateral quadrant of the eye or visual field

Infraorbital nerve

The terminal branch of the maxillary nerve; innervates the lower eyelid

Inner limiting membrane

Boundary between the retina and the vitreous body

Inner nuclear layer

Layer of nerve cell bodies in the retina containing bipolar, horizontal, and amacrine cells

Inner plexiform layer

Layer of the retina composed of a dense reticulum of fibrils formed by interlaced dendrites of retinal ganglion cells and cells of the inner nuclear layer

Interferometry

The process by which two waves, usually electromagnetic, are combined so they can be studied for differences in their patterns

Internal limiting membrane

Multilaminar, semitransparent membrane that acts as a basal membrane for the Müller cells, and is the boundary between the retina and the vitreous body

Intort

Rotation of the top of the eye toward the nose

Intracanalicular

Within canaliculi, tube-like structures that carry the tears from the eyes to the lacrimal sac

Intracranial

Within the cranium

Intraluminal

Within the lumen of any tubular structure or organ

Intraocular

Implanted in, occurring within, or administered by entering the eye

Intraocular lens

Artificial lens implanted in the eye used in cataract treatment

Intraocular pressure

Pressure inside the eye vital for maintaining the shape of the eye and stopping the organ from collapsing

Intraorbital

Within the orbit

Intravitreal

Situated within, occurring within, or introduced into the vitreous body

Intravitreally

Administered via or directly into the eye

IOL

Intraocular lens; an artificial lens made of plastic, silicone, acrylic or other materials that is implanted in the eye during cataract surgery

IOP

Intraocular pressure; pressure inside the eye that is vital for maintaining the shape of the eye

Iris

Made up of melanocytes and muscle fibers and regulates the amount of light entering the eye

Iritis

Inflammation limited to the anterior chamber of the eye

Ischemic CRVO

Type of CRVO in which there are significant areas of non-perfusion visible on fluorescein angiography

Isoform

Name given for any of two or more functionally similar proteins that have a similar but not identical amino acid sequence

IVAN

A Randomised Controlled Trial of Alternative Treatments to Inhibit VEGF in Age-Related Choroidal Neovascularisation; noninferiority factorial trial of patients randomized to four groups to receive ranibizumab or bevacizumab, administered either monthly or as-needed (PRN)

Keratoconus

Degenerative disorder of the eye in which the cornea thins and bulges out into an irregular cone shape causing distortion of vision

KGF

Keratinocyte growth factor, also known as FGF-7; a signaling molecule known to have a role in wound healing

Krause

Glands of Krause; accessory lacrimal gland located in the palpebral conjunctiva. Function to produce tears that moisten the ocular surface

Lacrimal nerve

Branch of the ophthalmic nerve, supplying the upper eyelid, conjunctiva, and lacrimal gland

Lactoferrin

A red iron-binding protein synthesized by neutrophils and glandular epithelial cells, found in many human secretions (such as tears and milk), and retarding bacterial and fungal growth

Lamellae

A thin layer of tissue that produces collagen, a connective tissue

Lamina cribrosa

The portion of the sclera through which fibers of the optic nerve pass

LASEK

Laser epithelial keratomileusis; laser eye surgery procedure intended to correct a person's vision, reducing dependency on visual aids

Laser photocoagulation

Type of laser surgery that seals or destroys abnormal, leaking blood vessels in the retina

Laser photorefractive surgery

Procedure that uses excimer laser ablation to modify the shape of the cornea to correct refractive errors such as myopia, hyperopia, astigmatism, and presbyopia

LASIK

Laser *in situ* keratomileusis; laser eye surgery procedure intended to correct a person's vision, reducing dependency on visual aids

Lateral

Toward the outer aspect of the body

Lateral geniculate body

Protrudes from the posteroinferior surface of the thalamus and serves as a processing station in the major pathway from the retina to the cerebral cortex

Lateral rectus

Extraocular muscle involved in abduction of the eye

LDL

Low density lipoprotein; lipoprotein that carries cholesterol. LDL-cholesterol (LDL-C) is sometimes referred to as 'bad cholesterol'

Lens capsule

Transparent basement membrane that completely surrounds the ocular lens

Leukocyte

White blood cells; cells of the immune system that help protect the body from infection and disease

Levator

A muscle that serves to raise a body part

Levator aponeurosis

The tendon that attaches the levator muscle to the tarsal plate

Levator palpebrae superioris

Muscle in the orbit that elevates the upper eyelid

Lid ptosis

Drooping of the upper eyelid

Ligand

A molecule that binds to a receptor

Limbus

Important surgical landmark when undertaking intravitreal injections

LLUS

Late leakage of undetermined source; areas of leakage of dye at the level of the RPE in the late phases of an angiogram

LMT

Limited macular translocation; translocation of the retina by means of limited retinotomy or scleral shortening

Loading dose

A large initial dose or series of doses of a drug given to rapidly achieve a therapeutic concentration in the body

LOCF

Last observation carried forward; a method used to estimate the missing data for patients who have dropped out of a study

Low-molecular-weight heparin

An anticoagulant derived from unfractionated heparin, containing only the low-molecular-weight molecules of heparin

LUMIÈRE

Study across 16 clinics in France to evaluate the use of ranibizumab in 'real-life' clinical practice with dosing at the discretion of physicians

Lymphangiogenesis

The formation of lymphatic vessels from pre-existing lymphatic vessels

Lymphatic

Of or relating to lymph, a lymph vessel, or a lymph node

Lysozyme

An enzyme that can destroy bacteria and functions as an antiseptic

Müller cell

Principal glial cells of the retina

mAb

Monoclonal antibody; an antibody produced by a single clone of cells or cell lines and consisting of identical antibody molecules

Macrophage

White blood cell produced by the differentiation of monocytes in tissues, which ingests foreign material

Macula

Retinal region around the fovea that is characterized by a high density of cones and ganglion cells and is the area of highest visual acuity

Macular BRVO

BRVO due to an occlusion in one of the macular venules

Macular edema

Accumulation of fluid within the macula of the retina

Macular grid laser photocoagulation

Form of laser treatment that uses a high-energy laser directed at specific areas of permeable or leaking neovasculation as observed on fluorescein angiography. The rationale for this approach is that laser 'burns' are used to 'seal' the leaky vasculature, reduce macular edema, and thereby improve visual function

Macular hole

Small break in the macula causing blurred and distorted central vision

Maculopathy

Any disease that affects the macula – the retinal region around the fovea that is characterized by a high density of cones and ganglion cells and is the area of highest visual acuity

Major BRVO

BRVO due to an occlusion in one of the major branch retinal veins

Margin of noninferiority

The maximum difference that will be tolerated when assessing the noninferiority of a treatment

MARINA

Minimally Classic/Occult Trial of the Anti-VEGF Antibody Ranibizumab in the Treatment of Neovascular Age-Related Macular Degeneration; phase III study assessing the proportion of patients who maintained their vision following monthly treatment with intravitreal ranibizumab

Markov chain Monte Carlo method

Commonly used techniques in health economic outcomes research modelling; one of several validated methods for missing data

Maxilla

One of seven bones that makes up the orbit

mCNV

Myopic choroidal neovascularization, also referred to as myopic CNV; growth of abnormal new blood vessels in the choroid layer of the eye

Meatus

Opening into the interior of the body

Medial rectus

A muscle in the orbit innervated by the oculomotor nerve. Functions in moving the eye inwards (adduction)

Medially

Situated toward the median plane or midline of the body or a structure

Meibomian gland

Sebaceous glands embedded in the tarsal plate of the eyelids responsible for the supply of meibum, an oily substance that prevents evaporation of the eye's tear film

Melanin

Contained in the pigmented layer of the retina

Melanocyte

A cell producing and containing melanin

Membrane attack complex

The pentamolecular complex of complement proteins, inserting into the target cell membrane where it creates a pore and results in cytolysis

Membrane co-factor protein

Downregulates activation of the complement system

Meninges

System of three fibrous membranes that envelope the brain and spinal cord to protect the central nervous system

Meningioma

Tumors arising from the meninges

Meta-analysis

The use of statistical methods to combine the data from different studies

Metastasis

The spreading of cancer cells from one organ or tissue to another

Methotrexate

An immunosuppressive medication that belongs to the family of antimetabolites. Has been used to treat various ocular disorders, including uveitis, scleritis, and vasculitis

Microplicae

Membrane folds found on the apical surface of the corneal epithelium that function to increase cell surface area and facilitate the spreading of tear film

Microvilli

Hair-like cellular membrane protrusions that increase the surface area of cells

Miotic

Substance that causes constriction of the pupil of the eye

Mitogenic

Substance that stimulates mitotic division

MMP

Matrix metalloprotease; a group of enzymes that in concert are responsible for the degradation of most extracellular matrix proteins during organogenesis, growth and normal tissue turnover

Moll

Glands of Moll; modified sweat glands that open near the base of the eyelashes

MONT BLANC

Phase II noninferiority comparison of same-day verteporfin PDT and ranibizumab combination therapy versus ranibizumab monotherapy

MPS

Macular Photocoagulation Study Group

mRNA transcription

The process of copying a strand of DNA into messenger RNA

Mucin

High-molecular weight epithelial glycoproteins found especially in the secretions of mucous membranes and form viscous solutions

Mucocutaneous

Of or relating to the skin and a mucous membrane

Mucopolysaccharide

Any of a group of polysaccharides of high molecular weight that include amino sugars and often form complexes with proteins

Mucous membrane

Mucus-secreting layer of epithelial tissue lining all body passages that communicate with the air

Multimeric

A protein containing two or more, same or different, polypeptide chains

Murine

Of, relating to, or affecting mice or related rodents of the family Muridae

Mydriatic

Pupil-dilating agents essential for fundus assessment

Myopia

Nearsightedness; condition in which distant objects appear blurred because their images are focused in front of the retina rather than on it

MYRROR

VEGF Trap-Eye in CNV Secondary to Pathologic Myopia; a phase III, multicenter, randomized, sham-controlled study of the efficacy, safety, and tolerability of aflibercept for the treatment of myopic CNV

Nasolacrimal duct

Drains tears from the lacrimal sac into the nasal cavity

National Eye Institute Visual Functioning Questionnaire-25

NEI-VFQ; designed to assess vision-related quality of life in patients

NEI-VFQ

National Eye Institute Visual Functioning Questionnaire-25

Neovascular glaucoma

Severe form of secondary glaucoma

Neovascularization

The formation of new blood vessels from pre-existing vasculature

Nerve fiber layer

Formed by retinal ganglion cell axons and represents the innermost layer of the fundus

Nervus intermedius

Branch of the facial nerve that contains sensory and parasympathetic fibers

Neuroepithelial

Having qualities of both neural and epithelial cells

NGF

Nerve growth factor; a neuropeptide primarily involved in the regulation of growth, maintenance, proliferation and survival of certain target neurons

Noninferiority trial

A trial that is designed to show that one treatment is not inferior to or not appreciably worse than another

Non-ischemic CRVO

Also known as perfused CRVO; type of CRVO in which there are minimal areas of capillary non-perfusion as shown on fluorescein angiography

Non-perfusion

When blood does not reach an organ or a tissue

Non-rhegmatogenous

Arising in the absence of a rupture (e.g. from subretinal fluid)

Nuclease

Enzyme that cleaves the phosphodiester bonds between the nucleotide subunits of nucleic acids

Nucleotide

The basic building block of nucleic acids

Null hypothesis

A hypothesis that states that there is no relationship between the two or more phenomena that are being investigated

Occipital cortex

Visual processing center of the mammalian brain

Occipital lobe

Positioned at the back region of the cerebral cortex with the primary role of receiving and processing visual information

Occult choroidal neovascularization

Classification of choroidal neovascularization in which new blood vessels are visible but appear 'blotchy' on a fluorescein angiogram

OCT

Optical coherence tomography; a non-invasive imaging technique that uses a low-energy scanning laser to obtain cross-sectional views of the macula

Octafluoropropane

Fluorocarbon non-flammable greenhouse gas

Oculomotor nerve

Also known as cranial nerve III and CN III. Controls movement of the eye and upper eyelid, and constriction of the pupil via contraction of the ciliary muscles

Odds ratio

Measure describing the strength of association between an exposure and an outcome

OGTT

Oral glucose tolerance test; the OGTT may be used to verify a diagnosis of diabetes or for the diagnosis of pre-diabetes

Oligodendrocyte

Synthesize and maintain myelin in the central nervous system

Oncotic

Of or caused by a condition of swelling

Ophthalmic

Of or relating to the eye

Ophthalmoscopically

Using an instrument, an ophthalmoscope, for viewing the interior of the eye or examining the retina

Optic

Of or relating to the eye or vision

Optic chiasm

X-shaped structure formed by the crossing of the optic nerves in the brain

Optic disk

The area of the retina that contains no rods or cones

Optic foramen

The opening to the optic canal

Optic globe

Commonly known as the eyeball, and positioned inside the orbital cavity (also known as the eye socket)

Optic nerve

Also known as cranial nerve II and CN II. Sensory nerve that carries visual information from the eye to the brain

Optic radiations

A collection of nerve fiber bundles from the lateral geniculate nucleus that terminate in the visual cortex

Optical coherence tomography

A non-invasive imaging technique that uses a low-energy scanning laser to obtain cross-sectional views of the macula

Optical technician

Design, verify and fit glasses or contact lenses from a prescription written by an ophthalmologist or optometrist

Optician

Design, verify and fit glasses or contact lenses from a prescription written by an ophthalmologist or optometrist

Optometrist

In general, optometrists dispense and fit glasses and contact lenses. In some countries, such as the UK, Canada, and Australia, they will additionally be the professionals who typically test and screen the eyes to detect certain eye abnormalities, prescribe a limited range of medicines, or refer patients on to an ophthalmologist

Ora serrata

The jagged anterior edge of the retina

Orbicularis oculi

A sphincter muscle that lies in the tissue of the eyelid and causes the eye to close or blink

Orbit

Responsible for helping to protect and stabilize the eye, while providing anchorage for the eyeball muscles

Orbital cavity

The bony cavity in the skull containing the eyeball and its associated muscles, vessels, and nerve

Outer nuclear layer

The layer of the retina containing the cell bodies of the rods and cones

Outer plexiform layer

The layer of the retina where photoreceptors, bipolar cells, and horizontal cells interact synaptically

Ozurdex[®]

Dexamethasone intravitreal implant for the treatment of macular edema following retinal vein occlusion

PAF

Platelet-activating factor; mediator of many leukocyte functions, including platelet aggregation and degranulation, inflammation, and anaphylaxis. PAF is also involved in vascular permeability, the oxidative burst, chemotaxis of leukocytes

Palatine

One of seven bones that makes up the orbit

Palliative

Relieves the symptoms of a disease or disorder without effecting a cure

Palpebral

Of or relating to the eyelids: protect the eyes from excessive light and foreign objects, and to help keep the eye moist by spreading lubricating secretions over the surface of the eye

Pan-retinal photocoagulation

PRP; involves the delivery of a large number of laser 'burns' to destroy small amounts of peripheral ischemic retinal tissue, thereby increasing overall retinal oxygen availability and reducing hypoxia and VEGF activity

Papillomacular bundle

Cluster of retinal ganglion cells that carry visual impulses from the macula to the optic nerve

Paracentesis

Procedure to remove accumulated fluid from a section of the body

Parasympathetic

Of, relating to, or affecting the parasympathetic nervous system

Parasympatholytic

Substance or activity that reduces the effects of the parasympathetic nervous system

Pars plana

The site through which intravitreal injections are administered

Pars plana vitrectomy

Surgical removal of the vitreous from the eye

Pars plicata

Anterior portion of the ciliary body composed of approximately 70 radial folds, or ciliary processes

PCV

Polypoidal choroidal vasculopathy; a disease of the choroidal vasculature characterized by serosanguinous detachments of the pigmented epithelium and exudative changes that can commonly lead to subretinal fibrosis

PDGF

Platelet-derived growth factor; growth factor that plays a significant role in blood vessel formation

PDT

Photodynamic therapy; a treatment that involves administration of a photosensitive drug to the patient followed by non-thermal lasering of the retina

PED

Pigment epithelial detachment; a pathological process in which the retinal pigment epithelium separates from the underlying Bruch's membrane

Pegaptanib sodium

A 28-base pegylated oligonucleotide that binds specifically to VEGF-A (165 isoform). Indicated for the treatment of neovascular wet AMD

Peripheral retina

Rod-dominated anterior portion of the retina that stretches to the ora serrata

Peroxidase

Large family of enzymes that catalyze the oxidation of a compound by a peroxide

Phacoemulsification

Method of cataract surgery in which the lens with the cataract is emulsified by ultrasound and aspirated from the eye

Phagocytosis

The engulfing and ingestion of bacteria or other foreign bodies by phagocytes

Phakia

The presence of the natural crystalline lens

Pharmacokinetics

Determination of the fate of a drug once administered to a living organism

Phosphorylation

The addition of phosphate to an organic molecule

Photoablation

The use of light or lasers to destroy tissues

Photocoagulation

The coagulation (clotting) of tissue using a laser that produces light in the visible green wavelength

Photodynamic therapy

PDT; a treatment for wet AMD that involves administration of a photosensitive drug to the patient followed by non-thermal lasering of the retina

Photoreceptor

Type of neuron found in the retina responsible for detecting light

Photorefractive keratectomy

Type of laser eye surgery used to improve vision in patients affected by farsightedness (hyperopia) or nearsightedness (myopia)

Phototransduction

The conversion of light into an electrical signal transmitted to the brain

PIER

Phase IIIb, Multi-Center, Randomized, Double-Masked, Sham Injection-Controlled Study of Efficacy and Safety of Ranibizumab in Subjects with Subfoveal CNV with or without Classic CNV Secondary to AMD

Pinocytosis

Introduction of fluids into a cell by invagination of the cell membrane and formation of vesicles within the cells

Pituitary gland

Endocrine gland located at the base of the skull

PKC

Protein kinase C; an essential component of the VEGF signaling pathway, which induces cell proliferation and growth

Placebo

A medically ineffectual treatment

Placental growth factor

PlGF; the molecule that interacts with VEGFR1 (vascular endothelial growth factor receptor 1)

Plasma

Liquid portion of the blood and lymphatic fluid

Platelet

Small, disk-shaped element found in blood plasma that promotes blood clotting

Pleomorphism

Variability in the size and shape of cells and/or their nuclei

PIGF

Placental growth factor (PIGF: abbreviated P, lowercase L, G, F); a member of the VEGF family that interacts with VEGF-R1 and is believed to play a prominent role in pathological angiogenesis

Point estimate

A single number that can be regarded as a sensible value for the population that is being studied

Polypoidal choroidal vasculopathy

Variant form of CNV that has focal ('hot spot') areas of occult choroidal neovascularization

Posterior cerebral

Supplies oxygenated blood to the occipital lobe and the inferior portion of temporal lobe

Posterior chamber

Aqueous-containing space in the eye behind the iris and in front of the lens

Posterior segment

The back two-thirds of the eye behind the lens, including the retina and vitreous body

Posterior vitreous detachment

Occurs when there is a separation between the posterior vitreous cortex and the internal limiting membrane of the retina

Preganglionic

Of, relating to, or being the nerve fibers that supply a ganglion, especially a ganglion of the autonomic nervous system

Presbyopia

Age-related condition in which the lens of the eye loses its ability to focus, making it difficult to see objects up close

Prevalence

Proportion of a population that currently has a particular condition

Primary endpoint

The outcome that will address the key question being asked in the trial

PRN

Pro re nata; unscheduled dosing. Medications that are given PRN generally have a stated maximum-tolerated dosage over a certain time period, during which the treatment can be administered as required up to this dosage within the set time

Proliferative retinopathy

In response to progressive retinal ischemia, new blood vessels that are very delicate and bleed easily are formed to replace the blocked vessels

PrONTO

Prospective Optical Coherence Tomography (OCT) Imaging of Patients with Neovascular Age-Related Macular Degeneration (AMD) Treated with intraocular Ranibizumab; prospective, uncontrolled study that assessed variable dosing of ranibizumab

Proteoglycan

Type of molecule found in connective tissue comprising glycosaminoglycans covalently attached to core proteins

PRP

Pan-retinal photocoagulation; involves the delivery of a large number of laser 'burns' to destroy small amounts of peripheral ischemic retinal tissue, thereby increasing overall retinal oxygen availability and reducing hypoxia and VEGF activity

Pruning

The angiographic term for the appearance of blocked vessels, where fluorescein perfusion stops abruptly

Pseudophakia

The substitution of the natural crystalline lens with a synthetic lens

Pseudophakic

An eye in which the natural crystalline lens has been substituted with an intraocular device

Pterygopalatine fossae

Depression in the pterygoid process and the palatine bone

Pupillary sphincter

A ring of smooth muscle surrounding the iris that functions as a constrictor of the pupil

QoL

Quality of life

Radial optic neurotomy

A surgical procedure intended to improve venous outflow in eyes affected by CRVO, thereby relieving pressure on the occluded vein where it crosses the cribriform plate and the scleral outlet

Randomized, controlled trial

The most vigorous method of determining whether a cause-and-effect relationship exists between treatment and outcome. In these trials, patients are randomized to receive either the active (investigative) treatment or a comparator treatment; except for the treatment, all of the patients are treated in the same manner, which eliminates potential bias and meaning that any observed effects should be solely caused by the investigative or comparator treatments

Ranibizumab

A recombinant humanized monoclonal antibody fragment that is the active ingredient of Lucentis[®]

RCO

Royal College of Ophthalmologists; a UK-based association

READ-2

Ranibizumab for Edema of the mAcula in Diabetes; a phase II, prospective, randomized trial evaluating ranibizumab, ranibizumab plus macular laser photocoagulation and laser alone in patients with DME

Recombinant

Referring to an organism or cell in which genetic recombination has taken place, or material produced by genetic engineering

Rectus muscles

Four extraocular muscles with the primary function of controlling eye movements from left to right and up and down

Refractive

Of or concerned with refraction, the ability of the eye to bend light so that an image is focused on the retina

Refractive condition

Optical defect that prevents light rays from being brought to a single focus on the retina, leading to blurred vision. The three most common refractive errors are myopia (nearsightedness), hyperopia (farsightedness), and astigmatism (focus problems caused by the cornea)

Retina

The layer of the eye whose primary function is photoreception and transformation of light energy into electrical impulses

Retinal angiography

Procedure used by ophthalmologists to examine the retina and choroid

Retinal detachment

Condition that occurs when the retina pulls away from its supporting layers

Retinal pigment epithelium

The pigmented cell layer just outside the neurosensory retina that nourishes retinal visual cells, and is firmly attached to the underlying choroid and overlying retinal visual cells

Retinal vein

Short vein that runs through the optic nerve and carries blood away from the retina

Retinal vein occlusion

RVO; condition in which retinal veins become blocked causing an increase in pressure in the capillaries, leading to hemorrhages and leakage of fluid and blood

Retinochoroiditis

Inflammation of the retina and the choroid

Rhegmatogenous

Arising from a tear or rupture in an organ

Riolan

Muscle of Riolan; marginal fibers of the palpebral part of the orbicularis oculi muscle (muscle that closes the eyelids)

Rod

Photoreceptor cells that allow us to see in dim light. They do not provide colour vision, which is why in dim light we can only see black, white and shades of grey

ROS

Reactive oxygen species; chemically reactive molecules containing oxygen

Rostrocaudal

Anteroposterior or moving from the head to the tail

RPE

Retinal pigment epithelium; the pigmented cell layer just outside the neurosensory retina that nourishes retinal visual cells. RPE is firmly attached to the underlying choroid and overlying retinal visual cells

Rubeosis iridis

Abnormal blood vessel growth on the iris surface

RVO

Retinal vein occlusion; an obstruction of the retinal venous system

SAE

Serious adverse event

SANA

Systemic Bevacizumab (Avastin[®]) Therapy for Neovascular Age-Related Macular Degeneration

Schwann cell

The supporting cells of the peripheral nervous system that form the myelin sheaths of peripheral axons

Sclera

The dense, fibrous, opaque white, outer coat enclosing the eye except the part covered by the cornea

Scleral ring

White ring seen adjacent to the optic disk when the retinal pigment epithelium and choroid do not extend to the disk

Scleral spur

The protrusion of sclera into the anterior chamber angle

Sclerosis

Thickening or hardening of body tissue

Scotoma

An area of depressed vision in the visual field, surrounded by an area of less depressed or normal vision

Seasonal allergic rhinitis

Allergic inflammation of the nasal airways triggered by pollen and mold spores, particularly during pollen seasons

Sebaceous

Of, relating to, or resembling fat or sebum

Sham control

A non-invasive medical procedure designed to mimic an active injection or surgical procedure, but without the key therapeutic component of the intervention

Slit-lamp

Device fitted with special lenses to provide a highly magnified detailed view of the retina

SMDS

Senile Macular Degeneration Study

Snellen

Type of eye chart recognizable by a large letter at the top and smaller letters in the rows below

Spectral-domain OCT

Noninvasive imaging technique that uses a low-energy scanning laser to obtain a full depth scan of the macula with improved sensitivity, sampling time and signal-to-noise ratio compared to the time domain OCT method

Speculum

Medical tool for investigating body cavities

Sphenoid

One of seven bones that makes up the orbit; large bat-shaped compound bone situated at the base of the skull

Sphincter

A circular muscle surrounding and able to maintain constriction of a bodily opening

Splicing

To join at the ends

Standard deviation

Indicates the average distance of all measures from the mean (i.e., the spread of data from the mean). The standard deviation of a given set of data is the square root of the variance

Standard error

Indicates how far the measure is likely to be from its true value. The smaller the standard error, the more reliable the estimate of the parameter. The standard error is the standard deviation divided by the square root of the sample size

Standard normal distribution

A normal distribution with a mean of 0 and standard deviation of 1

Statistical power

The probability that the test will reject the null hypothesis if the null hypothesis is false

Stoichiometric

The quantitative relationship between constituents in a chemical substance

Stroma

A layer of the cornea found beneath the Bowman's membrane composed of regularly arranged collagen fibers running parallel to the surface of the cornea

Subarachnoid space

A space in the meninges beneath the arachnoid membrane and above the pia mater that contains the cerebrospinal fluid

Subconjunctival hemorrhage

Bright red patch on the sclera caused by a bleed behind the conjunctiva

Subcutaneous

Situated or introduced under the skin

Sublingual

Below or beneath the tongue

Submaxillary

Of or relating to the lower jaw

Superior oblique

Extraocular muscle with primary, secondary and tertiary functions in intortion, depression and abduction of the eye, respectively

Superior orbital fissure

A cleft between the greater and lesser wings of the sphenoid bone, through which a number of important anatomical structures pass through, including the oculomotor, abducent and nasociliary nerves, and the ophthalmic vein

Superior rectus

Extraocular muscle with primary, secondary and tertiary functions in elevation, intorsion and adduction of the eye, respectively

Superiority trial

A trial that is designed to show that one treatment is more effective than another

Supraorbital

Above the orbit

Supraorbital foramen

A passage in the frontal bone for the supraorbital artery and nerve

SUSTAIN

Phase III study evaluating the use of as-needed (PRN) treatment with ranibizumab

Sympathetic

Of or relating to the sympathetic nervous system

Sympathomimetic

Producing physiological effects resembling those caused by the activity or stimulation of the sympathetic nervous system

Synechiae

Adhesion of the iris to the cornea or lens

T1DM

Type 1 diabetes mellitus, also abbreviated as T1D; a form of diabetes resulting from the autoimmune destruction of the insulin-producing beta cells in the pancreas and consequent inability to produce insulin. Accounts for about 5–10% of cases of diabetes

T2DM

Type 2 diabetes mellitus, also abbreviated as T2D; a form of diabetes resulting from a combination of insufficient insulin production (insulin deficiency) and resistance to the insulin produced (insulin resistance). Accounts for approximately 90–95% of cases of diabetes, and is most commonly diagnosed in adults

TAP

Treatment of AMD with Photodynamic Therapy; study evaluating the efficacy of photodynamic therapy in patients with subfoveal choroidal neovascularization caused by age-related macular degeneration

Tarsal

Plates of dense fibrous connective tissue that provide rigidity to the upper and lower lids

Temporal

At the outer or lateral aspect, or away from the midline

Tendinous

Consisting of tendons

Tenon's capsule

Fibrous membrane enclosing the globe from the limbus to the optic nerve

Test Audio 2309

Test Audio 2309

TGF

Transforming growth factor; a secreted protein that controls cell proliferation and cellular differentiation

Thalamus

Paired symmetrical structure situated between the cerebral cortex and midbrain involved in sensory perception and regulation of motor functions

Thrombogenesis

Clot formation

Thrombophilia

Condition in which the blood has an increased tendency to form clots

Thrombosis

The formation or presence of a blood clot in a blood vessel

Thrombus

Clot in the cardiovascular system formed from constituents of blood

Time-domain OCT

Noninvasive imaging technique that uses a low-energy scanning laser with a scan rate of 400 A-scans per second with an axial resolution of 8–10 μm in the eye to obtain macula scans

Tissue factor

The cell surface receptor for Factor VIIa. The complex of tissue factor with Factor VIIa catalyzes the conversion of Factor X into Factor Xa

TKI

Tyrosine kinase inhibitor; VEGF receptor TKIs have been used to suppress VEGF-dependent angiogenesis for the treatment of myopic CNV

TNF-

Tumor necrosis factor alpha; a cell signaling protein involved in systemic inflammation

Tonometry

Measurement of tension or pressure and especially intraocular pressure

tPA

Tissue plasminogen activator; a protein involved in the breakdown of blood clots

Trabecular

Any of the supporting strands of connective tissue projecting into an organ and constituting part of the framework of that organ

Trachoma

Eye infection caused by the *Chlamydia trachomatis* bacterium, characterized by inflammation of the conjunctiva and cornea, and the formation of scar tissue

Tractional detachment

Form of retinal detachment in which scar tissue on the retina contracts and the retina detaches from the retinal pigment epithelium

Triamcinolone

Long-acting synthetic corticosteroid used to treat allergies, skin conditions, ulcerative colitis, and arthritis

Triamcinolone acetonide

Synthetic corticosteroid that is used to treat various conditions, including vasculitis and retinal vasculature disease

Trigeminal nerve

Also known as cranial nerve V and CN V. Conducts sensory information from the forehead and some areas of the face, and is responsible for the movement of some of the jaw muscles used in chewing

Trochar

Sharp-pointed surgical instrument fitted with a cannula used to puncture a body cavity for fluid aspiration

Trochlear nerve

Also known as cranial nerve IV and CN IV. Motor nerve that permits movement of the superior oblique, a muscle responsible for movement of the eyeball

TTT

Transpupillary thermotherapy; therapy in which heat is delivered via laser to the choroid and RPE. Uses infrared laser light to cause a limited increase in temperature that may achieve some selective occlusion of CNV

Tyrosine kinase

Enzyme that can transfer a phosphate group from ATP to a protein in a cell

UKPDS

UK Prospective Diabetes Study. Study investigating the effect of glycemic and blood pressure control on the incidence of diabetes-related complications

Uveal tract

The middle vascular pigmented layer of the eye, comprising the choroid, ciliary body, and iris

Uveitis

Inflammation of the uvea; specifically when the iris becomes inflamed patients develop 'iritis', or anterior uveitis. It can be caused by many things including: trauma, infections such as shingles or herpes, and autoimmune disorders

Variance

The average of the squared differences from the mean. This measures how far a set of numbers are spread out

Vascular cell adhesion molecule-1

VCAM-1; membrane protein that mediates leukocyte–endothelial cell adhesion and signal transduction

Vascular endothelial growth factor

VEGF; a growth factor that sends a signal that eventually results in the development of new blood vessels (angiogenesis or vasculogenesis)

Vascular permeability

The ability of a blood vessel wall to allow small molecules and whole cells to pass through

Vascular sheathing

A yellow–white sheath that forms around part or all of a retinal vessel due to accumulation of inflammatory cells along the vessel wall

Vasculitis

Inflammation of the blood vessels

VEGF

Vascular endothelial growth factor; a growth factor that sends a signal that eventually results in the development of new blood vessels (angiogenesis or vasculogenesis)

VEGF-A

Vascular endothelial growth factor A; a cytokine that induces vasopermeability and enhances angiogenesis

VEGF-B

Vascular endothelial growth factor B; a cytokine that plays a role in the maintenance of newly formed blood vessels during pathological conditions

VEGF-R

Receptor for VEGF

VEGF-R1

Vascular endothelial growth factor receptor 1

VEGF-R1

Vascular endothelial growth factor receptor 1

VEGF-R2

Vascular endothelial growth factor receptor 2

VEGF-R2

Vascular endothelial growth factor receptor 2; the main regulator of vascular permeability and mitotic action on endothelial cells

Verteporfin

Visudyne[®]; light-activated drug used in photodynamic therapy

Virchow's triad

Useful concept that describes a set of three physiological conditions – endothelial damage, hemodynamic changes and hypercoagulability – that increase the risk of thrombosis

Visual acuity

The measure of acuteness or clarity of vision

Visual cortex

Area of the cerebral cortex in the brain responsible for processing sensory nerve impulses from the eyes

Visual rehabilitation

The use of non-pharmacological interventions to enhance the visual function of patients with AMD, such as telescopic systems and hand magnifiers

Vitrectomy

Surgery to remove some or all of the vitreous humor from the middle of the eye

Vitrectomy

Procedure in which the vitreous fluid is removed from the eye, either to treat an ophthalmological condition directly (for example, removal of blood or other opaque material that may be clouding vision), or to allow access to the posterior segment of the eye for some other treatment

Vitreomacular traction

Incomplete separation of the posterior vitreous at the macula

Vitreous

Of or relating to the vitreous humor

Vitreous detachment

Condition in which the vitreous gel shrinks and separates from the retina

Vitreous hemorrhage

Retinal detachment caused by a tear

Vitreous humor

Jellylike substance that fills the posterior cavity

VR-QoL

Vision-related quality of life

Warfarin

Anticoagulant that acts by preventing fibrin formation, and is typically used as prophylaxis against future thrombogenesis

Wet AMD

Also known as wAMD, neovascular AMD and exudative AMD. Less prevalent form of macular degeneration that typically progresses faster and results in more vision loss than dry AMD. Wet AMD is marked by the growth of new vasculature beneath the macula, fluid leakage and the build-up of macular edema, and eventual visual impairment

Wolfring

Glands of Wolfring; accessory lacrimal gland located in the palpebral conjunctiva. Functions to produce tears that moisten the ocular surface

Xanthophyll

Neutral yellow to orange carotenoid pigments that are oxygen derivatives of carotenes

Zeis

Glands of Zeis; small, modified sebaceous glands located at the base of the eyelash follicles

Zonular fibers

Delicate fibers extending from the ciliary body of the eye to the crystalline lens, holding the lens in place

Zygomatic

One of seven bones that makes up the orbit
