



2RT

Retinal rejuvenation —
a restorative treatment
breakthrough

AGE-RELATED MACULAR DEGENERATION (AMD)

CLINICALLY SIGNIFICANT MACULAR EDEMA (CSME)

Helping the world see clearly

Combating some of the world's most challenging eye diseases

Age-Related Macular Degeneration (AMD) and Diabetic Retinopathy are two of the most prevalent and challenging causes of vision loss and blindness in the developed world.

That's why Ellex is at the forefront of developing and perfecting treatment options to equip you with the technology to combat these conditions.

A breakthrough treatment approach, 2RT[®] Retinal Rejuvenation Therapy from Ellex retains the therapeutic benefits of laser therapy whilst eliminating the thermal tissue damage inherent in conventional retinal photocoagulation.

2RT[®] — Retinal Rejuvenation Therapy — is Ellex's nanosecond laser therapy that stimulates the eye's natural healing response to halt or slow the degenerative processes that cause retinal disease.

Ellex 2RT[®] utilizes Nanopix Technology™, comprising solid-state nanosecond laser technology and a pixelated beam profile.

Ellex 2RT[®] induces a mononuclear cell response in the treatment of intermediate AMD, including the stimulation of microglia.

Ellex 2RT[®] eliminates the incidence of heat damage to the retina and surrounding cells in the treatment of CSME.



ellex

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ZRT



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0.32 mJ

ΣE
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Σn
3

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0.32 mJ



2RT[®] Retinal Rejuvenation

Stimulating the eye's natural healing response

Ellex 2RT[®] stimulates a natural, biological healing response in the eye. Featuring a proprietary pixelated beam profile that exclusively targets selected individual cells within the retinal pigment epithelium (RPE), teamed with an ultra-short nanosecond laser pulse, all of the 2RT[®] laser energy is designed to stay within the targeted RPE cells without damage to the surrounding cells.

Protecting the retina from thermal damage

Unlike conventional retinal photocoagulation, Ellex 2RT[®] protects the photoreceptors from thermal damage. It also offers the potential to apply treatment earlier in the disease process to slow retinal degeneration, eliminating or delaying the risk of vision-threatening complications associated with the late stage of retinal disease.

Clinically proven to delay AMD progression¹

An extensive multi-center trial¹ has shown the potential of Ellex 2RT[®] to delay the degenerative processes associated with AMD in selected patients with intermediate AMD. Specifically, in a post hoc analysis Ellex 2RT[®] achieved a 77% reduction in the progression to late stage AMD for over three quarters of suitable intermediate AMD patients without coexistent reticular pseudodrusen (RPD).

Ellex 2RT[®] employs a large 400 micron spot size, instead of the 50 micron spot size commonly used in conventional retinal laser photocoagulation.



Intuitive tablet interface allows you to select key treatment parameters.

Changing the treatment paradigm for AMD

Specify 2RT® from Ellex and you will possess the potential to intervene at the level of the underlying pathology to prevent the progression to late-stage AMD.

Until now, there's been little advance in treating AMD before it progresses to the vision-threatening complications associated with late-stage disease. Ellex 2RT® represents a breakthrough in the intervention of intermediate AMD by stimulating the body's natural healing process to promote cellular rejuvenation, reducing the rate of progression to late-stage AMD.

Current treatment challenges

Current treatment options for Age-Related Macular Degeneration (AMD) are limited to anti-VEGF injections. These are only suitable for advanced or end stage disease, and simply address complications associated with Wet AMD, at which point irreversible vision loss may have already occurred.

That's why Ellex has prioritized investment into comprehensive clinical investigations to develop 2RT® as an intervention for intermediate AMD patients.



Retinal rejuvenation

Ellex 2RT[®] utilizes an ultra-short nanosecond laser pulse to target the compromised retinal pigment epithelium (RPE) and Bruch's Membrane — the structures responsible for transporting the energy supply to, and removing the waste from, the retinal photoreceptors – to induce the orderly replacement of RPE cells.

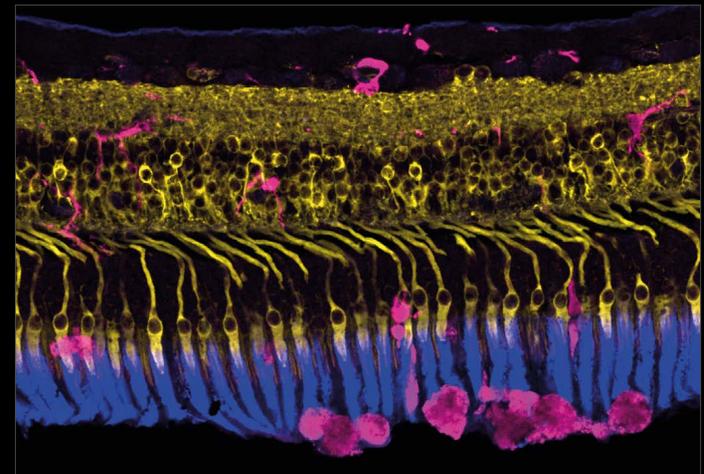
2RT[®] is indicated for patients with early Aged-Related Macular Degeneration (AMD) where it can produce bilateral improvements in macular appearance and function. 2RT[®] has a CE Mark (Conformité Européenne) for treatment in patients with early AMD where it can produce bilateral improvements in macular appearance and function.

2RT[®] is not approved for sale in the USA for the indication of early AMD.

Earlier intervention

2RT[®] Retinal Rejuvenation is a minimally invasive, early intervention treatment for intermediate AMD, available only by using Ellex's proprietary laser technology. It is the first and only treatment of its kind in the world. Clinical studies show that 2RT[®] can significantly slow the degenerative processes associated with intermediate AMD in selected patients.^{1,2,3}

1. Guymer RH, Wu Z, Hodgson LAB, et al. Sub-Threshold Nanosecond Laser Intervention in Age-Related Macular Degeneration: The LEAD Randomized Controlled Clinical Trial. *Ophthalmology*. 2018.
2. Jobling et al., "Nanosecond Laser Therapy Reverses Pathologic and Molecular Changes in Age-Related Macular Degeneration without Retinal Damage," *The FASEB Journal* 29, no. 2 (February 1, 2015): 696–710, doi:10.1096/fj.14-262444
3. Guymer, R.H., et al., Nanosecond-laser application in intermediate AMD – 12-month results of fundus appearance and macular function. *Clin Experiment Ophthalmol*. 2013 Oct 3. doi: 10.1111/ceo.12247



2RT[®] induces a mononuclear cell response, including the release of microglia. In this image, the retinal microglia are shown extending their processes through the outer nuclear layer towards the laser treatment site.

Image courtesy of Associate Professor Erica L. Fletcher MScOptom, PhD (Department of Anatomy and Neuroscience, The University of Melbourne, Australia)

Combatting Diabetic Retinopathy — naturally

Choose 2RT[®] technology from Ellex to effectively treat clinically significant Diabetic Macular Edema (CSME) secondary to diabetic retinopathy, without causing collateral damage to the photoreceptor cells.

Using 500 times less energy than retinal photocoagulation, 2RT[®] Retinal Rejuvenation Therapy eliminates the incidence of heat damage to the retina and surrounding cells and represents a breakthrough in retinal laser therapy.²

The challenges of existing treatment options

Despite offering a high degree of efficacy in the treatment of diabetic macular edema, retinal photocoagulation results in localized destruction of photoreceptors, which leads to scotoma and architectural loss to overall tissue.

The recent advent of anti-VEGF medications offers another treatment route, but these rely on the administration of ongoing, invasive injections, which places a considerable financial and lifestyle burden on patients.

That's why Ellex has invested in the clinical development of 2RT[®] as a restorative treatment option for CSME.



Taking the heat out of retinal laser therapy

With the development of Ellex 2RT[®], which utilizes an ultra-short nanosecond laser pulse with a proprietary pixelated beam profile, it's possible to effectively treat CSME secondary to diabetic retinopathy, with the added benefit of sparing the photoreceptors, and therefore retinal function, from thermal damage.^{1,2}

2RT[®] has a CE Mark (Conformité Européenne) and US Food and Drug Administration (FDA) (510k) Market release for the treatment of Clinically Significant Macula Edema (CSME).

Retinal rejuvenation — the next step

Ellex 2RT[®] uses approximately 500 times less energy than retinal photocoagulation in the treatment of CSME.¹ This significant reduction in radiant exposure proportionately reduces the risk of damage to all aspects of retinal function.

1. Pelosini L. et al., Retina Rejuvenation Therapy for Diabetic Macular Edema: a Pilot Study, Retina 0:1-11,2012

2. Casson RJ. Et al., "Pilot randomized trial of a nanopulse retinal laser versus conventional photocoagulation for the treatment of diabetic macular oedema", Clin Experiment Ophthalmol. 2012 Aug;40(6):604-10



Specifications

Laser Source	Q-switched Nd: YAG laser, frequency doubled
Wavelength	532 nm (Green)
Energy Range	Minimum: 0.1 mJ / Maximum: 0.6 mJ 0.10-0.30 in 0.02 steps 0.30-0.60 in 0.05 steps
Pulse Duration	3 nanoseconds
Pulse Repetition	No less than 500 ms for 20 continuous shots
Spot Size	400 microns
Aiming Beam	Red 635 nm, adjustable intensity
Magnification	6x, 10x, 16x, 25x, 40x
Electrical Requirements	100–240 VAC, 50/60 Hz, 800 VA
Weight	35 kg, 77 lbs
Dimensions (HxWxD)	58 x 98 x 49 cm, 23 x 39 x 19 inches (laser system only)
Standard Accessories	Tablet, Total Solution™ table, footswitch, eye safety filter, safety glasses, laser safety sign, dust cover
Optional Accessories	Beam splitter, co-observation tube, 35mm camera adapter, video camera adapter, laser lenses

Specifications are subject to change without notice



2RT[®]



Find out how 2RT[®] Retinal Rejuvenation Therapy will help you set new standards in the intervention of early stage AMD and Clinically Significant Macular Edema.

Contact us now to schedule a demonstration

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Helping the world see clearly

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Ellex is the manufacturer of 2RT[®]. It has been approved for the indications Clinically Significant Macular Edema (CSME) and in patients with early Age-Related Macular Degeneration (AMD) where it can produce bilateral improvements in macular appearance and function under CE marking. Ellex does not accept any responsibility for use of the system outside of these indications.

2RT[®] has a CE Mark (Conformité Européenne) for treatment in patients with early AMD where it can produce bilateral improvements in macular appearance and function.

2RT[®] has a CE Mark (Conformité Européenne) and US Food and Drug Administration (FDA) (510k) Market release for the treatment of Clinically Significant Macula Edema (CSME).

2RT[®] is not approved for sale in the USA for the indication of early AMD.

