



There are many triggers in life—a casual remark, an event, a small article in a newspaper, the musings of a friend. These triggers bring with them new thoughts and ideas and before we know it, we're off and running.

For Dr. Milton Katz, an optical engineer and lens designer on the faculty of the State University of New York (SUNY) College of Optometry, the trigger was a wide screen process called Cinerama.

As you may recall, Cinerama is the wide screen process, which works simultaneously to project images from three synchronized 35mm projectors onto a huge, deeply-cured screen. Dr. Katz felt that this process could be applied to improving vision for those who have low vision.

He had already produced a 2x telescope with a field of vision (FOV) of 40 degrees horizontally and 6 degrees vertically which covers 175 inches at 20 feet. So, it improved from a FOV of 46 to 175 inches. With Cinerama in mind, he hopes to take this

device to a higher level—a 3x telescope that will increase FOV from 16 inches to 64 inches.

Dr. Katz then submitted a proposal to the Vision for Tomorrow Foundation to help in the development of this optical device.



Dr. Milton Katz.

Briefly, his proposal stated: "The prescription of optical devices is probably the most common intervention to improve the low vision patient's visual functioning. Telescopes provide magnification for viewing distant objects, such as street signs. Magnification...results in small

fields of view. For example, telescopes with a magnification of 2.1x had a (FOV) of 10.9 degrees. This corresponds to 46 inches at a distance of 20 feet. Telescopes with a ...magnification of 2.9x had a FOV of 3.9 degrees....16 inches at 20 feet. That's pretty poor."

His MKAT (MK-Array Telescope), an innovative array of prisms, objectives and eye lenses, would be mounted on glasses (see illustration) as a bioptic or it could be hand held to help those with low vision move freely, more easily find objects of interest, avoid hazards and drive safely. It is designed to accommodate the wearer's distance prescription and will also allow the insertion of lens caps to allow for near tasks including reading, writing

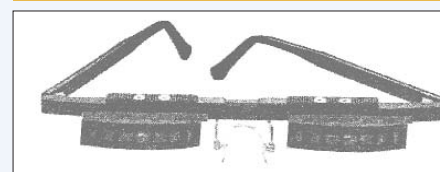
and hobbies.

A telemicroscope version also would significantly improve an individual's ability to enjoy all of these tasks.

Other applications include opera glasses. Imagine seeing the entire stage during a play, musical or opera—not just one actor. Or how about going to a football game and seeing both team's action at the same time.

According to Dr. Katz, "A prototype of his 2x MKAT has been made to confirm the design concept. With funding from VFT a 3x prototype is being made (3x is the magnifying power that low vision optometrists recommend. The lead time to fabricate it is 6-8 weeks."

We'll update you on the progress of the project on our next VFT newsletter. Good luck, Dr. Katz!



**MKAT Telescope:** The telescope is bioptically mounted in the upper part of a spectacle frame and the user prescription lens in the lower part of the frame. The user is able to choose between looking through his/her prescription lens, or by slightly tilting the head down to view through the telescopes.

## Dear Friends:

**M**y son, Tyler, was born with a genetic condition called Aniridia. Aniridia is seen in only one in 60,000 births; it is very rare. The term "aniridia" means "without iris," so Tyler was born without the color part of the eye. Additionally, he has glaucoma (increased eye pressure) and challenges with his cornea (the windshield of the eye). He has endured six surgeries, and will one day

need a corneal transplant. With all of this being said, Tyler's vision is very functional. He LOVES to



Wendy Baum.

play soccer, baseball and basketball. He started kindergarten this year, and is very social. Our family's passion is to

monitor all of the scientific advancements in eye research. Teaming with scientists and doctors around the world, we've already helped to establish that it is possible to take cells from inside one's mouth, convert them into cornea cells for the eye, and better one's vision. It is very unlikely that Tyler would be able to drive with his current eyesight. However, we are very hopeful that by the time he is sixteen (ten short years), we'll have the medical technology

to assist him, and many of today's youth suffering from eye conditions, to enjoy the freedom of driving. It is organizations like the VFT that are leading this cause, through its contributions to medical research, genetic research, technological research, educational grants and public awareness campaigns. I am so grateful to be a part of this incredible team!

Wendy Baum  
Board Member



**Three Discoverers:** Leah Gerlach, Discovery Conference Chair and VFT's Leslie Zucker and Susan Ballis pose next to the Foundation's display at the Discovery Low Vision Conference held in December in Chicago. The Conference was designed to bring together people with vision impairments of all ages, their families, educators, physicians, healthcare professionals and vendors.

## Research Update: Dr. Brian McKay

People with albinism are lacking pigment in their retina. Research indicates that this lack of pigment leads to a decrease in a "signal protein" which is necessary for normal retinal development. McKay's group has identified a protein that they believe to be the "signal protein." They hypothesize that giving this protein to pregnant mice with albinism will result in improvement in the development of the retinas of their offspring, demonstrated by an increase in specific cells in the retina.

Their results so far: Pregnant mice with albinism given this "signal protein" have demonstrated an increase in ganglion cells (14%) and photoreceptors (18%) in the retinas of their 18 offspring.

## Board Members

Susan Ballis, M.D., Co-Founder

Jon Ballis

Wendy Baum

Leslie Zucker, Co-Founder

Mark Zucker

## Our Mission

The Vision for Tomorrow Foundation seeks to empower people with low vision to have the confidence and ability to achieve their dreams.

## Our Vision

Our goal is to provide funding for research initiatives, support and create educational resources and public awareness projects – and to be recognized as the "go-to" source of information for those seeking to learn more about non-degenerative retinal disorders causing low vision at birth.

# Mom and Dad + Conner + Ethan + Bella = one happy family!

Tim and Carolyn Barnett live in South Point, Ohio. Tim is a systems analyst for St. Mary Medical Center and Carolyn is a stay-at-home Mom. They have three children: six-year-old Connor, four-year old Ethan and Bella who is three. They're much like any young couple with a growing family. But there is one big difference. Two of their three children have albinism. One child is a biological child. The other was adopted. Think about that for a moment.

Six years ago, their son Connor was born. Ethan followed a couple of years later. All was going well until Ethan, who is legally blind, was diagnosed with albinism. The couple took the diagnosis in stride and life went on until Carolyn began to find newspaper clippings on her pillow at night. All of them were about the adoption of special needs children from China.

"At first, I blew it off," chuckles Carolyn but when an avalanche of

packets from adoption agencies...often 10 to 15 a day arrived in the mail, she knew that Tim was serious. He had mounted a campaign and she was ready to run on his ticket.



*The Barnetts.*

Next stop China. It took time, but the Barnetts were patient. "The adoption was the greatest faith building for our lives," says Carolyn.

"After 756 days of prayer, paperwork, anxiety, paperwork, sweat, paperwork, tears, paperwork, travel, and more paperwork, She's finally home! Three-year-old Isabella Grace (Bella) arrived in the United States on July 18, 2007,"

reported Tim and Carolyn Barnett in our last VFT newsletter. Their trip to China was flawless. Back in Ohio, Bella adjusted to life with two brothers almost instantly.

Carolyn and Tim's pediatrician gave Bella a clean bill of health and the University of Kentucky Eye Clinic pronounced her vision better than the Barnetts anticipated. That



*Buddies Ethan and Bella.*

exam and one later indicated that she didn't need glasses yet. Ethan on the other hand needed them and they both now wear special sunglasses. Their vision problems at times frustrate big brother Connor. He can't quite understand why Ethan and Bella stand right in

front of the television set blocking his view.

Now, that all of the children have settled into day-to-day life and the roller coaster has slowed down, Tim and Carolyn are making their way through the quagmire of raising two challenged children and their brother. Ethan and Bella are in preschool. The school has never had even one child with albinism. Now it has two. "The principal is very supportive,"

comments Carolyn.

But there are many other challenges. "Our number one problem is what do we need to know and where do we find it," says Carolyn.

They like so many other families have had difficulty finding information and needed services.

One thing they do know is that, "We treat them as if they don't have albinism," says Carolyn, "...and we walk that fine line of realistic expectations."



**Hadley School Grant Kick Off: December 4, 2007**

VFT granted \$45,000 to Winnetka-based Hadley School for the Blind to develop a course in low vision geared toward educators who work with visually impaired students. On hand were representative of the learning institutions involved in the program.

**Top:** Susan Ballis (VFT), Rona Shaw (Dominican College), Beth Dennison (Utah State University)

**Bottom:** Linda Alsop (Utah State University), Sharon Sacks (California School for the Blind), Leslie Zucker (VFT).

**VFT gives grant for gene research at Columbia University**

Carol Mason, Ph.D. Professor of Pathology and Cell Biology and Neuroscience at Columbia University in New York, was recently granted \$4,524 by VFT.

Her project is entitled "Genes Controlling the Uncrossed Projection of Retinal Pigmented and Albino Mice."

The common hallmark for diagnosis of albinism is visual impairment due, in part, to misrouting of optic nerve fibers - there is a reduction in the

number of fibers projecting to the same side of the brain and an increase in those crossing over to the opposite side.

The goal of this project is to identify the molecular targets that control this crossing.

The results of this study may lead to a better understanding of the molecular

mechanism that leads to visual impairment in albinism and identify novel molecular targets for in utero gene therapy in humans.



Dr. Carol Mason.

**The Vision for Tomorrow Foundation**

655 Deerfield Road, Suite 100 - #130  
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**Stop the Presses!**

**Vision for Tomorrow-Parents work to ease stigma, ease difficulties of albinism**



That was the headline on a two-page feature story in the Health & Family section of Pioneer Press on January 31, 2008. The two-page article profiled the foundation, Leslie Zucker and Susan Ballis and their children.

Our thanks to staff writer J.T. Morand, and section editor, Sheryl Devore. Reprints of the story will be available shortly. Read it soon on our website [www.visionfortomorrow.org](http://www.visionfortomorrow.org).