SOMEBEWHERE IN THE WORLD, SOMEONE GOES BLIND EVERY 5 SECONDS

AT LEAST 7M PEOPLE GO BLIND EVERY YEAR

80% OF OUR LEARNING OCCURS THROUGH VISION.
60% OF BLINDNESS IS PREVENTABLE.

“To improve vision through research, education, and supporting access to care.”
From the President

The Knights Templar Eye Foundation, Inc., has been committed to preserving sight and preventing blindness since its founding in 1955.

We have provided funding for direct patient care, research, and education throughout our history. As health care has changed over the years we now look at our Mission, “To improve vision through research, education, and supporting access to care” as not only following in the footsteps of our forefathers, but continuing our position as an influential member of the ophthalmic community for many years to come.

We hope you will review our history, services, and programs as described in the following pages, and that you will decide to support our Mission with your generous donation.

May we count on you?

Sincerely,

Duane L. Vaught
President

Inquiries & Requests for materials regarding the Knights Templar Eye Foundation, Inc. should be made directly to:

Robert W. Bigley
Office Administrator/Assistant Secretary

Knights Templar Eye Foundation, Inc.
1033 Long Prairie Road, Suite 5
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Phone: (214) 888-0220
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Website: www.knightstemplar.org/ktef

The report of the Knights Templar Eye Foundation, Inc. as of April 2017.

$148 million has been spent on research, patient care and education.
Today’s organization known as the Knights Templar does not claim to be a direct descendant of the ancient order of Knights Templar that was founded during the crusades in the 12th century. The purpose of those crusader knights was to protect pilgrims from danger when on their way to the Holy Land. These men took vows of poverty, chastity, and obedience, and were renowned for their courage in battle. In 1118 A.D., nineteen years after the successful crusade, these Poor Fellow Soldiers of Christ and the Temple of Jerusalem, as they termed themselves, were officially recognized, sanctioned, and given, for their headquarters, a building on Mount Moriah, the site of the Temple of King Solomon. Consequently, they became known as Knights of the Temple, or Knights Templar.

Eight centuries after the crusades, the current organization is still dedicated to assisting those in need and in using its efforts for the prevention of blindness. Because sight is a most precious gift, The Knights Templar Eye Foundation is often referred to as “A Great Humanitarian Charity.”
A history of the Knights Templar Eye Foundation must begin with knowing something about its founder, Walter Allen DeLamater, a truly remarkable man. He was born in New York City, April 18, 1880, son of Washington Irving and Clara DeLamater, descendants of the DeLamaters who, under the name of DeLamater Iron Works, were the builders of the Monitor of the historic Monitor-Merrimac Battle during the War between the States. DeLamater, Sr. was the first president of the Village of Rhinebeck, New York, founded in 1688.

Walter DeLamater’s illustrious career covered a broad range of interests. He was a soldier with a brilliant WWI record in both combat and important staff assignments. He was an executive in a broad range of industries and businesses focusing primarily on matters of organization, management, research and development, sales promotion and was a public relations consultant.

With all these diverse fields of interest in which he excelled, one ponders his decision to choose the Great Order of Templary to be his life’s work.

Young DeLamater was educated in New York City public schools and St. Mark’s private school. In 1901, at the age of 21, he married Marie West, who died March 31, 1940. They had two children, Marie Lillian (Mrs. Herbert Norton) and Walter, Jr.

His public career began March 2, 1900, when he enlisted as a Private in the 71st Infantry, New York National Guard. He became the only person in the Regiment’s long history, dating back to 1850, to rise from a Private to a Major General. In 1916 he served in the Mexican Border affair for which he received special commendation for action under extremely trying circumstances.

Remaining in the service through WWI, he was engaged in several difficult campaigns in France, received a number of awards, decorations and citations for exceptional bravery and distinguished service under heavy shell fire without regard for his personal safety, repaired roads, opening them to traffic, and supervised the evacuation of wounded under deadly shell fire.

He had been promoted from Major to Lieutenant Colonel in the 106th Infantry. Soon he was transferred to the 79th Division in France, and became Assistant Chief of Staff, then to the 77th Division, Chief of Staff and a full Colonel by 1920.

By the end of the war he had received numerous awards and citations for exceptional bravery as well as for brilliant staff work many times performed under deadly shell fire. For this he was awarded the Distinguished Service Medal. He had been promoted to the rank of Major General.

Although a Republican, Major General Walter A. DeLamater, RET. then a Soldier Citizen, upon request by Major Fiorello LaGuardia, approved by President Franklin D. Roosevelt was appointed Federal Civil Works Administrator of New York City. Several other important civilian assignments followed.
His Masonic Career

He was raised a Master Mason in Halteman Lodge #412 at Middletown, New York, July 26, 1917. As might be expected, this extraordinarily energetic and talented individual joined and rose rapidly in the many degrees, orders, and rites of Masonry.

He was Knighted in Yonkers Commandery #47, New York State, March 17, 1921, and moved up rapidly through the lines. He served as Right Eminent Grand Commander, State of New York, 1934, and was elected to the Grand Encampment Line in 1937.

He told of being stricken and paralyzed in 1941 for a period of two months from a clot on the brain. During those two months the doctors said it was impossible for him to live and there wasn’t one chance in a million of his doing so. After the physicians gave him up, why then and for what purpose was he saved? It was during the Grand Conclave in 1946 that we first heard the story of Sir Knight DeLamater’s vision he had while still anesthetized for an operation. In his vision, heavenly bodies, angels, admonished him that if he lived he must do something to heal the blind as Jesus had done when on earth. After his miraculous recovery from near death he firmly believed that his recovery must have been for this divine purpose.

Prior to the September 20-26, 1952, Triennial Conclave in New Orleans, Louisiana, then Deputy Grand Master Walter Allen DeLamater, began his campaign in earnest. With all the skills of a public relations consultant he launched his campaign promoting Knights Templar Eye Hospitals in connection with existing hospitals throughout the United States. Thus fulfilling the admonitions of his vision “to heal the blind.”

The idea of a hospital or hospitals for the blind lead to many long debates and bitter arguments, prior to and during the Grand Encampment meeting. Arguments were still going on in the halls and cloakrooms before the meeting was called to order by Most Eminent Grand Master William Catron Gordon. At the conclusion, the original resolution was amended to include instead of “Eye Hospitals” the words “Eye Foundation”. After a vote, the Grand Master declared “the chair rules that the resolution is adopted by the required three-quarters vote”, but following a break another 3 hours of debate resulted in around 25 additional proceeding pages containing resolutions and clarifications which finally resulted in a final and conclusive vote which again passed by three-quarters vote.

From the very beginning, a Medical Advisory Council consisting of able and dedicated ophthalmologists from all over the country guided the Foundation. For a good many years funds for research were granted somewhat haphazardly on recommendations from knowledgeable Sir Knights but without particular focus. This would be corrected in 1985 when the distinguished Dr. Alfred Edward Maumanee, Jr., Director of the Wilmer Eye Institute at Johns Hopkins University in Baltimore, established a Scientific Advisory Committee. The Scientific Advisory Committee consists of five distinguished ophthalmologists from throughout the United States. This committee screens all proposals for grants for research in pediatric ophthalmology.

(Taken from “A History of the Founding of the Knights Templar Eye Foundation”, written by the late Edmund F. Ball K.G.C., H.P.G.M. and Trustee of the Foundation.)
The Knights Templar Eye Foundation, incorporated in 1956, is a charity sponsored
by the Grand Encampment of Knights Templar. The Foundation is governed by a
Board of Trustees comprised of the six elected officers of the Grand Encampment, all Past
Grand Masters of the Grand Encampment, and six trustees-at-large elected from and by
the membership for a term of nine years. It is exempt from federal income taxation under
Section 501 (c) 3 of the Internal Revenue Code and contributions made to the Foundation are
deductible by donors.

The original mission of the Foundation was “to provide assistance to those who face loss of
sight due to the need for surgical treatment without regard to race, color, creed, age, sex or
national origin provided they are unable to pay or receive adequate assistance from current
government agencies or similar sources and to provide funds for research in curing diseases of
the eye.”

On December 31, 2010, the Knights Templar Eye Foundation, Inc., by direction of the board,
shifted the Foundation’s focus and adopted a new mission statement “to improve vision
through research, education, and supporting access to care.” The Foundation now only
participates in direct patient care through the Seniors Eye Care Program in partnership with
EyeCare America and the Foundation of the American Academy of Ophthalmology. With this
change, the Foundation is benefitting untold millions in generations to come through grants
that support research and education. Our research dollars have helped develop new, non-
surgical, treatments for strabismus (crossed eyes) and ophthalmologists have told us that our
efforts in funding pediatric ophthalmology research have been the primary reason that there
are fewer and fewer surgeries for strabismus. The Knights Templar Eye Foundation, Inc.,
annually announces its call for research grant applications. The Foundation invites eligible
investigators to submit applications for pediatric ophthalmology research grants for the award
period which normally runs from July 1 to June 30. From the applications received, the
Scientific Advisory Committee recommends to the Trustees which requests should be funded.

Since its inception, the Foundation has expended over $148 million on research, patient
care, and education. Research grants totaling in excess of $24 million have been awarded to
researchers working in the fields of pediatric ophthalmology and ophthalmic genetics.
Pediatric Ophthalmology Grants

The Knights Templar Eye Foundation, Inc. is committed to support research that can help launch the careers of clinical and basic researchers focused on the prevention and cure of potentially blinding diseases in infants and children. Grants supported by the Knights Templar Eye Foundation, Inc. are awarded to impact the care of infants, children, and adults. Clinical and basic research on conditions that may be potentially preventable or correctable such as amblyopia, cataract, glaucoma, optic nerve hypoplasia, nystagmus, retinopathy of prematurity, and hereditary diseases that occur at birth or within early childhood, such as retinoblastoma, is encouraged. Proposals for support of basic research on eye and visual system development also are welcome.

Each year the Knights Templar Eye Foundation, Inc., invites eligible investigators to submit applications for pediatric ophthalmology research grants:

**Career-Starter Research Grants** – up to $65,000 per grant. Applicants for these grants must be at the beginning of their academic careers and must have received an M.D., Ph.D. or equivalent degree.

**Competitive Renewal Grants** - up to $65,000 per grant to extend the original grant project for one additional year when the data collected from the original grant is compelling enough to apply.

**Training Mentors for Developing Countries (TMDC) Fellowship** – Annual stipend of $60,000 - The Scientific Advisory Committee for the Knights Templar Eye Foundation has identified a significant need for well-trained pediatric ophthalmology faculty (mentors) in developing countries. As a result, the Foundation has created a one-year fellowship to help meet that training need. Those receiving a fellowship have agreed in writing to return to their native country immediately following the fellowship, to practice pediatric ophthalmology for a minimum of five years and, to the extent possible, be directly involved in the training of residents during those five years.

To hear a message from the Grand Master and the Chair of the Knights Templar Eye Foundation Scientific Advisory Committee scan the QR code. *(Free QR readers are available at your phone’s app store)*
Sources of Funds

Funds for the operation of the Knights Templar Eye Foundation (KTEF) are obtained from an annual assessment of each Knight Templar, contributions made by Masons from throughout the Masonic Family, fund-raising activities, memorials, wills and bequests, and donations from endowment funds or similar sources.

Special award programs for contributions include:

- **Life Sponsor** – Available to Sir Knights (members of a Commandery) who donate $30.
- **Associate Patron** – Available to any person or organization that makes a donation of $50.
- **Patron** – Available to any person or organization that makes a donation of $100.

*Payments for Life Sponsor, Patron, and/or Associate Patron will exempt your Grand Commandery from further assessment to the Knights Templar Eye Foundation, Inc.

- **The Grand Master’s Club** – One Thousand Dollars enrolls you as a concerned individual in the humanitarian work of the Foundation. The Grand Master’s Club is available to all individuals, whether Templars or others, but not to organizations. Your membership in the Grand Master’s Club entitles you to a lapel pin and an engraved wall plaque.

- **The Grand Commander’s Club** – You can enroll in the Grand Commander’s Club by sending in your first installment of $100.00 or more. At the time of your enrollment, you will receive a lapel pin and wallet card (signifying your membership). In addition, members of the Grand Commander’s Club pledge to make annual contributions of $100.00 or more for nine more years until the total of $1,000.00 is reached. Once contributions total $1,000.00, the individual is enrolled in the Grand Master’s Club which entitles the member to receive a lapel pin and engraved wall plaque.

**The Grand Master’s Club and Grand Commander’s Club are available to all individual Templars or others, but not to organizations. (As of 2/1/2015 once 25 Grand Master’s Clubs are reached, a Sword of Merit will be awarded.)**

- **Memorial Donations** – These donations are of any amount in memory of a deceased person. A form is provided on the donor envelope.

- **Honorary Gifts** – These donations are given in honor of a living person in recognition of service or friendship.

- **Wills and Bequests** – Anyone who believes in the service provided by the Knights Templar Eye Foundation, Inc. may leave a bequest to the Foundation in their will.
• **Sight Crusader** – Anyone who designates the KTEF in their will and provides suitable notification to the Knights Templar Eye Foundation, Inc. will be listed in the Gold Book and designated a Sight Crusader.

• **The Permanent Donor Fund** – This unique fund gives perpetual recognition to any person or organization that becomes a recipient of the Golden Chalice or Sword of Merit. Recognition is given by presentation of the Golden Chalice or Sword of Merit and the name and amount contributed appear in the Annual Report on a continuing basis. Additional donations by the individual or organization in the amount of $1,000 or more will be acknowledged in future annual reports. The donor may be an organization, foundation, corporation, or individual.

• **The Golden Chalice** –
The Chalice is awarded in recognition of a single donation of $10,000 or more. The donation may be applied to the Permanent Donor Fund.

• **The Grand Master’s Sword of Merit** –
This coveted award is given in recognition of a single donation of $25,000 or more. The donation may be applied to the Permanent Donor Fund.
In 2011, the Board explored the feasibility and desirability of establishing an endowed professorship program at a leading research university or teaching hospital focusing on ophthalmic education. Preliminary groundwork proved positive and in 2012 the President formed a committee of Board members to further explore this idea.

Advantages to the Foundation of endowing a professorship identified by the committee included the fact that an endowed professorship would be consistent with the Foundation’s mission, it would provide a perpetual benefit to the Foundation from a one-time investment, it would promote visibility of the Foundation, and it would create a new partnership legacy for the Foundation. Advantages to the institution identified by the committee included the fact that an endowed professorship would provide the institution with a financial resource, it would be consistent with the institution’s mission statement, and it would provide publicity for the institution.

In August 2013, the committee recommended, and the Board subsequently approved, committing $2 million, matched dollar for dollar by the Mayo Clinic to establish the first endowed professorship to be named:

“Knights Templar Eye Foundation Inc., Professor of Ophthalmology Research”
to
Michael Brodsky, M.D.
at
The Mayo Clinic
Campuses in Rochester, MN; Phoenix, AZ; and Jacksonville, FL

In August 2015, the committee again recommended, and the Board subsequently approved, committing another $2 million, matched dollar for dollar by Johns Hopkins to establish the second endowed professorship to be named:

“Knights Templar Eye Foundation Inc., Professor of Ophthalmology”
to
Thomas McCarthy Bosley, M.D.
at
The Wilmer Eye Institute of Johns Hopkins University
Baltimore, MD
The Knights Templar Eye Foundation, Inc. has a number of donation programs most with associated recognition programs. One of our primary contribution programs is the Grand Master’s Club. These are contributions of $1,000 which can be accumulated over time. These accumulations are known as the Grand Commander’s Club ($100 each until $1,000 is reached). Currently Grand Master’s Club donors receive a plaque and a lapel pin.

Many Masons like and collect lapel pins but most of us have more than we can wear. However except for a few state programs, there has been no way to recognize this generosity when in uniform. Now there is.

In 2017 the Foundation introduced a new award, The Crusader’s Cross, to thank our individual Sir Knights. The Jewel comes in 5 levels, $1,000, $2,000, $3000, $4,000 and $5,000 or above. The $1,000 level has the single, larger cross in the center. Each additional $1,000 is identified with an additional small cross in a quadrant until at $5,000 or above all four quadrants are occupied to complete the emblem known as the Crusader’s Cross also known as the Cross of Jerusalem. The various levels of the Crusader’s Cross are displayed on this page.

Because this is one of the Grand Encampment philanthropies. As such, it is a Grand Encampment jewel and may be worn on the right side of the uniform. However, generally all medals are worn on the left of the uniform if space permits.

Only the Grand Master’s club donations given by the individual will count toward this award.
Scientific Advisory Committee Meeting
Pediatric Ophthalmology Grant Review 2017

At an annual meeting held every March, officers and trustees of the Foundation come together with ten doctors specializing in pediatric ophthalmology from many leading hospitals and research institutions throughout the country to review the applications and recommend which applications based on the merits of the proposal should be funded with a grant.

We are pleased to report that this year we received forty-three career-starter research grant applications, nine competitive renewal grant applications. Nineteen career starter grants and six competitive renewal grants were recommended for funding by the committee and all twenty-five were approved by the officers and trustees serving on the Scientific Advisory Committee. This officers and committee consists of Duane L. Vaught, President, and Trustee of the Foundation; Jeffrey N. Nelson, Chairman of the Committee, Vice President, and Trustee of the Foundation; Michael B. Johnson, member of the Committee, Vice President, and Trustee of the Foundation; Lawrence E. Tucker, member of the Committee, Secretary and Trustee of the Foundation; David J. Kussman, member of the Committee and Trustee of the Foundation; William Jackson Jones, member of the Committee, Past President of the Foundation, and current Trustee.
The Association for Research in Vision and Ophthalmology (ARVO) has awarded 58 travel grants this year to help student/trainee members attend the 2017 annual meeting in Baltimore, Maryland, thanks to a grant to the ARVO Foundation for Eye Research from the Knights Templar Eye Foundation, Inc. (KTEF)

These funds from the Knights Templar Eye Foundation represent 19% of the total travel grants awarded by ARVO and the ARVO Foundation annually. In total, ARVO and the ARVO Foundation supported 306 travel grants in 2017.

As the Knights Templar Eye Foundation has grown since its 1955 inception, we have expanded the number and size of our grants, and we have commenced new initiatives in ophthalmology research and education. Our research grants are targeted to new research by those in the early stages of their careers.

For the third year we are excited to continue the funding of travel grants for ARVO. We believe this is an ideal expansion of our funding concept. By stretching out a helping hand to those starting their careers, we hope to encourage and expedite successful careers.

For some ARVO members, travel grants make all the difference in whether they can attend the annual meetings allowing them to present their research.
Fund Raising Can be Fun

There are numerous ways to raise funds for the Annual Voluntary Campaign of the Knights Templar Eye Foundation, Inc. You can be creative, put on your thinking cap and ask other Sir Knights to get involved. One project may raise enough to reach the Goals set for the Campaign or more.

PURPOSE OF THE ANNUAL VOLUNTARY CAMPAIGN

The purpose of the Annual Voluntary Campaign is to supplement the income of the Knights Templar Eye Foundation, Inc. through bequests, gifts, endowments and other sources so that sufficient funds are available to provide the assistance as stated in the Mission Statement of the Knights Templar Eye Foundation, Inc. The Voluntary Campaign runs from October 1st to April 30th annually. Funds received in the office at any time throughout the year will be credited to a campaign. It should be noted that bequests and wills are counted for credit of the Commanderies or Grand Commanderies during each Campaign.

Commanderies reaching the goal of $10.00 per member or more will receive a plaque and seal, and those Commanderies reaching a contribution of $5.00 per member but less than $10.00 per member will receive appropriate recognition for their efforts.

THE QUESTION IS OFTEN ASKED: “HOW CAN WE RAISE FUNDS?”

FIRST METHOD (The Easy Way)

Even though it may seem painful to some Sir Knights, an out of pocket or check donation from ALL SIR KNIGHTS requires the least effort. It does require a charitable attitude which we have all committed ourselves to in the Order of the Temple. The Knights Templar Eye Foundation is THE RESPONSIBILITY OF EVERY SIR KNIGHT. This method is almost painless. “Your attitude will determine your altitude.”

SECOND METHOD (Special Approach)

Donations from outside of our membership may be accomplished with a tactful approach. These sources are businesses, fraternal organizations, foundations, and generous individuals.

THIRD METHOD (Efforts of many)

Projects require special effort, dedication, and enthusiasm of many Sir Knights who enjoy fund raising and believe in the purpose. Fun and Fellowship are part of working on projects. Give it a try.
**SOME FUND RAISING METHODS FOR CONSIDERATION**

1. Dinners before conclaves
2. Public Dinner/Dance/Entertainment
3. A “Big Band” Dance
4. Hoagie Sale
5. Flea Market
6. Auction
7. Jewelry Sale
8. Fish Fry
9. Spaghetti Dinner
10. Bake Sale
11. Candy Sale
12. Fruit Cake Sale
13. Pancake/Sausage Breakfast
14. Plant Sale
15. Shirt Sale
16. Baseball Cap Sale
17. Fruit Sale
18. A collection following a Conclave

Your imagination will provide many other ways and methods to provide funds so “That Others May See.”

**AN IDEA FOR 100% PARTICIPATION:**

Pass a collection plate at your Christmas Observance as you would at any other religious service. By doing this, every Commandery in the Grand Encampment will have participated in the Voluntary Campaign before the end of December. PLEASE EXPLAIN THIS TO THE MEMBERS AND TRY IT. YOU WILL BE SURPRISED AT THE SUCCESS.
In the pursuit of our mission to improve vision through research, education and supporting access to care, your Knights Templar Eye Foundation has partnered with the American Academy of Ophthalmology, the largest ophthalmic organization in the world, to create a Pediatric Ophthalmology Education Center. This Center, a part of the Academy’s Ophthalmic News and Education (ONE®) Network, will be comprehensive in scope, and global in reach.

Our support of this global educational resource will be an important step toward addressing a large and growing burden of vision loss. More than 285 million people globally are blind or visually impaired, and at an estimated economic cost of $3 trillion annually. Childhood blindness is among the top five causes of visual loss worldwide. An estimated 500,000 children become blind annually, and up to 60 percent of these children in developing countries are thought to die within one year. Nearly half of all blindness in children is due to avoidable causes that could be prevented with interventions using existing knowledge.

The purpose of the Pediatric Ophthalmology Education Center (Education Center) is to ensure a strong educational foundation for current and future generations of ophthalmologists, and by doing so, eliminate a lack of ophthalmic education as a contributor to global blindness. It will speed the adoption of new knowledge, technology and treatments. No such resource currently exists, even though the pace of innovation is increasing, and there is a real and growing need for the Education Center among pediatric ophthalmologists.
The Education Center will enable pediatric ophthalmologists throughout the United States and worldwide, including countries where we have Subordinate Commanderies, to access a single online resource of the highest quality content, vetted by experts. In combination with an extensive surgical simulation library, this virtual skills transfer center will address the needs of residents and fellows, mid-career practitioners, and international training programs in less-developed countries. The Education Center will teach:

- Basic science principles
- Pathology and pathogenesis of disease
- Specific disease content
- Diagnosis and differential diagnosis
- Medical and surgical management
- Risk management
- Complications management
- Patient instructions
- Outcomes assessment

Visit: www.aao.org/one

In recognition of our support, the American Academy of Ophthalmology has named the ONE® Network pediatric ophthalmology subspecialty center:

The Knights Templar Eye Foundation, Inc., Pediatric Ophthalmology Education Center

in perpetuity

By supporting the Pediatric Ophthalmology Education Center within the American Academy of Ophthalmology’s ONE® Network, we have a real opportunity to make a difference and improve the outcomes in eye care for children worldwide.
Providing Access to Care for Seniors

WHAT
EyeCare America provides eye care at no cost to those who qualify through its corps of 7,000 volunteer ophthalmologists (EyeMDs) nationwide. To see if you qualify, visit their Online Referral Center at www.eyecareamerica.org.

WHY
One-in-three Americans has some form of vision impairing eye disease by age 65, and nearly three million people of all ages have glaucoma. Most people do not know it either because there are often no early warning symptoms or they assume that poor sight is a natural part of growing older. Detecting and treating eye disease early through annual, dilated eye exams can prevent unnecessary vision loss and preserve sight well into the future.

WHO
Through its Online Referral Center, the Seniors EyeCare Program offers two types of services based on qualifications.

Service I for:

• US citizens or legal residents
• Age 65 or older
• Have not seen an EyeMD in three or more years.
• Not belong to an HMO or have eye care through the Veteran’s Administration

These patients may be eligible to receive a comprehensive, medical eye exam and up to one year of care at no out-of-pocket cost for any disease diagnosed during the initial exam. Volunteer ophthalmologists waive co-payments and unmet deductibles, and accept Medicare and/or other insurance reimbursement as payment in full; patients without insurance receive this care at no charge.
Service II for:

- US Citizens or Legal Residents
- Increased risk for glaucoma (determined by their age, race and family history)
- Those who have not had an eye exam in 12 months or more.

These patients may be eligible to receive a free glaucoma eye exam if they are uninsured. Those who are eligible and insured will be billed for the exam and are responsible for any co-payments.

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<th>HOW</th>
<th>Visit <a href="http://www.eyecareamerica.org">www.eyecareamerica.org</a> for more information or to see if you qualify for a referral to one of EyeCare America’s 7,000 volunteer ophthalmologists nationwide.</th>
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<tr>
<td>EXCLUDED</td>
<td>Eyeglasses, prescription drugs, hospital services, and fees of other medical professionals.</td>
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| CONTACTS | David Palmer, MD -- Chair, EyeCare America’s Seniors EyeCare Program
Betty Lucas -- Director, EyeCare America
ECA staff 877-887-6327; Fax 415-561-8567, PO Box 429098 San Francisco, CA 94142 |

Visit www.eyecareamerica.org

EyeCare America is co-sponsored by the Knights Templar Eye Foundation, Inc., with additional support provided by Alcon. EyeCare America is endorsed by state and subspecialty ophthalmological societies.

A public service program of the Foundation of the American Academy of Ophthalmology, EyeCare America’s mission is to reduce avoidable blindness and severe visual impairment through education and public service.
Research at work:

Retinoblastoma is an eye cancer that affects young children. In almost half of cases, it is an inheritable disease, with children of a retinoblastoma survivor having 50% risk of also developing the cancer. Retinoblastoma is fatal if untreated, and even when successfully treated with surgery or chemotherapy, it often leaves patients with very poor vision or even blind.

Terry Hoddinott (top left in the picture) lost both his eyes to retinoblastoma as a child. Both his children inherited the retinoblastoma mutation, but improvements in therapy enabled one eye of his son to be saved with good vision. Advances in genetic testing, including the identification of the mutant gene that causes the disease, led to early detection of the cancer in his daughter, and both her eyes were saved with 20/20 vision.

These children were treated by Dr. Brenda Gallie at the Hospital for Sick Children in Toronto, Canada. Research supported by the Knights Templar Eye Foundation has helped improve our understanding of retinoblastoma genetics and biology and enabled development of improved therapies, with the hope that loss of sight, eyes, and lives to retinoblastoma will one day be eliminated.

Tim Corson, PhD
Eugene and Marilyn Glick Eye Institute
Indiana University School of Medicine
Retinoblastoma: A Genetic Cancer

Father: Retinoblastoma; both eyes removed

Daughter: Retinoblastoma; both eyes saved

Son: Retinoblastoma; one eye saved

“A Masonic Charity”
I have the great honor of serving on the Knights Templar Eye Foundation Scientific Advisory Committee, where I have the opportunity to review scientific proposals designed to understand causes and find treatments for blinding pediatric eye diseases. As a clinician scientist and vitreoretinal specialist, I understand the predicament that M.D.s and scientists find themselves in when beginning their research careers, namely how to obtain resources to get started, develop preliminary data, and put together laboratories and laboratory teams. The Knights Templar Eye Foundation provides grant funding and support for scientists in their early careers to obtain preliminary data necessary to refine scientific questions, start laboratories, and successfully compete for later funding through organizations, including the National Institutes of Health.

In my situation, I was a practicing vitreoretinal surgeon with specialty training and expertise in pediatric retinal diseases. I had always wanted to pursue science from the time of high school, but I was concerned that taking time out of my career to pursue a Ph.D. would cause a gap between my surgical training and the start of a medical practice and interfere with my ability to provide the best care and treatment for my patients as a physician and surgeon. Therefore, I pursued a postdoctoral fellowship as a practicing M.D. and was able to learn many of the techniques and ways of approaching questions as a scientist. When I was ready to start my independent research program, I found that funding organizations required preliminary data and publication before ever considering funding. I well recognize how important it is to have funding sources at early stages in one’s career in order to pursue science. I fortunately was able to successfully obtain support. Also important in developing one’s research program is mentorship. One of my mentors was John Penn, now the chair of the Scientific Advisory Committee, who had developed an animal model that mimicked many of the features of human retinopathy of prematurity. John was very helpful in helping me get the model up and running in my own laboratory. Although I did not apply for funding from the Knights Templar Eye Foundation, I have mentored others, including my own laboratory members, and have had one research assistant professor who has been successfully funded through the Knights Templar Eye Foundation.

Now as a Scientific Advisory Committee member, I think back to the difficult times in my early career and how beneficial it is to have research support early in one’s career. I also remember the importance of mentors and I try to reach out and offer support to other scientists and clinicians beginning their research programs. The Knights Templar Eye Foundation provides needed support to scientists and clinician scientists at the beginning of their research careers and is one of the only, if not the only, organizations that specifically provides funding for pediatric eye disease. Pediatric eye research is such an important and needed area of research support. I believe that through the support of the Knights Templar Eye Foundation, the Scientific Advisory Committee is able to help clinician scientists and scientists develop worthwhile careers to improve the outcomes and quality of life of children and infants with blinding eye diseases.
The Importance of KTEF funding

I recall very fondly the year I received a Knights Templar Eye Foundation grant, as that award enabled me to dedicate my career toward the prevention and treatment of childhood blindness. As a biomedical engineer, my career goal has always been to develop solutions for treating patients. Historically, biomedical engineers have made contributions to medicine that we see every day, including cardiac pacemakers, prosthetics, MRIs, and robotic surgery. After obtaining my undergraduate degree from Vanderbilt University in this field in 2003, I wanted to sharpen my engineering skills with a PhD so I could hopefully make a mark of my own, to develop the next big thing in medicine.

In graduate school, my mentor was John Penn, Ph.D.**, who himself was once a Knights Templar Eye Foundation Awardee when he began his career. He wanted me to apply my engineering skills to a difficult problem in ophthalmology: drug delivery to the eye. When drugs are delivered to the eye, a needle is inserted and the injected drug is exposed to the entire eye. Therefore, both diseased and healthy tissues receive the drug. This is particularly a problem for treating a major cause of childhood blindness, called Retinopathy of Prematurity (ROP). In ROP in newborns, who at this stage are still developing their eyes’ blood supplies, some of the vessels that develop are abnormal, and if this abnormal vessel growth is not corrected, some patients can experience irreversible vision loss. However, in the newborn eye, many blood vessels, which are growing normally, can be adversely affected if any drugs are injected, since the drugs are designed to combat blood vessel growth and cannot distinguish between healthy vessels and abnormal, diseased ones.

To address this problem, Dr. Penn wanted me to engineer the surface coating of drugs with polymers, in order to make the drugs “smarter,” such that the drug could only bind to abnormal vessels and correct them, while leaving healthy blood vessels alone. I proposed an engineering strategy for achieving this goal, and Dr. Penn helped me land a faculty position at the Vanderbilt Eye Institute and gave me a laboratory next to his in order to test my drug delivery strategy. He suggested that, like him, I ask the Knights Templar Eye Foundation to obtain financial assistance for developing the ROP treatment strategy so that I could prove it works. The Sir Knights and their families came through with a generous grant which enabled me to prove that targeted drug delivery can be achieved in ROP. Seven years later, I am now a head of R&D for a major drug company, Roche Pharmaceuticals in Switzerland, and it hired me to further develop my drug delivery strategy in order to make smarter drugs for diseases like ROP. Thanks to the KTEF, my dream of developing a new therapy to stop childhood blindness from ROP is a very tangible reality. I will never forget the pivotal role that the Foundation played in my career development, and I am excited to make a substantial return on its investment in the form of new treatments that will improve clinical outcomes for children facing vision loss.

** John S. Penn, Ph.D. as referenced above is currently Vice Chair of the Department of Ophthalmology and Visual Sciences at Vanderbilt University and Chair of the Knights Templar Eye Foundation Scientific Advisory Committee.
In 1986 I was an assistant professor of ophthalmology at the Cullen Eye Institute at Baylor College of Medicine, and I was just embarking on my research career. I was interested in a particularly tragic form of blindness known as retinopathy of prematurity or ROP. This condition is tragic because it blinds premature infants at the very onset of life, before they have an opportunity to appreciate the wonder of their visual surroundings. At the time we didn't know much about how ROP developed in infants or how it progressed to its blinding form. I applied to the Knights Templar Eye Foundation for two years of financial support, and I used that support to develop an animal model of the ROP condition so its pathogenesis could be investigated. Two years later, when my KTEF funding ended, I submitted an application to the National Eye Institute of NIH, relying on the model I'd developed with KTEF support. In my NEI application, I proposed experiments to better understand the onset and progression of the ROP condition. I was fortunate enough to receive NEI funding for that project, and I'm proud to say that grant has been renewed multiple times and is now in its 28th year of consecutive funding. That simply would not have happened if not for the Knights Templar grant. Our findings, first in Houston, then in Little Rock at the University of Arkansas for Medical Sciences and finally in Nashville at Vanderbilt University where I've been for the last 15 years, and those of other labs during this nearly three-decade period, have altered the way in which premature infants are cared for and the way in which ROP is treated. And I'm proud of that legacy and appreciative of the pivotal role that the KTEF played in it.

The primary pathologic feature of ROP is abnormal capillary growth in the retina of the eye. The ROP model I developed proved to be applicable to abnormal capillary growth in a wide variety of non-ocular tissues and diseases. So, the model became a valuable tool for use beyond the realm of eye disease….for studying these other conditions and for testing pharmacotherapies to address them. Over the last three decades we've use the model to conduct drug efficacy trials in partnership with the pharmaceutical industry, and this activity has contributed to the development of a number of drugs that are on the market today.

Thus, KTEF funding had a clear and direct impact upon my early professional development and on the success of my research program. Also, it led to findings that had a significant impact on patient care in a particularly vulnerable population, tiny infants. I believe that my experience can serve as an example of what the KTEF can do for young vision scientists throughout the country. I know that's the case, because KTEF funding has catapulted the careers of four of my trainees, each of whom have gone on to make their own mark in vision science.
When I think of the impact the Knights Templar Eye Foundation has had on my career, I am reminded of my high school motto, (“Finis origine pendet”) which is Latin for “The end depends upon the beginning.” Early events can have a profound impact on the ultimate direction we take. In my case, receiving a Knights Templar Eye Foundation grant was one such event.

Growing up in Minnesota, I was sure I would become either a farmer or an astronaut. Little did I know what the future would have in store for me. My education took me out of Minnesota to Johns Hopkins in Baltimore for college, then further north to New York City where I went to medical school at Cornell and then finally up to Boston where I completed a retina fellowship at Harvard. During that journey, I knew that to create a better future, we needed to discover new treatments that would help us in our fight against childhood blindness. In my case, I focused on a hereditary cancer, retinoblastoma, which occurred in the eyes of newborn babies. In 1998, I was awarded a Knights Templar Eye Foundation grant to study the fundamental aspects of this blinding cancer. Through this work I realized that there was much more we could do to protect childhood sight. Since then, I have devoted my life to this cause, and now as Director of the Vision Center at Children's Hospital Los Angeles, I oversee seven doctors who are all equally dedicated to eradicating childhood blindness.

This path I took all started with a simple grant application 14 years ago to the Knights Templar Eye Foundation, and I am very grateful for the generosity of all of the members and their families for supporting doctors and scientists like myself. Our motto at the Vision Center is that every child should be able to see a sunset. Through the support from the Knights Templar Eye Foundation, we are now closer to making that a reality.

Thomas C. Lee, M.D.
Dr. Bibiana Jin Reiser, an Associate Professor of Ophthalmology at USC Roski Eye Institute and Director of Cornea and Glaucoma Services at Children’s Hospital Los Angeles, and is a former KTEF grant recipient.

As I was finishing up my last training year on my way to becoming a cornea and refractive surgeon for adults, my mentor suggested that I do a year in pediatrics. In order to be the best, he said that I should be able to work with babies and children. He called it the “final frontier”, where only the few and the brave would dare venture forth. After hearing the “to be the best” comment, I was all in. I jumped in, head first, and never looked back. This extraordinary year was only made possible with financial support of the KTEF, and today I serve as the Director of the Cornea and Glaucoma services at the Vision Center at Children’s Hospital of Los Angeles, one of the busiest in the country specializing in critical eye care for children.

Growing up a daughter of immigrants, I wanted to dream big in America, and my dream was to be a doctor. My mother, a nurse, strongly discouraged it. She felt that work as a doctor would not let me be a mother to her future multiple grandchildren. Ever-stubborn and driven, I wanted to prove her wrong. I believed that I could do it all, and I have. Today, I have two children, one in college and the other in junior high school. And as my children grow older, I have many others, my patients and their parents, for whom I am a caregiver. What a privilege and honor it is to be part of their lives, shepherding care, saving a child’s vision.

In these 10 years since my year supported by the KTEF educational grant, I have built one of the largest anterior segment practices in the country that serves not only families in Southern California but families across the globe. Today, we are developing techniques and innovations resulting in better clinical outcomes and decreased complications in very rare, blinding eye diseases, such as congenital cataracts, Peter’s anomaly, and glaucoma. So, since progress cannot happen in a vacuum, we present our work internationally so others can benefit from our experience.

The fight that we fight to preserve a child’s vision is not always rewarded by easy success. Sometimes, keeping and not losing vision is a hard-fought victory. Because this is the struggle pediatric eye specialist’s face, it is not always the path that is chosen by many. The financial support of the KTEF grant allowed me the breathing room to give this challenging area a hard, close look. Past my gaze, staring back at me, were the eyes of a child. Behind this child stood his parents and, behind them, the will and support of many others. This includes the many who will never be in the exam or operating room but those who are tirelessly fundraising for this noble cause, the fight to prevent childhood blindness.

Thank you for your support, my work today would not have been possible without it.
Knights Templar Eye Foundation, Inc.

Video Clips
Available for viewing and downloading from the Foundation’s website

www.knightstemplar.org/ktef

Dr. John S. Penn
Vanderbilt University
Chair of the Knights Templar Eye Foundation, Inc
Scientific Advisory Committee

Dr. Thomas Lee
Division Head – The Vision Center
Children’s Hospital Los Angeles
Member of the Knights Templar Eye Foundation, Inc
Scientific Advisory Committee

Dr. Jill Bolstad
Specializes in pediatric medicine

EyeCare America
Co-sponsored by the Knights Templar Eye Foundation, Inc
Seen Through Doctors’ and Patients’ Eyes

ONE Network
The Ophthalmic News & Education Network named:
The Knights Templar Eye Foundation, Inc.
Pediatric Ophthalmology Education Center
In perpetuity
Dr. Christie L. Morse
Chair, American Academy of
Ophthalmology Foundation Advisory Board
A THANK YOU from EyeCare America

Dear Sir Knights,

EyeCare America (ECA) is tremendously grateful to the Knights Templar Eye Foundation for their more than two decades of ongoing partnership and support. This vital public service is one of the only programs in the U.S. providing direct access to medical eye care, often at no out-of-pocket cost, for underserved older Americans. If every Knight Templar member referred or helped one person in need of medical eye care through ECA, this could potentially preserve sight for thousands more seniors across the U.S.

Eyes are the one place on the body to clearly view blood vessels and nerves, which can reveal health issues beyond sight, such as high blood pressure, diabetes, high cholesterol, even brain tumors. In addition to preserving sight, a simple, painless medical eye exam can sometimes save lives.

One of EyeCare America’s volunteers recently saw a patient who came to him with complaints of partial vision loss. Following a comprehensive medical eye exam, Michael Feilmeier, M.D. detected troubling signs of a blood clot. He immediately sent the patient to his primary care physician for an ultrasound, which revealed a large clot obstructing 95% of the patient’s left carotid artery. “Had this condition not been quickly diagnosed and treated, the patient would have had a major stroke.” Said Dr. Feilmeier, Omaha Nebraska.

Within minutes, Knight Templar members can see if you, your friends or loved ones are eligible by answering a few online referral questions at www.aao.org/eyecareamerica. EyeCare America also offers “partner packets” including: brochures, flyers, risk factor cards and Power Point presentations for anyone interested. If you wish to receive a partner packet or if you have ECA questions, email eyecareamerica@aao.org.

Thank you to the Knights Templar Eye Foundation, and its members for helping underserved seniors access the medical eye care they so desperately need.

Sincerely,

C. Pat Wilkinson, M.D.
Chair, EyeCare America
ARVO Foundation for Eye Research – Newsletter
Outreach Campaign
Optical Coherence Tomography (OCT)

Today, a little known but widely used technology is helping clinicians image the back of their patients’ eyes to diagnose glaucoma, macular degeneration and diabetic retinopathy. Tomorrow, the same technology could contribute to diagnosing neurological diseases like Alzheimer’s and Parkinson’s. To highlight the value of this revolutionary clinical tool a outreach campaign has been developed by the Association for Research in Vision and Ophthalmology (ARVO), with whom the Knights Templar Eye Foundation has a relationship through funding a portion of its travel grant program.

The project’s flagship product is a series of free-to-use, short videos on the discovery and adoption of OCT in the clinic over the past 25 years. The videos feature patients using OCT to improve their visual outcomes, clinicians describing how OCT makes their decision-making easier and researchers pushing the technology to new frontiers. The videos are suitable for patient, public and policymaker education.

Other resources apart of the campaign include an advocacy toolkit and a special issue on the latest OCT research in the journal Investigative Ophthalmology and Visual Science (IOVS).

All OCT resources can be found at www.arvo.org/OCT.

For more information, email outreach@arvo.org.
Grant Awarded to the Apl.de.ap Foundation

Campaign for Filipino Children

The Knights Templar Eye Foundation board approved and awarded a $95,000 grant to assist in purchasing a digital imaging system that would be used in a pilot program for the Apl.de.ap Foundation formed by Allan Pineda Lindo better known as Apl.de.ap, a member of the Grammy Award-winning group, The Black Eyed Peas.

The Campaign for Filipino Children is an initiative that addresses a critical medical concern in the Philippines and worldwide, the pediatric eye affliction known as retinopathy of prematurity. At least ten percent of all births in the Philippines involve premature babies, these premature births are the result of the relative deficient nature of prenatal care available to the poor. At least thirty percent of these premature babies develop retinopathy of prematurity, a disease that causes abnormal blood vessel growth in the retina from excessive oxygenation. If the affliction is not treated within 48 hours of diagnosis, these premature babies become permanently blind.

In four pilot hospitals alone, the initiative will train from 6 to 10 medical practitioners from each hospital, a total of 24 to 40, and therefore potentially prevent blindness for 4,380 premature babies each year. In the future, doctors from these pilot hospitals will train their counterparts in other hospitals. The goal is to create the internal capacity in the Philippines to diagnose retinopathy of prematurity and perform needed surgeries within the first 48 hours of diagnosis.

The Southern Philippine Medical Center (SPMC) located in Davao City was selected by the Apl.de.ap Foundation to be the first pilot hospital to receive the equipment and 34 Sir Knights from Rajah Commandery #20, Grand Commandery of the Philippines, under the direction of Sir Knight Danilo C. Datu Sr., Grand Commander of the Philippines, attended the formal dedication as VIP guests of the Apl.de.ap Foundation.
Dr. Benjamin Bakondi from Cedars-Sinai Medical Center, Los Angeles, California received a $65,000 grant to research Retinitis Pigmentosa (RP) which is an inherited disease that destroys light-sensing retinal cells, causing vision loss in one in 3-4,000 people in the US and Europe.

Symptoms within RP begin as early as infancy and often lead to irreversible blindness by adulthood. RP has no cure and the effectiveness from the few available treatment options is modest and short-lasting. Patients with the dominant form of RP frequently have a mutation in only one of the two copies of the affected gene, such as rhodopsin. Having one normal copy of rhodopsin would not cause RP if the toxic effects from the mutant version could be muted. Their published study in 2016 was the first to show permanent deletion of mutant rhodopsin only while leaving the non-mutated version unaltered. The effect this had in live animals that model RP was substantial retinal rescue and better vision compared with control treatments. The principles of CRISPR gene ablation in these animals also apply to similarly targetable mutations that have been identified in RP patients. Based on their optimistic results, they propose testing of the effects from mutant rhodopsin ablation are safe and long-lasting with delivery of CRISPR by methods commonly used for gene therapy trials. Multiple investigators have proposed using CRISPR-based strategies to treat RP, which makes the question of effectiveness by translational delivery means a vital public health issue. Their proposal addresses a critical step for those wishing to transfer CRISPR-based strategies to clinical use.

*Pictured left to right - Sir Knight Michael Sekera; Sir Knight Roger Ross; Benjamin Bakondi, Ph.D. (recipient of grant); Sir Knight David J. Kussman, Grand Captain General of the Grand Encampment and Trustee of the Knights Templar Eye Foundation; and Sir Knight Thomas N. Thomas, Grand Commander of California*
Columbia University Medical Center research scientist Dr. Revathi Balasubramanian has received a $65,000 grant to study some fundamental questions on the molecular forces governing iris and ciliary body development.

The ciliary body and iris are important structures present in the anterior portion of the eye. Malformation of the iris and ciliary body can lead to congenital blindness in the form of aniridia and glaucoma. They do not completely understand the genetic basis of the development of the iris and ciliary body. In their study, they found that mice lacking a signaling system (FGF) specifically in the eye display signs of aniridia. To further understand the cause of aniridia, they propose to study the significance of FGF signaling during the embryonic development of the structure that gives rise to the iris. They also propose to study the interaction of FGF with another signaling system (WNT) that has been previously shown to be crucial for the development of the ciliary body and the iris.

Pictured left to right – Xin Zhang, Ph.D. (preceptor for the grant); Dr. George Cioffi, Chair; Department of Ophthalmology; Revathi Balasubramanian, Ph.D. (recipient of grant); Sir Knight David Dixon Goodwin, Past Grand Master of the Grand Encampment, Past President and Trustee of the Knights Templar Eye Foundation; and Sir Knight Richard Kerimoglu, Grand Commander of New York
Jesse L. Berry, M.D., Associate Director of Ocular Oncology from Children’s Hospital, Los Angeles California, was awarded a $65,000 grant for Retinoblastoma. Retinoblastoma (RB) which is a type of cancer that develops in the eyes of children, most often under two years of age. In the majority (98%) of cases, RB is caused by a mutation in the retinoblastoma gene (RB1). In 60% of those cases, the mutation exists only in the tumor, while in 40%, it is a mutation found in all cells of the body. In the latter case, the mutation can be detected with a blood test; otherwise, the mutation can only be detected in tumor tissue. However, unlike many cancers, RB cannot be directly biopsied because there is a high risk of cancer spread. Therefore, unless the eye is removed as part of treatment for RB, the mutation in the tumor cannot be identified.

In a pilot study, they have shown that tumor-derived DNA can be isolated from the aqueous humor (AH), which is the clear fluid in the front of the eye. This research proposal aims to identify the specific RB1 mutations from the AH and to use this fluid as a ‘surrogate liquid tumor biopsy’ for RB when tumor tissue is not available. The results of this study may also aid in resolving diagnostic dilemmas for RB and have further applications such as gene expression profiling to evaluate for biomarkers that correlate with response to therapy or aggressive tumor activity.
University of California-Davis, recipient Sandipan Datta, Ph.D. received a $65,000 grant for his continued research in Mitochondrial diseases which are responsible for creating more than 90% of the energy needed by the body to sustain life and support organ function.

Mitochondria are cellular organelles which consume oxygen, generate energy and are known as ‘power-houses’ of cells. Clinical studies show a decrease in mitochondrial protein in ~73% of clinical cases of retinoblastoma. Decrease in mitochondrial activity was shown to be directly proportional to tumor aggressiveness. In contrast, mitochondrial gain-of-function has shown to inhibit malignant cell growth and revert them back to more normal-like cells. Therefore they think that enhancing mitochondrial activity can be a promising strategy for an adjuvant therapy which will sensitize retinoblastoma cells to standard chemotherapeutic drugs resulting in decreased toxicity and increased potency.
Two grants were presented in Boston, Massachusetts to Boston Children’s Hospital.

The first grant was given to Silvio Alessandro Di Gioia, Ph.D. who has research focused on Strabismus, or misalignment of the eyes, which affects 1 in 20 children. It can cause blindness in one eye, difficulties with interpersonal communication, and reduced occupational and social opportunities. About 1 in 50 strabismic individuals have limited eye movements, or paralysis. Duane retraction syndrome (DRS) is the most common form of paralytic strabismus, and results when a nerve that normally travels from the brain to an eye muscle fails to develop. DRS can occur by itself or together with hearing loss, difficulty moving the face, and malformations of the heart, kidney, or limbs. It can also be present in multiple members of the same family, permitting the use of genetics to study its causes. The applicant’s laboratory has discovered four genes that can cause DRS, and has given DRS to mice to study how the disorder arises during development. They still do not know the cause of DRS in most affected individuals, however, to identify missing genetic causes, the applicant’s lab has now sequenced DNA from 93 unrelated DRS families. They believe they are likely to identify many different DNA changes in these individuals, and to determine which of these many changes cause DRS, the applicant will introduce the changes into zebrafish and study how they alter ocular nerves and muscles. Zebrafish eye movements are very similar to human and mouse, and experiments in fish are much faster and less expensive than in mice. Studying development of mutant zebrafish should uncover novel DRS genes and, thus, impact DRS diagnostics and potentially therapy.
Dr. Chi-Hsiu Liu who is a Research Fellow in Ophthalmology received the second grant given out at Boston Children’s Hospital with research focusing on Retinopathy of prematurity (ROP), an eye disease in preterm infants, can cause severe vision loss. ROP is characterized by abnormal growth of retinal vessels, causing retinal detachment and visual impairment. It is crucial to find key factors which control abnormal vascular growth, and targeting these factors to develop potential therapeutics for ROP. Their previous work showed that microRNA (miRNA), a class of small regulatory molecules regulating gene expression, plays important roles in the formation of abnormal retinal vasculatures in ROP mouse models. Here they propose a new strategy to eliminate disorganized retinal vessels by studying a specific miRNA, miR-145, which they found was increased in experimental ROP mouse retinas.
A $65,000 grant was given to Yury Garkun, Ph.D. at Icahn School of Medicine at Mount Sinai, New York for research that will focus on amblyopia which is a widespread form of visual impairment, affecting about 1–5% of the human population. It is caused by abnormal visual experience in childhood. Although amblyopia is responsive to treatment if therapy, such as patching, is initiated early in life, many visual dysfunctions are hard to detect in children, resulting in enduring visual impairment due to the lack of sufficient plasticity within the adult brain.
Carey Y. L. Huh, Ph.D. from the University of California, Irvine was awarded a $65,000 grant for her research into Amblyopia (also known as ‘lazy eye’). Amblyopia is defined by reduced vision in one eye and a loss of 3-d vision. A leading cause of monocular vision loss in children, amblyopia affects 2-5% of the population. Traditional treatments such as patching are not always effective, and they can lead to compliance and self-esteem problems in young children. Unfortunately, there is currently no commercially available cure for adult amblyopia. Therefore, it is important to understand how amblyopia arises so that they can develop more effective means to treat it. The aim is to study high-acuity information processing in the mouse visual system at multiple levels of mechanisms. Specifically, she will use state-of-the-art imaging techniques to determine whether inputs from the visual part of the thalamus convey high-acuity signals to the cortex and if so, whether early visual deprivation affects normal development of these inputs. She will measure visual acuity in amblyopic mice using a behavioral task while monitoring eye movements, to examine whether neural deficits translate to vision problems behaviorally. Eye monitoring will reveal whether problems at the eye level contribute to visual deficits. Results from this study will contribute to the current knowledge of how vision works and increase their understanding of amblyopia so that we can more effectively treat and prevent the disorder in the future.
Dr. Amrita Pathak, Ph.D. a Senior Postdoctoral Fellow from Vanderbilt Eye Institute, Nashville, Tennessee received a $65,000 grant for her research into eye development and the causes of coloboma which can result in childhood blindness and vision loss.

Eye development which is a complex process, occurs during the 3rd to 10th week of gestation in humans. One important process is the transient formation of a gap in the ventral embryonic eye (optic fissure) that eventually needs to close and fuse. Closing and fusion requires major cellular changes in the tissue in a timely and structural fashion. If optic fissure closure is defective, it results in congenital abnormalities like coloboma (notches or gaps in eye structures), which accounts for more than 10% of childhood blindness. Despite knowing the importance of optic fissure closure, the cellular and molecular details of the process are still not known. Her research aims to understand the basic details with emphasis on finger-like protrusions that bridge the gap and are made of actin protein. The data and information obtained from this research will help to develop better therapeutics to prevent childhood blindness and vision loss due to coloboma.
Nachiket Pendse, Ph.D. a Postdoctoral Research Fellow from the Ocular Genomics Institute, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts received a $65,000 grant for his research in the use of gene editing for specific types of inherited retinal degeneration.

An eye is the organ of sight and enables us to capture the light which is the first step towards image formation. Very specialized light sensing cells known as photoreceptor cells convert the visual image into electrical signals that is then processed by our brain. For proper functioning of photoreceptor cells, the network of proteins plays a crucial role. Defects in these proteins lead to blinding diseases in humans. Therefore, it is of importance to understand how proteins efficiently function to sustain vision.

Usher syndrome type II is characterized by progressive loss of vision. Mutations in the gene USH2A are the prime cause of usher syndrome in humans and results in malfunctioning of USH2A protein, impaired vision and hearing loss. In United States, approximately 15%–30% of USH2A cases are due to these mutations. Regardless of two decades of progress in medicine, a therapy to cure usher syndrome remains as a challenge. In this research, using unique gene editing approach, Dr. Pendse will design a novel strategy that can be potentially used as a cure for this disease.
A large group of Sir Knights presented two $65,000 research grants to two researchers at the W. K. Kellogg Eye Center, Ann Arbor, Michigan.

The first recipient was Tapan P. Patel, M.D., Ph.D., a PGY-2 resident of the Kellogg W. K. Eye Center whose research is going to focus on tools that would be beneficial to eye exams and screening in children.

Performing an eye exam in children is challenging, particularly the back part or retina. Often times, a child needs general anesthesia in order to complete an eye exam. Due to the advanced instrumentation, training and specialized resources required for an eye exam in children, screening for potentially blinding eye diseases, such as retinopathy of prematurity, is underutilized, especially in underserved communities. There remains a critical need to develop safe, effective, readily available, and efficient methods and tools to optimize examination and screening for sight threatening diseases. These tools should be applicable in a variety of eye care settings, including inpatient and outpatient clinical contexts, and be applicable to children of all ages, from infants to adolescents. In the absence of such tools, patients will continue to have limited access to eye care and remain at risk for sight-threatening eye conditions that otherwise could be prevented and managed appropriately. The outcome will be to develop a portable, handheld, smartphone-based, child-friendly device that is capable of imaging the posterior part of the eye. Also they plan to determine its utility in screening for retinopathy of prematurity and for diagnosis and monitoring of various diseases of the retina or optic nerve in the pediatric population.

Pictured left to right – Sir Knight Loren A. Winn, East Central Department Commander; Tyson Kim, M.D., Ph.D., resident physician at W. K. Kellogg Eye Center; Tapan P. Patel, M.D., Ph.D. (recipient of grant); Yannis Pauls, M.D., Assistant Professor of Ophthalmology at Kellogg Eye Center (preceptor for the grant); Sir Knight Ronald E. Gorecki, Knights Templar Eye Foundation Chairman for Michigan; and Sir Knight Donald L. Trumbull, Grand Commander of Michigan.
The second recipient, Lev Prasov, M.D., Ph.D., also a resident physician of the W. K. Kellogg Eye Center, has research that is centered on nanophthalmos which is a rare genetic disease that will help them understand what causes this disorder, which can be quite devastating in childhood and beyond.

Refractive error, impairment in focusing which can be corrected by glasses, is the most common cause of visual impairment in children. Extreme far-sightedness is called nanophthalmos and is characterized by a very small but normally formed eye. They will study a new gene implicated in this condition, which they have identified by studying a large family with this disease. Their goal is to determine the role of this gene in normal ocular growth and development and also to identify other patients and families with mutations in this gene. They will use a combination of patient clinical and genetic information and animal models in order to better understand the function of this gene and its role in causing eye disease. By studying this extreme eye condition, they will gain insights into the mechanisms that cause more common refractive errors. Their animal model may prove useful in the future for testing new therapies for this condition; and their patient repository will be a useful tool for discovering additional genes and developmental pathways for this condition.
Two $65,000 research grants were awarded to the Wilmer Eye Institute, Baltimore, Maryland, with one focused on Retinopathy of Prematurity and the other on brain tumors in children.

Kim Jiramongkolchai, M.D. will be doing her research on Retinopathy of Prematurity (ROP) which is the leading cause of blindness in children in developed countries affecting 16,000 infants born in the United States each year. Of these, 400-600 infants will become legally blind. Early studies demonstrate that oxygen is a key driver in ROP. It is hypothesized that continuous exposure to high levels of supplemental oxygen delays retinal development, and when coupled with periods of low oxygen as a result of immature lungs, the release of growth factors that drive ROP are triggered in preterm infants.

Fetal hemoglobin (HbF), plays a critical role in delivering oxygen to tissues in preterm infants. At 32-36 weeks post menstrual age, Hb content switches to adult hemoglobin (HbA). Interestingly, this transition corresponds temporally to the independently observed critical period of ROP development. To date this relationship has not been studied, but may be key to understanding ROP. If their research hypothesis is true it may serve as both a novel and sensitive biomarker to detect the progression of ROP and a target on which new treatment can be developed. Furthermore, this hypothesis may change the paradigm in how ROP is defined--from a disease driven by local growth factors to one that also involves systemic factors.

Dr. Allison Martin, will be doing research on brain tumors which are the most common solid tumor in children. Juvenile Pilocytic Astrocytomas and other low grade gliomas make up the majority of these. Although often considered “benign” tumors they can still cause life-limiting neurologic problems when they cannot be completely removed surgically. They frequently occur in or around areas of the brain necessary to maintain vision, and may not respond well to traditional therapies like radiation and chemotherapy. Therefore many children suffer diminished vision or complete blindness as a result of these tumors. So more effective therapies that can arrest the growth of these tumors while limiting toxicity are desperately needed. This study seeks to determine whether there is a relationship between a genetic mutation that drives the growth of some low grade gliomas, and the expression of a molecule that helps cancer cells hide from the body’s immune system.
The John A. Moran Eye Center, University of Utah School of Medicine, Salt Lake City, Utah was awarded two $65,000 grants.

Dr. Dongmei Yu, Ph.D. received one of the grants for research into Retinitis Pigmentosa (RP) which is a major hereditary retinal Degenerative disease. This disease is clinically characterized by early night and peripheral vision loss and late central vision loss, caused by sequential rod and cone photoreceptor cell death. Usher syndrome (USH) is a condition of RP combined with hearing loss, which is the leading cause of deaf-blindness, affecting 10,000-50,000 people in the United States. No cure is currently available for either RP or USH. The current proposal will study the usherin protein, which is encoded by a gene associated with both RP and USH. The findings from this study will help inform the design of effective usherin minigenes for gene replacement therapy and improve molecular diagnosis by accurately determining the pathogenicity of usherin missense variants.

Dr. Aruna Gorusupudi, Ph.D. who received the second grant award is doing her research into Stargardt-3 disease (STGD3) which is a juvenile macular dystrophy caused by mutations in the ELOVL4 (ELongation-Of-Very-Long-chain-fatty-acids-4) gene. ELOVL4 is an elongase enzyme required for biosynthesis of very long chain polyunsaturated fatty acids (VLC-PUFAs), a rare class of >C24 lipids in retina. VLC-PUFAs are not synthesized (in vivo) in vertebrates, and they are not commonly consumed in diets. This research aims to study how chemically synthesized VLC-PUFAs could help animals expressing mutated ELOVL4 protein to prevent or postpone STGD3 disease and improve visual acuity.

Pictured left to right – Sir Knight Jason Varner, Grand Senior Warden of Utah; Mrs. Robert Wolfarth, lady of Grand Master of Utah; Brother and Sir Knight Robert Wolfarth, Grand Master of Utah; Jun Yang, Ph.D. (preceptor for the grant); Dongmei Yu, Ph.D. (recipient of grant); Dr. Aruna Gorusupudi, (recipient of grant); Sir Knight William A. Garrard, Southwest Department Commander; Paul Bernstein, Ph.D., (preceptor for the grant); and Sir Knight Jeffrey Hamilton, Grand Commander of Utah.
A $65,000 grant was awarded to Jun Wang, Ph.D., from Baylor College of Medicine, Houston, Texas for the research into Leber Congenital Amaurosis (LCA) a retinal hereditary disease which is the cause of visual impairment in infants and children.

The goal of this research project is to improve the molecular diagnosis of, and develop treatments for (LCA) and related inherited retinal diseases which LCA is the most common and severe. While significant progress has been made in gene therapy for LCA patients, deciphering the genetic etiology for every patient is the first step to enable the application of these technologies. Furthermore, a clear understanding of the genetic basis of LCA can facilitate rapid molecular diagnoses and accurate genetic counseling. However, the mutations in known LCA disease genes can only explain ~70% of all patients, suggesting that many additional LCA genes remain to be identified. To close this gap, this research propose is to identify and conduct functional studies of novel LCA disease genes. The lab has collected over 1,000 unrelated LCA patient families from across the world. Screening for mutations in known LCA and other related inherited retinal disease genes leaves ~350 families remaining unsolved. These patients are likely unsolved due to mutations in new LCA disease genes.

Pictured left to right – Rui Chen, Ph.D., Associate Professor; Sir Knight Lawrence E. Tucker, Grand Recorder of the Grand Encampment and Officer and Trustee of the Knights Templar Eye Foundation; Jun Wang, Ph.D., Postdoctoral Fellow (recipient of grant); and Richard Gibbs, Ph.D., Director of the Human Genome Sequencing Center
At the Annual Conclave of the Grand Commandery of California, officers of the Grand Commandery and Grand Encampment presented a $65,000 check to Wenlin Zhang, M.D., Ph.D., a Postdoctoral Fellow at Jules Stein Eye Institute, UCLA, Los Angeles, California. Her research will be focused on congenital hereditary endothelial dystrophy (CHED) which is an autosomal recessive developmental disorder of corneal endothelium, and is at risk of developing perceptive deafness later in life (Harboyan Syndrome).

Representing the Knights Templar Eye Foundation for the presentation were the following Grand Encampment Officers all of which are also Officers & Trustees of the Foundation; Sir Knight Jeffrey N. Nelson, Deputy Grand Master; Sir Knight Michael B. Johnson, Grand Generalissimo; Sir Knight David J. Kussman, Grand Captain General

Congenital hereditary endothelial dystrophy (CHED) is an autosomal recessive bilateral symmetrical diffuse corneal opacification with marked vision impairment presents at or soon after birth in pediatric ophthalmic patients. Among pedigrees screened, 77.4% show SLC4A11 gene coding region mutations, and 80 distinct mutations have been identified so far. In addition, SLC4A11 mutations were also indicated in a number of anterior segment diseases involving corneal endothelium: Pediatric keratoplasty is a highly challenging and demanding procedure associated with a high risk of graft failure or failure of amblyopia therapy even in clear grafts. This research proposal is based on their recent understanding of SLC4A11 transporter in human corneal endothelium energy metabolism and pump functions: ammonia transporter property plays an essential role in maintaining glutaminolysis energy metabolism. This proposal aims to study the consequential pathophysiological changes occurred in energy metabolism and cell differentiation after the loss of SLC4A11.
Nan Wu, Ph.D., from Fred Hutchinson Cancer Research Center, Seattle, Washington was awarded a $65,000 grant to develop and test strategies that can improve the survival and quality of life for children with Retinoblastoma.

Retinoblastoma is a disease in which cancer arises from the retina, which is the light sensing region at the back of the eye. This type of cancer occurs most often in children younger than 2 years and may occur in one eye or in both eyes. The incidence of retinoblastoma is about 1 in 15,000–20,000 new births worldwide, which corresponds to about 9000 new cases every year. In the United States, retinoblastoma is well treated, but loss of vision is a major problem, especially in retinoblastoma patients with tumors in both eyes, and better vision salvaging therapies are needed. In certain developing countries 40-70% of retinoblastoma patients will die owing to retinoblastoma metastasis/extension to the brain. It has been estimated that 3,000-4,000 deaths related to retinoblastoma occur worldwide every year. Systemic chemotherapy is a standard treatment for retinoblastoma, however, better therapies that are designed based on the unique biology of key subsets of retinoblastoma are needed. Development of targeted therapies based on gene mutations in retinoblastoma may provide less toxic and more effective therapeutic options. MYCN amplification has long been known to contribute to human retinoblastoma, often together with Rb loss. In this research proposal, they will test two strategies to target MYCN-driven retinoblastoma in a pre-clinical mouse model that they recently generated.

Pictured left to right – Sir Knight Ronald Chase, Grand Senior Warden; Nan Wu, Ph.D., (recipient of grant); and Sir Knight Ted Shanks, Grand Commander of Washington
The Mission

The mission of the Knights Templar Eye Foundation, Inc., is “to improve vision through research, education, and supporting access to care.”

To that end, the Knights Templar Eye Foundation, Inc., annually announces its call for research grant applications. The Foundation invites eligible investigators to submit applications for pediatric ophthalmology research grants for the award period which normally runs from July 1 to June 30.

From the applications received, the Scientific Advisory Committee recommends to the trustees which requests should be funded.