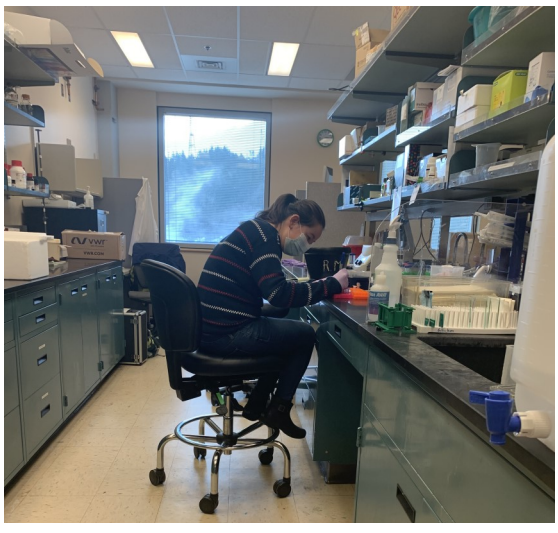
LCHAD RETINOPATHY RESEARCH UPDATE

January, 2022

Despite the COVID pandemic we continue to make progress toward a treatment for LCHAD deficiency retinopathy! Thanks to your generous support, we have tested the vision in our new LCHAD deficient mouse. The LCHAD deficient mouse had decreased visual acuity, decreased retinal function on electroretinogram and pigment changes similar to the retinopathy we see in patients with LCHAD deficiency. This mouse will be a great model to test treatments that can be translated into human clinical trials.

We are continuing to recruit patients into our "The Natural History of LCHAD Retinopathy" NIH funded trial. The recruitment will be complete in June of 2022 and is already providing us with lots of data about the natural progression of LCHAD deficiency-associated retinopathy in humans. This continues to be important groundwork for planning future clinical treatment trials.



Our recent efforts have focused on creating a gene therapy vector, or piece of DNA, that can add a functional or working copy of the LCHAD gene into our human retinal pigment epithelium (RPE) cells. The human vector has been completed and the DNA makes an LCHAD enzyme when added to test cells. We are now putting that vector, or DNA, into an adeno-associated virus or AAV to put into retinal cells. We plan to test our vector to see if it can restore normal fat oxidation in our LCHAD deficient RPE.

The mouse gene therapy vector is different than the human vector. We recently created a mouse piece of DNA similar to the human vector. This mouse LCHAD DNA will be packaged into an AAV and we will try treating the mice to see if we can halt the retinopathy with this gene therapy treatment approach. **These tremendous strides have been possible thanks to very generous support from you.** I'm excited about the possibilities of a novel treatment for LCHAD retinopathy in the future.

- Melanie Gillingham, Ph.D., R.D., L.D.