

ARTIST-IN-RESIDENCE OVERVIEW



MALLERY QUETAWKI
(ZUNI PUEBLO)

University of New Mexico, College of Pharmacy-Community Environmental Health Program

Funding: NIH/NIEHS P42 ES025589 (UNM METALS)

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OBSERVATION: WHY IS IT DIFFICULT TO INITIATE DIALOGUE REGARDING RESEARCH AND HEALTH AMONG NATIVE AMERICAN COMMUNITIES AND INDIVIDUALS?

- Most traditional Native communities in the Southwest have conservative views or taboos on scientific research within their villages, reservations and health clinics.
- There are not only cultural barriers between Tribal members and outsiders, but language ones as well.
- Initiating dialogue with Native Americans, when doing research, has also made difficult due to historical trauma from past incidents and injustices dealt by the US Government and infringing academic institutions.

Community Prospective



- In 2016, community members from Tachee/Blue Gap and Red Water Pond Road communities from the Navajo Nation, along with partners from Crow Nation and the Cheyenne River Sioux Tribe met to discuss scientific findings from the UNM Center for Native Environmental Health Equity (EH) Research. During the discussion, the community members indicated that they loved the work we were doing, but really did not understand it. They explained that using **art** would make it much more understandable.



Blue Gap-Tachee Chapter, Tachee Uranium
Concerns Committee

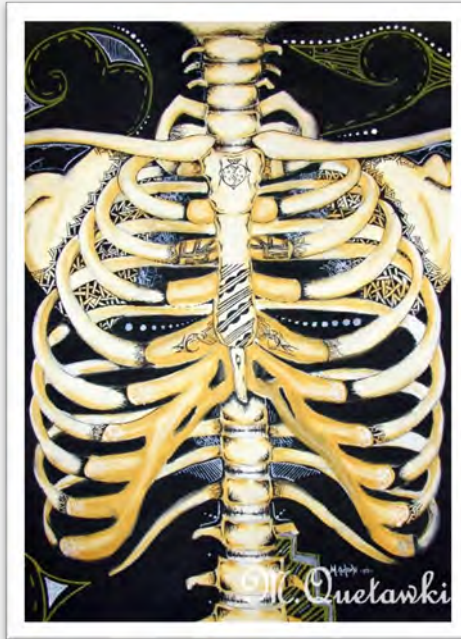


Red Water Pond Road Community Association

Artist Background



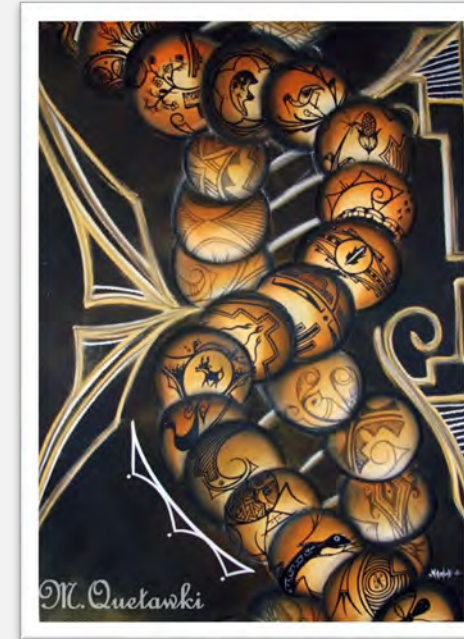
- Through the observation of Native community reception of culturally-relatable artwork on the human anatomy done by Mallery Quetawki, the Native (EH) Equity Center started an artist-in-residence program to pursue a similar route to engage with their Native cohorts.



Skeletal System



Heart



DNA

***What Makes A Zuni?.* (12)-22x28 inches. Pastel, ink and white acrylic. 2007.
Permanently displayed at Zuni Comprehensive Health Center in Zuni Pueblo, NM.**

Artistic Process



- Scientific Content
 - Attend meetings and presentations to stay current with research findings and methodologies. This is where most ideas are born.
 - Peer-reviewed journal or textbook reading to understand the form and function of a process or pathway in science, medicine and health.
 - Image searches on scholarly/scientific websites.
- Native American Symbolism and Design
 - Indigenous ways of knowing. Having grown up in a Native traditional setting, I am able to understand the holistic and spiritual ideas that are similar across different tribes.
 - Interviewing and seeking guidance from cultural keepers of knowledge and community members.
 - Researching the meaning behind symbolism used in Native culture through art collections and museums owned or operated by tribal communities.

Works Created



- To date, sixteen paintings and several digitally created images have been completed.
- **DISCLAIMER:**
 - All artwork is copyrighted by the artist Mallery Quetawki with ownership of digital images and originals belonging to the University of New Mexico METALS program.
 - With permission from the METALS team and artist, programs who work in healthcare and research with tribal communities are encouraged to utilize/incorporate the images, other than the logo, for education purposes.
 - Only the METALS program and the UNM affiliated research projects are allowed to use images for advertising and product labeling.



Zinc-Binding Protein

- There are sections in our DNA where proteins have an affinity to bind to metal ions, even the ones that can cause damage to the body. Research has suggested that by adding Zinc ions into our system it may compete for these binding areas ahead of toxic metals. This painting uses the idea of squash blossom designs as the metal we all desire and cherish and the green circles as the undesirable toxic agents.
- A turquoise needle point jewelry pin is used to represent Zn. These pins are widely worn by members of the Southwestern tribes. The protein is depicted as whole and functional as it has bound Zn.

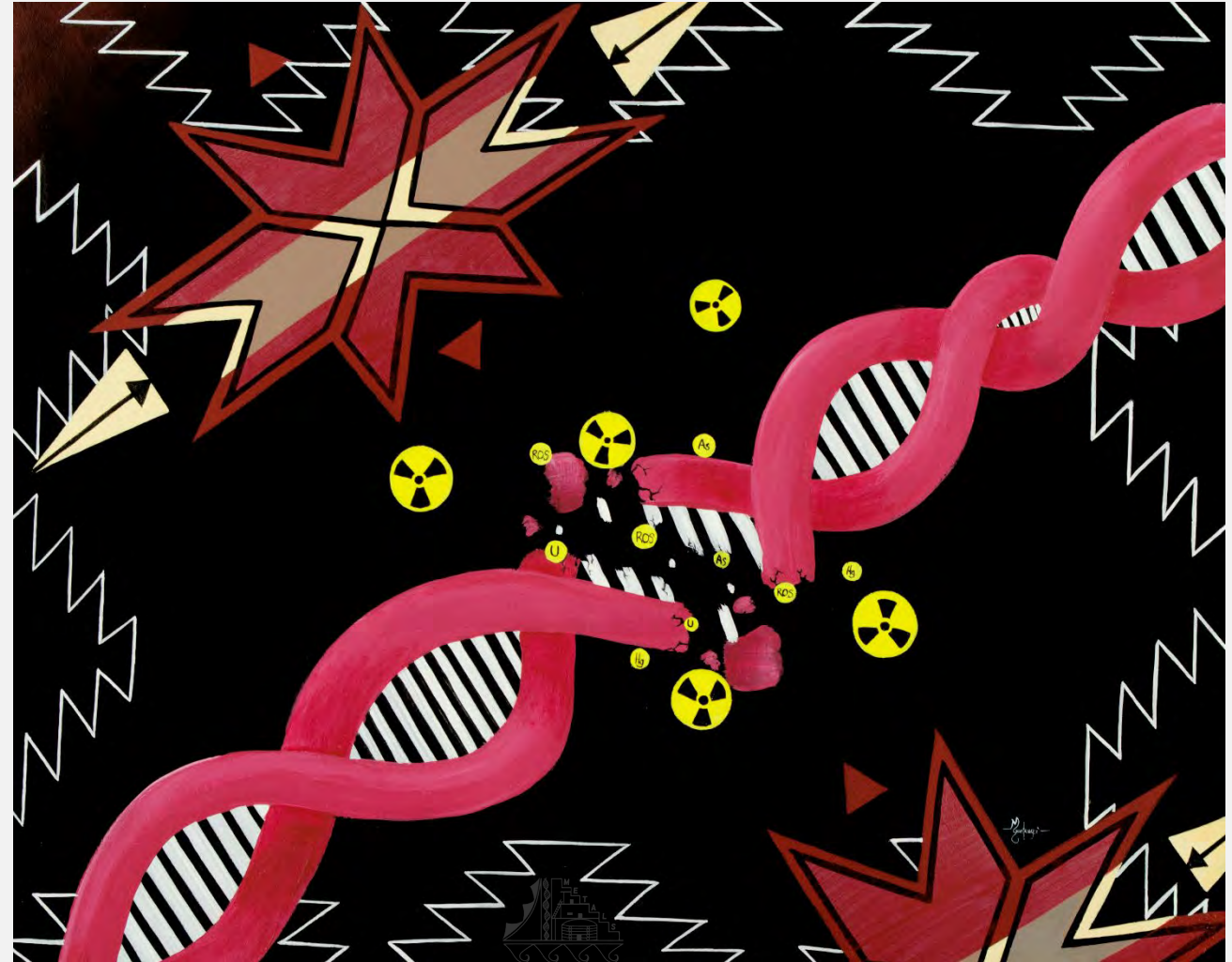


Zinc-Binding Protein. 16x20 in. Acrylic on Canvas. 2017. Mallery Quetawki-Zuni Pueblo



DNA Damage

- DNA damage can occur naturally or by environmental factors. In this painting each type of factor is a literal “wrecking-ball” causing damage to a strand of DNA. The painted designs are taken from Pendleton blankets that are used both in gift giving, trade and ceremony among several Native American communities.



DNA Damage. 16x20 in. Acrylic on Canvas. 2017. Mallery Quetawki-Zuni Pueblo.



DNA Repair

- Beading is almost universal across Native Country. Each tribe uses certain styles to stitch or string beads for ceremonial clothing and objects. Since most tribes are aware of the process of beading, comparing DNA repair with mending a loose strand or stitch would bring a visual for the process of healing among the nucleic acids. The designs used are from Crow beadwork.



DNA Repair. 16x20 in. Acrylic on Canvas. 2017. Mallery Quetawki-Zuni Pueblo

Thinking Zinc



Research Volunteers Needed

We are conducting research to understand if taking the daily recommended level of zinc protects our bodies from the effects of heavy metals in the environment.

Community Partners

- Red Water Pond Road Community Association
- Tachee Uranium Concerns Committee
- Blue Gap/Tachee Chapter

Research Partners

- UNM METALS Superfund Center
- UNM College of Pharmacy
- Southwest Research & Information Center
- Indigenous Education Institute

Research Sponsors

- NIEHS Superfund Research Program 1P42ES025589
- UNM Comprehensive Cancer Center P30 CA118100
- UNM Clinical Translational Science Center UL1TR001449

For More Information

email: zinc@src.org

phone: 877.545.6775

web: www.src.org/Zinc

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Version 1 - 08-23-2016

Beesh Doot'izh Bantsáhakees


Thinking Zinc



RESEARCH VOLUNTEERS NEEDED



UNM METALS SUPERFUND RESEARCH PROGRAM



Many different metals are found in abandoned uranium mine and milling waste sites throughout the Navajo Nation. These metals can get into your body through food, water or dust. Studies have shown that metals such as uranium and arsenic can damage cells in your body. There is information that damage from metals may be reduced when enough zinc is present. This research study will ask whether taking daily zinc pills at the USDA recommended daily allowance helps to protect the body from the effects of exposure to harmful metals.

To participate, you are:

- 21-64 years of age
- Not diabetic
- Not allergic to zinc
- Not pregnant or nursing

You will...

- Have 4 study visits over 9 months
- Take a zinc supplement pill daily
- Provide blood and urine samples each visit
- Receive a gift card each visit

artwork by Malley Quatawki, Artist-in-Residence,
UNM Center for Native Environmental Health
Equity Research

THE UNIVERSITY OF NEW MEXICO COLLEGE OF PHARMACY

Interested?

For more information or to participate:

E-mail: zinc@src.org

Phone: 877.545.6775

Web: www.src.org/Zinc

More info: <http://www.src.org/Zinc/index.php>

Presentation: [http://www.src.org/Zinc/docs/Zinc study community overview 081018 new template-1.pdf](http://www.src.org/Zinc/docs/Zinc%20study%20community%20overview%20081018%20new%20template-1.pdf)



DNA-All My Relations

- This painting depicts a healthy DNA strand with clan symbols from Navajo and Cheyenne River Sioux. The yellow and red rays in the background represent the 12 of the original 13 Sioux clans. One clan is depicted in the actual DNA strand. The white tipi structures and the triangular peaks around the rays represent the idea of home and belonging. In combination, this piece translates to Native communities the idea of genetics and heredity. The Native process of kinship is not just through blood but also by clanship and or bands. There is a saying in Indian Country, “All My Relations,” as a way of acknowledging all Indigenous peoples and our interconnectedness.



DNA-All My Relations. 16x20 in. Acrylic on Canvas. 2018. Mallery Quetawki-Zuni Pueblo

- Clans Included in strand:
 - Navajo: Turkey, Rabbit, Arrow, Deer(Big, Little, as well does it represent the Zuni Clan as the style of the deer is a Zuni symbol), Feather, Black Goat, Pumpkin/Squash, Bluebird, Corn, Mountain, Yucca Fruit Strand, and Bear.
 - Cheyenne River Sioux: Two Kettle. The two pipes are a Crow representation of unity.

Immune Response

- Our immune system serves as a line of defense our body uses against potentially harmful invaders. Just like our totems and animals of strength we use in spiritual protection, there are different types of cells involved in keeping our body safe from attack. The bear, war pony, buffalo, arrowheads and sweat lodges can be compared to the different types of leukocytes ready to attack at a moments notice.
- The Navajo wedding basket design and the Northern Plains Medicine Wheel. For the purpose of this piece they both represent life, family, home and other things one may hold precious.



Immune Response. 16x20 in. Acrylic on Canvas. 2017. Mallery Quetawki-Zuni Pueblo



Autoimmunity

- This painting is the second part to Immune Response. Autoimmunity is translated to Native symbology by showing the animals of strength and protection attacking one another. These strength totems are what protect the mind, body and spirit. Just like the process of an autoimmune disorder, these protectors are “attacking self.” Each Navajo wedding basket and Medicine wheel symbol is representative of life and what we hold dear. Arrowheads protrude like antibodies around the ring of life and thus creates the chain of events. Each animal sphere is detached from the cell in response to attack.



Autoimmunity. 16x20 in. Acrylic on Canvas. 2018. Mallery Quetawki-Zuni Pueblo



Phytoremediation and Air Particulates

- Laguna and other Pueblo peoples are well known for the usage of land for creating adobe homes, pottery, paints, medicines and agriculture. This painting portrays the resilience of desert life and the ways in which the people have endured beside environmental hazards such as mining.
- Dust fills the air during New Mexico's windy seasons and each particle of dust has the potential of penetrating beyond the protective membranes in the body, either through inhalation or ingestion.
- The flowers at the bottom represent the idea of phytoremediation as a way of filtering possible contaminants in the water. The use of Laguna pottery designs represents life while the zig-zag represents the physical and spiritual barriers that protect our land and bodies from harm.



Phytoremediation and Air Particulates. 16x20 inches. Acrylic on MDF board. 2018. Mallery Quetawki-Zuni Pueblo



Healing Spirit

- With Native EH Equity and METALS tribal communities in mind, this painting was created to signify the connectedness to the land, air and water that these tribes hold dear. The color shift from bright gardens and rainbows to lifeless barren fields, represents the effects of pollution and mining on tribal lands.
- In the middle stands a Crow woman who uses her indigenous prayer, her hope and her knowledge in STEM fields to “push-back” the achromatic and ailing earth. She represents the many Native individuals who have taken on the challenge to represent their communities in the scientific field. She uses her pre-Columbian language to send prayers to the ancestors, which are seen in the sage smoke she fans towards the aching lands.
- The designs that morphed from the petroglyphs are circuits representing the expansion of knowledge throughout Native Country which includes both ancestral knowledge and those learned from University studies.
- The mountain silhouettes are from Southwest areas that have great significance to the surrounding communities. From left to right, Dowa Yalanne (Zuni), Shiprock, Mt. Taylor, and Monument Valley. The red line in the center of the painting is the heartline for the painting itself, the artist and those affected by environmental damage. The heartline, on Pueblo pottery, gives the piece “life.”

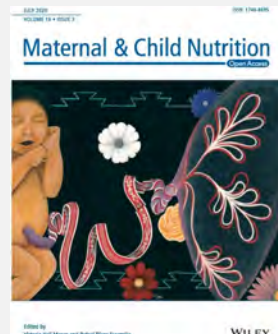


Healing Spirit. 30x40 inches. Acrylic on Canvas. 2018. Mallery Quetawki-Zuni Pueblo



Placental Transfer

- The way we hold our connections to earth and ancestor is via a spiritual umbilical cord that never severs. Although mother and child share essential nutrients and oxygen within the womb, the sharing of our ways of knowing never end. Each spun strand of yarn in the sash belt holds stories, chants and prayers that are essential to Native individuals. We continue to weave these environments to nurture the future of our children. The handwoven cotton or wool sash belt is a part of traditional attire in both Navajo and Pueblo men, women and children.



Placental Transfer. 16x20 in. Acrylic on Canvas. 2019. Mallery Quetawki-Zuni Pueblo



We Will Continue to Fight

- There are thousands of abandoned uranium mines in and around the sacred homelands of the Indigenous people of the United States. We have since learned the harmful effects of living in proximity to these sites. We as Native people have a spiritual obligation to be custodians of our sacred lands as it has nurtured us for centuries and we need it to continue to do so as not to disrupt our ways of life. We fight in more ways than just litigations through government and private sectors but through prayer and ceremony, just as our ancestors did before us.

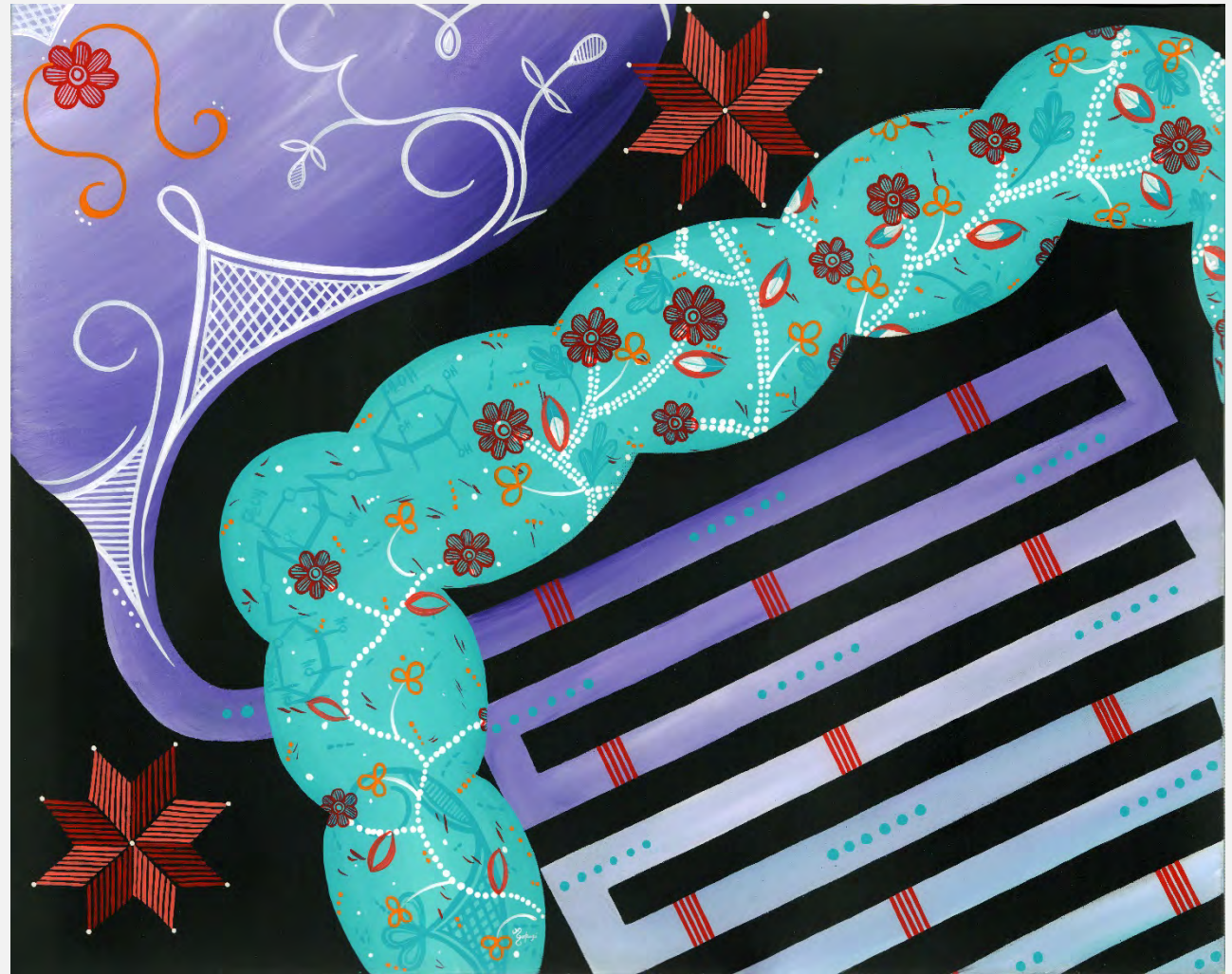


We Will Continue to Fight. 16x20 in. Watercolor on Paper. 2019. Mallery Quetawki (Zuni Pueblo)



Our Flora

- Our gut microbiome is populated by diverse communities of bacteria that can change the environment of the digestive tract based on levels of these microbes and the role of prebiotics. To help explain the processes and components of gut flora, beading was chosen to help describe bacterial bacilli and rods (round and quill). This painting in particular was created for the Dawn Land peoples of the Northeast Coast so the Wabanaki flower patterns are presented here as probiotic flora. The loose and incomplete design on the bottom left of the large intestine (turquoise in color) becomes whole as it passes through a chain of oligosaccharides (prebiotics) right above it.
- Commissioned by Massachusetts Institute of Technology Superfund Center



Our Flora. 24x30 in. Acrylic on canvas. 2020. Mallery Quetawki (Zuni Pueblo)



Gut Flora

- Sketch originally created for MIT SRP now housed at CEHP Stanford House



Gut Flora. 12 x 16 in. 2020. Acrylic on canvas. Mallery Quetawki (Zuni Pueblo)



Extraction & Remediation. 16 x 20 in. Diptych. Acrylic on Canvas. 2020. Mallery Quetawki (Zuni Pueblo)

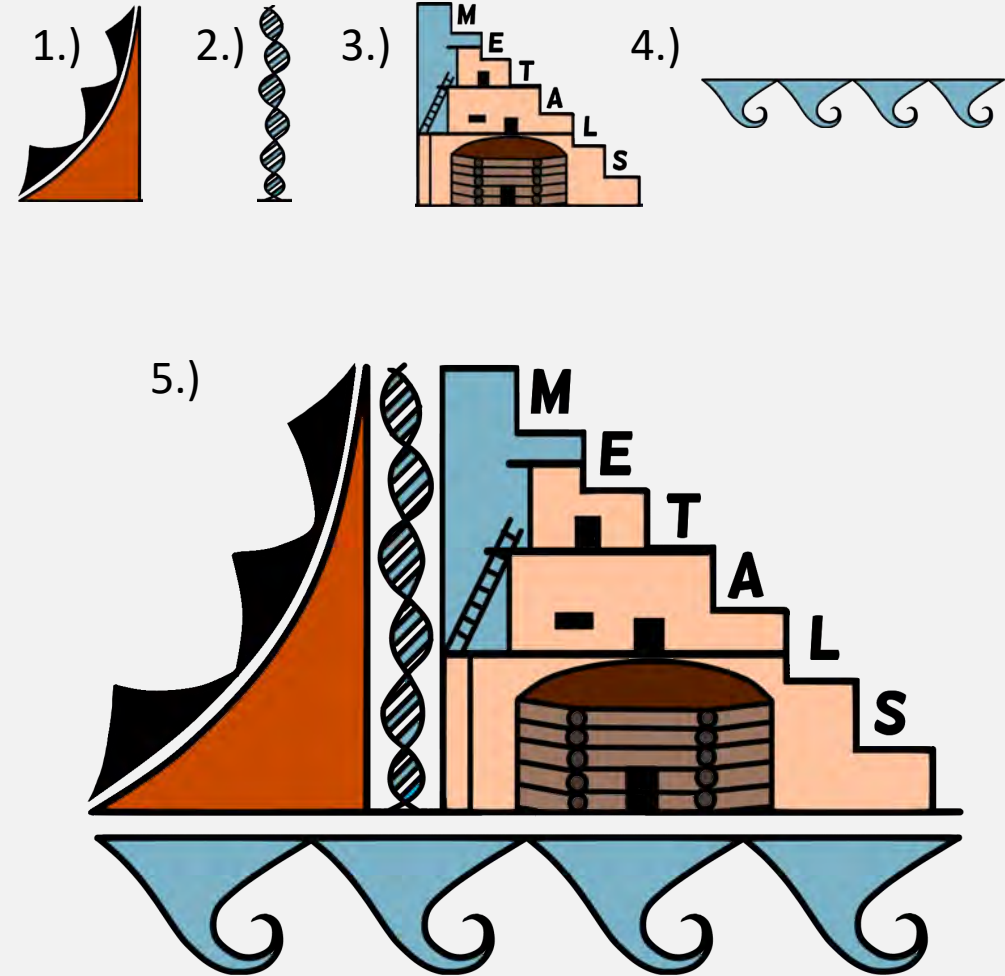
Extraction & Remediation

- This painting represents the decades of mining on indigenous lands from the start of extraction to the current remedial efforts to clean up contaminated sites.
- “Exposure: Native Art and Political Ecology” (Aug.13, 2021 – Jan. 23, 2022) at the Institute of American Indian Arts Museum of Contemporary Native Arts (IAIA MoCNA) in Santa Fe, New Mexico. This show will explore international Indigenous artists’ responses to the impacts of nuclear testing and uranium mining on Native peoples and the environment.



METALS Logo

- 1.) Feathered wing design found on Pueblo pottery. For the purposes of this logo it represents the air and wind over brown earth and soil.
 - 2.) DNA strand to represent the research and scientists of the METALS program.
 - 3.) The adobe and hogan represent the Tribal communities included in the studies.
 - 4.) Rain design to complete the earth, air and water elements of nature.
 - 5.) When combined, all parts come together to work as a whole. Native culture promotes the balance of life, health and spirit by being in harmony with earth and its elements.
- **Metals Exposure and Toxicity Assessment** on tribal **Lands** in the **Southwest**



Relatable Imagery

- 2019 Mother's Day card sent to all participants of NBCS/ECHO.
- Mother and child surrounded in growth and beauty. Flowers and Corn represent growth. Sunrise represents beauty.
- Stars in sky and bottom right corner join the sky and the ground representing all living beings on earth as one.
- Wedding basket represents life and harmony.
- Growing in Beauty or Hozloogo Jinooseet accurately defines the Navajo Nation's desire for ALL Navajo children to grow into beautiful individuals, within an environment of caring, family, and harmony.

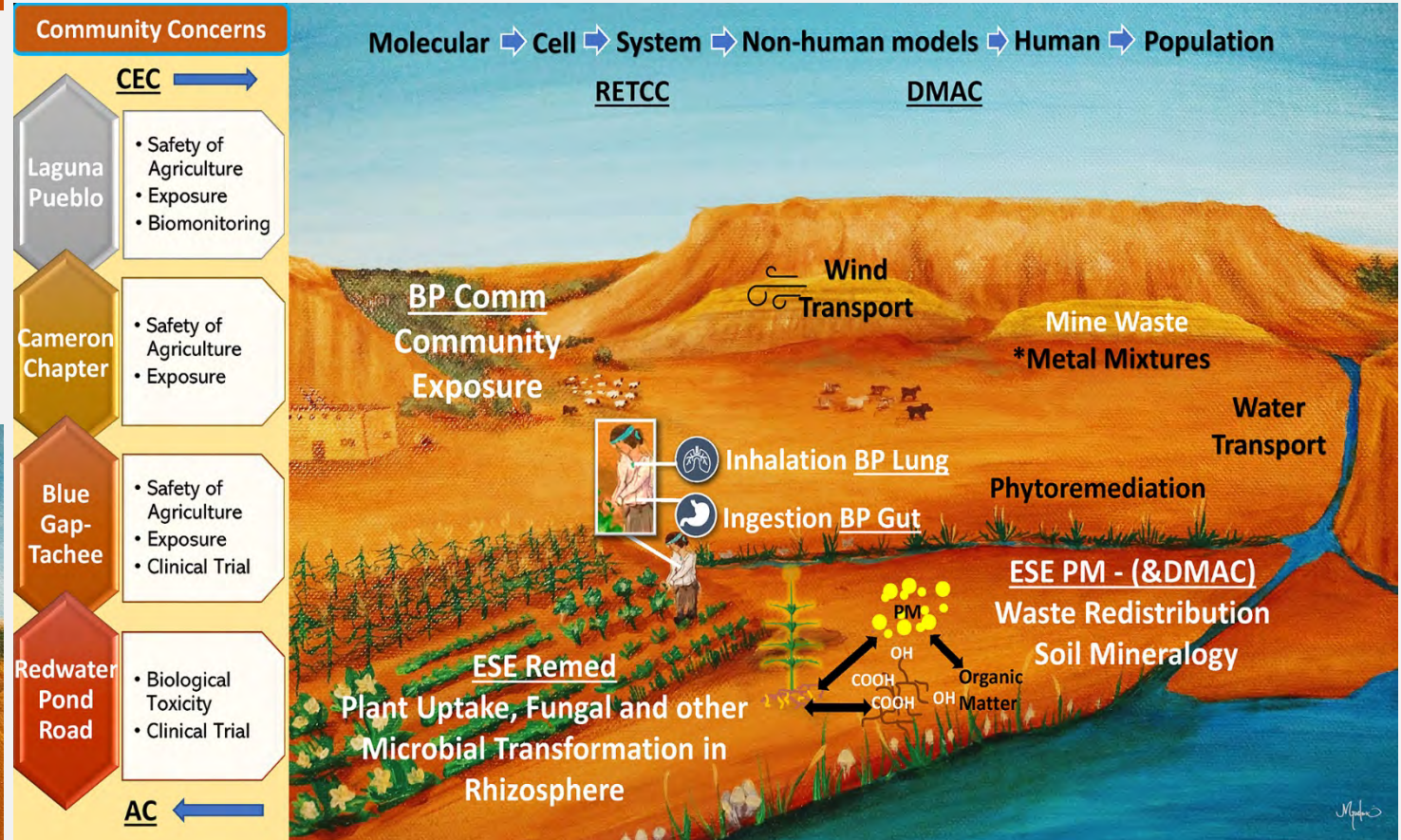
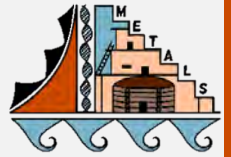


A Mother's Love. 2019. 8x10 in. Acrylic on Canvas. 2019. Mallery Quetawki



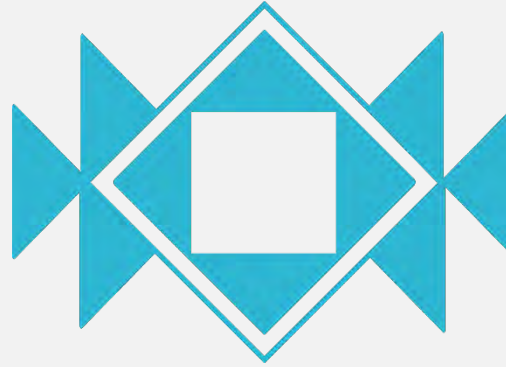
Earth and Sky

- Using local and familiar imagery to create conceptual models for our METALS program.
- This scenery focused on Pueblo lands particularly in the Laguna area which is home to the Jackpile Uranium Mine.
- Painting is originally acrylic 11x14 inches on canvas. 2021



Relatable Imagery

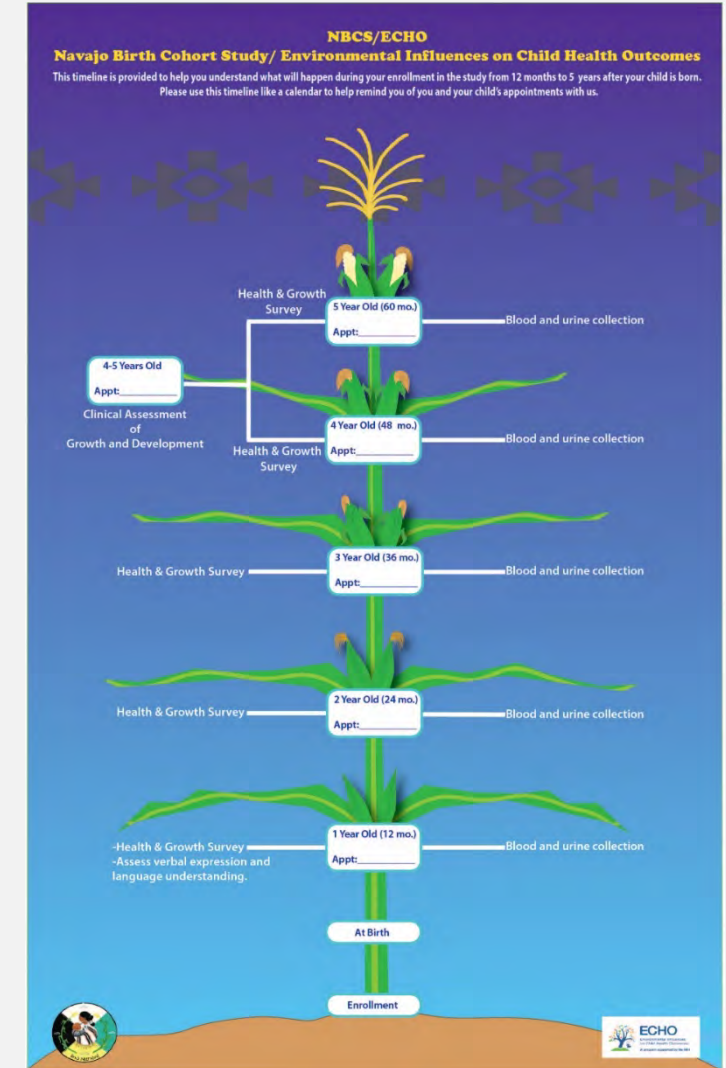
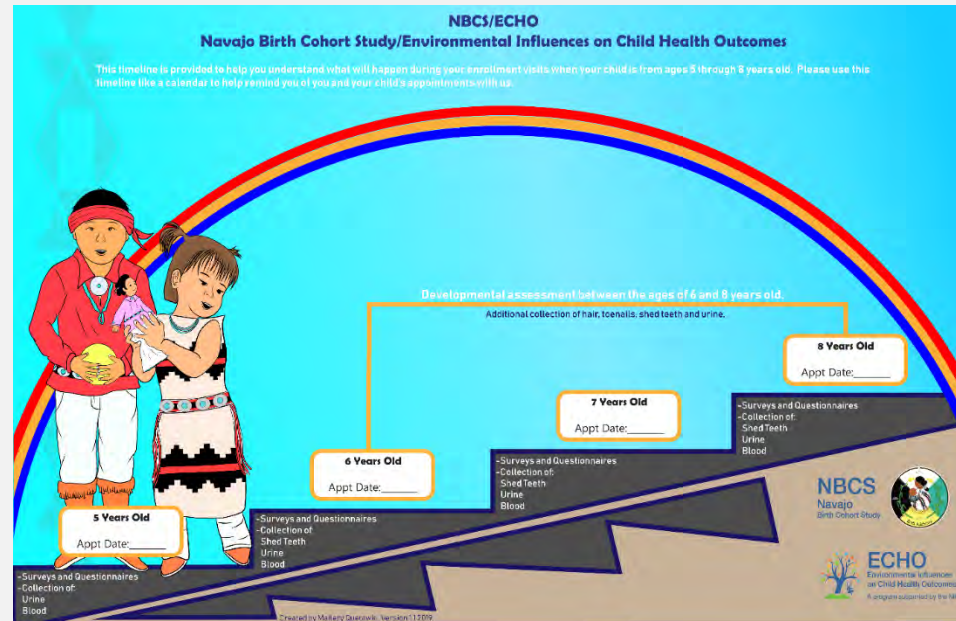
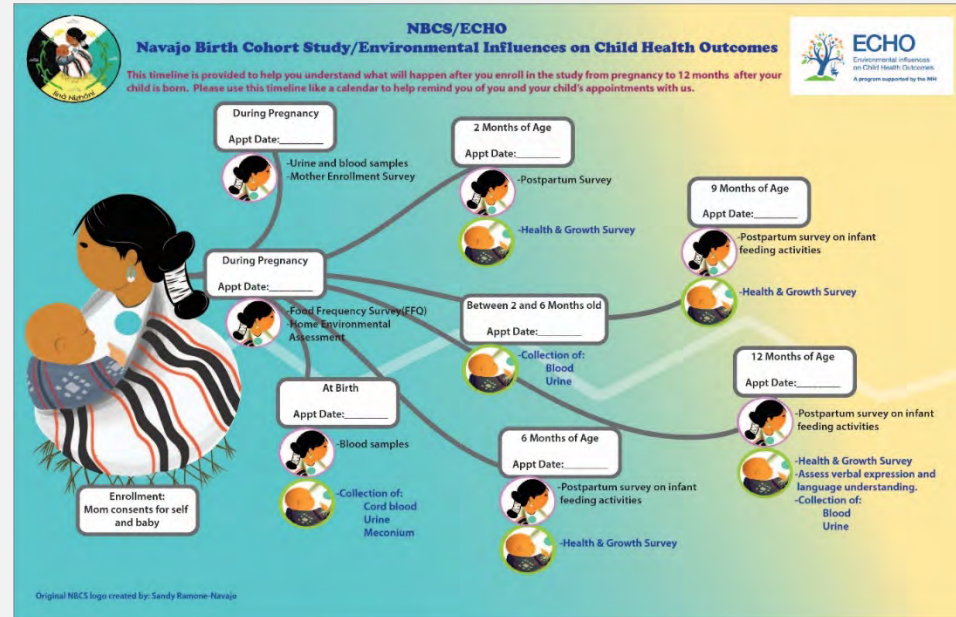
- It is important to have imagery that is relatable to our Native Communities.
- This includes what we would consider “stock” imagery. Photos or icons that are used as examples in scientific poster or oral presentations should be of pertinence to the communities we serve.
- The following graphics are examples of digital art produced for the program so that there would be less reliance on possible copyrighted images from online search engines.



Relatable Imagery Continued...

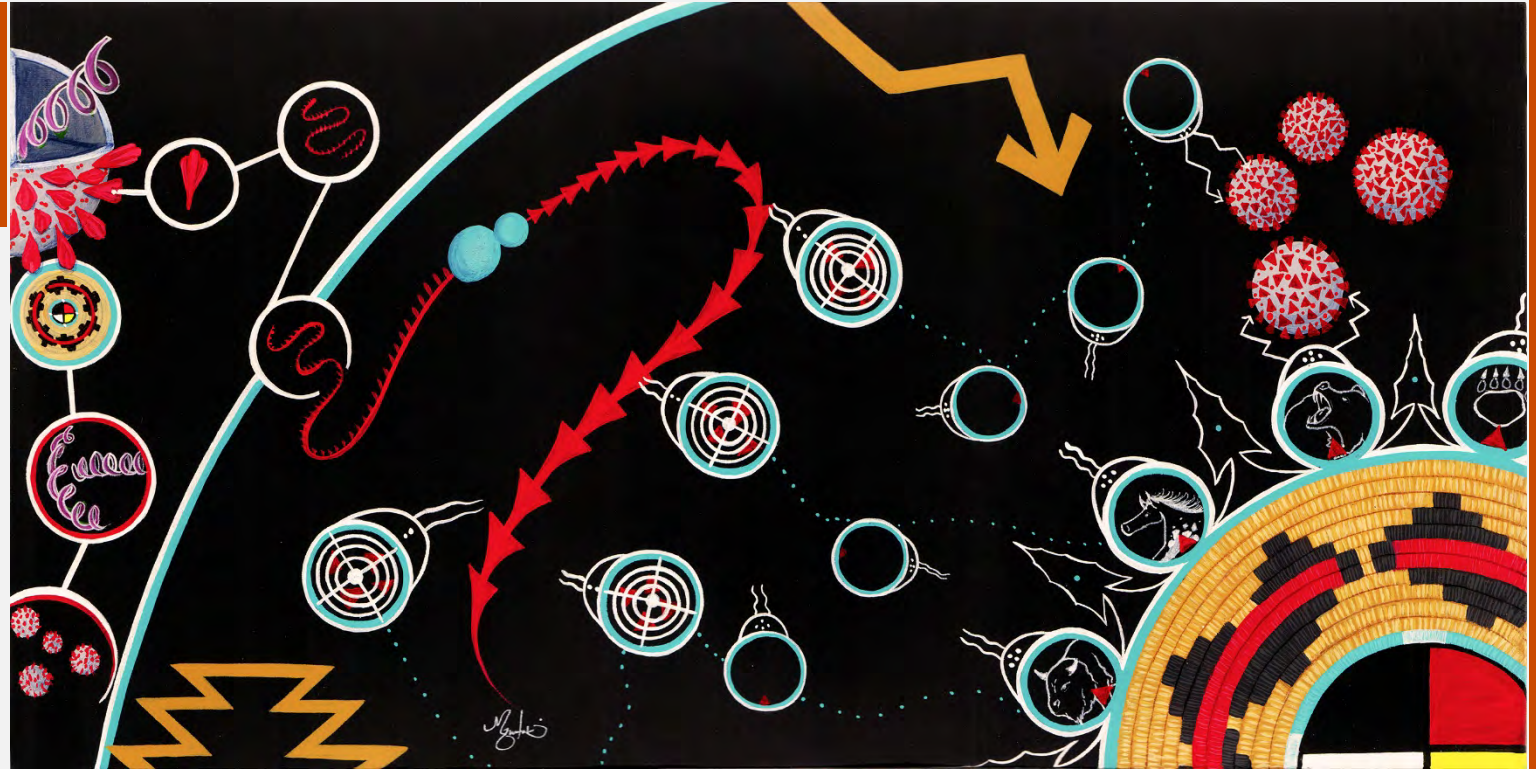


Health road maps created for NBCS/ECHO family participants. A customizable schedule of visits and what to expect from time of enrollment through 8 years of age.



mRNA Vaccine

- Fears and misunderstanding of Covid-19 vaccination ran rampant through Indian Country just as worse as the pandemic itself. I felt that if there was an understanding on how the vaccine worked through the Native lens, the reception of the vaccines would be easier on our healthcare providers.
- This painting was created with the ideas presented in the previous *Immune Response* (2017) and *Autoimmunity* (2018) paintings:
 - In this painting however, you can see the cells attached with sweat lodges approaching the invader (spike protein) to investigate the trespass. The red triangle in the now formed antibody is then taken back to the protected cell to “remember” further invasion.



mRNA Vaccine. 12 x 24 in. Acrylic on Canvas. 2021. Mallery Quetawki (Zuni Pueblo)

- To the left you can see the coronavirus become latched onto an unprotected (unvaccinated) cell through its spike protein. It now made its way into the cell and proliferated more of the virus which then bursts out to infect other cells nearby.
- After vaccination you can now see the cell with the bear attacking the invading coronavirus because it is now familiar with the invader and now prevents the virus from entering the healthy cell.



Covid-19 Response

- The coronavirus pandemic hit our Native American communities particularly hard due to the living situations of multi-generational households as well as the idea that some tribal communities hold constant and consistent in-person ceremony and celebration throughout the calendar year.
- Visual infographics and PSAs relevant to Indian Country were requested by Native communities since regular CDC fact sheets and graphics were not taken seriously or understood by tribal communities.
- With the help of an all-Native American working group focused on behavioral health and working within Tribal communities in the Southwest, these posters and door hangs were created:



Covid-19 Response

- Door hangs created upon request. Hospital or incident command issued quarantine signs were seen as too “negative” to the situations being experienced by families who may not be on quarantine for the illness but are distancing as to not contract the virus.

Our Family is Isolating... We will be together soon!

You Can Call Us Here:

SUPPORT IS A PHONE CALL AWAY

NM Covid-19 Counseling and Support Service: 1-505-954-1057	Navajo Nation Helpline: 1-928-810-7357	NM Crisis Line: 1-855-NMCRISIS 1-855-662-7474
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Respect Our Fight

We are not accepting visitors at this time.

You Can Call Us Instead:

We will be together soon!

SUPPORT IS A PHONE CALL AWAY

NM Covid-19 Counseling and Support Service: 1-505-954-1057	Navajo Nation Helpline: 1-928-810-7357	NM Crisis Line: 1-855-NMCRISIS 1-855-662-7474
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COVID-19 NOT WELCOME HERE!

PLEASE RESPECT OUR DISTANCING AT THIS TIME.

Call us instead:

SUPPORT IS A PHONE CALL AWAY

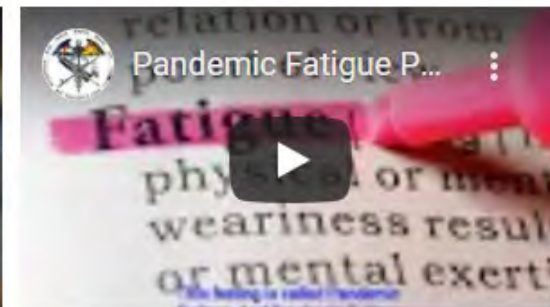
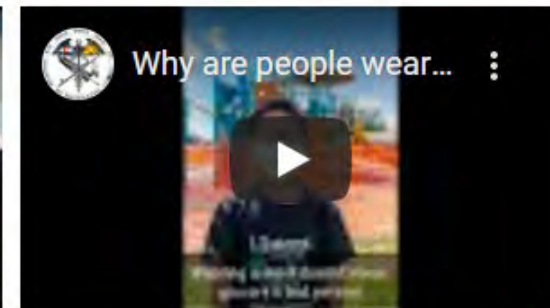
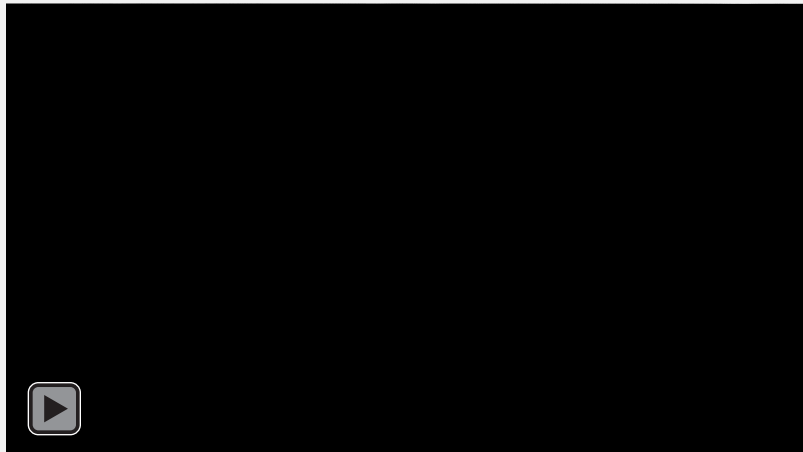
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Covid-19 PSAs

- The following videos were created by the behavioral health working group listed at the end of each video. They can be found at: <http://aaihb.org/covid-19-resources-.aspx> and <https://www.facebook.com/HonoringNativeLife/>



How We Have Reached the Community



Presentations at Restoring K'e Conferences, community meetings and Laguna Pueblo feast days.



Posters and flyers created to travel for presentations

Future of Science Translation Using Art

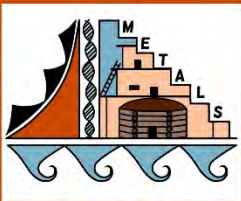


- Any idea that might be too complex for words can be turned into visual representations that can be appreciated by both scientist and community members alike.
- Visual aids with culturally significant material and creative adaptations will draw target Native audiences to participate, interact and respond in positive ways.
- A digital art bank for program members will be created for science presentations so that each image has no copyright infringements from other sources and that each image is related to local peoples, animals, flora and landscapes.
- There is a possibility to expand on an interactive cart that will utilize creativity and technology to engage Native people when presenting to their communities.

#swop #rockpaperstick #passioncommunities
#change



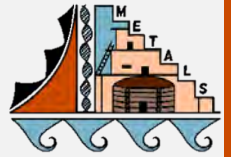
Interactive carts that can gather anonymous public polls, “break the ice” with communities, as well as provide information on community concerns. CREDIT/INFO: Joseph Stacy-Laguna/Hopi tsukuboy@live.com



UNM METALS Superfund Research Center

The Science is in the heART: Visual Learning in Native Communities

Quetawki, M.-Artist-in-Residence 2017-2018



Introduction

Most traditional Native communities in the Southwest have conservative views or taboos on scientific research within their villages, reservations and clinics. There are not only language barriers between tribal members and outsiders, but cultural ones as well. Culturally, Native communities are taught ideas/skills via hands-on and visual learning activities. To be able to connect with the communities, it is helpful to utilize tools which allow the individual to participate and or view eye-catching material that pertain to the culture.

In 2016, community members from Tachee Blue Gap and Red Water Pond Road, along with partners from Crow and Sioux met to discuss data at a sheep roast in Tachee. During the discussion, the community members indicated that they loved the work we were doing, but really didn't understand it. When asked what would help, they said using art would make it much more understandable. Through the observation of Native community reception of culturally relatable artwork on the Human Anatomy done by Mallery Quetawki and hanging in Zuni hospital, it was decided by this program and the artist to pursue a similar route to engage with their Native cohorts.

Works Created

Using the artistic approach for community engagement the following works were created to inform Native viewers on DNA damage, DNA repair, Zinc Binding Proteins and functions of the immune system.

a.) DNA Damage. DNA damage can occur naturally or by environmental factors. In this painting each type of factor is a literal "wrecking-ball" causing damage to a strand of DNA. The painted designs are taken from Pendleton blankets that are used both in gift giving, trade and ceremony.

b.) DNA Repair. DNA has the ability to repair itself through complex mechanisms and pathways when damage occurs. Its intricacy of repair can be compared to the creation of beaded items in Native Culture. The design used is from the Crow Nation.

c.) Zinc-Binding Proteins. There are sections in our DNA where proteins have an affinity to bind to metal ions, even the ones that can cause damage to the body. Research has suggested that by adding Zinc ions into our system it may compete for these binding areas ahead of toxic metals. This painting uses the idea of squash blossom designs as the metal we all desire and cherish and the green circles as the undesirable toxic agents.

d.) Immune Response. Our immune system serves as a line of defense our body uses against potentially harmful invaders. Just like our totems and animals of strength we use in spiritual protection, there are different types of cells involved in keeping our body safe from attack.



a.) DNA Damage. 2017. 16 x 20 in. Acrylic on Sand textured Watercolor Paper.



b.) DNA Repair. 2017. 16 x 20 in. Acrylic on Sand textured Watercolor Paper.

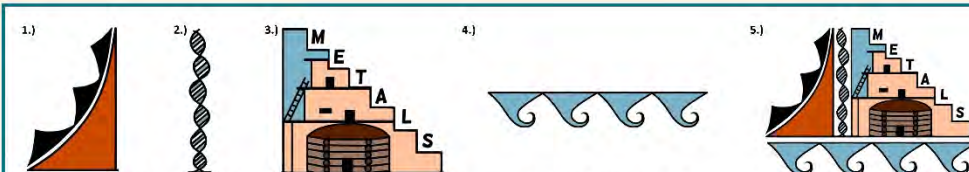


c.) Zinc-Binding Proteins. 2017. 16 x 20 in. Acrylic on Sand textured Watercolor Paper.



d.) Immune Response. 2017. 16 x 20 in. Acrylic on Canvas.

Program Logo



1.) Feathered wing design found on Pueblo pottery. For the purposes of this logo it represents the air and wind over brown earth and soil. 2.) DNA strand to represent the research and scientists of the METALS program. 3.) The pueblo and hogan homes represent the Tribal communities included in the studies. 4.) Rain design to complete the earth, air and water elements of nature. 5.) When combined, all parts come together to work as a whole. Native culture promotes the balance of life, health and spirit by being in harmony with earth and its elements.

Application

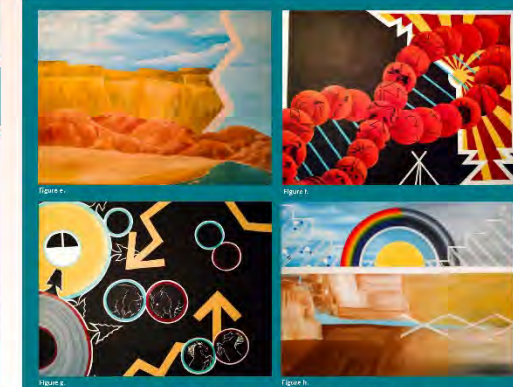
Each piece is currently used by members of the METALS program as visual aids for poster, oral and electronic presentations. Posters with explanations of each piece have been created to travel with the METALS team when visiting community events and other conferences. As of July 2018, the METALS logo has been utilized in brochures, posters, letterhead and electronic correspondence. With permission from the METALS team and artist, programs who work in healthcare and research with tribal communities are encouraged to utilize/incorporate the images, other than the logo, for education purposes. Only the METALS program and the UNM affiliated research projects are allowed to use images for advertising and product labeling.

Moving Forward

Other works of art are currently in progress to assist in translating and understanding of scientific method and ideas in research for the tribes involved with the program. Laguna Pueblo area artwork focuses on Jack Pile mine runoff into local waters, particles in air and its transmission into humans (figure e).

There is another DNA representation that is currently in the works that depicts a healthy DNA molecule (figure f). A second part to the *Immune Response* painting will be describing autoimmunity (figure g). The larger painting currently underway gathers multiple aspects of Environmental Health, such as, contamination and its effects on Native culture, mind and body (figure h).

Any idea that might be too complex for words can be turned into visual representations that can be appreciated by both scientist and community members alike. Visual aids with culturally significant material and creative adaptations will draw target Native audiences to participate, interact and respond in positive ways.



This study is funded by NIEHS P42 ES025589

Program Information



- Links to program and it's affiliates :

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- Publications:

- National Institutes of Health-PEPH Newsletter June 2018. https://www.niehs.nih.gov/research/supported/translational/peph/currentissue/lists/6_18/index.cfm
- Quetawki, Mallery. "Indigenous Ways of Knowing and Art as Scientific Translation for Native American Communities Affected by Abandoned Uranium Mines." *Sustain*. Spring/Summer 2019, **40**: pp. 33-37.
- Quetawki, Mallery. "Artist's Statement: DNA." *Academic Medicine*. January 2020, **95**(1), 69.

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