

**GLAUCOMA**  
RESEARCH FOUNDATION

# GLEAMS

A PUBLICATION FOR THE FRIENDS AND COLLEAGUES OF GLAUCOMA RESEARCH FOUNDATION  
JANUARY 2025 • VOLUME 42, NUMBER 2



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## CONTEMPORARY EYE DROP AIDS

IN THIS ARTICLE WE REVIEW THE BENEFITS AND LIMITATIONS OF 4 DIFFERENT DEVICES CREATED TO MAKE THE DELIVERY OF EYE DROPS EASIER.



*Autodrop*



*Autosqueeze*



*Nanodropper*



*GentleDrop*

Eyedrop medications are often used for the treatment of glaucoma and they work by lowering the eye pressure. In order for eye drops to be effective, they have to make it into the eye. Here we discuss four of these devices that make the delivery of eye drops easier and more accurate.

**AUTODROP** is a mechanical device designed to facilitate precise eye drop delivery. It attaches to standard eye drop bottles and rests on the cheek bone, ensuring proper alignment and minimizing spillage outside the eye.

**AUTOSQUEEZE** is another mechanical device designed to eliminate the difficulty of squeezing the eyedrop bottle. It has a central holder that attaches to standard eye drop bottles and a wing on either side. Squeezing the wings will cause the grooves on the inside of the wing to apply pressure to the eye drop bottle so that one eye drop is released.

**NANODROPPER** is a portable attachment that reduces the size of eye drop droplets, allowing for more efficient dosing and reduced wastage. It attaches to standard eye drop bottles and dispenses smaller, more precise drops, maximizing the number of doses per bottle.

**GENTLEDROP** is a nose point pivot device, where the eye drop bottle is inserted into a sleeve. That sleeve is then rested on the bridge of the nose, ensuring proper alignment.

All of these eye drop aids decrease the burden of eye drop delivery, but each has its advantages and disadvantages. **Learn more about the pros and cons of each of the four delivery devices on page 7 of this issue of Gleams.**

*Please discuss these devices with your doctor to find out which one may be most beneficial to you.*

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**Mona Kaleem, MD** is an Associate Professor of Ophthalmology at the Wilmer Eye Institute, Johns Hopkins University, in Baltimore, MD.

# Myoungsup Sim, PhD

For his research project “Primary Cilia-mediated Nitric Oxide Production in Schlemm’s Canal Cells,” Myoungsup Sim, PhD from Duke Eye Center (Durham, NC) was awarded the 2024 Shaffer Prize for Innovative Glaucoma Research.

## What did it mean to you to be selected to receive the Shaffer Prize for your research project?

Personally, it was a great honor to receive the Shaffer Prize. There have been moments where I questioned whether my research path was truly contributing to finding a cure for glaucoma, and if my efforts were making a meaningful impact. However, being recognized by the glaucoma community through the Shaffer Prize has instilled a newfound sense of confidence in me. It has validated the significance of my research project and its potential to advance our understanding of glaucoma. This recognition has reignited my determination to pursue my ultimate goal: developing new, safe, and efficient therapeutic strategies to treat glaucoma patients. The Shaffer Prize serves as a reminder of the value of my research contributions to the field and inspires me to continue pushing forward.



## What did the 2022 Shaffer Grant funding allow you to accomplish in your research that you could not have achieved otherwise?

The Shaffer Grant funding provided invaluable support, enabling me to make significant strides in our research endeavors. With this funding, I established methodology and generated feasible data, laying the groundwork for future investigations.

Additionally, it opened doors for me to pursue larger grant opportunities. Personally, this support also facilitated my promotion, bringing me closer to the opportunity to become an independent researcher. These developments not only advance my career but also enhance my capacity to contribute meaningfully to glaucoma research.

## Why is Shaffer Grant funding important to advance glaucoma research?

The most important aspect of Shaffer Grant funding is its support for highly innovative projects, even those that may seem impossible or high-risk initially but have the potential to revolutionize glaucoma research. With the aid of Shaffer Grant funding, it becomes possible

to explore uncharted territories and challenge existing paradigms in the field. This funding enables researchers to pursue bold ideas and unconventional approaches that could ultimately lead to breakthroughs in our understanding and treatment of glaucoma. It is through initiatives like the Shaffer Grants program that we can envision a future where a cure for glaucoma is within reach.

*To learn more about our annual Shaffer Grants for Innovative Glaucoma Research and their impact on advancing promising and novel ideas, visit [www.glaucoma.org/research](http://www.glaucoma.org/research).*

# Q&A

## Preservative-Free Eye Drops for Glaucoma

Glaucoma is a chronic disease that causes irreversible vision loss, requiring long-term care and treatment, and eyedrop medications are often used to treat glaucoma. About 50% of patients use more than one glaucoma drop.

Prolonged use of glaucoma eyedrops can cause significant ocular surface disease (OSD), including dry eye syndrome. The inactive ingredients in these drops (specifically, the preservative), as well as the active ingredient (that lowers eye pressure) have been associated with OSD. While most patients tolerate one or two eyedrop medications well, side effects of preservatives can be additive, especially when patients are using more than two different glaucoma drops.

and Travoprost. These preservatives may be less disruptive to the eye surface than BAK because they get inactivated quickly upon contact with the eye.

**Q What preservative-free options are available to glaucoma patients?**

**A** These include: Timoptic 0.5% Ocusol (preservative-free Timolol), Dorzolamide 2%-Timolol 0.5% PF (preservative-free Cosopt), Iyuzeh (preservative-free Latanoprost), and Zioptan (Tafluprost 0.0015%).

**Q Why are preservatives added to glaucoma drops?**

**A** Preservatives prevent bacterial contamination and are a requirement by regulatory authorities when manufacturing the medication.

**Q How else can I minimize the side effects from preservatives?**

**A** SLT laser treatment can help reduce the need for medications in many types of glaucoma. In addition, the side effects of preservatives can be minimized with approaches such as using combination medications and long-acting eyedrops that are used once a day.

**Q What is the main preservative found in glaucoma drops?**

**A** The most frequently used preservative is Benzalkonium Chloride (BAK). It is very effective against several microorganisms but is also known to cause increased inflammation of the ocular surface and cell disruption.

Sustained release implants that are injected or implanted into the eye have been approved for single administration and the best way to use them is still being explored. Your doctor can help you with a treatment plan that enables good eye pressure control while minimizing side effects.

**Q Are there other, better tolerated, preservatives?**

**A** Yes, these include Purite and SofZia and they are found in certain formulations of Brimonidine



**Arpine Barsegian, MD** is a board-certified, cornea and glaucoma fellowship trained ophthalmologist. She is a glaucoma specialist and cataract surgeon at Astorino & Associates Eye Center in Orange County, CA. She is an active member of the American Glaucoma Society and the American Academy of Ophthalmology.

# IN APPRECIATION

We are incredibly grateful for the generous and loyal support from all our donors. Following is a listing of recent contributions and pledges at the \$1,000 level and above. Please note these are new contributions and pledge payments between **July 1, 2024** and **October 31, 2024** and will not reflect a donor's cumulative giving for the year.

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## Strategic Advisory Council Works with GRF to Raise Glaucoma Awareness

Glaucoma Research Foundation held the inaugural meeting of its Strategic Advisory Council (SAC) in the Spring of 2024. This prestigious group brings together key industry leaders and members of the corporate community dedicated to glaucoma patient care.

The GRF Strategic Advisory Council provides their insight, advice, and expertise to help shape the Foundation's patient education and research initiatives to advance their mission to cure glaucoma and restore vision through innovative research.



Most notably, the council is set to help fund a historic glaucoma awareness campaign aimed to inform and educate the greater public about glaucoma risk factors and empower those at risk to advocate for their eye health.

"The establishment of the Strategic Advisory Council will ensure high-level industry involvement and perspectives for both our current and future initiatives," said Thomas M. Brunner, President and CEO, Glaucoma Research Foundation. "We are extremely fortunate and honored to have such a dedicated group of executives from leading companies in the glaucoma space to help guide and inform Glaucoma Research Foundation's programs."

Ramin Valian, AbbVie's Vice President, Eye Care and Global Pipeline and Commercialization

Strategy, serves as SAC chair and members include: Kfir Azoulay, Head of Corporate Strategy at Heidelberg Engineering, David Fisher, Vice President of Marketing, Bausch + Lomb, Cody McKenzie, Vice President, Franchise

Head – Glaucoma, Glaukos Corporation, Lisa Praeger, General Manager, Pharmaceutical & Dry Eye, Alcon, and Trevor Sutton, Head of Marketing, Ophthalmic Diagnostics and Surgical, Carl Zeiss Meditec, Inc.

Ruth D. Williams, MD, Vice-Chair of Glaucoma Research Foundation's Board of Directors, serves as the Board liaison to the new Council. "This is an important collaboration with industry members who focus on glaucoma and recognize the importance of partnering with non-profit organizations to better serve patients and their families, and advance promising research toward new treatments," Dr. Williams said.

Glaucoma Research Foundation is honored to have the Strategic Advisory Council's partnership to help increase public awareness of glaucoma and improve communication with glaucoma patients and caregivers.

## THE PROS AND CONS OF CONTEMPORARY EYE DROP AIDS

<b>DEVICE</b>	<b>AUTODROP</b>	<b>AUTOSQUEEZE</b>	<b>NANODROPPER</b>	<b>GENTLEDROP</b>
	<p>Autodrop is a mechanical device designed to facilitate precise eye drop delivery. It attaches to standard eye drop bottles and rests on the cheek bone, ensuring proper alignment and minimizing spillage outside the eye.</p>	<p>Autosqueeze is another mechanical device designed to eliminate the difficulty of squeezing the eyedrop bottle. It has a central holder that attaches to standard eye drop bottles and a wing on either side. Squeezing the wings will cause the grooves on the inside of the wing to apply pressure to the eye drop bottle so that one eye drop is released.</p>	<p>Nanodropper is a portable attachment that reduces the size of eye drop droplets, allowing for more efficient dosing and reduced wastage. It attaches to standard eye drop bottles and dispenses smaller, more precise drops, maximizing the number of doses per bottle.</p>	<p>GentleDrop is a nose point pivot device, where the eye drop bottle is inserted into a sleeve. That sleeve is then rested on the bridge of the nose, ensuring proper alignment.</p>
<b>BENEFITS</b>	<ul style="list-style-type: none"> <li>• User friendly</li> <li>• Improved accuracy in eye drop delivery</li> <li>• Ease of use</li> <li>• Decreased risk of bottle tip contamination</li> <li>• Decreased risk of injury to eye surface from the bottle tip</li> </ul>	<ul style="list-style-type: none"> <li>• Ergonomic grip</li> <li>• Helps overcome mobility difficulties</li> <li>• Can be used in combination with the Autodrop</li> </ul>	<ul style="list-style-type: none"> <li>• Precision dosing</li> <li>• Improved adherence to the medication schedule</li> <li>• Cost efficiency</li> <li>• Decreased side effects</li> <li>• Decreased waste</li> <li>• Improved accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Improved aim</li> <li>• Minimizing waste</li> <li>• Reduced risk of bottle tip contamination</li> </ul>
<b>DRAWBACKS</b>	<ul style="list-style-type: none"> <li>• Inconvenience of an additional step</li> <li>• May increase the number of drops used for some patients</li> </ul>	<ul style="list-style-type: none"> <li>• Inconvenience of an additional step</li> </ul>	<ul style="list-style-type: none"> <li>• Learning curve to using the device</li> <li>• Inconvenience of an additional step</li> <li>• Extending the bottle life span may increase the risk for contamination</li> <li>• Its compatibility with different bottle designs may vary</li> </ul>	<ul style="list-style-type: none"> <li>• Incompatible with some eye drop bottles</li> <li>• Inconvenience of an additional step</li> <li>• May be difficult to use for patients with limited dexterity</li> </ul>

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Glams is published three times a year by Glaucoma Research Foundation, 251 Post Street, Suite 600, San Francisco, CA 94108 Web: [www.glaucoma.org](http://www.glaucoma.org) Telephone: 415-986-3162 Toll Free: 800-826-6693 Email: [gleams@glaucoma.org](mailto:gleams@glaucoma.org) To unsubscribe, call 1-800-826-6693 or email "unsubscribe" to [gleams@glaucoma.org](mailto:gleams@glaucoma.org).

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