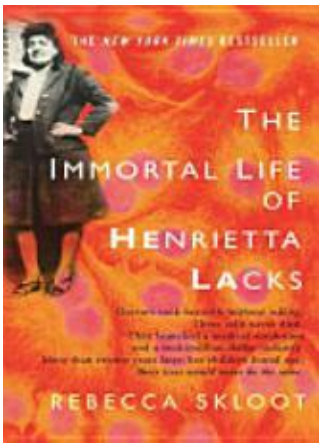
PXE Awareness

National Association for Pseudoxanthoma Elasticum (NAPE, Inc.)

Volume 17, No. 3, November 2011

In This Issue:



Begin With:

The Immortal Life of Henrietta Lacks
By Rebecca Skloot

National Association for Pseudoxanthoma Elasticum (NAPE, Inc.)

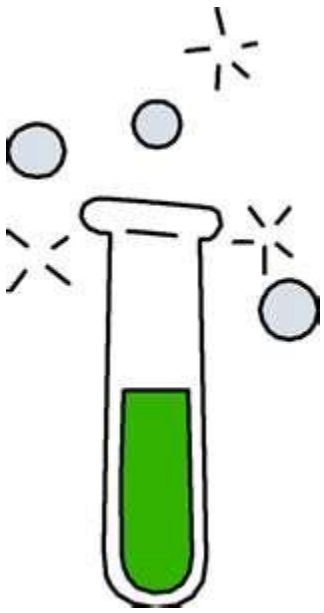
8760 Manchester Road, St. Louis, MO 63144-2724
Phone & Fax: 314-962-0100
Email: napestlouis@sbcglobal.net Web: www.napxe.org

NAPE, a non-profit 501(c)(3) support group whose mission is to provide education and support for PXE-affected persons, publishes *PXE Awareness*. Articles in this newsletter are provided for information only and are not a substitute for professional medical advice. You should not use information in this newsletter to diagnose or treat medical or health conditions. Please consult your healthcare provider before beginning or changing any course of treatment.

Board of Directors

Board of Medical Advisors

Contents



President's Message

Research on human cells, tissue and blood; patient consent; patents on human cells, and the commercialization of human research results – these topics are becoming increasingly important to our national dialogue. How can we best manage each of these problems in the interest of humanity? Can we find guidance in the management of other issues that impact the vast majority of people in our nation? Can private enterprise and the humane care of all citizens be reconciled to the benefit of both?

NAPE's leadership believes it possible to achieve the greatest good for all our people while also encouraging private investment to solve problems. A simple example is our nation's transportation infrastructure. Government and businesses work together to develop plans and to fulfill them within legal frameworks designed in the public interest. The process is complex and fraught with efforts to manipulate outcomes. It requires oversight and citizen vigilance. Though not so concerned with moral and ethical issues as human-based research, it may provide a model for creating a framework which recognizes a commitment to humanity within our free enterprise system.

Those who live with a genetic disorder need to be part of the process. First we must become informed. We need to involve those around us in the discussion. We must be vigilant in protecting the interests of all against narrow private drives to limit and/or eliminate competition.

This issue focuses on the complex problems which will be controlled by private interests if we do not engage in insisting on the greater good. Please read the enclosed items, starting with the story of Henrietta Lacks and her "immortal" cells. Her story introduces the wide range of issues that need resolution. Share these issues with others and keep the conversation going. There is a good chance these soon will become important election issues. Let's be ready!

Happy Holidays,
Fran Benham

Must Reading by Fran Benham

The Immortal Life of Henrietta Lacks by Rebecca Skloot should be read by all who have inherited a genetic disorder. Skloot spent over a decade in its preparation. She came to know the Lacks family not just as subjects of a remarkable breakthrough in biomedical research, but as friends with a compelling story but without the tools to share it. She tells their story with accuracy and compassion and as background for the story of research using Henrietta's cells and tissues. No-one could have foreseen how physicians, using the bits, scraps and blood left with them by Henrietta, would create multi-millions in profits for biotech businesses. They could only hope for the cures, such as that for polio and treatments for so many ailments, ranging from cancers to numerous viruses that were made possible thanks to her cells.

Researchers had tried without success for decades to keep cells alive in their labs. If this could be done, research not otherwise possible, could begin. Henrietta Lacks, born in 1920, mother of ten, a poverty stricken colored tobacco farmer, provided tumor cells from the terrible cancer that killed her at age 31. Her cells grew and grew and grow today in labs around the globe, estimated mow to be more than fifty million metric tons of HELA cells. Henrietta's family came to believe she is still alive in those cells, some sixty years after they buried her. They were named HELA cells in her honor while her real name was forgotten. HELA cells were cultured without permission. Twenty years later the family learned that Henrietta's cells had sparked a tremendously profitable revolution in biomedical research while the Lacks could not afford basic medical care.

The Lacks story, especially that of Henrietta, is told through her daughter, Deborah's struggle to know her mother who died when Deborah was only two. When Henrietta died, Deborah's father took his large family home to Clover, Virginia and parceled them among relatives. Deborah was raised by her grandfather in the log cabin of their slave ancestors. Her lack of education and opportunity in a demeaning culture reminds us of a dark chapter of our own national story, still in need of correction. Deborah wanted nothing more than for her mother to be recognized for her great contribution to the health of humanity.

So yes, Rebecca Skloot tells a powerful true story of race and class, and she does much more. We learn from her of the role of consent in all its complexity when patients are given the choice to decide if their blood and cells left with doctors can be used for research.

Skloot provides fodder for issues widely discussed today: patenting of human genes and commercial uses of the results of biomedical research. It is quite possible that these matters may soon become election issues. We who live with a genetic disorder need to develop informed positions for decisions which may become law. Rebecca Skloot has provided us with much to think about. It is a great book to read and consider with friends.

Those who are patrons of the National Library Service for the Blind and Physically Handicapped can download this book, DB70661, or order it though their state library service for the blind and visually impaired.

FDA Medical Advisory

As this issue was going to press NAPE learned that the Food & Drug Administration announced its recommendation that breast cancer no longer be treated with Avastin. Those of us who have had or are having retinal bleeds treated with Avastin will want to talk about this with our doctor. The amount of Avastin injected into the eye is a tiny fraction of that used for cancer treatment. Typically there is a six week period between retinal injections and as soon as bleeding is controlled the injections cease. NAPE will continue to gather information about this for the next newsletter issue. If there is important breaking news we will mail letters and/or emails to our members, and of course, our website will report whatever we learn.

Gene Patent Ruling Reversed by Sarah Roberts

In May 2009, the ACLU and the Public Patent Foundation filed a lawsuit on behalf of twenty plaintiffs including pathologists, geneticists, patients, and health advocacy groups against the U.S. Patent and Trademark Office (USPTO), Myriad Genetics and the University of Utah Research Foundation. They argued that Myriad's patents on two genes related to breast and ovarian cancer, BRCA1 and BRCA2, violate the First Amendment and patent law, as genes are "products of nature" which cannot be patented. Plaintiffs contend that the patents stifle scientific research and genetic testing. The USPTO has issued thousands of gene patents, resulting in the patenting of 20% of human genes. In March 2010, Judge Robert Sweet of the District Court for the Southern District of New York ruled that the BRCA1 and BRCA2 patents are invalid.

Myriad appealed to the U.S. Court of Appeals for the Federal Circuit in Washington D.C. In a reversal of its previous position, the United States government submitted an amicus brief contending that isolated genes without modification, as in the case at hand, are a product of nature, and therefore cannot be patented. Many organizations, researchers and individuals submitted amicus briefs in support of the plaintiffs, including the March of Dimes and other patient groups, including NAPE (National Association for Pseudoxanthoma Elasticum).

On July 29, 2011, in a 2-1 decision, the appeals court partially reversed the lower court's ruling. The appeals court ruled that companies can obtain patents on the genes, but invalidated certain patents purporting to claim methods of comparing their genetic sequences. One of the judges on the panel dissented in part with the decision, writing that patents on the genes should be invalid. "Extracting a gene is akin to snapping a leaf from a tree," wrote Judge William C. Bryson. "Like a gene, a leaf has a natural starting and stopping point. It buds during spring from the same place that it breaks off and falls during autumn. Yet prematurely plucking the leaf would not turn it into a human-made invention." The next step is to appeal to the United States Supreme Court. The ACLU and the Public Patent Foundation plan to file their petition by December.

Note: NAPE's Board of Directors has submitted its amicus brief to be a party to petition the U.S. Supreme Court.

European Union Rules Against Patents on Certain Stem Cell Techniques

An article by Maria Cheng in the October 18th issue of *The New York Times* reported that the European Union's top court ruled that scientists cannot patent stem cell techniques that use human embryos for research. The ruling sets Europe apart from much of the rest of the world, where there are no such restrictions. The case resulted from a lawsuit filed by the environmental group Greenpeace.

The decision by the European Court of Justice centered on the case of a University of Bonn researcher who filed a patent on a technique to turn embryonic stem cells into nerve cells. Greenpeace challenged the patent, arguing that it allowed human embryos to be exploited. The court said patents would be allowed if they involved therapeutic or diagnostic techniques that are useful to the embryo itself, like correcting defects. The justices concluded that the law protects human embryos from any use that could undermine their dignity. The court also objected to any stem cell techniques used exclusively for research, saying such use of embryos is not patentable.

Greenpeace indicated that the lawsuit was an effort to get a clear, legal definition of what constitutes a living embryo. The group is concerned that patents on plants and animals could lead to monopolies in food production and exploitation of the human body. Scientists worried that the decision could greatly restrict stem cell research. Many fear that companies will be less interested in pursuing costly research projects because they will be unable to protect their inventions.

Hank Greely, a law professor at Stanford University who directs the school's Center for Law and the Biosciences, said the decision seems like a reasonable interpretation of a 1998 directive by the European Union that forbids patenting the use of human embryos for industrial or commercial purposes. In its latest move, the court extended that ban to products whose creation requires the destruction of embryos. The ruling will not have any direct legal impact in the United States, which has no such restrictions on obtaining patents on stem cell techniques.

In Europe, it might provide incentive for using iPS cells, which are stem cells created without destruction of an embryo. Using a technique announced in 2007, researchers reprogram adult cells to turn into stem cells. Many scientists are now working to fine-tune that method. Embryonic stem cell research is still considered crucial in leading scientific circles. Douglas Melton, a stem cell expert at Harvard University, said he knows of few researchers who use cell reprogramming who do not also conduct research on human embryonic stem cells.

A more detailed article is available in the October 18, 2011 *New York Times*.

European Union Members

9

Austria
Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
United Kingdom

PXE Research Abstract

Elevated Dietary Magnesium Prevents Connective Tissue Mineralization in a Mouse Model of Pseudoxanthoma Elasticum (Abcc6(-/-)).

LaRusso J, Li Q, Jiang Q, Uitto J.

Department of Dermatology and Cutaneous Biology, Jefferson Medical College, Jefferson Institute of Molecular Medicine, Thomas Jefferson University, Philadelphia, Pennsylvania 19107, USA.

Pseudoxanthoma elasticum (PXE) is an autosomal recessive multisystem disorder characterized by ectopic connective tissue mineralization, with clinical manifestations primarily in the skin, eyes, and cardiovascular systems. There is considerable, both intra- and interfamilial, variability in the spectrum of phenotypic presentation. Previous studies have suggested that mineral content of the diet may modify the severity of the clinical phenotype in PXE. In this study, we utilized a targeted mutant mouse (Abcc6(-/-)) as a model system for PXE. We examined the effects of changes in dietary phosphate and magnesium on the mineralization process using calcification of the connective tissue capsule surrounding the vibrissae as an early phenotypic biomarker. Mice placed on custom-designed diets either high or low in phosphate did not show changes in mineralization, which was similar to that noted in Abcc6(-/-) mice on control diet. However, mice placed on diet enriched in magnesium (fivefold) showed no evidence of connective tissue mineralization in this mouse model of PXE. The inhibitory capacity of magnesium was confirmed in a cell-based mineralization assay system in vitro. Collectively, our observations suggest that assessment of dietary magnesium in patients with PXE may be warranted.

10

FDA Approves New AMD Treatment – Then Withdraws Approval

The FDA gave its approval on August 19, 2011 for a new medication to treat wet age related macular degeneration (AMD). The drug, Eylea (VEGF Trap-Eye) is produced by Regeneron Pharmaceuticals. If approved, it will compete with Avastin and Lucentis, medications developed by Genentech, which became a division of Roche Pharmaceuticals in 2009. Lucentis is also approved by the FDA for the treatment of wet AMD. Avastin was not put forward by Genentech for FDA approval for vision problems as it was developed and approved for certain cancers and thus can be used "off-label" for other problems. While Lucentis research was underway, a physician in Florida offered AMD patients a tiny injection of Avastin off-label. His patients who were in the process of losing vision, accepted the risk involved, and to the delight of patients and physician alike, Avastin proved itself a miracle waiting to happen. It stopped the bleeding in the eye and saved vision. The word spread and Avastin soon was used widely. An injection of Avastin costs as little as $50, while a Lucentis injection costs $2,000.

Shortly after Eylea's FDA approval, the agency withdrew approval for a stated three month period for further review. A new hearing for possible approval will occur on or after November 18, 2011.

The National Eye Institute, a division of the National Institutes of Health, also is conducting a two year, two-round, comparison of Avastin and Lucentis for the treatment of wet AMD. First round results have been reported and demonstrate that the two drugs are equally safe and effective for treating wet AMD.

So, if/when approved, how will Eylea (VEGF Trap-Eye) fit into the treatment picture for those who experience wet AMD and PXE? We do not know yet, but we welcome Eylea as well as the comparison study of Avastin and Lucentis. It was not so very long ago that patients and physicians faced retinal bleeding disorders with despair. We at NAPE are overjoyed for those whose vision has been saved by new treatments. We are deeply grateful for the researchers whose knowledge, skill and determination discover the help we desperately need.

NAPE
Wishes You
HAPPY
HOLIDAYS