

## A Recap of 2020



Alison Gregory working from home. Dr. Hogarth volunteering at a Covid-19 vaccination clinic.

## Research Throughout Covid-19

While the past year has resulted in a lot of change, we are very happy to report that PKANready, PLANready, BPANready and the CoA-Z Clinical Trial have been able to continue uninterrupted. As many of you know, these studies were designed to be done remotely, both because NBIA disorders are so rare, and because the disorders themselves make travel difficult. Each of these studies consists of a combination of phone calls, online questionnaires, and local blood draws. Most traditional, in-person research studies were halted due to COVID-19 and the need to keep people at home. We are very excited that our somewhat unconventional model for research has proven so resilient this past year. We also want to thank every one of our participants who has diligently completed study requirements from their homes.

## PLANready Update

In May, PLANready turned 3 years old! PLANready has a total of 32 participants and we have recently heard from several potential participants from overseas. While all our current participants have been very diligent about completing these study visits (close to 200 visits so far), in order to have statistically meaningful results, we need to enroll at least 40 people into PLANready. We know there are more PLAN families out there somewhere, and we are genuinely interested to understand and break down any barriers to participation in the study! If you have thoughts to share on that, or if you are interested in enrolling and want to know more, email Allison Gregory at [gregorya@ohsu.edu](mailto:gregorya@ohsu.edu).



## Thank You!

OHSU and the INADcure Foundation recently entered into a joint contract to support PLANready. The INADcure Foundation has provided funding to keep the natural history study running for the next year. We thank the foundation and the PLAN community for seeing the value of the study and also renewing their commitment to help drive enrollment.

## PKANready Update

In April, PKANready turned 5 years old! We currently have 121 participants, with continued steady enrollment. PKANready, our first natural history study, has been vital to our clinical trial for PKAN. During those long months while the FDA was reviewing the trial protocol for CoA-Z, one of our best selling points was the robust natural history data that all of our PKANready participants have been contributing. The 121 participants have completed over 537 visits! There are currently over 15% of the participants in PKANready who have hit the 5 year mark on the study. Thank you to everyone for promptly answering our emails and filling out surveys. We know some of the questions can be repetitive but we have to ask! We cannot assume! We are extending the study and will be in contact with all participants to sign a new online consent. Again a big thank you to everyone who has participated in PKANready. You helped make the CoA-Z in PKAN trial possible!



Puneet Rai (R) and Katrina Wakeman (Above) WFH

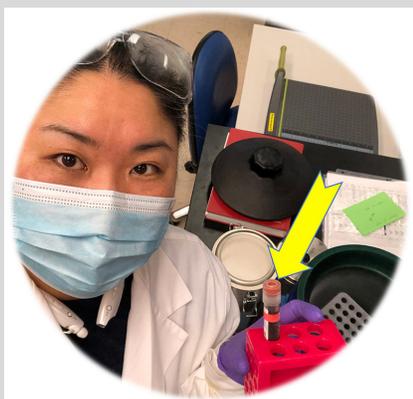


## BPANready Update

In May, BPANready turned 2 years old! It has been the fastest enrolling of our natural history studies. We broke 100 participants in last February 2020! We have also received 69 research blood samples and there have been nearly 400 study visits. None of this would have been possible without the BPAN family community's enthusiastic research participation, and the grant funding we received from the NBIA Disorders Association and the University of Pennsylvania's Orphan Disease Center Million Dollar Bike Ride. While the number of participants is important for the strength of a natural history study, so too is the number of years of data for each participant. We encourage everyone enrolled to keep inputting their data! We know that it can seem repetitive, but that is exactly what we need so we can learn how BPAN changes over time. Only with that background knowledge will we be able to tell if future therapeutics are changing the course of the disease. We need to be "BPAN ready" for treatment trials! We are currently exploring how to fund the BPANready study going forward. Our preliminary data analysis from the first two years has told us we are on the right track with our approach, but we need to continue to collect your family member's data and samples over time.

**The not-so-good news is that we are facing a funding crisis for BPANready.** While we have some funding support for the PKANready and PLANready natural history studies, without further funding for BPANready, we will need to curtail our efforts on the study. This would have a detrimental impact on this important work, and while we are working hard to sustain this work, we need the family community's support and funding. We have been exploring how to fund the BPANready study going forward, and will continue to do so. If families want to donate, they can do so here: [Click HERE to Donate](#).

*Suh Young Jeong working with blood samples in the lab. Blood samples are collected for both BPANready and the CoA-Z in PKAN Clinical Trial and are essential to understanding these diseases.*



## Team photos continued....

*Below: Alison Freed staying warm in her NBIA socks while working from home.*



*Right: Dr. Hogarth working from home back in March at the start of the Pandemic.*



*Above: Dr. Hayflick sporting her Cat in the Hat mask!*



## CoA-Z Trial Update

The North American CoA-Z Clinical trial has 68 participants enrolled to date. Because we met our goal of 51 participants so far ahead of schedule and still had other people with PKAN who wanted to join the trial, we amended the study to keep it open to enrollment for a while longer, rather than turn people away. Currently, some people are still in the double-blind phase of the study, and some have started open-label CoA-Z. The main goal of this study is to assess whether CoA-Z is safe and tolerable for people with PKAN, and whether it changes a marker of disease in the blood.



*Mafaz El-Krewi and Katrina Wakeman packaging up CoA-Z to be shipped to participants.*

Some of the data we are collecting will be analyzed in the months following the end of the double-blind phase, but most data analysis will happen after the end of the study. We are still enrolling, so if you are interested in participating or learning more about the study, please email [coazinpkan@ohsu.edu](mailto:coazinpkan@ohsu.edu). We are also working with partners in the UK, Netherlands and Australia to further clinical trial efforts in those countries in the future.

## Rare Disease Day 2020 to 2021

Throwback to pre-Covid-19 times when we could gather in-person for a group photo. Pictured is the entire NBIACure team! Back row left to right is Susan Hayflick (geneticist), Alison Freed (study coordinator), Randy Woltjer (pathologist). Middle row left to right is



Allison Gregory (genetic counselor), Puneet Rai (genetic counselor) and Caleb Rogers (geneticist). Front row left to right is Jenny Wilson (pediatric neurologist), Katrina Wakeman (study coordinator), Suh Young Jeong, (bench lab researcher) Penny Hogarth (neurologist), Mafaz El-Krewi (student worker) and Dolly Zhen (bench lab research assistant).

With Rare Disease Day around the corner our team is coming up with creative, socially distanced ways to tell our rare disease stories! How will you share your story?

**28 FEBRUARY 2021**  
**#RARE DISEASE DAY**  
 RARE DISEASE DAY.ORG



## Sample Sharing

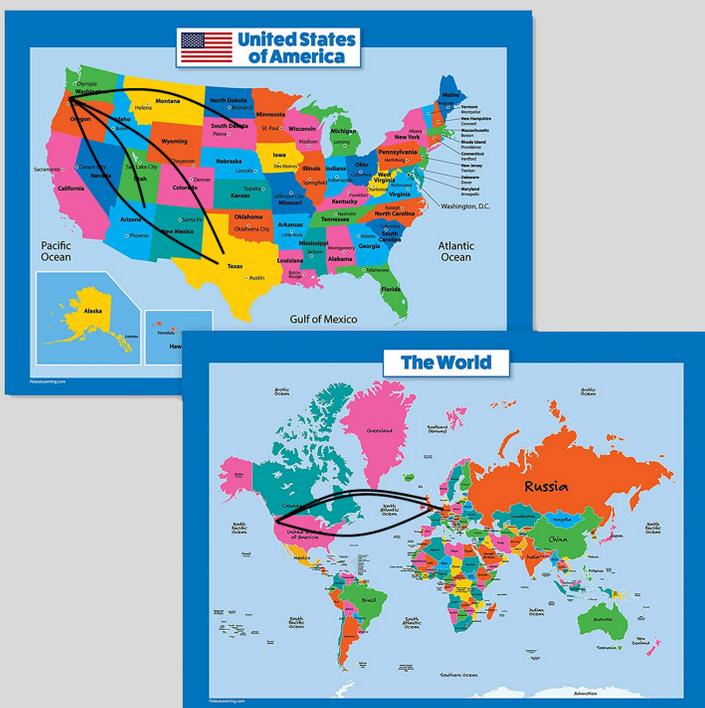
- 2 MPAN Fibroblast cell-lines to Germany
- 5 BPAN Fibroblast cell-lines to South Dakota
- 2 BPAN Fibroblast cell-lines to the UK
- 2 MePAN Fibroblast cell-lines to Texas
- 8 INAD cell-lines to Texas
- 3 MPAN cell-lines to the UK
- 6 MPAN Fibroblast and lymphoblast cell-lines to Arizona

## Publications

- CoA-Z in PKAN: [Click Here](#)
- Autosomal Dominant MPAN: [Click Here](#)
- Gene Reviews Updated
  - NBIA overview: [Click Here](#)
  - MPAN: [Click Here](#)
- Cannabis Use in Children with PKAN: [Click Here](#)
- Mimics of NBIA Poster Presentation

## Coming Soon....

- BPAN Best Practices
- PLAN/INAD Best Practices



## Gene Therapy

This last year, we started a Gene Therapy Project with our PKAN mouse model which lacks the protein, pantothenate kinase 2 (Pank2). In an effort to restore protein, we used adeno-associated virus (AAV) to introduce a healthy PKAN gene to mice. AAV is a virus that has been manipulated into a system that delivers genes of our choosing. For our purposes, AAV carrying the PKAN gene is injected directly into the brain of each mouse. Our initial studies have shown that animals that did not make Pank2 protein before have started to make detectable protein. Therefore, the AAV successfully unloaded the healthy PKAN gene and the animal took that gene to make Pank2 protein. These are exciting results but there is much more research to be done.