



Ophthalmology & Optometry

As the saying goes, the eyes are the windows to the soul, but they also serve the important function of allowing us to look out on to the world around us and experience all there is to see. There are two fields of medicine that deal specifically with the eyes: ophthalmology and optometry. Ophthalmology deals primarily with diseases (such as pink eye) of the visual pathways between the eyes and brain. Optometry concerns itself with vision problems (such as farsightedness and nearsightedness). Many people visit an optometrist once a year to make sure that their vision is functioning properly and that their eyes are healthy. Ophthalmologists are generally only sought for the treatment of eye problems broader than those just concerning vision.

Conjunctivitis (Pink Eye)

Conjunctivitis is the inflammation of the conjunctiva, the membranes on the inner part of the eyelids and covering the white of the eye. The conjunctival membranes react to a wide range of bacteria, viruses, allergy-provoking agents, irritants and toxic agents. Viral and bacterial forms of conjunctivitis are common in childhood. Conjunctivitis is also called pink eye and red eye.

Indication	Company	Product	Phase
Conjunctivitis	InSite Vision Inc	AzaSite / ISV-401 (azithromycin)	PA
	InSite Vision Inc	AzaSite (azithromycin)	A
	Santen Inc	Alamast / Alegysal (pemirolast potassium)	M
	Santen Inc	Quixin (levofloxacin)	M

Diabetic Macular Edema

Diabetic macular edema occurs when fluid and protein deposits collect on or under the macula - a key component of the retina responsible for high acuity vision - causing the macula to thicken and swell. The swelling may distort a person's central vision, as the macula is near the center of the retina at the back of the eyeball. The macula provides sharp, clear central vision that allows a person to see form, color, and detail that is directly in the line of sight.

Indication	Company	Product	Phase
Diabetic Macular Edema	Intradigm Corp	Cand5 (bevasiranib sodium)	II
	Genentech Inc	Lucentis (ranibizumab)	III

Dry Eye

Dry eye occurs when the tear ducts located in the eyes do not produce enough tears to adequately lubricate the eyes. This can lead to dry, itchy, stinging eyes that get worse as the day progresses. Causes include old age, arthritis, lupus, diabetes, and other environmental factors such as weather. The best treatment involves eye drops which are able to re-wet the surface of the eye, making the patient much more comfortable. Avoiding external irritants such as chemicals, pollens and air conditioning may also provide temporary relief.

Indication	Company	Product	Phase
Dry Eyes	Nascent Pharmaceuticals Inc	iDESTRIN (NP50301)	II
	InSite Vision Inc	AquaSite	M
	Theralife Inc	TheraLife eye	M
	Theralife Inc	TheraLife eye enhanced	M

Glaucoma

Glaucoma is a disease of the eye that results in a loss of vision, usually caused by high intraocular pressure (IOP), or pressure within the eye. There is a

small space at the front of the eye called the anterior chamber, which is filled with a clear fluid. The fluid nourishes the tissues around it, so it is constantly being replenished, which means it also needs to drain out the chamber. In the case of glaucoma, the fluid is not able to drain properly, and the build up of fluid causes an increase in IOP. The high pressure causes damage to the optic nerve, which is the nerve that sends signals from the eye to the brain and gives us sight. It is the damage to the optic nerve that steals sight from people with glaucoma.

Company	Product	Phase	Indication
Genentech Inc	Rituxan (rituximab)	III	Inflammation

Macular Degeneration

Most vision loss in people over the age of 55 is due to macular degeneration, a condition that affects 10 million Americans. Because the condition usually develops with age, it is generally referred to as Age-Related Macular Degeneration (ARMD). The macula is loaded with photoreceptors that allow people to read, watch television, drive, sew - anything that requires focused, precise vision. There are two types of ARMD: dry and wet. Dry ARMD occurs when the cells of the macula simply begin to break down. This process is usually slow and results in a blurred spot in the center of the field of vision. Wet ARMD is rarer than the dry form, but the results are much worse. It occurs when blood vessels behind the retina begin leaking blood and fluid behind the macula. As fluids fill, one's vision changes shape, causing straight lines to appear curved and the picture to blur.

Company	Product	Phase	Indication
Athenagen Inc	ATG003 (mecamylamine)	II	Neovascular Age-Related Macular Degeneration
CoMentis Inc	ATG003 (mecamylamine)	II	Macular Degeneration
Genentech Inc	Lucentis (ranibizumab) with Visudyne (verteporfin)	II	Macular Degeneration
Intradigm Corp	Cand5 (bevasiranib sodium)	II	
Miravant Medical Technologies	Photrex (rostaporfin)	PA	
Genentech Inc	Lucentis (ranibizumab)	M	
Genentech Inc	Lucentis (ranibizumab)	M	
			Wet Age-Related Macular Degeneration

Uveitis

Uveitis involves the inflammation of the middle layers of the eye, also called the uveal tract or uvea. The uvea includes the iris (the colored part of the eye), choroid (a thin membrane containing many blood vessels) and ciliary body (the part of the eye that joins these together). The uvea is very important because its many veins and arteries transport blood to the parts of the eye that are critical for vision.

Company	Product	Phase	Indication
Lux Biosciences Inc	LX-211 / ISA247 (voclosporin)	III	Uveitis