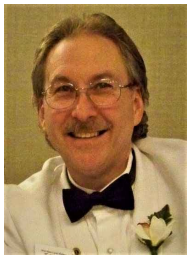
Massachusetts Lions Eye Research Fund, Inc.
Eyecatcher—Fall/Winter 2020

PRESIDENT'S MESSAGE



I cannot express how honored I am to be the 55th President of MLERFi. For 69 years, MLERF has been at the forefront of cutting-edge vision research and I am very proud and humbled to be part of this great organization… one that has done so much for so many because of great Lions like you.

We are facing uncertain and challenging times in the year (and years) ahead, but I am confident in our commitment to ending blindness, vision impairment and vision disease in our lifetime. I promise to do my best as your president, to lead us through the next 12 months with integrity, dedication, and compassion. Things will be different, for sure, but we are a hearty and creative group, and we will navigate this "new normal" with courage and conviction.

As we are all painfully aware, MLERF cannot fund the great research projects being done in our medical and academic institutions without money. And although we have not lost our focus as Lions, it is going to be quite challenging this year, and perhaps future years, for our clubs to hold fundraising events that support MLERF. I challenge you, the directors of MLERF and Club presidents and secretaries, to think outside the box this year. Solicit and encourage new and innovative ideas from your families, friends, club members when it comes to fundraising.

I am sensitive to the new world and the skyrocketing unemployment rates and financial constraints many of our club members and supporters are facing, but I am optimistic that these new changes will bring new opportunities for all of us, and these new opportunities will allow us to reach our financial goal this year and in the years ahead.

Our annual goal of $1,000,000 may seem out of reach this year, but 2020 is the year of VISION… the year of change and 6 the year of new beginnings. Let's use "2020" as our focus this year. Let's see if we can engage our area ophthalmologists, optometrists and vision centers by using the marketing tagline … "2020 - Vision for the Future," to help us raise money. Ask these individuals and companies to make a one-time donation or monthly donations. Ask these businesses and other area businesses like convenient, package and grocery stores, if they would allow you to put a canister in their

President's Message Continued

location for 3, 6, 9 or 12 months. Collect your loose change and save it in a canister on your kitchen counter… every penny helps. We are great and mighty Lions. I know that we can reach our goal with a solid plan and great commitment.

"Knights of the Blind" My pin this year is in the shape of a shield. A knight carries a shield for protection. We are the "Knights of the Blind" … set upon a path by Helen Keller to protect the vision and well-being of everyone. I ask you to become part of the President Circle and proudly wear this shield of honor, this shield of protection to remind you of your commitment to end blindness and vision impairment in our lifetime. Each pin is $33.00, and all proceeds will go directly to helping us reach our goal this year.

Don't forget about the other simple fundraisers like the Facebook Birthday fundraiser, smile.amazon.com, Igive.com (order online and these places will donate .5% of your total bill to a non-profit, Mass Lions Eye Research), Sending letters out to the Vision Centers and area businesses to ask for a donation and don't forget our "Pennies Project". There are a lot of simple ways to fundraise.

I look forward to working with each of you this year. I hope to join you at your MLERF fundraising events. Please let me know when your event will be and how I can help you.

And as always, I thank you all for your dedication, compassion and understanding as we navigate the coming year. If you need anything, please ask. I'm here for you. I wish you all a wonderful and safe year.

Yours in Lionism,

PDG Roland Grenier

MLERF President 2020-2021

Photo by Apollo Photography on Unsplash

News from District 33Y

HI Lions/Leos,

Can you believe almost Christmas? Time certainly flies when you're having fun!! And boy do Lions know how to have fun. Unfortunately, our "fun" this year has been curtailed by the Corona Virus. We have a lot of hard work ahead of us to bring us to our goal of $1,000,000 for MLER this year. Last year MD33 raised about $660,000, and it's the research that is going to be affected by this loss in revenue.

The Mass Lions Eye Research Fund, Inc. (MLERF) is the only Mass Lions statewide project. For over 70 years we have been supporting researchers in Boston at Mass Eye & Ear, Tufts, Schepens, Boston University, Children's Hospital, Joslin Diabetes and others, to find cures, advanced treatment protocols, and to follow up on "hunches" for possible treatments/cures. In recent history we have raised close to or over $1 Million dollars every year, used for the grants to the researchers. Also through our partnership with LCIF we have been able to get matching Presidential Grants to fund capital improvements in equipment and buildings (these grants cannot be used for research).

Another aspect of the work performed by your MLERF Board of directors is referral for care to Boston facilities, of individuals with difficult cases that require consultation and/or treatment for eye or ear issues. Due to our generosity to these facilities, we are often able to get referrals in a matter of days, instead of the standard months it may take to be seen when referred by your medical providers. in 33Y we work in conjunction with the district emergency sight and hearing program, if financial assistance is required. I have referred several individuals to Boston, and they were scheduled appointments within several days. For one I forwarded the information on Thursday night, I got a call at 10 am on Friday morning that Children's Hospital would be calling the parents, I called the parents at 10:15 am and Children's had already called them and set up an appointment. How's that for service?

Our lions raise money is so many different ways. In 33Y we hold raffles (50/50, calendar raffles, $100 raffles), we have dinners/ breakfasts, food sales, tag sales, golf tournaments, dances, ski & skate sales, comedy shows, restaurant fundraisers (Like the recent Texas Road House nights) to list some of the many fundraising activities. Two of our largest clubs usually have booths at the Big E every fall, for 18 days. This also includes many days of planning, set up, ordering, cooking, serving, buying, and finally clean up. Hopefully they will be able to hold the Big E in 2021, as well as local fairs and events, so we can get back to some of our regular fund raisers.

In 2019 the Agawam Lions Chicken Barbeque at the big E required 2550 hours of work by 62 Lions, with assistance of 1500 hours of work from 40 volunteers. Many of these Lions volunteers were from other clubs. The numbers served were not available to me, but sales were approximately $100,000 - with revenue projected to be around $23,000. Per Sec. Dick, they didn't count the individual chickens, but it was 4 and 1/2 tons of chicken cooked. They also served pulled chicken sandwiches, chicken tenders, and "of course" about 1500 of the bread cones with various fillings. For something new this year they added breakfast bread cones filled with scrambled eggs, sausage and cheese, and

District 33Y Continued

they sold about 400 of those. Pierce Bros. Nitro Cold Brewed coffee was added this year. Secretary Dick says "Overall, a good year! We Need a rest!" (see attached 3 pics)

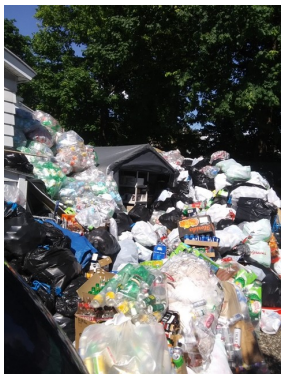
Across the road from the Agawam Lions booth is the West Springfield Lions booth. They sell soft drinks, brewery beverages for the adults, hot dogs, Reubens, grinders, chowder, fries, hamburgers (of varying forms, including the new "Flatliner!!! a burger to die for!"--see the attached picture. I had one, It really is a great burger!) I don't have the #'s for their sales, or how much they sold, but I'm pretty sure they needed about the same number of volunteers, hours worked, and prospective sales. (See attached 3 pics)

These clubs could not have done all this alone. They needed help, they asked for it, and they got it. If you are interested in holding a major project, ask other clubs for help and/or partnership, advice on good ideas and ones that didn't work. Don't re-create the wheel. I'm sure they will be willing to help you out and let you know which merchants will help you out the best, and what works well.

Think outside the box when it comes to fund raising this year---how about a virtual walk-a-thon (or bowl, dance a thons)? Collecting pledges is the same, the difference is everyone does their walking (or whatever) at their own time, and alone, then reports their hours, etc. to the committee. Then you collect your money as usual. How about collecting cans and bottles? According to Lion Jeff Turner in 2019 the Pittsfield Lions collected "54,890 cans and bottles. Which rings up at, I think, just over $4,000. I have no idea how many hours of work went into collecting and sorting all of them. It took five of us about three hours just to put them out for collection, and another hour to fill the truck." President Gary Lewis says they have been collecting since 2002 and have collected 2,010,819 cans and bottles (thru August 2019) for over $145,000 that have been donated to MLER as well as other district and local charities. (see pics attached of the collections) What a difference they have made in the community with their donations as well as how much litter never happened, and especially to MLER. They get a bit more for each can and bottle because the distributor picks them up all at once. Want more info, just ask me.

Jim Allen, Mary Ann Bankman, Claudette Placzek, David Shields and I are your MLERF Board representatives, and we would love to come and speak to your club about the research we are funding, provide assistance with organizing a fund raiser, or you can refer a patient to one of us for referral to Boston. If you have questions feel free to call me at 413-774-5925 or email me at jwmartinHL@yahoo.com

HUGS (Helping Us Give Sight)
PCC Jean M. Wilder
3rd Vice President MLERF



News from 33A

Hello Lions of the Awesome District,

We are living in very troubled times; making it necessary for us to think outside the box to continue serving those less fortunate in our communities. I am happy to say that you have done just that-you have come up with projects that bring much needed joy and happiness into the lives of the people in your communities.

Some of the fundraising projects (all done safely and by state regulations) are: golf tournaments, meat raffles, a poker run, raffles, collecting pennies and making memorial donations. PCC and Past MLERF President Sharon Brooks is making hats, headbands and scarves with the Lions logo on them with part of the proceeds going to MLERF. These are just some of the ways that we are raising funds for MLERF.

Those of you who are holding meetings whether it be in person or virtual and are looking for a guest speaker, why not contact one of your MLERF Board of Directors. Your Directors are: PDG Babe Mainini, Lion Joe Allen, PCST2 Teri LaCoy, Lion Bill Johnson, DG Denise Andrews, 1st VDG Cindy Mainini and 2nd VDG Marianna Riemer. We are also proud to have a Lion who is serving as 3rd Vice President, Lion John Riemer. Any one of them would be more than willing to speak about MLERF and what our donations support. Also, if you need any information on MLERF, please check out their newly designed website at www.mlerfi.com where you will find whatever you need to know about the Fund.

In closing, I would like to say thank you for your generosity in supporting MLERF in 2019-2020. Our District contributed $80,015 out of the $649,459 raised by all five Districts last year. In all time donations through June 30, 2020 our District raised $3,841,320 out of the $35,786,757 raised by the five Districts. This is truly something to be proud of. Congratulations, Lions!!! Great job!!

Finally, on behalf of all the Directors, I just want to say keep up the great work that you're doing in raising funds for eye research and Thank You! Thank You! Thank You! You are all AWESOME!! I am so proud to be a Lion and to be serving on the MLERF, Inc. Board of Directors representing District 33-A.

Yours in service and friendship,

DG Denise Andrews

MLERF Annual Meeting Minutes – 7/23/20 @ Virtual 'GoToMeeting'

Attendance: President Jeanne Farrow - PDG, IPP Bob Haskell - PCST, 1VP Roland Grenier – PDG, 2VP Matthew Richardson – PDG, 3VP Jean Wilder -PCC, Secretary John Riemer - PRC, Treasurer Dr. Jim Roth – PDG, Executive Director Jane Fanjoy - PDG. Directors: Y – DG Art McConnell, 1VDG Jack Walsh, PCST Claudette Placzek, PRC Maryann Bankman, Lion Dave Shields. A – DG Colleen Oncay. N - 1VDG Marcel Plouffe, PRC Brenda MacPherson, Lion Alice Gaudet, Lion Jeralyn O'Conner, Assistant Treasurer Mike Gmitter. K – 1VDG Dr. Deb Wayne, ZC Diana Faust. S – DG John Babb, 1VDG Sandy Fife, PDG Bev Dillon, PRC Ted Cummins, Lion Ken Love. Guests: A – PCST Marianna Riemer, K - Lion Richard MacPherson, PDG Kathy Salem, Dr. Lois Smith – Boston Children's Hospital, Dr. Andrew Taylor – Boston University School of Medicine, Dr. Lloyd Aiello – Joslin Diabetes Center, Dr. Janey Wiggs – Massachusetts Eye & Ear, Dr. Noorjahan Panjwani, Dr. Vickie Chen, Dr. Narae Ko – Tufts New England Eye Center, Dr. Darleen Dartt – Schepens Eye Research Institute

Call to order: the meeting was called to order by President Jeanne Farrow shortly after 7:00 pm. She recommended that we forgo the 5-point opening due. 1VP Roland Grenier motioned that we do so; 3VP Jean Wilder seconded and the motion carried.

President's remarks: President Jeanne welcomed all to our Annual meeting and identified each of our guests from the research institutions. She thanked all Lions for their efforts during the year; one which provided some of the most difficult challenges we've ever faced and stated that she was proud of what we had achieved…particularly the development of our new website which was one of her top priorities. She noted that this was our first ever virtual Annual meeting and, that it was actually Phase 2 of the event – Phase 1 had been accomplished the week before when she and Immediate Past President Bob Haskell had made the rounds to each of the institutions to present $160,000 Grant award checks in-person to each of the institutions. She gave special thanks to the outgoing District Governors who worked hard all year to support MLERF in guiding their Districts through such difficult times.

Thanking the 2018-2019 DGs: Immediate Past President Bob Haskell acknowledged the DGs in place during his year as President reminding the institutions that they were the drivers of our success that year leading to $960,000 being available for Grants, which led to the $160,000 checks each of them had received last week. He personally thanked Steve Karch PDG District Y, Tim De Vault PDG District A, Frank Bertolino PDG District N, Debbie Hayes PDG District K and Kathy Salem PDG District S.

Treasurer's report: Treasurer Dr. Jim Roth briefly touched on the headlines of his year-end Treasurer's report. Of note to all was the fact that the year's final Grant donations came in at just over $620,000 which would mean that next year's individual institution Grant totals will be less than this year.

Thoughts from the research institutions: President Jeanne then called on representatives from each of the institutions for their thoughts. Each expressed gratitude and thanks to the Lions of Massachusetts for their ongoing support over many years to help their efforts to find a cure for preventable blindness. Each of them also briefly discussed recent research initiatives that MLERF Grant funding had helped make possible. Speakers from the institutions included:

- Boston Children's Hospital – Dr. Lois Smith
- Boston University School of Medicine – Dr. Andrew Taylor
- Joslin Diabetes Center – Dr. Lloyd Aiello
- Massachusetts Eye & Ear – Dr. Janey Wiggs
- Tufts, New England Eye Center – Dr. Noorjahan Panjwani, Dr. Vickie Chen, Dr. Narae Ko
- Schepens Eye Research Institute – Dr. Darleen Dartt

Closing: In closing, President Jeanne thanked the Lions for the privilege of being President of MLERF, an experience she would never forget. She also wished incoming President Roland Grenier and incoming Secretary Jane Fanjoy great success and pledged her support to them in the upcoming year. With that she called for a motion to adjourn - 1VP Roland made a motion to adjourn the meeting; seconded by 3VP Jean and the motion carried. President Jeanne adjourned the meeting at 8:20 pm

Respectfully submitted,
John Riemer
MLERF Secretary 2019-2020

News from 33N

Fellow Lions, It is hard to believe we're nearly half way through the 2020—2021 year. We're facing an unprecedented time with COVID19 in our communities. This pandemic has cost many of us friends and family members as well as left us facing an unusually high demand for services in our communities. As Lions, we always will reach to meet those needs wherever we can.

While everyone is faced with lockdowns and new requirements to keep their distance, there are still many creative ways for us to continue serving our communities and raising money for MLERF and our other charities.

If there is a bright side to our needing to hold many of our meetings virtually, it is easier than ever for you to ask for a speaker from MLERF to attend your meetings! After all, nearly every director is at home most nights, and we can hit every corner of the District without having to leave our own homes.

We are being forced to be more creative with our fundraising efforts — whether it is collecting cans and bottles, supporting our local restaurants by asking them to donate a small portion of sales to MLERF and for some, doing clothing collections and donating the proceeds offered by Savers to MLERF.

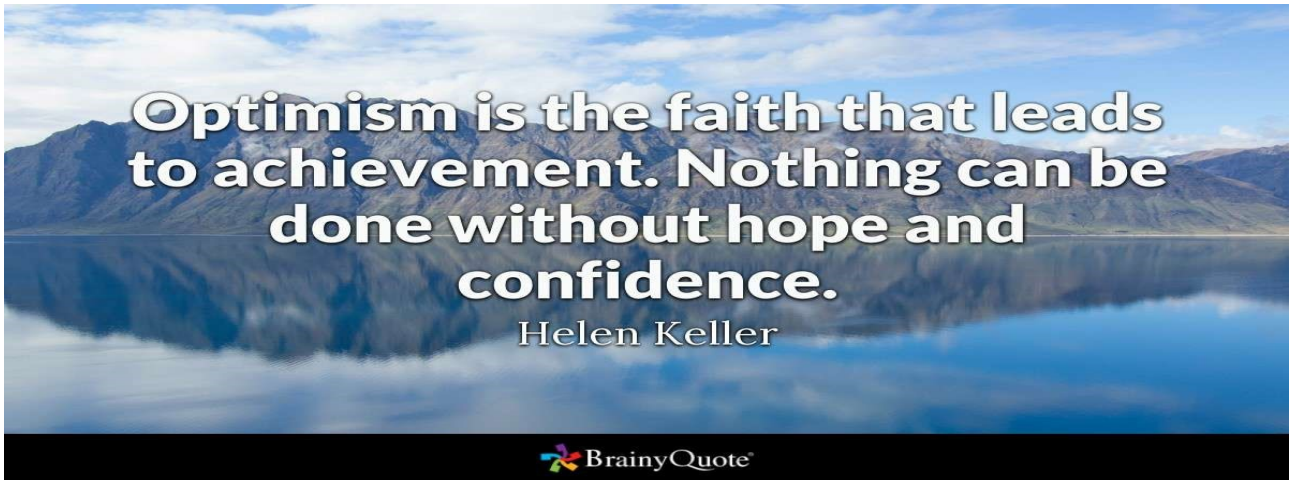
I know the Lions of 33N will continue to work together to meet the needs of our communities and do their level best to help President Roland meet his goals this year.

Lions work together — remember every one of our Directors who serve on MLERF is here to help you either by providing information to your club about the latest research our donations have contributed to or helping you find new and creative ways to raise funds.

We're all being forced to adjust to a new normal and hopefully we will be able to get back together soon and enjoy the friendship and fellowship that we all look forward to. In the meantime, Peter and I would like to extend our best wishes to every Lion in District 33N for a safe and happy holiday season.

Yours in Friendship and Lionism,

PDG Louise



News from 33K

Fellow Lions,

While it may seem like we are facing an uphill battle this year, it is clear that once again, Lions from District 33K are determined to rise to the challenge of these unprecedented times.

Across District 33K we have seen bottle and can drives, Christmas tree sales, and auctions taking place to help raise funds to meet the needs of our communities.

This is no small task — this year we are facing unusually high demand with more people than ever out of work or working reduced hours, food insecurity at an all time high, and our young people struggling to adapt to hybrid learning models.

First and foremost, our goal must be to meet those needs head on and help our fellow citizens as much as possible during this challenging time. However, the need for raising funds for MLERF and our other charities remains. We understand this is challenging and will take some additional work. We do not have the luxury of setting up food trucks, running carnivals or meat raffles, or setting up large in person gatherings. Fortunately, our Lions are a wealth of creativity and this has been evident since last March.

There are Clubs around 33K who have found a way to make a big impact in their communities while still raising money for MLERF. The Hollis-ton Lions Club conducted a clothing drive back in the early fall — when everyone was home and cleaning out their closets. Not only did they manage to raise nearly $600 for MLERF they also collected coats for their annual coat drive. Just think about the environmental impact of sparing the landfill of all those clothes and coats. This is a win-win for everyone.

Medway, Norfolk, Stow, Wrentham, Belmont and others have continued with their Christmas tree sales and other Clubs across our District have come up with unique fundraising such as 50/50 raffles, calendar raffles, and more. PDG Pat also worked a little magic and had beautiful calendars made for 2021 with help from Lions who have photography experience. What a unique way to raise money and have a way to cross off those stocking stuffers from your holiday shopping list.

As DG Deb has indicated, this will be a year of service — our Clubs across 33K have served their communities well. Whether it is distributing food, warm coats, donating blood, collecting eyeglasses, or providing books to kids who need them, our Clubs have stepped up once again.

We are asking you to think about how you can support MLERF this year — we know there is a high need in your community and that many of our Clubs have been forced to sacrifice major fundraising events. Get creative and see what you can come up with and let's help MLERF reach their goals this year and help DG Deb with her goals to.

Please do not hesitate to contact any one of our fine Directors from District 33K to attend one of your club's online meetings. This is a great opportunity to have a speaker, learn more about the great work MLERF does and not have to worry about someone traveling in bad weather.

Please stay safe and healthy and do think about checking in on some of the members of your club to see how they are doing during this challenging time.

Yours in Lionism,

PDG Doreen

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "Y"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Adams	2,226.00				1,500.00		1,500.00	1,500.00
Agawam	6,756.47	2,280.55		1,075.00	8,500.00		11,855.55	11,855.55
Agawam Lioness	0.00						0.00	0.00
Amherst	0.00				300.00		300.00	300.00
Amherst Leo	0.00						0.00	0.00
Ashfield	500.00				500.00		500.00	500.00
Belchertown	3,500.00				3,500.00		3,500.00	3,500.00
Charlemont	0.00	200.00					200.00	200.00
Cheshire	600.00				800.00		800.00	800.00
Chicopee Centennial	0.00						0.00	0.00
Cummington	100.00	66.00		200.00			266.00	266.00
Dalton	4,395.00			200.00	4,000.00		4,200.00	4,200.00
Deerfield	200.00				200.00		200.00	200.00
East Longmeadow	10,285.00				5,000.00		5,000.00	5,000.00
Easthampton	35.00			50.00			50.00	50.00
Granby	1,250.00						0.00	0.00
Granville-Tolland	100.00						0.00	0.00
Great Barrington	0.00						0.00	0.00
Greenfield	40.00						0.00	0.00
Hadley	0.00	255.00	919.81		1,000.00		2,174.81	2,174.81
Hampden	1,833.40						0.00	0.00
Hatfield	2,220.00				2,000.00		2,000.00	2,000.00
Hinsdale	1,102.00				1,000.00		1,000.00	1,000.00
Holyoke	10.00				2,000.00		2,000.00	2,000.00
Hoosac Valley Leo	200.00						0.00	0.00
Huntington	2,985.00				1,000.00		1,000.00	1,000.00
Lee	500.00	88.19		100.00	1,000.00		1,188.19	1,188.19
Ludlow	1,387.50			50.00			50.00	50.00
North Adams	0.00						0.00	0.00
Northampton	6,119.10	515.24			5,000.00		5,515.24	5,515.24
Pelham	240.00				550.00		550.00	550.00
Pittsfield	1,000.00				3,500.00		3,500.00	3,500.00
South Hadley	1,000.00						0.00	0.00
South Hadley Leos	0.00						0.00	0.00
Southampton	1,500.00			50.00	1,500.00		1,550.00	1,550.00
Southwick	5,820.00	318.00	250.00	500.00	5,500.00		6,568.00	6,568.00

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "Y"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Springfield 16 Acres	3,350.50	162.50	1,285.00	25.00	3,000.00		4,472.50	4,472.50
Westfield Centennial	507.50						0.00	0.00
West Springfield	2,200.00				3,000.00		3,000.00	3,000.00
Wilbraham	100.00				450.00		450.00	450.00
Williamsburg	903.00				500.00		500.00	500.00
District 33Y	1306.00			100.00	2,500.00		2,600.00	2,600.00
DISTRICT PROJECTS:								
Total Donations	64,271.47	3,885.48	2,454.81	2,350.00	57,800.00	0.00	66,490.29	66,490.29

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "A"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Ashburnham	650.00				500.00		500.00	500.00
Athol	1,380.74	66.00	78.00		1,025.00		1,169.00	1,169.00
Auburn	0.00						0.00	0.00
Barre	767.61		364.20		500.00		864.20	864.20
Berlin	0.00						0.00	0.00
Blackstone Valley Leo	1,000.00						0.00	0.00
Bolton	1,875.00	335.00					335.00	335.00
Boylston	3,000.00				2,000.00		2,000.00	2,000.00
Brookfields	3,700.00			50.00	3,600.00		3,650.00	3,650.00
Charlton	1,035.29				300.00		300.00	300.00
Clinton	0.00						0.00	0.00
Dudley	500.00				500.00		500.00	500.00
Dudley Leo	0.00						0.00	0.00
Fitchburg Community	1,078.00			50.00	1,000.00		1,050.00	1,050.00
Gardner	1,100.00				1,100.00		1,100.00	1,100.00
Gardner Leo	0.00						0.00	0.00
Grafton	1,010.00		120.00		1,000.00		1,120.00	1,120.00
Grafton Leo	0.00						0.00	0.00
Harvard	1,000.00			1,644.07	1,000.00		2,644.07	2,644.07
Holden	100.00						0.00	0.00
Hopedale	0.00				200.00		200.00	200.00
Hubbardston	59.62	66.00					66.00	66.00
Leicester	1,585.59	105.00		25.00	750.00		880.00	880.00
Leicester Leo	0.00						0.00	0.00
Leominster	889.38	423.00	41.50	50.00	250.00		764.50	764.50
Lunenburg Turkey Hill	3,302.50						0.00	0.00
Mendon	14,937.40		116.00	475.00	14,000.00		14,591.00	14,591.00
Milford	15,100.00	297.00		500.00	15,000.00		15,797.00	15,797.00
Millbury	18,450.00		1,500.00	400.00	17,000.00		18,900.00	18,900.00
Monson	400.00				100.00		100.00	100.00
Montachusett Reg Leos	0.00						0.00	0.00
Northboro	2,500.00						0.00	0.00
Orange	30.00						0.00	0.00
Oxford	0.00				1,000.00		1,000.00	1,000.00
Palmer	1,175.00			100.00	500.00		600.00	600.00
Paxton	0.00				2,350.00		2,350.00	2,350.00

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "A"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Petersham	3,707.88				400.00		400.00	400.00
Phillipston	735.00				237.00		237.00	237.00
Rutland	1,734.50		750.00	800.00			1,550.00	1,550.00
Shrewsbury	3,000.00						0.00	0.00
Southbridge	500.00			100.00			100.00	100.00
Spencer	0.00						0.00	0.00
Sterling	0.00						0.00	0.00
Sturbridge	1,500.00			100.00	675.00		775.00	775.00
Sutton	2,000.00				2,000.00		2,000.00	2,000.00
Templeton	700.00				500.00		500.00	500.00
Uxbridge	500.00				524.00		524.00	524.00
Wachusett Area Leo	0.00						0.00	0.00
Ware	0.00						0.00	0.00
Ware Leo	0.00						0.00	0.00
Webster	1,100.00			100.00			100.00	100.00
West Boylston	150.00						0.00	0.00
West Brookfield	500.00						0.00	0.00
Westborough	1,000.00				1,000.00		1,000.00	1,000.00
Westminster	0.00				24.00		24.00	24.00
Winchendon	1,500.54				1,000.00		1,000.00	1,000.00
Worcester Cty NEADS	0.00						0.00	0.00
Worcester Host	0.00						0.00	0.00
District 33A	8,213.55	132.50	307.00	485.00	400.00		1,324.50	1,324.50
DISTRICT PROJECTS:								
Total Donations	103,467.60	1,424.50	3,276.70	4,879.07	70,435.00	0.00	80,015.27	80,015.27

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "N"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Acton	20,110.00	147.00		750.00	10,000.00		10,897.00	10,897.00
Amesbury	10,138.45					100.00	0.00	100.00
Ayer/Shirley	100.00						0.00	0.00
Beverly	0.00						0.00	0.00
Billerica	3,120.00		75.00	75.00			150.00	150.00
Billerica Leo	0.00						0.00	0.00
Chelmsford	2,000.00						0.00	0.00
Concord	18,200.00				12,000.00		12,000.00	12,000.00
Danvers	1,042.00	751.50	1,782.00				2,533.50	2,533.50
Dracut	1,066.41						0.00	0.00
Dracut Leo	0.00						0.00	0.00
Dunstable/Tyngsboro	595.00	270.00	100.00				370.00	370.00
Essex	0.00				25.00		25.00	25.00
Essex County Reg.	210.00						0.00	0.00
Haverhill	6,447.35		125.00		3,000.00		3,125.00	3,125.00
Ipswich	6,500.00					100.00	0.00	100.00
Lawrence	0.00						0.00	0.00
Lawrence Latin	3,700.00						0.00	0.00
Lexington	19,635.00			50.00			50.00	50.00
Lowell	5,100.00		500.00	300.00	5,095.00		5,895.00	5,895.00
Lynn	5.00				5,000.00		5,000.00	5,000.00
Lynnfield	2,385.44						0.00	0.00
Magnolia	0.00						0.00	0.00
Melrose	5,200.00						0.00	0.00
Merrimac	0.00						0.00	0.00
Methuen	350.00	100.00	412.23	100.00	250.00		862.23	862.23
Nahant	199.36	33.00	84.68		3,070.00		3,187.68	3,187.68
Newburyport	35,650.00		600.00		10,000.00		10,600.00	10,600.00
North Andover	500.00	33.00			600.00		633.00	633.00
Peabody	8,165.00						0.00	0.00
Pepperell	10,863.36	387.16					387.16	387.16
Reading	10,000.00		100.00		10,000.00		10,100.00	10,100.00
Salem	0.00				100.00		100.00	100.00
Salisbury	711.00	66.00			100.00		166.00	166.00
Saugus	14,725.00		100.00	100.00	5,000.00	7,000.00	5,200.00	12,200.00
Shoe City (Lynn)	2,214.00	462.00	100.00	1,130.00	3,852.00	50.00	5,544.00	5,594.00
Swampscott	594.08				2,250.00		2,250.00	2,250.00

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "N"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Tewksbury	7,087.94			250.00			250.00	250.00
Townsend	2,900.00		1,800.00	50.00	965.00		2,815.00	2,815.00
Wakefield	6,550.00	330.00	500.00		2,560.00		3,390.00	3,390.00
Woburn Breakfast	17,120.00	81.69	500.00	25.00	13,500.00		14,106.69	14,106.69
Woburn Host	22,756.64	33.00			10,000.00		10,033.00	10,033.00
Woburn Middlesex	10,632.50	753.65	615.00	720.00	5,825.00	2,000.00	7,913.65	9,913.65
Woburn Leo	1,300.00						0.00	0.00
Wyoma	9,926.60	2,522.23		625.00	2,625.00	5,125.00	5,772.23	10,897.23
District 33N	1,087.70		3,462.14	440.00	6,776.64	150.00	10,678.78	10,828.78
DISTRICT PROJECTS:								
Total Donations	268,887.83	5,970.23	10,856.05	4,615.00	112,593.64	14,525.00	134,034.92	148,559.92

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "K"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Arlington	619.62			250.00	48.00		298.00	298.00
Ashland	18,500.00		220.00	750.00	10,000.00		10,970.00	10,970.00
Ashland Leo	0.00						0.00	0.00
Bellingham	1,500.00	33.00			1,500.00		1,533.00	1,533.00
Belmont	30,299.25	53.61			30,030.00	10,000.00	30,083.61	40,083.61
Blackstone	536.13	178.00		150.00			328.00	328.00
Boston Chinatown	1,090.00				650.00		650.00	650.00
Boston Host	366.50				250.00		250.00	250.00
BU Eye Assoc	1,000.00				1,105.00		1,105.00	1,105.00
Cambridge	0.00				10.00		10.00	10.00
Canton	1,000.00				10.00		10.00	10.00
Charlestown	0.00			50.00	10.00		60.00	60.00
Foxboro	2,000.00		60.00				60.00	60.00
Framingham	6,891.00	584.00		100.00	5,192.00		5,876.00	5,876.00
Franklin	395.00	33.00					33.00	33.00
Greater Ashland	4,272.69			3,821.00			3,821.00	3,821.00
Himalayan NE	100.00				100.00		100.00	100.00
Hingham	0.00				10.00		10.00	10.00
Holliston	11,475.17		27.51		5,000.00		5,027.51	5,027.51
Holliston Leo	0.00						0.00	0.00
Hopkinton	0.00		3,025.00		10.00		3,035.00	3,035.00
Hull	2,300.00				10.00		10.00	10.00
Hyde Park	311.72	59.00					59.00	59.00
King Philip Leos	1,762.00						0.00	0.00
Malden	3,588.44	65.00	264.00	100.00	800.00		1,229.00	1,229.00
Marlboro	1,250.00	87.00			1,200.00		1,287.00	1,287.00
Medfield	7,089.00	148.51			6,900.00		7,048.51	7,048.51
Medford	50.00				10.00		10.00	10.00
Medway	11,510.00	33.00	375.51	100.00	3,000.00	2,050.00	3,508.51	5,558.51
Millis	11,877.00				2,700.00		2,700.00	2,700.00
Natick	803.64	272.00			750.00		1,022.00	1,022.00
Needham	0.00						0.00	0.00
NE College of Optometr	0.00				25.00		25.00	25.00
Newton	3,000.00				5.00		5.00	5.00
Norfolk	9,211.00		2,368.34				2,368.34	2,368.34
Norwood	200.00				45.00		45.00	45.00

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "K"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Plainville	7,102.00		2,333.33		1,900.00		4,233.33	4,233.33
Quincy	5,785.04				1,024.00		1,024.00	1,024.00
Randolph	5,618.47	287.87		215.00	4,647.00		5,149.87	5,149.87
Sharon	3,300.00	33.00			700.00		733.00	733.00
Sherborn	1,010.00	66.00	2,638.00	205.00	24.00		2,933.00	2,933.00
Somerville	1,000.00				10.00		10.00	10.00
Stoughton	1,100.00		200.00		1,100.00		1,300.00	1,300.00
Stow	3,000.00	33.00			3,000.00		3,033.00	3,033.00
Walpole	2,000.00				2,010.00		2,010.00	2,010.00
Waltham	30,000.00				5,000.00		5,000.00	5,000.00
Wellesley Centennial	0.00	33.00					33.00	33.00
Westwood	0.00				10.00		10.00	10.00
Weymouth	1,558.15	409.22			1,024.00		1,433.22	1,433.22
Wrentham	11,101.00		2,333.33		1,000.00		3,333.33	3,333.33
District 33K	3,059.62			300.00	78.00		378.00	378.00
DISTRICT PROJECTS:								
Total Donations	208,632.44	2,408.21	13,845.02	6,041.00	90,897.00	12,050.00	113,191.23	125,241.23

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "S"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
Abington	13,817.68	792.15	1,334.00	250.00	7,702.00	300.00	10,078.15	10,378.15
Acushnet	23,046.10	100.00	1,753.00	2,160.00	10,102.00		14,115.00	14,115.00
Attleboro Tri Boro Com	1,077.10			150.00			150.00	150.00
Barnstable Yarmouth	0.00		20.00		1,000.00		1,020.00	1,020.00
Barnstable High Leo	0.00						0.00	0.00
Bridgewater	7,977.29	556.00	1,928.89	75.00	3,506.00		6,065.89	6,065.89
Bridgewater Academy	2,365.97		962.85	250.00	13.00		1,225.85	1,225.85
Bridgewater Community	2,008.40		266.00	100.00	110.00		476.00	476.00
Bridge/Raynham Leo	0.00						0.00	0.00
Brockton	1,100.00	230.00	703.76		8.00		941.76	941.76
Chatham/Nauset	289.00						0.00	0.00
Dartmouth	1,801.00	495.00	887.00		540.00		1,922.00	1,922.00
Dennis/Harwich	8,288.21	1,351.76	568.00	715.00	2,130.00		4,764.76	4,764.76
Dennis Yarmouth Leo	0.00						0.00	0.00
Dighton	11,674.90	500.00	600.00	25.00	10,004.00		11,129.00	11,129.00
Dighton Rehoboth Leo	0.00						0.00	0.00
Duxbury	950.00			100.00	525.00		625.00	625.00
East Bridgewater	3,695.90	371.14	60.00		1,500.00		1,931.14	1,931.14
Easton	33,362.60	1,018.17	50.00		22,508.00	2,000.00	23,576.17	25,576.17
Easton Oliver Ames Leo	150.00				150.00		150.00	150.00
Fairhaven	9,225.00		129.00	125.00	10,506.00		10,760.00	10,760.00
Fall River	150.00		230.00		2,000.00		2,230.00	2,230.00
Fall River Carousel	1,225.00	1,000.00	78.00		500.00		1,578.00	1,578.00
Falmouth	795.00	100.00	320.00		200.00		620.00	620.00
Freetown	2,400.00				500.00		500.00	500.00
Greater Attleboro Leo	50.00				50.00		50.00	50.00
Greater Taunton Leo	0.00						0.00	0.00
Halifax-Pembroke	1,815.00		790.00		2.00		792.00	792.00
Hanover	3,525.00				1,200.00		1,200.00	1,200.00
Kingston	2,812.00				1,500.00		1,500.00	1,500.00
Lakeville	8,020.00	500.00			4,500.00		5,000.00	5,000.00
Lakeville OCA	0.00						0.00	0.00
Lower Cape Cod Light	0.00						0.00	0.00
Mattapoisett	12,750.00	500.00	771.00	100.00	13,001.00		14,372.00	14,372.00
Middleboro	5,392.75		31.00		2,121.00		2,152.00	2,152.00
New Bedford Host	1,457.50				1.00		1.00	1.00

Massachusetts Lions Eye Research Fund, Inc.

Year End Report

DISTRICT "S"

7/1/2019 ---> 6/30/2020

Club Name	Previous Year	Pennies	Jouney for Sight	Memorial	Grant	T&E	Total Grant	Total Donation
North Attleboro Leo	200.00						0.00	0.00
Norton	1,310.00		600.00		2,500.00		3,100.00	3,100.00
Norton Community	2,290.90		160.00		1,150.00		1,310.00	1,310.00
Plymouth	16,550.00		475.00		10,000.00		10,475.00	10,475.00
Plymouth Leo	0.00						0.00	0.00
Provincetown	25,679.48	175.50	150.00		15,000.00		15,325.50	15,325.50
Raynham	10,685.50	330.50	212.00	1,700.00	1,600.00		3,842.50	3,842.50
Rehoboth	10,882.50		8,250.00	50.00	3,500.00		11,800.00	11,800.00
Rehoboth Anawan	13,491.08	66.00		100.00	13,005.00		13,171.00	13,171.00
Rochester	4,251.10	169.00	98.00		503.00		770.00	770.00
Rochester Leo	0.00						0.00	0.00
Rockland	4,900.00	300.00	3,000.00				3,300.00	3,300.00
Sandwich Bourne	5,799.87	1,230.07	348.85	50.00	505.00		2,133.92	2,133.92
Seekonk	15,040.00				9,000.00		9,000.00	9,000.00
Somerset	12,218.90	132.00	1,413.00	325.00	6,012.00	100.00	7,882.00	7,982.00
South Attleboro	4,214.85	1,680.00	341.00	375.00	1,103.50		3,499.50	3,499.50
South Attleboro Village	11,177.00	245.00	347.00	1,105.00	4,036.50		5,733.50	5,733.50
South Carver	0.00				50.00		50.00	50.00
Taunton	0.00						0.00	0.00
West Bridgewater	5,157.93	272.04	1,555.00		5,006.00		6,833.04	6,833.04
West Bridgewater Leo	356.76				500.00		500.00	500.00
Westport	4,245.00	200.00	235.00	75.00	1,004.00		1,514.00	1,514.00
Whitman-Hanson Cent.	25.00				1,003.00		1,003.00	1,003.00
District 33S	5,613.44		2,884.00	200.00	3,500.00		6,584.00	6,584.00
DISTRICT PROJECTS:								
Total Donations	315,310.71	12,314.33	31,551.35	8,030.00	174,857.00	2,400.00	226,752.68	229,152.68

Massachusetts Lions Eye Research Fund, Inc.
Year End Report
Treasurers Report : 2019-2020
7/1/2019 ---> 6/30/2020

Balance Forward:		$1,278,223.88
Current Income		
Grant Contributions		
District Y	$66,490.29	
District A	$80,015.27	
District N	$134,034.92	
District K	$113,191.23	
District S	$226,752.68	
Total Grant Contributions		$620,484.39
Interest		
CD's	$12,573.65	
Annuities	$21,274.03	
Total Interest Income		$33,847.68
Other Income		
Miscellaneous	$0.00	
T&E Donations this year	$28,975.00	
T&E Interest 2019-2020	$66,746.46	
Total Income 01July - date		$750,053.53
Committed Donations		
Grant Donations this year 2019-2020	$620,484.39	
Grant Donations last year 2018-2019	$0.00	
Presidential Grant 2018-2019 (Children's)	$0.00	
Presidential Grant 2019-2020 (Tuft's)	$50,000.00	
T&E Donations this year	$0.00	
T&E Interest Committed to Pres. Grant	-$41,746.46	
Total Committed		$628,737.93
Current Expenses		
Approved Grants		
BU School of Medicine	$160,000.00	
Joslin Diabetes Center	$160,000.00	
Mass Eye & Ear	$160,000.00	
Schepens Eye Research Center	$160,000.00	
New England Eye Center (Tufts)	$160,000.00	
Childrens Hospital	$160,000.00	
Presidential Grant 2018-2019 (Children's)	$75,000.00	
Presidential Grant 2019-2020 (Tuft's)	$25,000.00	
T&E Donations	$28,975.00	
Total Grants and T&E		$1,088,975.00

Massachusetts Lions Eye Research Fund, Inc.
Year End Report

Treasurers Report : 2019-2020

7/1/2019 ---> 6/30/2020

Administration expenses:		
Auditor	$8,325.00	
BOD Meetings	$1,117.26	
Bond	$885.00	
Conferences	$2,329.83	
Directories	$776.05	
General Admin	$4,557.55	
Plaques and Adwards	$5,879.00	
Fees & Charges	$382.94	
Committee expenses		
C&BL	$0.00	
Canisters & Pennies	$617.67	
Eye Catcher	$3,330.65	
Grants	$0.00	
Installation & Awards Night (Net)	$5,566.52	
Jouney For Sight	$558.80	
LRP	$0.00	
Memorials	$0.00	
Public Relations	$5,306.32	
Sight Awards	$691.25	
Special Project (Texas Roadhouse)	$0.00	
T&E	$286.70	
Administrative & Committee Expenses		$40,610.54
Total Expenses & Committed Donations		$1,758,323.47
Uncommitted Funds		$269,953.94
Ending Balance		$898,691.87

News from 33S

Fellow Lions,

Massachusetts Lions Eye Research Fund lost one of our best advocates for our cause. Our fifteenth President, Past District Governor William T. "Bill" Murphy passed away September 18, 2020. Bill to many of us was that Lion most familiar with the responsibilities we have as Directors and how important Lion's members are in funding to the research facilities we grant these funds. All leading to improving vision and preventing blindness for countless people throughout the world. And many times in our very own family.

Bill joined the Somerset Lions in 1962 and transferred to the Acushnet Lions in 2005. He was our District Governor in 1976. After going through the Chairs he was elected President of MLERF in 1982. Bill took over the Treasurers position after Treasurer and Past President PDG Charlie Cerretani 33N in 1992. After 23 years of service Bill decided it was time to turnover the Treasurers responsibilities. Shortly thereafter the Board voted to change the MLERF Sight First Award to the William T. Murphy Sight First Award. Quite an honor and well deserved.

Tufts New England Medical Center Ophthalmology Department presented Bill with their Lifetime Achievement Award. This award was only presented to two other persons over many years. Both President of MLERF and Past District Governors Edward L. "Ted" Irvin 33N and Edward "Ned" Merrick 33K.

True to Bill's passion contributions in his honor may be made to MLERF (Attn: Jim Roth, 43 Stewart Terrace, Belmont, MA 02478). Lion Bill Murphy was a mentor to many of us. He will be missed but always remembered and we hope we can live up to his expectations. Thank you Bill.

Governor John Babb guided us through a very difficult year due to the Corona Virus. Fund raising projects were basically totally shut down in February through the rest of our fiscal year. Despite this 33S Lions were able to raise $229,152.06 for our Foundation. Even with the pressure to help in other areas due to the pandemic with both funds and energy.

The following clubs with donations over $5,000 are as follows: Lakeville $5,000, South Attleboro Village $5,773, Bridgewater $6,065, West Bridgewater $6,833, Somerset $7,982, Seekonk $9,000, Abington $10,378, Plymouth $10,475, Fairhaven $10,760, Dighton $11,129, Rehoboth $11,800, Rehoboth Anawan $13,171, Acushnet $14,115, Mattapoisette $14,372, Provincetown $15,325 and the largest contributor Easton with $25,576.

Every Club is important and all clubs contribution are so very much appreciated especially in these difficult times. Thank you Governor John Babb for your exceptional leadership.

This year is starting out our fiscal year the same way as 2020 ended with regulations preventing many of our fund raising projects from going forward. Governor Sandy Fife has new ideas and wants all Lions to know that she and the Cabinet are ready to help you in any way they can.

Governor Sandy knew we could not hold our Blink Of An Eye Fund Raiser at the Cape Cod Canal so she decided to have a virtual MLERF Marathon Drive with the promise she would visit every site where the funds were being raised. True to her word Sandy did and Lions raised $13,572 on October third with 26 Clubs participating so far with more money promised.

The COVID 19 Weight Watchers Challenge is another first. What a way to motivate yourself to loose a few pounds. To register $25.00 to CST Nadene Martin plus your own weigh in $5.00 a month if you don't loose. Final weigh in June first.

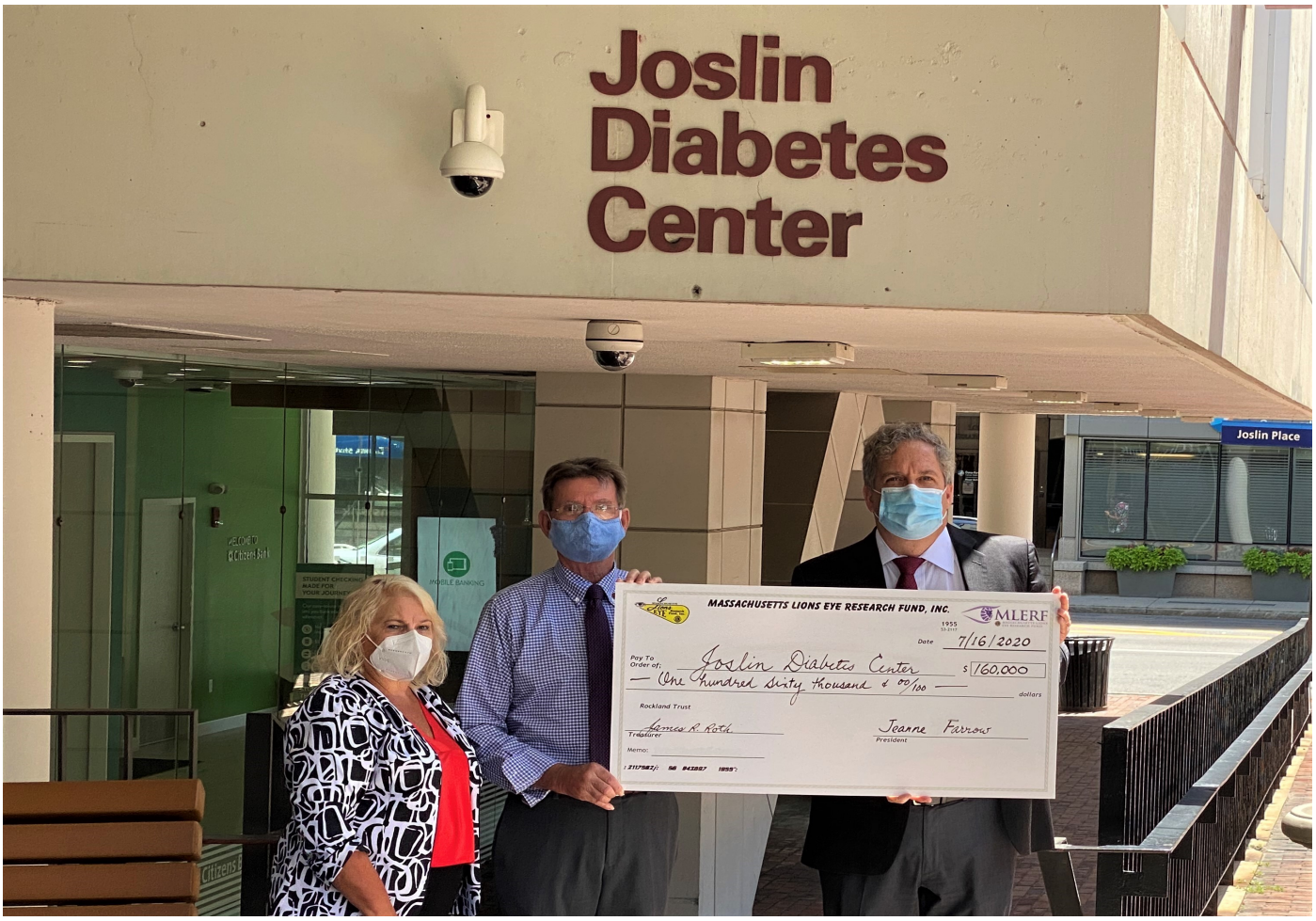
Buy the district 33S Cookbook From The Heart for $15.00. $10.00 goes to MLERF. Contact CST Nadene or DG Sandy. Why not have your Club buy a quantity and then put the pressure on the club to sell them all.

April 9 A Night With Helen Keller. Place to be determined. Watch District 33S Newsletter for details. And don't forget President Roland Grenier's Presidential Pin for $33.00.

As our Governor Sandy says," Think out of the box and come up with innovating ideas to serve and raise funds,"

Lions are needed today more than ever. Keep up the great work. Thank you for all you do.

PP Wayne


Joslin
Diabetes
Center
Joslin Place
MASSACHUSETTS LIONS EYE RESEARCH FUND, INC.
MLERF
1955
53-2117
Date 7/16/2020
Pay To Order of: Joslin Diabetes Center
$ 160,000
One Hundred Sixty thousand & 00/100 dollars
Rockland Trust
James R. Roth
Treasurer
Jeanne Farrow
President
Memo:
: 211758Z/: 56 041887 1955'


MASSACHUSETTS LIONS EYE RESEARCH FUND, INC.
MLERF
1955
53-2117
Date 7/16/2020
Pay To Order of: Massachusetts Eye & Ear
$ 160,000
One Hundred Sixty thousand & 00/100 dollars
Rockland Trust
James R. Roth
Treasurer
Jeanne Farrow
President
Memo:
: 211758Z/: 56 041887 1955'

MASSACHUSETTS LIONS EYE RESEARCH FUND

SUCCESS STORIES

"ANSWERING THE CHALLENGE"

SINCE 1952

INTRODUCTION

In 1925 Lions, at their International Convention, accepted the challenge of Helen Keller to be **"Knights Of The Blind"** in the mission to **"eradicate preventable blindness"**.

In 1952 the Lions of Massachusetts again **"Answered The Challenge"** when they approved the formation of the Massachusetts Lions Eye Research Fund and adopted it as the **ONLY** Massachusetts Lions statewide project. The challenge was in response to a mysterious eye disease afflicting new born babies. It had personally impacted several Massachusetts Lions' families.

The first grant of the Massachusetts Lions Eye Research Fund was for **$5000** and was given to Harvard Medical School. That first $5000 helped lead to the discovery of **"Retrolental Fibroplasia"** or Retinopathy Of Prematurity or simply Baby Blindness. **2500** babies were losing their vision from baby blindness!

That first grant was the beginning of many **"Success Stories"** which have resulted from the more than **$31,000,000** that the Lions of Massachusetts have provided for **"pure research"**.

In the past 62 years and with the support of the Massachusetts Lions millions of people around the world have benefitted from the research **YOU** have funded.

This narrative will provide you with some of the **"Success Stories"** from the major research laboratories which have received grants from the Massachusetts Lions Eye Research Fund. These are not all of the success stories and will not be the final list as the Lions of Massachusetts continue ***"Answering The Challenge".***

MLERF FUNDS RESULTED IN

- FDA Approved Drug Treatment For Age Related Macular Degeneration (AMD).
- The First Therapy For Diabetic Retinopathy.
- Saving The Sight Of Millions
- Successes In Developing A Retinal Prosthesis
- A Prototype Drug Releasing Contact Lens
- Translating Discoveries into Cures for Retinitis Pigmentosa
- State-Of-The-Art Computer DNA Sequencer
- Using Stem Cells to Save Vision from Corneal Disease
- Launching Largest Genetic Study Of Glaucoma To Date
- Presidential Grant - Provided A Zeiss Surgical Microscope – "Personal Success Story"
- Development Of Novel Glaucoma Study
- Identifying A Way To Stop Damaging Inflammation In The Eye
- Testing Possible New Therapeutic Approach To Stop Inflammation On The Surface Of The Eye.
- Discovery Of A New Way By Which The Eye Controls Inflammation
- New Study Of Age-Related Macular Degeneration
- Possible Treatments To Block The Eye's Immune Response Which Might Prevent Optic Nerve Damage And Preserve Vision.
- Increasing The Possibility Of Identifying New Targets In The Genes Of A Pathway That Can Be Used To Treat Or Delay Development Of AMD

- Increasing The Possibility That A Drug Can Be Used To Keep The Conjunctiva Healthy And Prevent Or Treat Dry Eye
- The Study Of The Innermost Layer Of The Cornea's Endothelium
- The Discovery Of A Novel Protein That Promoted Healing Of Corneal Wounds
- Maintaining And Expanding A Large Macular Degeneration Database And Repository – Discovery Of Several New Genes
- New Gene Therapy To Be Tested In Human Patients In 2016.
- Exciting Discoveries In Two Related Rare Children's Blinding Diseases.
- Development Of Computational Models That May Enable Machines To See.
- Establishing Preferential Looking Testing As An International Standard For Measuring An Infants Visual Acuity.
- Critical Studies Which Produced Data Required To Compete For Large Grant Applications
- Identifying "VEGF" As an important Therapeutic Target
- Studies supported by MLERF provided impetus for new nationwide study that may change hoow we determine the severity of all diabetic retinal eye disease.
- Presidential Grant - Quick And Painless Imaging Of Neural Retinal Layers For Hundreds Of Patients

The following narratives are summaries of information provided by the Mass Eye & Ear Infirmary, Boston University School Of Medicine, Schepens Eye research Institute, Tufts University School Of Medicine, Children's Hospital & Joslin Diabetes Center's Beetham Eye Institute. The complete Success Stories are available upon request.

MASSACHUSETTS EYE & EAR INFIRMARY
SUCCESS STORIES

YOUR MLERF FUNDS – Resulted in - FDA Approved Drug Treatment For Age Related Macular Degeneration (AMD).
Studies undertaken by Mass. Eye and Ear researchers led to the first FDA-approved drug treatment for neovascular AMD: photodynamic therapy (PDT) with verteporfin (Visudyne®), a combination laser/drug therapy. Now over a decade in use, Visudyne® was a revolution in patient care. Injected systemically and activated by light, the drug targets and destroys pathogenic blood vessels under the retina, slowing and limiting vision loss without damaging surrounding healthy tissue.

YOUR MLERF FUNDS Resulted in - The First Therapy For Diabetic Retinopathy.
Parallel investigations on the underlying mechanisms of neovascular disease, focused on a protein called vascular endothelial growth factor (VEGF). Over the course of two decades intense and collaborative efforts uncovered the biological underpinnings of VEGF in regulating blood vessel growth, and its role in promoting intraocular vascular disease. Together, these multiple investigations laid the foundation for a new class of inhibitors that prevent specific VEGF proteins from binding to receptors, and thwart the growth of leaky, new blood vessels that can lead to vision loss. In 2004, anti-VEGF drug pegaptanib (Macugen®) received FDA approval for treating AMD, followed by ranibizumab (Lucentis®) in 2006. In 2010, Lucentis® also gained approval for treatment of macular edema following branch retinal vein occlusion as well as for diabetic macular edema—the first pharmacological treatment for diabetic retinopathy, and the first therapy to improve vision for this condition.

YOUR MLERF FUNDS Resulted In - Saving The Sight Of Millions
MLERF support allowed successful translation of scientific discoveries to therapeutic care. The preceding described work spurred unprecedented milestones in vision care. In just over a decade, these treatments have saved the sight of millions of people worldwide and, today continue to drive innovation and future cures. Mass Eye and Ear is particularly grateful to the Lions who — throughout these decades of discovery—helped support many of our research and translational milestones.

YOUR MLERF FUNDS Resulted In - Successes In Developing A Retinal Prosthesis
The Lions have been committed partners for more than two decades in pursuit of the most ambitious technological innovations to date—developing a retinal prosthesis designed to restore useful vision to patients who are blind from age-related macular degeneration and retinitis pigmentosa

The primary goal of the prosthesis is to improve the quality-of-life of severely blind patients by allowing them to navigate in unfamiliar environments. Once achieved, the device also has the potential to facilitate other activities of daily living, like reading street signs, addresses on buildings, bathroom designations (i.e. male vs. female), and much more.

Funding from the Lions has supported our efforts to overcome the many biological and engineering challenges inherent in developing, building and testing this highly sophisticated technology. In fact, we are happy to report that just this month (July, 2014) the National Institutes of Health approved funding to conduct FDA-required pre-clinical testing of the prosthesis—a very exciting and significant milestone! Following completion of this work our team would hope to receive FDA approval to conduct a subsequent Phase I "safety" study of our device.

YOUR MLERF FUNDS Resulted In - A Prototype Drug Releasing Contact Lens
Glaucoma is the leading cause of irreversible blindness worldwide and affects one in 10 people over the age of eighty. For the past several years researchers at Mass. Eye and Ear have collaborated with colleagues at Boston Children's Hospital and MIT to develop a prototype drug-releasing contact lens. In 2011, with Lions' support, we worked toward advancing this technology by optimizing the design, and then conducting proof-of-concept and animal studies. These improvements led to significantly improved drug-release performance. In a recent published study, we demonstrated the ability of the lens to deliver latanopost, a common glaucoma drug, at a therapeutic rate every day for a full month. This is an exciting milestone that has never been demonstrated and was covered widely in the popular press. A non-invasive method of sustained ocular drug delivery could help patients adhere to the therapy necessary to maintain vision in diseases like glaucoma, saving millions from preventable blindness.

YOUR MLERF FUNDS Resulted In - Translating Discoveries into Cures for Retinitis Pigmentosa
In the early 1990s, Mass. Eye and Ear researchers discovered the first gene to cause retinitis pigmentosa (RP), a group of inherited retinal degenerations that affects 1.7 million patients and is the leading cause of inherited blindness worldwide. Subsequently, our researchers have identified approximately 20 genes associated with retinitis pigmentosa. Since early 2000, we have carried out several genetic studies that have formed the foundations of new disease models and are helping us to develop targeted, personalized, therapies for RP and other inherited retinal degenerative diseases. In one key example, Mass. Eye and Ear researchers in 2005 used gene therapy delivery to successfully preserve and restore both rod and cone photoreceptors in an animal model of Leber congenital amaurosis (LCA) – a severe form of RP. A follow-up study demonstrated proof-of-concept that gene replacement therapy is feasible for the human form of LCA and suggested that gene replacement therapy may succeed for other retinal degenerations. Support from Lions has been crucial to the success of this body of work. This support combined with work at other labs has helped to set the stage for translating the promise of personalized genomic medicine into therapies for inherited eye disorders.

YOUR MLERF Presidential Grant - Will Provide State-Of-The-Art DNA Sequencer
The 2014 Lions Presidential Grant continued the commitment to these efforts and recently awarded Mass. Eye and Ear the 2014 Presidential Grant to purchase a new automated DNA sequencer (MiSeq); this state-of-the-art technology that will greatly improve the capacity and efficiency of the diagnostic genetic testing service. As a direct result of this support it is expected that it will be possible to help thousands of families affected by RP and other inherited eye diseases, and to continue to grow MEEI's service into a global resource that will meet the needs of patients around the world.

YOUR MLERF FUNDS Resulted In - Using Stem Cells To Save Vision From Corneal Disease
Corneal stem cells play a key role in keeping the cornea transparent. Several years ago, Mass. Eye and Ear researchers set out to develop an alternative to the corneal transplant by using the patient's own tissue to regenerate the blind cornea. The first hurdle was to develop a reliable source of corneal epithelial cells. Early funding from the Lions gave us the support we needed to fabricate cultivated human epithelial stem cell sheets by successfully harvesting cells from a patient's healthy eye or mouth (oral) cells. Lions support has led to the translational development of stem cell therapy in corneal disorders. MEEI is in the process of filing an Investigational New Drug application to the FDA to conduct a clinical trial on the safety and feasibility of performing stem cell transplantation surgery in a select group of patients. This work shows great promise in the area of regenerative medicine and offers hope for a significant number of blind patients worldwide.

YOUR MLERF FUNDS Resulted In – Launching Largest Genetic Study Of Glaucoma To Date
The most common forms of glaucoma – including Primary Open Angle Glaucoma (POAG), which represents 90 percent of glaucoma cases - have complex inheritance patterns that involve multiple genetic and environmental factors. Funding from the Lions Eye Research Fund helped launch our NEIGHBOR study for glaucoma gene discovery— the largest genetic study of glaucoma to date — by providing support for the initial collection of DNA from normal people who were used as controls. The Lions not only provided financial support but many of the Lions volunteered to submit DNA samples to the study! The NEIGHBOR study is a Mass Eye and Ear collaboration with eight other institutions and has grown to include over 4000 cases and 35,000 controls. This multicenter collaboration has already led to the identification of novel genes for primary open angle glaucoma and normal-tension glaucoma. Finding genes contributing to glaucoma is the critical first step toward devising gene-based diagnostic and screening tests as well as targeted, gene-based therapies. With Lions support, we have able to provide important new insights into how glaucoma progresses and this information will make future studies focused on translating this information to patient care possible.

YOUR MLERF Presidential Grant - Provided A Zeiss Surgical Microscope – "Personal Success Story"
While every eye surgery is important, not all are equal, and when a patient with only one seeing eye suffers a retinal detachment, the stakes are at their highest. Such was the case when John went to the operating room after urgently presenting to the Specialty Eye Clinic at Boston Medical Center with new flashes and floaters in his good eye. But, thanks to the new **Zeiss OPMI Lumera Surgical Microscope** donated by a Massachusetts Lions Eye Research Fund Presidential Grant, retinal surgeon Steven Ness, M.D. knew that he would be working with the best equipment to fix this potentially blinding condition. "In retinal surgery, there is nothing more important than visualization of the tissues you are working with", said Dr. Ness. "Our new microscope gives us the ability to see the finest details which are so vital for surgical success." Now, after a two-hour surgery and several weeks of recovery time, John is seeing well enough to resume his normal activities, and while the new microscope has already been used in several hundred surgeries, the Lions can be especially proud of their contribution to this particular surgical success story.

BOSTON UNIVERSITY SCHOOL OF MEDICINE SUCCESS STORIES

YOUR MLERF FUNDS Resulted In – Development Of Novel Glaucoma Study
Massachusetts Lions Eye Research Fund helped to develop a novel method to studying the way fluid flows within the eye. Glaucoma is a leading cause of blindness worldwide. A primary risk factor for the development and blinding progression of primary open-angle glaucoma is elevated pressure inside the eye. This pressure results from a decrease in the normal flow of fluid inside the eye. The cause of this change in the flow of fluid in glaucoma remains unknown. Boston University Medical Center's unique method uses colored tracers to follow the flow of fluid though the tissue of the eye. We can identify in the eye where there are areas of active and inactive flow of fluid. Using this new method we can see changes in the flow of fluid in the tissues of eyes with glaucoma. Also, we are able to evaluate the effectiveness of treatments to increase the flow of fluid in the eye. The results obtained because of MLERF funding allowed BU to obtain valuable preliminary data, and receive additional support from NIH, Bright Focus Foundation, and industry to improve and test this method. Our newly developed method is being used to evaluate potential drugs, and surgical devices to treat glaucoma.

YOUR MLERF FUNDS Resulted In – Identifying A Way To Stop Damaging Inflammation In The Eye
MLERF funds helped to identify what could be an important way to stop damaging inflammation inside the eye. Inflammation inside the eye is called uveitis. It is the third leading cause of vision loss in the United States. While most uveitis responds to steroid therapy, 20% do not, and the uveitis becomes chronic. BU has found that there may be a way of developing long-term suppression of uveitis by using specific proteins always found in the healthy eye. These proteins stop immune cells from making inflammation, and make the immune cells themselves control each other from making inflammation. BU has demonstrated that they can make this target only the eye. This prevents accidently stopping other immune cells fighting infection. This is something that current therapies cannot do. We have published our results. We are now collecting immune cells from uveitis patients to see

whether the immune cells respond to these proteins, and control themselves. Our goal is to find a way to suppress inflammation within the eye to preserve vision in patients with chronic uveitis.

YOUR MLERF FUNDS Resulted In - Testing Possible New Therapeutic Approach To Stop Inflammation On The Surface Of The Eye.
The support received from MLERF helped to test the possibility of using a new therapeutic approach to stop inflammation on the surface of the eye. Inflammation of the eye surface affects the whites of our eyes, tear production, and clarity of the cornea. If it becomes chronic, it causes dry eye disease. This disease is often associated with poor quality of life, and a risk of losing vision. Findings not only hold a promise for preventing chronic inflammation of the ocular surface, but also other sites in the body. Our findings were presented recently at the annual meeting of Association for Research in Vision and Ophthalmology and are being prepared for publication.

YOUR MLERF FUNDS Resulted In - Discovery Of A New Way By Which The Eye Controls Inflammation.
The support received from the MLERF helped to mentor a Medical Masters student, and to discover a new way by which the eye controls inflammation. For the student, this provided him with a master's degree, and enhanced prospects of entering medical school. Also, it has made this student want to be a future clinical vision scientist. His research results were published, and are the preliminary data for a current National Institutes of Health grant application. The new discovery was that specific proteins made within the healthy eye control the behavior of macrophages. Macrophages are the amoeboid like cells in our blood, and in our tissues that clear us of bacteria, infected cells, dead cells, and toxic materials. The macrophages eat these dangerous materials, and are activated to mediate inflammation. The new finding was that in the healthy eye the proteins allowed the macrophages to eat the dangerous materials, but not activate inflammation. The importance of this finding is that it might be possible to use the proteins to stop macrophages from mediating inflammation, but still continue to clear dangerous materials. This could help to restore health in eyes with uveitis, transplants, and age related macular degeneration.

SCHEPENS EYE RESEARCH INSTITUTE
SUCCESS STORIES

YOUR MLERF FUNDS Resulted In - Study Of Age-Related Macular Degeneration (AMD)
The study focused on age-related macular degeneration (AMD), pathology of the retina that occurs in two forms, wet and dry pathology of the retina that occurs in two forms, wet and dry. Wet (or exudative) AMD is characterized by the abnormal growth of blood vessels underneath the retina. These vessels leak fluid that causes detachment of the retina and loss of vision. There are treatments for wet AMD that are effective in a significant proportion of patients. In contrast, dry AMD is characterized by death of the retinal pigment epithelium (RPE), a layer of cells on the bottom of the retina. These cells are essential for the health of the photoreceptor cells, a primary cell in the visual process so when RPE cells die, the photoreceptors also die and there is a loss of vision. There is currently no treatment for dry AMD; to develop a therapeutic it is essential to understand what causes the disease. Researchers believe that with age RPE accumulate debris leads to the assembly of a protein complex called the inflammasome. The inflammasome functions to activate a very powerful cytokine called interleukin (IL)-1beta that can lead to tissue damage. The group showed the presence of these proteins in human donor retinal tissues with AMD but not in age-matched tissues without the disease. The NLRP3 inflammasome is now an important target for the development of treatments to prevent dry AMD.

YOUR MLERF FUNDS Resulted In - Possible Treatments To Block The Eye's Immune Response Which Might Prevent Optic Nerve Damage And Preserve Vision.
The MLERF research examined the idea that the environment can play a role in the development of glaucoma. The investigation is working to determine if glaucoma could be, in part, an autoimmune disease and if bacteria normally present in the eye could contribute to glaucoma. When glaucoma was induced in mice that were completely germ-free (i.e. had no bacteria), they developed exhibited the characteristic increase in IOP but showed no optic nerve damage. The research found that a protein produced by bacteria known as heat shock protein (HSP)-27 can induce an immune response in retinal ganglion cells that make up the optic nerve. This immune response damaged the optic nerve causing loss of vision. This work opens the possibility that treatments to block the immune response might prevent optic nerve damage and preserve vision.

YOUR MLERF FUNDS Resulted In – Increasing The Possibility Of Identifying New Targets In The Genes Of A Pathway That Can Be Used To Treat Or Delay Development Of AMD.
It is widely held that Age-Related Macular Degeneration (AMD) is a multi-genic eye disease, meaning that many different genes as well as life style features contribute to its development. Dr. Haider of Schepens Institute applies genetic approaches to both patient cohorts and animal models to determine groups of related genes that cause AMD. One kind of genetic analysis that is used to find genes involved in AMD compares genes in patients with AMD to those in unaffected siblings. Using this method researchers identified several potentially important genes including NR2E3 that targets retinoic acid receptor-related receptor alpha and genes that are part of the NR2E3/RORA pathway, which increase the risk of developing AMD. Dr. Haider is now in a position to identify several new targets in the genes of this pathway that can be used to treat or delay the development of AMD.

YOUR MLERF FUNDS Resulted In - Increasing The Possibility That A Drug Can Be Used To Keep The Conjunctiva Healthy And Prevent Or Treat Dry Eye.
Notch proteins are important in many diseases so companies are developing molecules that can alter their activity. Pablo Argueso, Ph.D. is studying dry eye disease, a debilitating disease of the cornea (the clear window of the eye) and conjunctiva (the white part of the eye that surrounds the cornea). Dry eye disease affects more than four million Americans. One change that can occur in dry eye is that the cells of the conjunctiva can increase in their number while one type of cell, the goblet cell, can decrease. Goblet cells make many products that protect the eye including a very large protein called mucin 16. These changes cause the pain and decrease in vision that can accompany dry eye. Dr. Argueso discovered that several proteins - called Notch proteins - are important in keeping the cells of the conjunctiva from over growing or from dying. Using isolated conjunctival cells Dr. Argueso found that all three Notch protein receptors were present in the conjunctival cells and that when the activity of these receptors was blocked, the amount of mucin 16 (MUC) 16 was decreased. Notch proteins are important in many diseases so companies are developing molecules that can alter their activity. Such a drug could be used in the eye to stimulate Notch signaling and keep the conjunctiva healthy and prevent or treat dry eye.

YOUR MLERF FUNDS Resulted In - The Study Of The Innermost Layer Of The Cornea's Endothelium.
The normal function of the cells of this layer are essential to keeping the cornea clear, which is critical to good vision. A number of diseases affect the corneal endothelial cells and can cause blindness. In the lab researchers are working to study the causes of Fuchs endothelial dystrophy (FECD) which is the second most common cause for corneal transplants in the US. Tissue culture system of normal and diseased corneal endothelial cells is being developed. These culture systems are revealing what goes wrong in the disease so that they can identify targets for treatment.

TUFTS UNIVERSITY
SCOOL OF MEDICINE
SUCCESS STORIES

YOUR MLERF FUNDS Resulted In – The Discovery Of A Novel Protein That Promoted Healing Of Corneal Wounds
Researchers were able to carry out in vitro experiments for a study which discovered a novel protein, galectin-3, that promotes healing of corneal wounds. Initial preliminary, in vitro experiments for this study were carried out using a Mass Lions Eye Research grant made to the New England Eye Center/Tufts University School of Medicine. The pilot data resulting from this support enabled us to successfully compete for a large NIH grant ($~2.0 million) to perform in vivo studies in animals and to characterize the molecular mechanism by which Galectin-3 promotes healing of wounds. This study conclusively established that galectin-3 has a potent ability to promote healing of corneal wounds by a novel mechanism. Mass Lions support was acknowledged in the publication resulting from this work. Tufts University has licensed this invention to a Biotech company to develop a drug for treatment of nonhealing wounds.

Our findings that galectin-3 promotes healing of corneal wounds have provided impetus to other scientists to assess the beneficial effect of galectins in promoting healing of skin, intestinal, kidney and uterine wounds.

In summary, modest support made possible by Mass Lions for pilot studies on cornea have resulted in discovery of novel drug targets that may help millions of individuals.

YOUR MLERF FUNDS Resulted In – Maintaining And Expanding A Large Macular Degeneration Database And Repository – Discovery Of Several New Genes
MLERF funds have helped to support the Ophthalmic Epidemiology and Genetics Service maintain and expand their large and unique macular degeneration database and biorepository, a source of numerous studies leading to important discoveries. The databases were initiated 25 years ago at the Massachusetts Eye and Ear Infirmary. The investigator was the first to study epidemiology and to conduct genetic studies of macular degeneration at that institution. This resource has continued to be developed at Tufts Medical Center with the help of the MLERF.

The team has discovered several new genes for macular degeneration in various biologic pathways, made possible by genotyping and genetic sequencing partially supported by MLERF. The team was the first to identify rare genetic variants for this disease, which are strong predictors of disease and provide targets for new therapies. Most recently they discovered more rare variants in 3 genes, and demonstrated that rare variants explain disease in some families with the typical form of age-related macular degeneration. These results are published in Nature Genetics and other scientific journals which acknowledge Lions support.

YOUR MLERF FUNDS Resulted In – New Gene Therapy To Be Tested In Human Patients In 2016.
Specifically, this therapy will target the 'dry' form of AMD that currently accounts for 90% of AMD patients, none of whom can be currently treated. If successful, we will have the potential to positively impact the lives of millions of people worldwide. This gene therapy uses a harmless virus to deliver a therapeutic gene (that we have developed in our laboratory) to the eyes of AMD patients. Support from the MLERF enabled us to perform the early work that eventually led to the development of this therapy. We are happy to report that we have also made significant progress in the development of gene therapies for RP and DR but these are not yet at the stage of being ready for testing in patients.

“From Mice To Men”
“Mom, what do you do at work?” I told my kids that I used mice to find a cure for blindness. They told their friends that I cured blind mice. Not quite right, but a worthy goal. At the simplest level, the Lem lab introduces genetic mutations associated with human blindness into mice. Mutant DNA injected into a mouse egg inserts itself into the embryo’s DNA. The dividing embryo is returned to the womb, giving birth to a mouse with retinal degeneration. Like humans, genes are passed from parent to offspring. By examining early changes in these disease-bearing “transgenic mice”, we can develop diagnostic tools.

Understanding how a genetic mutation alters normal cell function is key to developing treatments. The Lem lab has shown that some RP mutations trick the eye into seeing light in darkness. This “continuous light” caused degeneration. Genetically blocking light slowed degeneration. Furthermore, our lab show that different genetic mutations cause different cellular changes, suggesting that different mutations will require different treatments. We’re not quite to the point of curing blind mice, but we’re getting closer. I hope one day to tell my kids, “Today I cured a blind mouse!” When that day comes, curing the human disease will be just around the corner.

From Mice to Man: Study of Human Blindness Using Transgenic Mice
Provided by Janis Lem. Ph.D.
Associate Professor of Ophthalmology
Tufts University School of Medicine

CHILDRENS HOSPITAL
SUCCESS STORIES

YOUR MLERF FUNDS Resulted In - Exciting Discoveries In Two Related Rare Children’s Blinding Diseases.
Familial exudative vitreoretinopathy (FEVR) and Norrie disease. Both diseases share similar symptoms of abnormal leaky blood vessels in the eye that can steal a child’s eyesight early in life. Using mouse models containing the diseased genes the research team found that defective genes damage junctions in the blood vessel cells that normally act as glue to seal and protect blood vessels. When the seal is damaged, fluid leaks out from blood vessels to surrounding tissues, harming neurons necessary for vision, hearing and brain functions. These important new findings are the next important step toward eliminating blindness and disability caused by these two rare but devastating diseases.

YOUR MLERF FUNDS Resulted In – Development Of Computational Models That May Enable Machines To See.
MLERF Funds have been used to support research which combines neurophysiology, visual psychophysics and computational modeling to investigate how neural circuits store, represent and process visual information in the human brain. By recording the activity of neurons and neuronal ensembles in cortex, the Kreiman Lab is providing insights about how the brain interprets the visual world. Inspired by the architecture and neurophysiology of the visual system and funded by the Lions, the laboratory has developed computational models that may enable machines to see and understand visual information. By combining computer vision with neurophysiology, the lab is working toward a day when prosthetic devices can be connected directly to the brain to restore the gift of sight to all who have, through trauma or disease, lost it.

YOUR MLERF FUNDS Resulted In – Establishing Preferential Looking Testing As An International Standard For Measuring An Infants Visual Acuity.
MLERF funds support of the Department of Ophthalmology at Boston Children's Hospital in the 1980's was critical in allowing us to explore the use of Preferential Looking Testing as a method of measuring infants' visual acuity before they were able to name symbols or read an eye chart. The fact that babies will look reflexively towards a series of black and white lines if they can resolve them is the basis of the test. Drs. Anne Fulton and Louisa Mayer studied normal infant vision development and deviations from this normal development with great success, and Preferential Looking Testing became an international standard for measuring how well an infant can see, years before the child might be able to speak.

YOUR MLERF FUNDS Resulted In – Critical Studies Which Produced Data Required To Compete For Large Grant Applications
MLERF Funds supported a number of projects carried out in the Eye Pathology Laboratory at Boston Children's Hospital in the 1970's and 1980's. Among these we list: a quantitative measurement study of the growing retinal surface area in infant eyes; an autopsy study of acute leukemia in children: a pathological study of congenital glaucoma unresponsive to conventional therapy; and research on the development of the human optic nerve. These critical studies were made possible by accessing Boston Children's unique human pathological material and by the willingness of the Mass Lions to invest in promising, exploratory eye investigations. The early support of the Mass Lions on these projects was critical in helping us produce the data required for competing successfully in large grant applications.

JOSLIN DIABETES INSTITUTE
SUCCESS STORIES

YOUR MLERF FUNDS Resulted In – Identifying "VEGF" As an important Therapeutic Target
Early MLERF funding provided support for some of the initial Joslin studies that helped to first identify VEGF as an important therapeutic target in the diabetic eye. Anti-VEGF therapies were subsequently developed and have become first-line therapy for most patients with Diabetic Macular Edema (DME) over the last 4 years. This therapy has revolutionized the care of these patients with twice as many patients gaining vision and only one third as many losing vision than the old therapies. **(Personal patient story available)**

YOUR MLERF FUNDS Resulted In – Studies supported by MLERF provided impetus for new nationwide study that may change hoow we determine the severity of all diabetic retinal eye disease.
MLERF funding has allowed the Joslin team to validate methods of ultrawide field imaging for the assessment of diabetic eye complications that can be performed quickly, comfortably and without pupillary dilation. The equipment evaluated in the MLERF-supported studies was used to follow a patient throughout her pregnancy without needing to dilate her eyes at each visit and allowing excellent visualization of over 80% of her retina in a single image. Studies support by MLERF here at Joslin have been the impetus for a new nationwide study of this technology that may change the way we determine the severity of all diabetic retinal eye disease. **(Personal patient story available)**

YOUR MLERF FUNDS Resulted In – Quick And Painless Imaging Of Neural Retinal Layers For Hundreds Of Patients
Patients are evaluated at the Joslin Diabetes Center's Beetham Eye Institute (BEI) using state of the art retinal imaging with spectral domain optical coherence tomography (SDOCT). This SDOCT machine was purchased thanks to the generous support of a Lions Presidential Award and allows us to quickly and painlessly image individual neural retinal layers in the eyes of patients with and without diabetes. (Personal patient story available) This device, provided by the Lions Presidential Grant, has helped hundreds of individuals accurately follow their retinal status while often providing critical information as to when or if to perform vision saving eye surgery.

Celebrating Sight Awards

RANDOLPH LIONS CLUB presented two (2) Sight Awards at their 70th Anniversary celebration this September. Lion Tom Fisher, a 49 year member, 5 time President, Melvin Jones Fellow, Eye-glass collection chair and Chair of the committee that raised the monies for the purchase of a Spot Camera for the Randolph Club, was presented his award.

Paul and Barbara Toscko (non-Lions) were also presented a Sight Award. The Tosckos have been making annual donations to MLERF for a long time. Awards were presented by 1VDG Peg Needre and MLERF Director Gino Angelone.

Tom Fisher

The Tosckos


20
Schepens Eye
Research Institute
Massachusetts Eye and Ear
MASSACHUSETTS LIONS EYE RESEARCH FUND, INC.
MLERF
Date 7/16/2020
Pay To The Order Of Schepens Eye Research Center $160,000
One hundred sixty thousand + 00/100 Dollars
Rockland Trust
Thomas R. Kiely Treasurer
Joanne Farrow President


MASSACHUSETTS LIONS EYE RESEARCH FUND, INC.
MLERF
Date 7/16/2020
Pay To The Order Of New England Eye Center $160,000
One hundred sixty thousand + 00/100 Dollars
Rockland Trust
Thomas R. Kiely Treasurer
Joanne Farrow President

20 YEARS OF MAJOR RESEARCH ADVANCES

2004

The Harvard-Vision Clinical Scientist Development Program (K12) established

2008

Harvard Ophthalmology Centers of Excellence (COE) are created

- Cornea Center of Excellence
- Diabetic Eye Disease Center of Excellence
- Glaucoma Center of Excellence
- Mobility Enhancement & Vision Rehabilitation Center of Excellence
- Ocular Oncology Center of Excellence
- Age-Related Macular Degeneration Center of Excellence

2011

Corporate Alliance Program, which builds strategic industry alliances with biotechnology and pharmaceutical companies, launches

Harvard Ophthalmology Ocular Genomics Institute founded

Ocular Genomics Institute

Schepens Eye Research Institute joins Mass. Eye and Ear, creating the world's largest ophthalmology research enterprise

2013

International Training and Research Program created

Ocular Regenerative Medicine Institute

Harvard Ophthalmology Ocular Regenerative Medicine Institute founded

2015

$231 million

Mass. Eye and Ear's Bold Science/Life-Changing Cures campaign kicks off with a goal of reaching $250 million by 2020 to fund research. To date, the campaign has reached $231 million.

2019

The Tej Kohli Foundation pledges $2 million over five years to establish the Tej Kohli Cornea Program at Mass. Eye and Ear

2014

Grousbeck Center for Gene Therapy founded

Harvard Ophthalmology Infectious Disease Institute founded

INFECTIOUS DISEASE INSTITUTE

2018

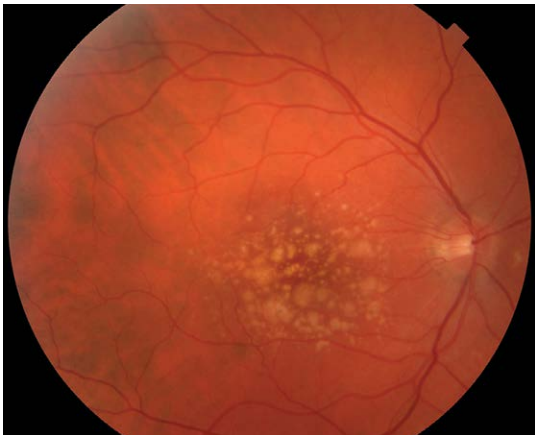
Mass. Eye and Ear joins Partners Healthcare Systems

A MEMBER OF PARTNERS® HEALTHCARE

Mass. Eye and Ear begins an initiative to increase capacity for research with big data, including enrolling patients into the Partners Biobank, and entering patients' electronic medical record data into the Partners Research Patient Data Registry

20 YEARS OF RESEARCH FUEL FUTURE BREAKTHROUGHS

Harvard Ophthalmology Age-Related Macular Degeneration Center of Excellence/Retina



- Developed photodynamic therapy with verteporfin, the first FDA-approved drug treatment for age-related macular degeneration (AMD)
- Performed foundational research demonstrating key role of vascular endothelial growth factor (VEGF), leading to the development of five anti-VEGF therapies: pegaptanib, ranibizumab, bevacizumab (used off label), aflibercept, and brolucizumab
- Developed optical coherence tomography for ocular imaging, which is the mainstay for management of patients with macular degeneration, diabetic retinopathy, and retinal vein occlusion
- Worked toward modeling photoreceptor cell loss in nonhuman primates and tested neuroprotection agents
- Generated pilot data that suggest the effectiveness of high-dose statins in the treatment of some dry AMD
- Pioneered plasma metabolomics in AMD

2020 Vision

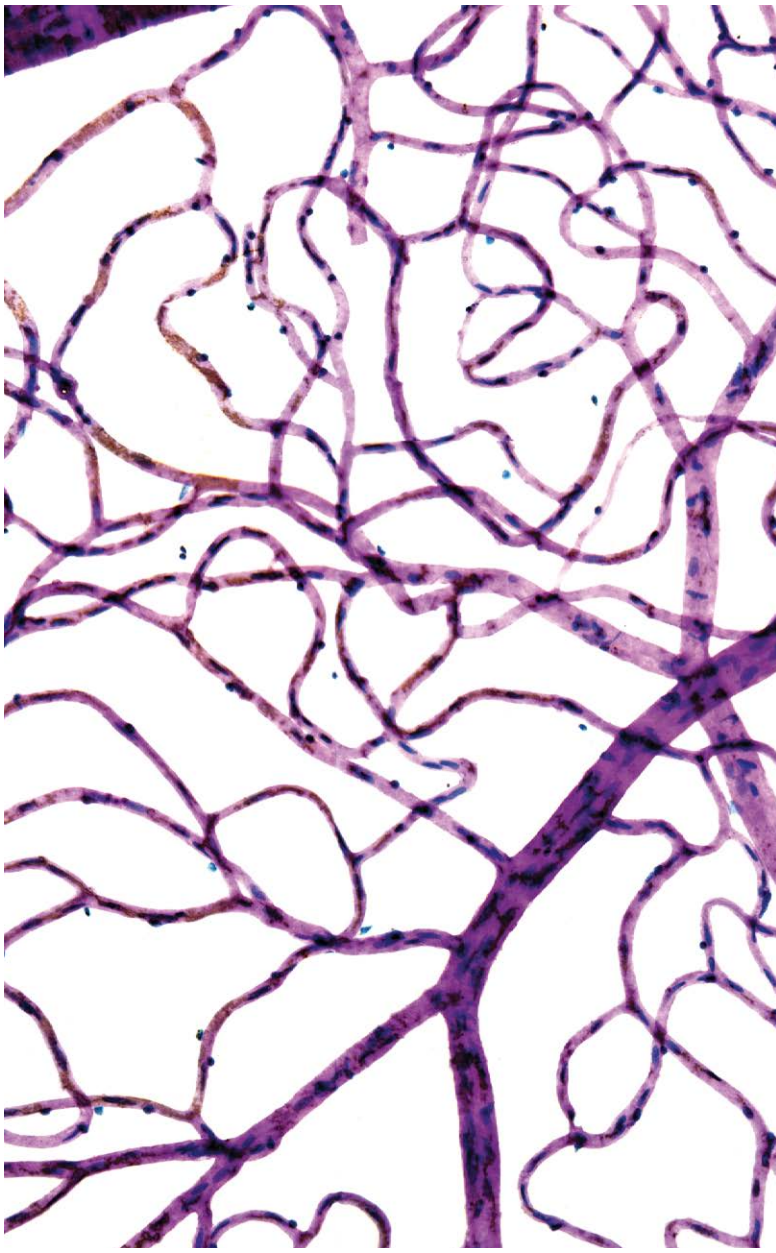
Clarify AMD subtypes and develop effective treatments for early/intermediate AMD and neuroprotection

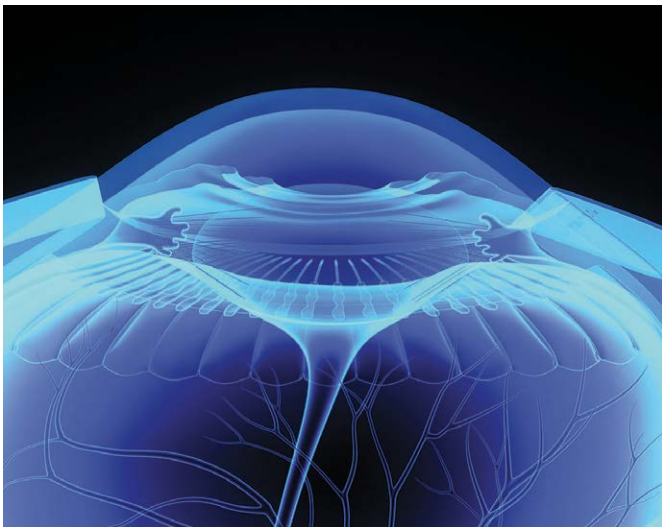
Harvard Ophthalmology
Diabetic Eye Disease Center of Excellence

- Helped to create and lead the Diabetic Retinopathy Clinical Research Retina Network, a National Institutes of Health-sponsored consortium of North American clinical sites performing research in diabetic eye disease and other retinal diseases
- Through multicenter studies, established intravitreal vascular endothelial growth factor (VEGF) inhibitors as first-line therapy for diabetic macular edema (DME) and demonstrated that VEGF inhibitors are a safe and efficacious alternative to panretinal photocoagulation for the treatment of proliferative diabetic retinopathy
- Investigated telemedicine for diabetic retinopathy as a means of improving patient access and compliance
- Discovered plasma kallikrein as a VEGF-independent key mediator of DME and developed injectable and oral compounds in current DME clinical trials
- Using data from the Joslin 50-Year Medalists, identified RBP3, a neural retinal secreted protein, as a protective factor against advanced diabetic retinopathy

2020 Vision

Using multimodal retinal imaging, develop artificial intelligence algorithms to predict diabetic eye disease progression and treatment response



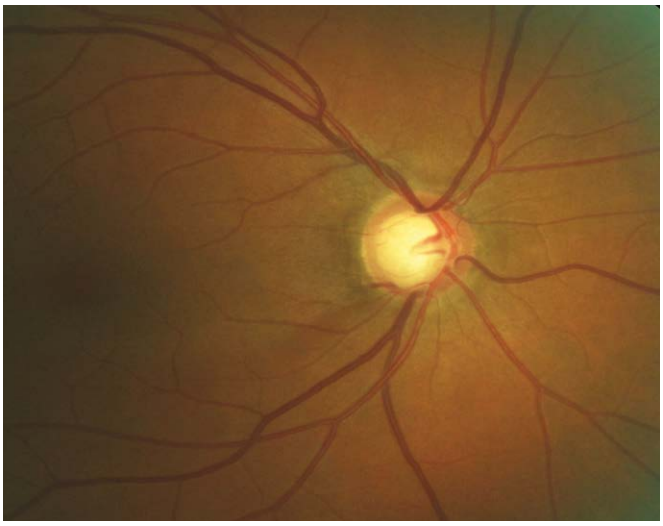


Harvard Ophthalmology Cornea Center of Excellence

- Identified molecular clues, including the role of oxidative stress, in the pathogenesis of Fuchs' endothelial corneal dystrophy
- Identified the molecular and cellular immune basis of dry eye disease, including the role of interleukin-17
- Developed and optimized drug-eluting contact lenses
- Developed the "Lucia," a novel corneal prosthesis, to help combat global corneal blindness
- Received FDA approval for novel method of cultivating corneal stem cells for ocular surface reconstruction

2020 Vision

Develop novel biomaterials for corneal replacement, regeneration, and management of corneal injuries

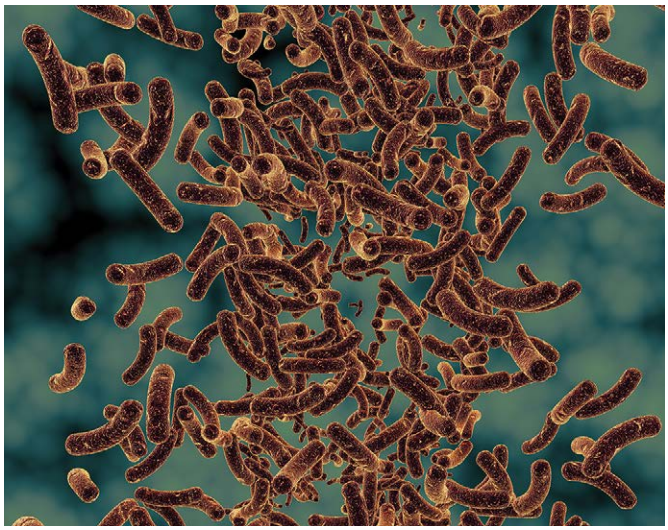


Harvard Ophthalmology Glaucoma Center of Excellence

- Demonstrated the use of spectral domain and 3D swept-source optical coherence tomography to detect retinal nerve fiber layer thinning, which can occur before clinically detectable, irreversible vision loss in glaucoma
- Identified structural remodeling of astrocytes as a potential new target for disease pathogenesis
- Identified over 100 novel genetic risk factors for glaucoma and related ocular traits
- Identified environmental risk factors for exfoliation glaucoma, including residence in northern latitudes
- Identified subtypes of glaucoma based on machine learning of visual field defects and specific optic nerve features

2020 Vision

Develop models for disease screening and risk prediction based on machine learning, fundus images, and genetic risk factors



Harvard Ophthalmology Infectious Disease Institute

- Established a 10,000-strain repository of clinical isolates and new molecular-based infection diagnostics to improve eye care
- Identified a mechanism for the evolution of novel adenoviruses that cause epidemic keratoconjunctivitis
- Pioneered new comparative and functional genomics technologies to discover how staphylococci and streptococci infect the ocular surface
- Traced the origins of antibiotic resistance in a leading multidrug-resistant hospital pathogen to the emergence of land animals, 450 million years ago
- Identified the molecule dynamin 2 as a key regulator of adenovirus trafficking, affecting both viral replication and inflammation, and identified a unique viral trafficking pathway in human corneal fibroblasts involving dynamin 2

2020 Vision

Develop promising new compounds to fight the leading causes of multidrug-resistant infections, including staph and other related bacteria; develop new technologies, such as the Nanostring Project, for rapid diagnosis of ocular infections

Harvard Ophthalmology Mobility Enhancement and Vision Rehabilitation Center of Excellence

- Spearheaded the Boston Retinal Implant Project, a retina prosthesis designed to restore useful vision to patients who are blind from age-related macular degeneration or retinitis pigmentosa
- Developed auditory-based video games for improving navigation and other cognitive skills in blind adolescents
- Developed a vision-assistive device that detects potential hazards in the environment and reduces risk of collision for those who are blind or have visual field loss
- Developed eyeglasses that use high-power prisms to optically expand the visual fields of patients with hemianopia
- Developed the Boston Blink-netic Project, which has successfully treated patients with eyelid paralysis using a nonsurgical approach of embedding a magnet in biocompatible material and adhering it to the eyelid skin

2020 Vision

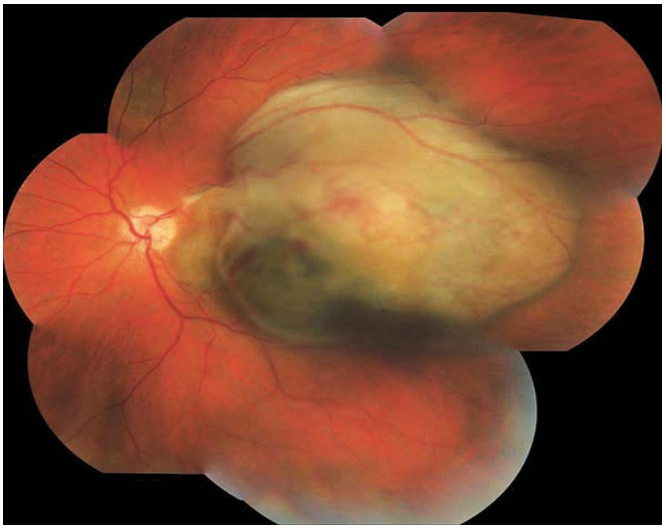
Develop more advanced head-mounted displays that use improved computer and image processing software to assist patients with visual impairments

Harvard Ophthalmology Ocular Genomics Institute

- Created one of the leading centers for early phase clinical trials of therapies for inherited retinal degenerations, with seven gene-based and one stem cell trial currently in progress
- Developed and implemented a next-generation, sequencing-based diagnostic test for inherited eye diseases
- Helped define the genetic causes of inherited retinal degenerations and congenital cranial dysinnervation disorders
- Reconstructed a synthetic adeno-associated virus gene therapy vector that is highly effective at delivering therapeutic genes to the eye, ear, liver, and muscle tissue
- Deployed the tools of CRISPR-Cas9-mediated genome and base editing to facilitate research studies of and develop therapies for inherited eye disorders

2020 Vision

Use precision medicine broadly for inherited eye diseases to improve genetic diagnoses for patients, leading to the use of genetically informed therapies to preserve and/or restore vision

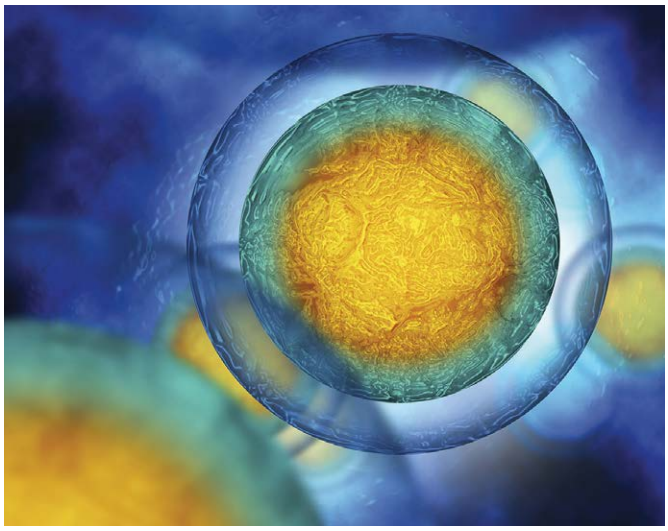


Harvard Ophthalmology Ocular Oncology Center of Excellence

- Conducted the first adjuvant trial investigating the role of interferon for reducing the risk of metastasis from uveal melanoma
- Contributed to the characterization of *BAP1* tumor predisposition syndrome and defined the prevalence of germline *BAP1* mutations in patients with uveal melanoma
- Evaluated the role of antivascular endothelial growth factor therapy in preventing vision loss due to radiation retinopathy in patients with choroidal melanoma
- Performed first in-human study of a novel targeted therapy for uveal melanoma
- Investigated inhibitory effect of verteporfin on various tumor cell lines

2020 Vision

Identify new biomarkers for earlier detection of metastatic ocular melanoma, develop adjuvant therapies, and improve visual outcomes after ocular melanoma treatment

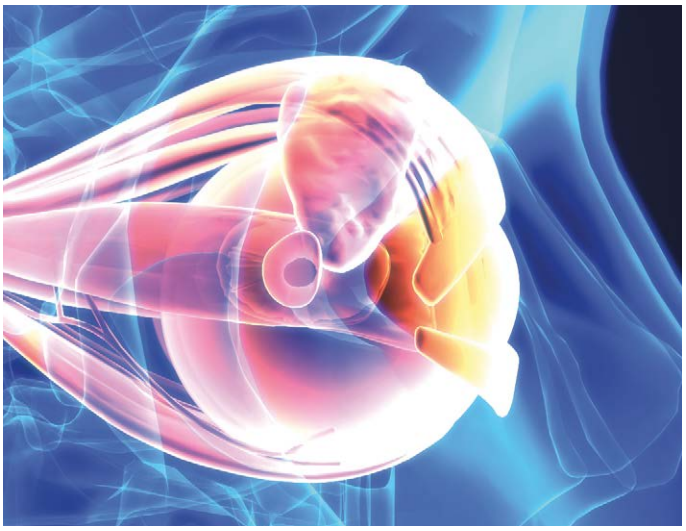


Harvard Ophthalmology
Ocular Regenerative Medicine Institute

- Performed early clinical trials of grafted embryonic stem cell-derived retinal pigment epithelial in patients with age-related macular degeneration (AMD)
- Developed a novel stem cell therapy for retinitis pigmentosa using retinal progenitor cells
- Developed a semi-automated approach for the scaled-up production of retinal neurons from pluripotent stem cells—a renewable source of cells—for the treatment of AMD and glaucoma
- Pioneered transplantation studies of stem cell-derived retinal ganglion cells in animal models of glaucoma
- Uncovered permanent neuroglial remodeling of the retina that occurs following infiltration of peripheral monocytes in cases of retinal injury

2020 Vision

Overcome immunologic and integration issues as we move from bench to bedside with sight-saving and restoring therapies that will change the lives of patients with blinding diseases



Harvard Ophthalmology
Pediatric Ophthalmology/Strabismus

- Identified immature photoreceptors as potential pharmacological targets for treating retinopathy of prematurity through omega-3 fatty acid and insulin-like growth factor supplementation, among others
- Discovered a series of mutations that cause rare forms of strabismus and provides clues to the complex genetic contributors of common strabismus
- Provided the first scientifically rigorous findings of visual disorders in children with dyslexia
- Advanced our understanding of the impact of traumatic brain injury on visual function
- Developed a noninvasive retinal scanner that automatically detects amblyopia and strabismus in children, novel computer-based tests of visual function in amblyopia, and new binocular therapies such as virtual reality

2020 Vision

Use gene therapy to treat and reverse vision loss; apply precision medicine for early diagnosis of pediatric eye disease; re-open brain plasticity to treat amblyopia in adults; and directly stimulate the visual brain to treat all forms of blindness

September 11th, 2019

Massachusetts Lions Eye Research Fund Annual Stewardship Dinner

Department of Ophthalmology

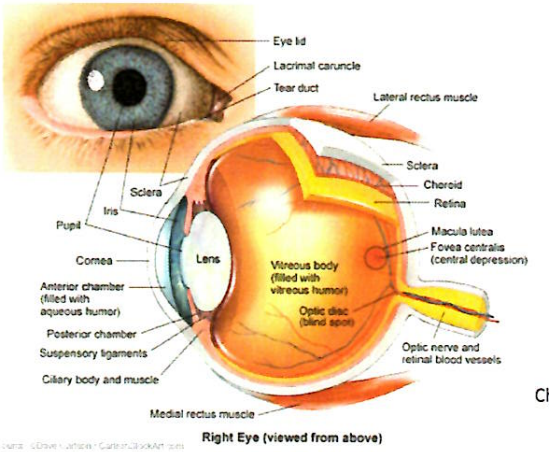
Boston Children's Hospital/Harvard Medical School

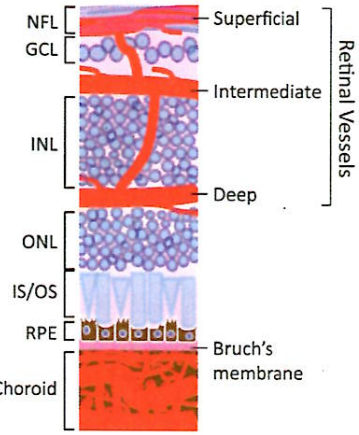
Jing Chen, PhD

Chi-Hsiu Liu, PhD

Zhongxiao Wang, MD, PhD

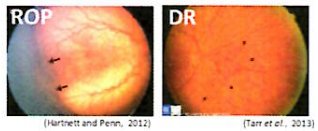
Anatomy of the Human Eye





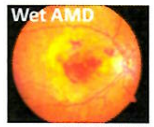
Ocular neovascularization (NV)

- Abnormal blood vessel formation in the eye
- A leading cause of blindness in several eye diseases
  - **Retinopathy of prematurity** (ROP)
  - **Diabetic retinopathy** (DR)
    - Proliferative diabetic retinopathy (PDR)
  - Retinal vein occlusion
  - **Wet age-related macular degeneration** (AMD)
  - Ocular histoplasmosis



(Hartnett and Penn, 2012)

(Tarr et al., 2013)



(Coleman et al., 2008)

Retinopathy of Prematurity (ROP)

- A leading cause of childhood blindness
- Vasoproliferative retinopathy
- Oxygen, low-birth-weight, gestational age
- Two-phases disease
  - **Phase I: Vessel loss**
  - **Phase II: Pathological neovascularization (NV)**

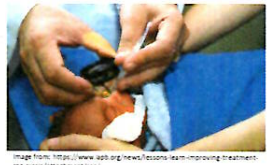
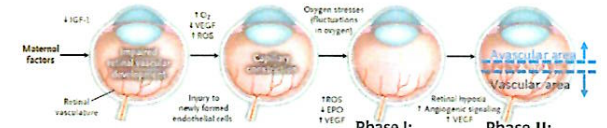
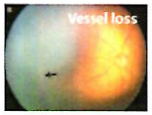
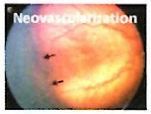


Image from: https://www.apb.org/news/lessons-learn-improving-treatment-rop-russia/attachment/rop/



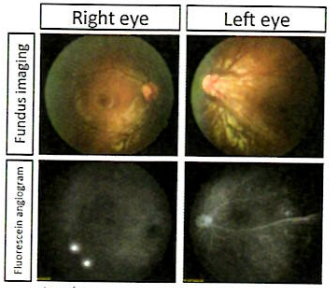
(Hartnett and Penn, 2012)



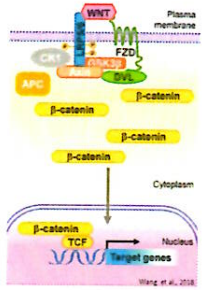


Familial Exudative Vitreoretinopathy (FEVR)

- A **inherited diseases** with abnormal development of retinal vasculature.
- Genes linked to FEVR: *FZD4, KIF11, **LRP5**, **NDP**, TSPAN12* and *ZN408*

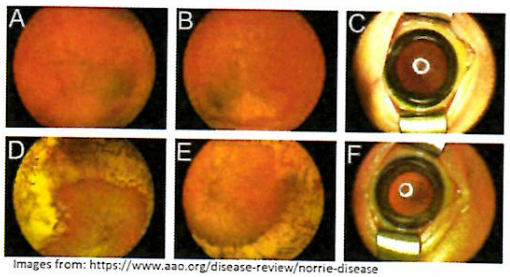


Images from https://eyewiki.aao.org/Familial_Exudative_Vitreoretinopathy_(FEVR)

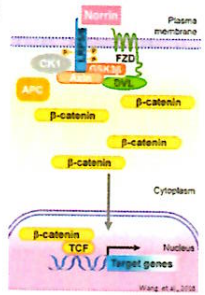


Norrie disease (ND)

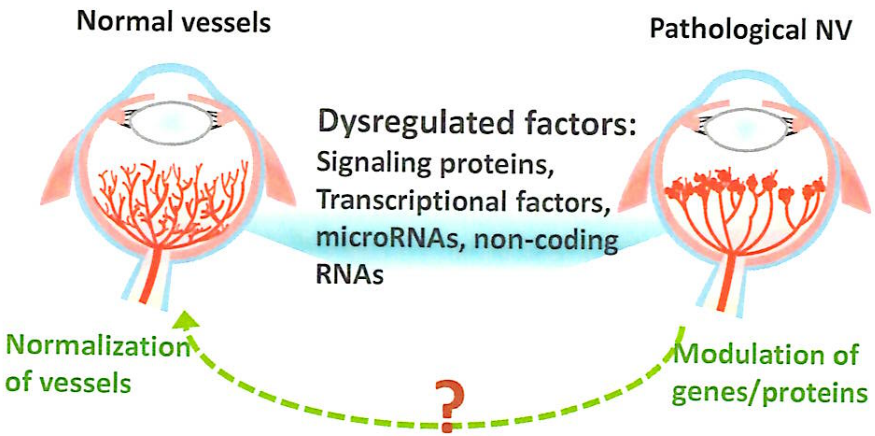
- A rare **X-linked recessive disorder** characterized by congenital blindness, which is often associated with sensorineural hearing loss and mental retardation.
- Genes linked to ND: ***NDP*** gene (encoding a protein called **norrin**)



Images from: https://www.aao.org/disease-review/norrie-disease

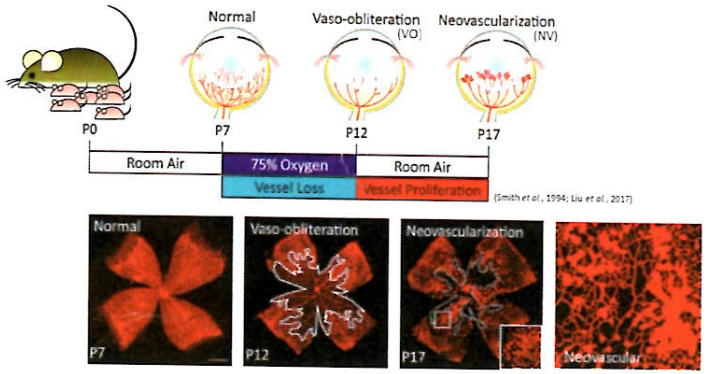


Aims of Our Studies



The mouse model of

Oxygen-induced retinopathy (OIR)

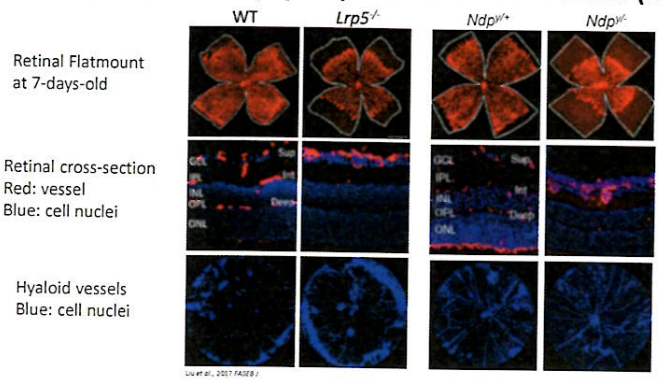


Liu *et al.*, 2017 *FASEB J*

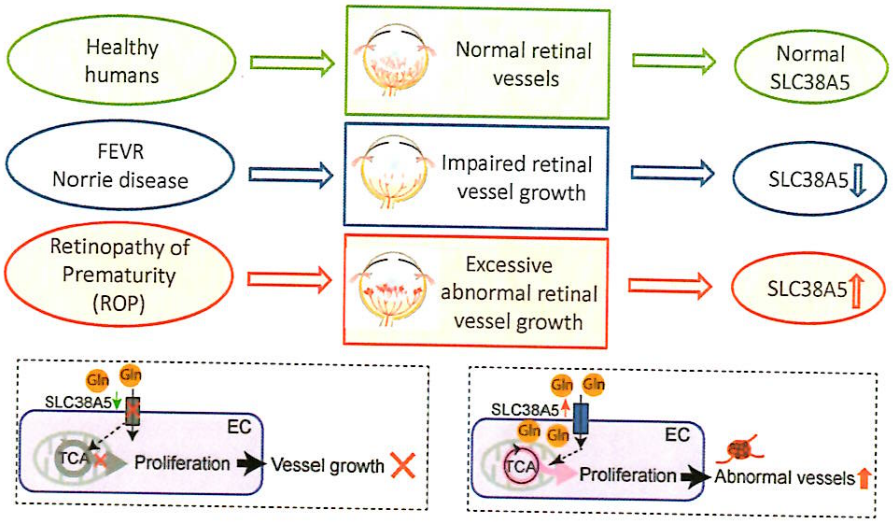
The transgenic mouse model of

FEVR and Norrie disease

Lrp5 knockout (*Lrp5*$^{-/-}$) and *Norrin* knockout (*Ndp*$^{y/-}$) mice



GCL: ganglion cell layer
IPL: inner plexiform layer
INL: inner nuclear layer
OPL: outer plexiform layer
ONL: outer nuclear layer
Sup: superficial layer of retinal vessels
Int: intermediate layer of retinal vessels
Deep: deep layer of retina vessels.



THANK YOU!