Supplement to

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Cataract & Refractive Surgery TODAY EUROPE

# ENVISIONING A NEW CORRECTIVE OPTION FOR ASTIGMATS

**The enVista TORIC IOL debuts in Europe.**

Sponsored by Bausch + Lomb

# Now Available in Europe: The enVista TORIC IOL

This hydrophobic acrylic IOL's superior rotational stability ensures predictable astigmatic correction.

In April 2012, Bausch + Lomb announced the approval of the enVista TORIC IOL (Figure 1), the newest available hydrophobic acrylic lens from the company and the first available for astigmatic correction in the European Union. The enVista TORIC IOL predictably corrects astigmatism,[1] and the enVista platform boasts excellent rotational stability[2] to ensure that its position does not shift after surgery. This lens is not yet approved for sale or use in the United States.

**Figure 1. The enVista TORIC IOL is Bausch + Lomb's first hydrophobic acrylic toric IOL.**

## EXCEPTIONAL ROTATIONAL STABILITY, OTHER FEATURES

The two main features of the enVista TORIC IOL that enhance its rotational stability are: (1) the high haptic compression force of the fenestrated, step-vaulted haptics due to the high modulus of the enVista material, and (2) a larger contact angle between the haptics and the capsular bag than in other toric IOLs (56° vs 45° with the leading competitor). This contact angle is afforded by the lens' haptic design, which is a single-piece, modified C-loop design. The haptic is step-vaulted to ensure refractive predictability and stability and to minimize posterior capsular opacification (Figure 2).


**Figure 2. The fenestrated, step-vaulted haptics of the enVista TORIC IOL and a larger contact angle provide increased rotational stability.**

In a US FDA clinical trial, 92% of the patients who received the enVista IOL experienced no more than 5° of rotation from the day of surgery to 6 months postoperatively; absolute mean rotation at 6 months was 3°.[2] In comparison, only 81% of the patients implanted with the leading competitor had no more than 5° of rotation at 6 months postoperatively.[3] Furthermore, mean decentration at 6 months after implantation was 0.28 mm for the enVista IOL and 0.5 mm for the competitor lens (*see Figures 2 and 3 on page 10 for supporting data*).[4-8]

Specifications for the enVista TORIC IOL are listed in Figure 3A and B. Other notable features of the enVista TORIC IOL include its aberration-free aspheric Advanced Optics technology and its glistening-free,

| Lens Characteristics | A |
|---|---|
| Power range | +6.0 D to +30.0 D in 0.5 D increments with 1.25 D, 2.00 D, or 2.75 D cylinder |
| Cylinder powers – IOL plane | 1.25 D, 2.00 D, 2.75 D |
| Cylinder powers – corneal plane | 0.90 D, 1.40 D, 1.93 D |
| Optic body diameter | 6.0 mm |
| Overall length w. haptics | 12.5 mm |
| Design | One-piece, aspheric optic |
| Material | Hydrophobic, glistening-free acrylic material with UV absorber |
| Refractive index | 1.54 at 35°C |
| Edge design | 360° posterior square edge |

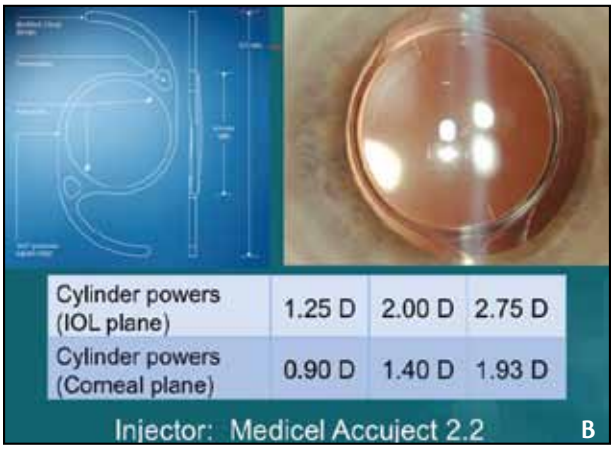


**Figure 3. (A, B) Specifications for the enVista TORIC IOL (with expanded cylindrical powers expected in the near future).**

hydrophobic acrylic material. The latter avoids formation of glistenings, or fluid-filled microvacuoles, within the IOL. Present in other IOLs, glistenings have the potential to affect visual acuity and contrast sensitivity after surgery.[9]

## CONCLUSION

With the addition of the enVista TORIC IOL, Bausch + Lomb offers surgeons a more complete line of IOLs. This lens is attractive for patients, who benefit from its exceptional astigmatic correction and outstanding visual quality after surgery, and for surgeons, who no longer have to worry about rotational stability or glistenings after implantation.

The aims of this supplement are to review the design of the enVista line of IOLs and to provide readers with the early experiences of surgeons who have started implanting the enVista TORIC IOL in their clinics. In his article, Jean-Luc Febbraro, MD, describes the design of the enVista TORIC lens and highlights its importance as the first available glistening-free hydrophobic acrylic IOL. Dr. Febbraro also draws parallels between the enVista and enVista TORIC IOL designs. Manfred R. Tetz, MD, enhances the discussion by providing clinical data to support the enVista TORIC IOL as a premium lens choice that can help surgeons to optimize outcomes for cataract surgery and astigmatism management. Additionally, Luis Cadarso, MD, provides his early experience with the enVista TORIC and offers readers several surgical pearls to deliver a seamless procedure and achieve maximal postoperative outcomes. Lastly, a brief question-and-answer section addresses several frequently asked questions.


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# CONTENTS

# The Design of the enVista TORIC IOL

A brief overview of four main features of this IOL.

BY JEAN-LUC FEBBRARO, MD

The glistening-free hydrophobic acrylic enVista IOL (Bausch + Lomb) was introduced nearly 2 years ago in Europe. In this time, many surgeons have come to appreciate the benefits of this lens, including its sharp 360º square-edge design to minimize posterior capsular opacification (PCO), its glistening-free material to reduce light scatter, and its Advanced Optics (AO) technology to improve contrast sensitivity and enhance patients' quality of vision. Success with this IOL is just the tip of the iceberg. Recently, the company announced the launch of the enVista TORIC IOL to the European market.

## THE enVista TORIC IOL DEFINED

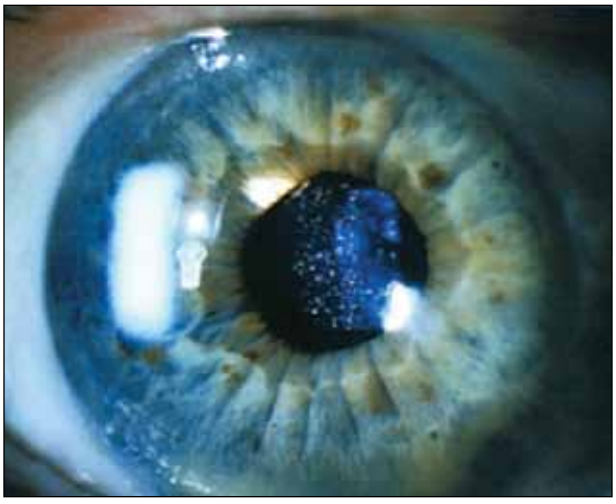
Below is a brief overview of the four main features of the enVista and enVista TORIC IOLs.

### Material

Just like the monofocal enVista IOL, the enVista TORIC IOL is made from a unique, glistening-free, hydrophobic acrylic material. This lens material is designed to restrict the proliferation of epithelial cells by sealing tightly with the lens capsule. The enVista IOL's material also blocks ultraviolet light and has silicone-oil adhesion of less than 5% (data on file, Bausch + Lomb), which is preferred by vitreoretinal surgeons.

### Design

The focus of the enVista IOL's design has been to minimize PCO, which is achieved with the lens' 360º square edge, which inhibits the migration of lens epithelial cells at the optic-haptic junction. Additionally, the step-vaulted, modified-C haptics are designed to vault the haptic posteriorly so that it forms direct contact with the capsular bag. The haptics also include fenestration holes that help to evenly disperse postoperative capsular contractile forces as well as optimize the lens' stability. Moreover, the enVista IOL's optimized water content lends it flexibility during implantation.



(Courtesy of Randall J. Olsen, MD, Salt Lake City, UT.)

**Figure 1. Glistenings seen in a pseudophakic eye.**

### Clarity

The crucial point of this lens is that, compared with other hydrophobic acrylic lenses, including the AcrySof family of lens models (Alcon Laboratories, Inc.), the enVista and the enVista TORIC IOLs are both glistening-free lenses.

## GLISTENINGS

### What are glistenings?

Glistenings are fluid-filled microvacuoles that may form within a lens optic in various sizes (typically between 5 and 15 µm) when immersed in an aqueous environment such as the human eye (Figure 1). Glistenings have a different refractive index than the optic material and are therefore seen as tiny sparkling spots within the IOL itself. The enVista family of IOLs represents the first and only single-piece, hydrophobic acrylic lens that is clinically proven to be 100% glistening-free (data on file with Bausch + Lomb). Conversely, a recent study showed that, with the AcrySof SN60, 86% of implanted IOLs had a notable presence of glistenings after a mean follow up of 40 months.[1]

**Figure 2. Low contrast sensitivity and scattering can create major visual disturbances, even in eyes with good visual acuity. The enVista TORIC IOL is designed to be aspheric and free of aberrations, thanks to its Advanced Optics (AO) technology.**

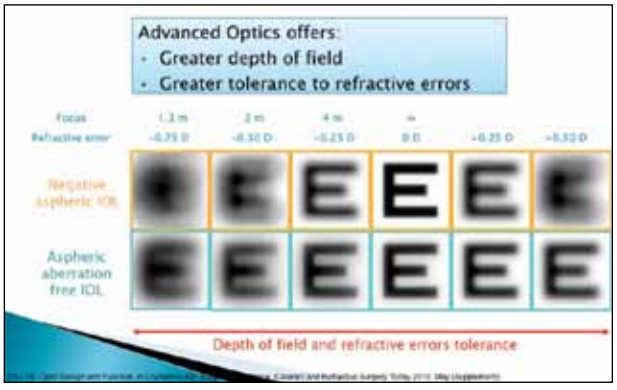



**Figure 3. The correlation between Advanced Optics and visual quality. Advanced Optics offer greater depth of field and greater tolerance to refractive errors.**

### Do glistenings affect vision?

It should be noted that the overall effect of glistenings on visual acuity varies; however, one study[1] suggested that they potentially impact quality of vision, even with good visual acuity.

### What causes these glistenings?

Several factors can cause glistenings to form within a lens optic, including manufacturing factors, conditioning factors, the material of the lens, and packaging factors.[2,3] The enVista IOL avoids formation of these fluid-filled microvacuoles in a couple of ways. Both the enVista and enVista TORIC IOLs have 4% water content, they are pre-hydrated to equilibrium, and they are packaged in a 0.9% sterile saline solution to maintain their water content. Because these IOLs are fully hydrated in their packaging, their water content remains stable after implantation in the capsular bag. Second, the unique properties of the hydrophobic acrylic material minimize expansion of the material, which can lead to the formation of microvacuoles during temperature changes.[2]

## ADVANCED OPTICS TECHNOLOGY

The enVista IOLs use aberration-free, aspheric Advanced Optics (AO) technology to enhance visual quality. As we know, visual acuity is only one factor that affects the quality of vision; other factors such as depressed contrast sensitivity and increased light scattering can significantly decrease visual quality as well. The AO technology that is used in the enVista and enVista TORIC IOLs is aberration-free. This aspheric optic provides a uniform IOL power from edge to center. Additionally, the enVista aberration-free optic is more tolerant to tilt and decentration than aberration-corrected IOLs.[4]

Furthermore, the literature shows[5,6] that corneal spherical aberration may vary considerably on an individual basis, depending on the age and sex of the patient. The lens' performance is not dependent on the level of preoperative corneal aberrations.

Last but not least, AO technology may offer greater depth of field with greater advantages to the patient as opposed to aspheric IOLs with negative spherical aberration.[7]

## DISCUSSION AND CONCLUSION

Both the material and the design of the enVista and enVista TORIC IOLs facilitate microincisional cataract surgery; these IOLs easily pass through a relatively astigmatically-neutral incision of 2.2 mm. Using the single-use, plunger-style Accuject injector (Medicel) to implant the lens in the capsular bag ensures controlled delivery and unfolding of the enVista as well as its precise positioning in the capsular bag.

After implantation, removing the ophthalmic viscosurgical device (OVD) is easy because of the lens' controlled unfolding, and I have found that it is extremely safe to aspirate the OVD from behind the enVista lens itself.

In short, the enVista IOL is the first and the only single-piece, hydrophobic acrylic lens that is clinically proven to be 100% glistening-free. Its AO technology promotes enhanced visual quality and contrast sensitivity and offers patients greater depth of field. I look forward to further long-term results, but if early experience foretells the future of this lens, it does look bright. ■

*Jean-Luc Febbraro, MD, is an attending surgeon at the Rothschild Foundation of Paris. He states that he received travel support from and is a consultant to Bausch + Lomb. Dr. Febbraro may be reached at tel: +33 1 53 65 19 65; e-mail: oph@febbraro.net.*

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# Clinical Data Supporting the enVista TORIC IOL

With more than 6 years' experience with this IOL material, this surgeon presents results from two recent studies.

BY MANFRED R. TETZ, MD

When it comes to learning about a new technology, there is nothing quite like seeing it in action. Even the best presenters cannot articulate the nuances of a given technology as perfectly as attending a live demonstration. When it comes to believing in a technology, there is much more at stake. How do surgeons come to decide that they believe in a given technology? What information is safe to trust? I have found that it is best to trust measurable clinical data over the varying opinions and experiences of surgeons.

In this article, I aim to present the measurable clinical data associated with the hydrophobic acrylic lens material of the enVista IOL (Bausch + Lomb). This is a relatively new material to the general public; however, I have had the privilege of working with this glistening-free material for the past 6 years. Over this time, I have implanted more than 150 eyes with the enVista IOL material and have long-term follow-up to confirm its advantages. (As a side note, the enVista IOL material originated from the material of a preceeding IOL and was originally manufactured for a lens designed by Advanced Vision Sciences, Inc., a company based in Goleta, California.) For more information on the enVista lens material, see the sidebar, *A Novel Polymer*, on the facing page.

The information presented herein represents study results from my initial implantations in 2010 of the original enVista lens, as well as follow-up results from the subsequent 100 implantations in 2011.

## A REVIEW OF THE CLINICAL RESULTS

I have more than 6 years of follow-up on the enVista lens material. Although this material was originally incorporated into a three-piece IOL, it is identical to the original formulation.

### Initial Study of the enVista IOL

In 2010, I conducted a very small pilot study of the original enVista IOL. I implanted this lens in 14 eyes to study visual acuity, refraction, the A-constant, and to establish simple clinical findings. In these initial 14 cases, I found that patients who received the enVista IOL had very good BCVA. My staff and I followed these eyes for up to 2 years, looking at the BCVA results at 1 and 2 years. At 2 years, 85% of the subjects achieved a BCVA better than 0.1 logMAR.

> "The fact that we were unable to find the presence of any glistenings at any time point was remarkable, as were the results of a US FDA clinical trial."

### Subsequent Study of the enVista IOL

In 2011, I conducted a follow-up study, which this time included 100 additional eyes implanted with the enVista IOL. BCVA results were equally impressive, and at 1 and 3 months, the mean BCVA was 0.1 logMAR.

### Previous Studies With the enVista IOL Material

My staff and I also went back and studied the eyes that were implanted with the original three-piece IOL designed by Advanced Vision Sciences, Inc. This represents the first time an IOL of this glistening-free material was implanted in Europe. In a total of 172 eyes, there was no presence of early-onset glistenings at 1 and 6 months; a subset of 123 eyes available for later follow-up showed no presence of late-onset glistenings between 6 months and 2 years.[1]

The fact that we were unable to find the presence of any glistenings at any time point was remarkable, as were

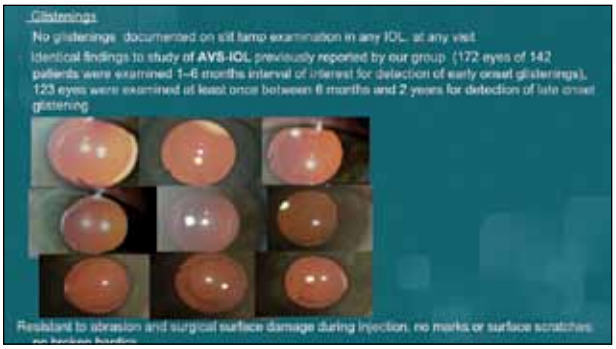


**Figure 1. In addition to the absence of glistenings with the enVista material, it is also resistant to abrasion and surgical surface damage during injection. During one study, no marks or surface scratches and no broken haptics were observed.[1]**

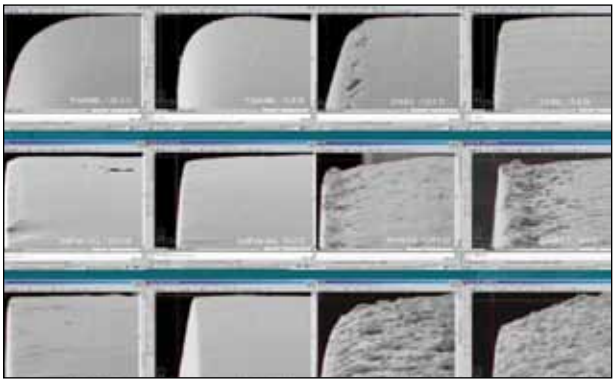

**Figure 3. Variation of edge surface characteristics of 12 different IOLs.**

## A NOVEL POLYMER

The enVista IOL material is a combination of hydroxyethyl methacrylate (HEMA) and a polyethylene glycol phenylether acrylate copolymer that are crosslinked with ethylene glycol dimethacrylate. This material has a high biocompatibility and a high refractive index (1.54), and the manufacturer's suggested A-constant is 119.1 (optical biometry).

The enVista IOL itself is a hydrophobic acrylic one-piece monofocal IOL that is now also available as a toric IOL. Its modified C-shaped haptic design and 360º square edge are designed to prevent posterior capsular opacification, and its low water content (4%) is designed to make the lens stable, flexible, biocompatible, and resistant to abrasions. The enVista monofocal IOL is 12.5 mm in diameter, and the optic is 6.0 mm. It is available in 1.00 D increments from 0.00 to 9.00 D and from 31.00 to 34.00 D, and in 0.50 D increments from 10.00 to 30.00 D. The enVista TORIC IOL is 12.5 mm in diameter, and the optic is 6.0 mm. It is available in powers from +6.00 to +30.00 D in 0.50 D increments and with 1.25 D, 2.00 D, or 2.75 D cylinder.

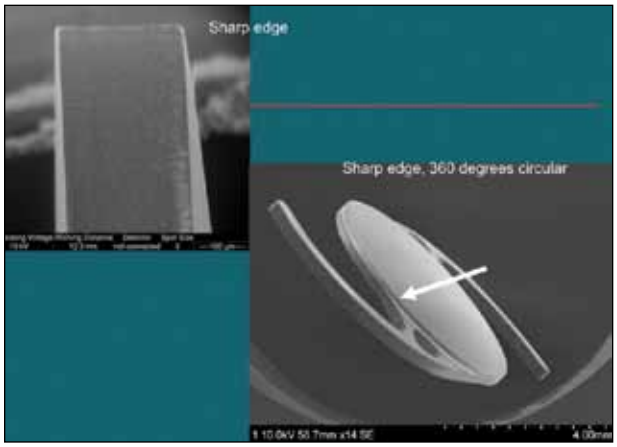


**Figure 2. The enVista IOL features a sharp 360º square-edge design.**

the results of a US FDA clinical trial. These data led to the claim of this material as being glistening-free. This was a most interesting finding that confirmed it was possible to have a hydrophobic acrylic material that does not introduce unwanted optical impurities into the eye. What was even more striking to me as a surgeon was that it was nearly impossible to scratch the IOL material (Figure 1). With other hydrophobic acrylic lenses, it can be extremely easy to scratch the material depending on the temperature of the operating room or the type of ophthalmic viscosurgical device the surgeon is using.

### Take-Home Messages From These Studies

First, the clinical results of these studies have shown that the material of the enVista IOL is not only free of glistenings, but it is extremely durable as well. Second, patients implanted with this lens are able to achieve excellent BCVA, with follow-up extending up to 2 years. Third, it is possible to implant a hydrophobic acrylic IOL without inducing unwanted optical impurities.

## RATE OF POSTERIOR CAPSULAR OPACIFICATION

It should be noted that, across all the studies, only one Nd:YAG capsulotomy was performed—an almost nonexistent rate that points to a low rate of posterior capsular opacification (PCO) with the enVista IOL. I attribute this low rate of PCO to the IOL's sharp square-edge design, which extends a full 360º around the optic (Figure 2). Research has showed this is the most important barrier to PCO.[2,3]

According to my own research,[4-6] the ability of the edge of an IOL to stop lens epithelial cell growth depends mostly on the area of deviation from a 90º angle, with the ideal experimental deviation being 13.5 µm$^2$. Of the acrylic IOLs that I have studied (Figure 3), the enVista IOL

"The lens has arguably the sharpest 360º square-edge design of any acrylic IOL design on the market. Theoretically, this should give us the advantage of a low PCO rate and thus decrease the need for an Nd:YAG capsulotomy postoperatively."

has the most square edge at 38 µm$^2$ deviation squareness. To compare, the acrylic IOLs that were available 5 years ago had squareness values of between 70 and 340 µm. We have come a long way since then, when 70-µm² deviation was the best square edge we could imagine.

Another important aspect to avoid lens epithelial cell growth and PCO migration is the IOL's step height. We have found that the step height should be at least around 100 µm. Typical lens epithelial cells are approximately 20 µm in diameter, and a lower step height may allow them to migrate across the square edge. The step height of the enVista IOL is approximately 100 µm.

## CONCLUSION

The enVista IOL has many attractive features. First, its glistening-free hydrophobic acrylic material ensures that we are not introducing any unwanted optical impurities. Second, this material is durable and is nearly impossible to scratch. Third, the lens has arguably the sharpest 360º square-edge design of any acrylic IOL design on the market. Theoretically, this should give us the advantage of a low PCO rate and thus decrease the need for an Nd:YAG capsulotomy postoperatively.

The optically clear, glistening-free, square-edge design of the enVista IOL seems to have all of the features that we as surgeons are looking for in an implant. Now, with the addition of the enVista TORIC IOL, we can correct astigmatism knowing that this lens has good rotational stability in the eye. ■

*Manfred R. Tetz, MD, professor of ophthalmology, is director of his private practice, Eye Center-Spreebogen, in Berlin, and scientific director of the Berlin Eye Research Institute. Professor Tetz states that he has no financial interest in the companies or products mentioned. He has, however, been a consultant to Abbott Medical Optics Inc., and performed studies with various OVD manufacturers. Professor Tetz may be reached at tel: +49 30 398098 0; e-mail: info@augentagesklinik-spreebogen.de.*

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# Early Experience With the enVista TORIC IOL

Results from a recent European registry study show that this IOL has an effective lens profile as well as excellent stability in terms of centration, rotation, and tilt.

BY LUIS CADARSO, MD

When we perform standard cataract surgery, the basic maneuvers involve removing the crystalline lens and implanting a monofocal IOL. However, in this day and age, with increasing patient demands, the majority of our cases are not quite this simple. Now, patients expect a specific refractive result, and we must use any number of modern technologies to deliver these results. In some cases, all that is required is an upgrade to a multifocal or accommodating IOL, thus providing the patient with a better range of vision that can be customized to his or her specific visual requirements. In other cases, the surgeon has the challenge of correcting astigmatism with a lens, an incision, or a combination strategy.

Corneal astigmatism is quite common. In fact, approximately one-third of patients who present for cataract surgery have at least 1.00 D of corneal astigmatism (Figure 1).[1] If left untreated, these patients' UCVA after cataract surgery will be suboptimal, and they will likely be unhappy. The struggle for surgeons is that correcting astigmatism accurately and safely can be challenging. Toric IOLs require marking the appropriate axis of alignment, properly rotating the IOL into its desired postoperative position, and completely removing the ophthalmic viscosurgical device from the capsular bag to prevent unwanted rotation. Additionally, for patients with higher amounts of astigmatism, toric IOL implantation may need to be combined with astigmatic keratotomy to correct the total amount of astigmatism. Furthermore, in addition to the typical complications associated with cataract surgery, patients who opt for a toric IOL are at risk for the over- or under-correction of their astigmatism or misalignment of the IOL, either of which may result in no or partial astigmatic correction.

Luckily, toric IOL designs have come a long way in the past several years. Many of these lenses are easier to implant than ever before and have excellent rotational stability, making both the procedure and postoperative follow-up care less complicated. One such lens is the enVista TORIC IOL (Bausch + Lomb). This article describes my early experience with the enVista TORIC IOL and includes several surgical pearls for implantation.

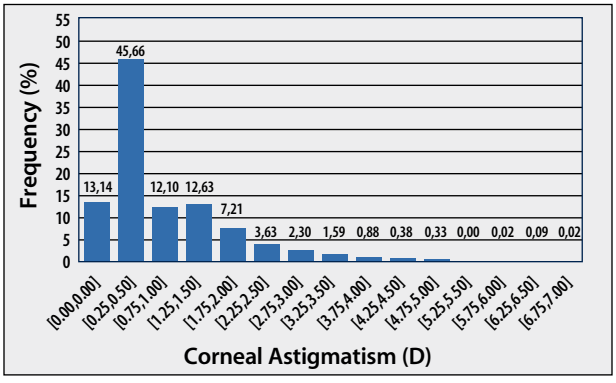


**Figure 1. The prevalence of corneal astigmatism before cataract surgery. Approximately 30% of cataract patients have more than 1.00 D of preoperative corneal astigmatism. (Data adapted from: Ferrer-Blasco T, Montés-Micó R, Peixoto-de-Matos SC, et al. Prevalence of corneal astigmatism before cataract syrgery. *J Cataract Refract Surg*. 2009;35:70-75.)**

## INTRODUCING A NEW TORIC IOL

After achieving excellent results with the monofocal enVista IOL (Bausch + Lomb), my colleagues and I began to ask if this lens had enough potential to add a toric platform. After reviewing results from the US Food and Drug Administration (FDA) trial of the enVista IOL,[2] we knew the answer was a resounding yes.

This trial was a prospective, multicenter, randomized study that, among other things, assessed rotational stability (Figure 2A). According to the study's protocol, the enVista monofocal IOL was randomly

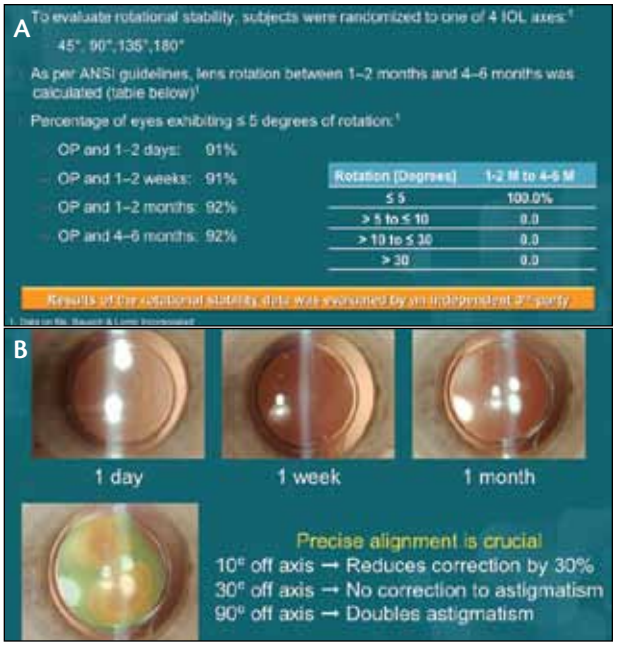


**Figure 2. (A,B) Rotational stability of the enVista TORIC IOL in the US FDA clinical trial. None of the implants rotated more than 5° at 6 months.**

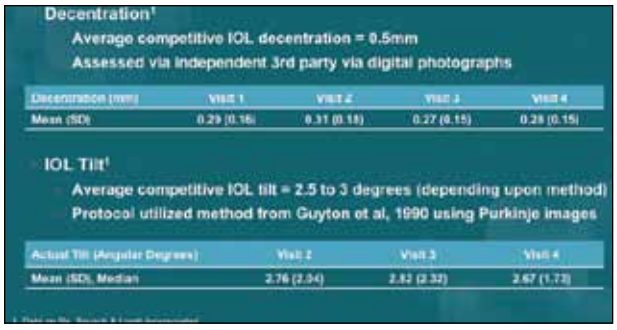


**Figure 3. Decentration and tilt of the enVista TORIC IOL in its FDA clinical trial. By the fourth visit, the lens' mean decentration was 0.28 ±0.15 mm. The average tilt was less than 3°.**

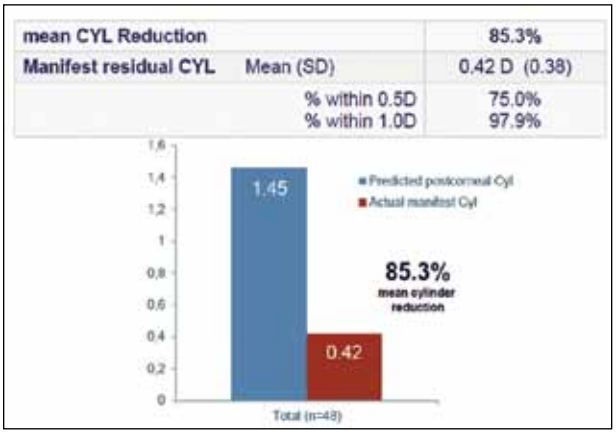


**Figure 4. The mean absolute cylinder of the enVista TORIC IOL at 1 to 2 weeks postoperatively in a European registry study. A mean of nearly 86% of 48 eyes achieved within ±0.50 D of their intended correction within 1 to 2 weeks.**

implanted in one of four potential axes of alignment. Postoperative lens position was measured between months 1 and 2 and again between months 4 and 6. The results were exceptional, with 100% of the IOLs rotating less than 5° (Figure 2A and B). In all instances, an independent third party assessed rotational stability.

Decentration and tilt were also assessed during the FDA study. Again, the results were exceptional, as the average decentration was 0.3 mm, and the average tilt was less than 3° (Figure 3). In comparison, the average decentration for competitor IOLs is 0.5 mm, and the average tilt is similar to the tilt we saw with the enVista IOL.[3-7]

## UNIQUE ASPECTS

What differentiates the enVista as a toric IOL is the combination of its glistening-free, hydrophobic acrylic material and its sharp 360° square edge designed to minimize posterior capsular opacification (PCO). Additionally, this IOL has haptics that make wide contact (56°) with the capsular bag. Fenestrations located on these haptics enhance the IOL's stability, thus providing the excellent rotational stability seen in the FDA study.

Two additional features make the enVista a unique toric lens option. First are the markings on the lens' optic. These easy-to-see marks are used to align the IOL with the appropriate meridian. Second is that the enVista TORIC IOL is available in three powers, 1.25, 2.00, and 2.75 D at the lens plane, corresponding to corrections at the corneal plane of 0.90, 1.40, and 1.93 D, respectively. We expect four higher cylindrical powers (3.50, 4.25, 5.00, and 5.75 D) to be available in the near future.

## EARLY RESULTS OF THE EUROPEAN REGISTRY STUDY

A recent European registry study based on the standard of care was conducted with the enVista TORIC IOL. Out of a total of 48 eyes, 98% were within 1.00 D of the intended correction 1 to 2 months after surgery. Postoperative manifest cylinder was very low (0.42 D on average), with 98% of eyes 1.00 D or less (Figure 4). When we looked at rotational stability during the European registry study, 86% of eyes experienced 5° or less of rotation, and 95% rotated 10° or less.

As a conclusion to this study, it is safe to say that the enVista TORIC is a high-quality toric IOL. Its glistening-free, hydrophobic acrylic material and its ability to be implanted through a 2.2-mm incision are just two qualities that give this lens an effective lens profile and excellent stability in terms of centration, rotation, and tilt.

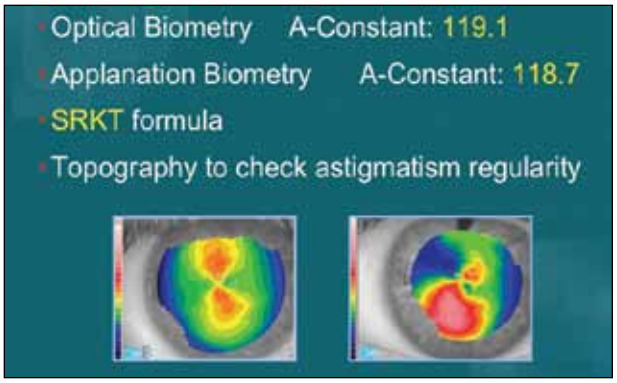


**Figure 5. The A-constant and formulas recommended for the enVista TORIC IOL.**


**Figure 6. The enVista TORIC IOL's online calculator, available at https://www.envistatoric.com.**

## SURGICAL PEARLS

In my early experience with the enVista TORIC IOL, I have come to realize that this lens is easy to use. Below are a couple of surgical pearls.

### IOL Power Calculation

For the spherical component of the enVista TORIC IOL, I use exactly the same A-constants and formulas as those for the enVista monofocal IOL (Figure 5). Additionally, I use topography to check for the regularity of astigmatism. For the cylindrical power, I use the online calculator found at https://www.envistatoric.com/. After inputting the data into the calculator, I receive a straightforward printout that I can hang in my operating room (Figure 6). The information provided on the printout includes the optimal location of the incision and the axis of alignment.

### Corneal Markings

Placing corneal markings prior to toric IOL implantation is crucial. My surgical pearl here is to pay special attention when marking the steepest meridian.

### Capsulorrhexis

I create a continuous curvilinear capsulorrhexis that is smaller than the lens optic. This allows me to precisely implant the enVista TORIC in the capsular bag.

### Implantation

I use the Accuject system (Medicel) to introduce the enVista TORIC IOL through a 2.2-mm incision. This injector allows me to perform my standard microincisional cataract surgery technique, which helps to reduce surgically induced astigmatism.

### Proper Alignment

After implanting the IOL, I simply rotate it until it is aligned with the limbal markings. My pearl is to rotate the lens at least 180º to allow it to completely unfold. One beautiful thing about the enVista TORIC IOL is that you can adjust the lens either clockwise or counterclockwise. ■

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# Frequently Asked Questions

Panelists answer three questions about Bausch + Lomb's enVista TORIC IOL.

BY LUIS CADARSO, MD; JEAN-LUC FEBBRARO, MD; AND MANFRED R. TETZ, MD

## No. 1: WHAT CLINICAL RESULTS HAVE YOU HAD WITH THE enVista TORIC IOL?

**Manfred R. Tetz, MD:** Results are quite stable postoperatively, and these results compare well with some of the published data on other toric IOL models that are on the market. I would say that, with the enVista TORIC IOL, we are at least equal to these published results. If our registry of enVista TORIC IOLs continues to grow, we will determine further if we have just equal or even better results. For now, however, I have the feeling that this lens is quite stable in the bag due to its design.

## No. 2: WHAT IS YOUR TARGET FOR ASTIGMATISM CORRECTION?

**Jean-Luc Febbraro, MD:** I try to achieve as precise astigmatism correction as I can in my laser vision correction patients. This means that my goal is to be within ±0.50 D of cylinder postoperatively. I typically use a 2.2-mm corneal incision with this type of lens, and I start to consider implanting the toric version when there is about 1.00 D of astigmatism. I always consider my surgically induced astigmatism. Additionally, I try to have the most precise and thorough preoperative evaluation, aiming for concordant keratometry (K) values using the autokeratometer, topography, and the IOLMaster (Carl Zeiss Meditec).

**Manfred R. Tetz, MD:** I target full correction for a simple reason: The companies provide us with toric calculators that already slightly undercorrect. (Note: the enVista TORIC calculator offers the option to overcorrect.) Therefore, to achieve as close to emmetropia as possible, I use the full toric correction that I get from my calculator. There is no risk of being overcorrected.

**Luis Cadarso, MD:** I like to compare the toric calculator with other software, like the IOL Consultant, which calculates for cylinder power in a different way. I aim for the target cylinder, but I do not mind being a little overcorrected.

## No. 3: WHAT TOOLS DO YOU USE TO ASSESS TORIC IOL FUNCTION POSTOPERATIVELY?

**Jean-Luc Febbraro, MD:** First and foremost, the most important thing is UCVA, followed by whether the cornea is clear. Distance UCVA is a precious tool postoperatively. At 1 week postoperatively, I use objective tools like the OPD-Scan (Nidek Co.) to evaluate the residual astigmatism and ensure I have reproducible K readings. I also use the topographer to check the axis and the position of the lens. So with these three things, I know I will have a precise evaluation.

**Luis Cadarso, MD:** I rely on the slit lamp and the refraction of the patient. For most patients, it is straightforward.

**Manfred R. Tetz, MD:** In a normal scenario, I calculate the BCVA and the UCVA the day after surgery. If the patient is seeing 20/20 uncorrected, I do not have to worry about it. The more you use toric IOLs, the more you can just take a simple refraction. ■

enVista Toric is indicated for primary implantation for visual correction of aphakia and preexisting corneal astigmatism in adult patients in whom the cataractous lens has been removed. Safety and effectiveness have not been substantiated in patients with preexisting ocular conditions or intraoperative complications. Patients with preoperative problems such as corneal endothelial disease, abnormal cornea, macular degeneration, retinal degeneration, glaucoma, and chronic drug miosis may not achieve the visual acuity of patients without such problems. Discuss potential complications with your doctor before considering use.