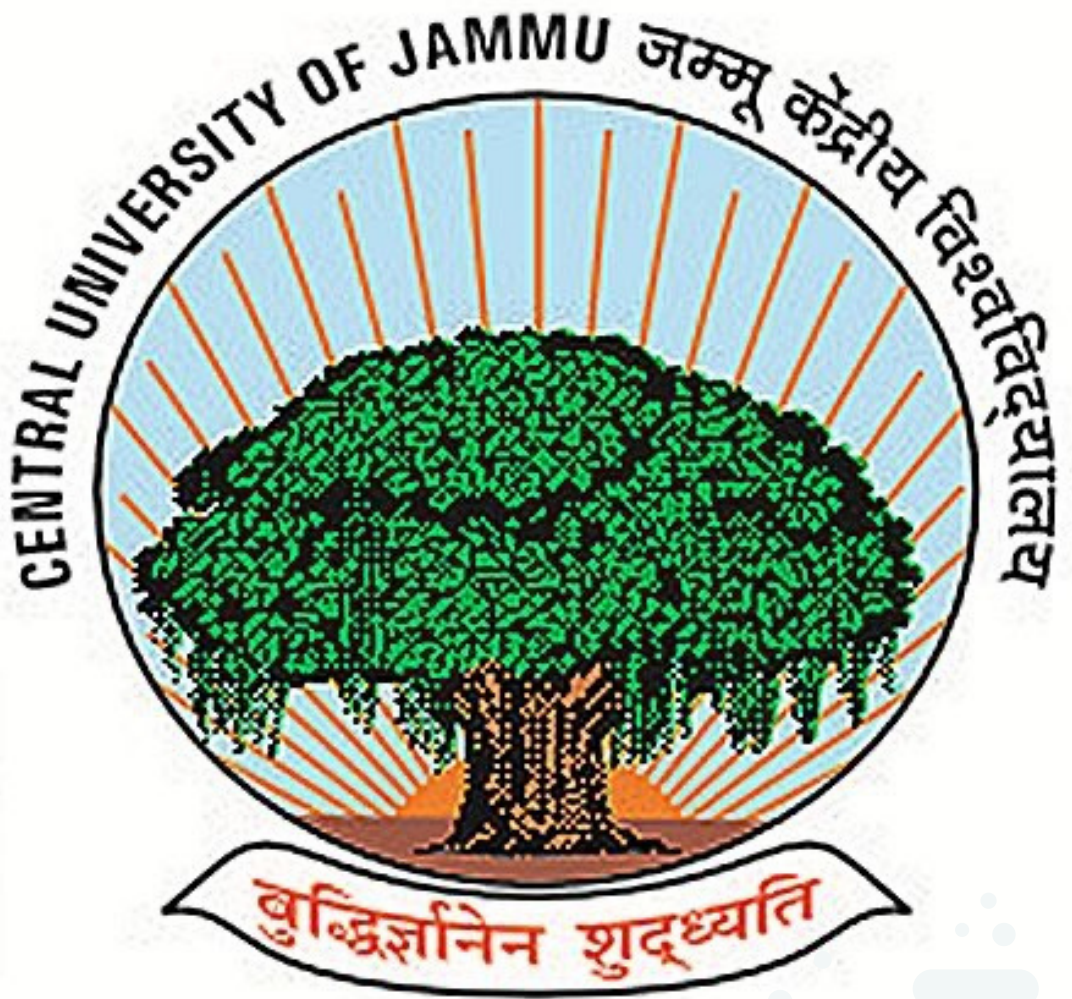


By Students of CMB (Centre for Molecular Biology)

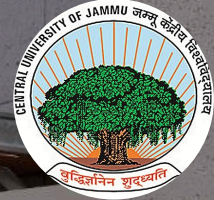
MONTHLY MAGAZINE 2025 EDITION



POWERED BY CURIOSITY
DRIVEN BY STUDENTS



CENTRAL UNIVERSITY OF JAMMU



October 2025 Edition BIOTECH GAZETTE

An Initiative by the students of Centre for Molecular Biology

Guided by the motto 'बुद्धिज्ञानेन शुद्धयति' (**Knowledge refines, purifies, and sharpens the mind**), Central University of Jammu celebrates a decade of academic excellence. Embracing NEP 2020, we prioritize high-quality teaching, impactful research, and community engagement to bridge the student-institution gap. Central University of Jammu empowers students with knowledge and skills to become critical thinkers, ethical leaders, and responsible citizens, contributing to a brighter future for India.



Prof. (Dr.) Sanjeev Jain
Hon'ble Vice Chancellor

We are immensely proud to have Prof. Sanjeev Jain at the helm of our institution. Under his visionary leadership, we have witnessed remarkable growth and progress in both academic and research excellence. His unwavering dedication to fostering a culture of innovation and inclusivity has significantly enriched our community. The Hon'ble Vice-Chancellor's commitment to nurturing young minds and promoting collaborative endeavors has set a high standard for all of us to aspire.

We are delighted to recognize the exceptional leadership of our esteemed Head of Department, Dr Narendra K Bairwa. His dedication to academic excellence and unwavering commitment to advancing our field have been truly inspiring. Through his innovative approaches and collaborative spirit, he has fostered a vibrant learning environment that encourages growth and discovery.



Dr Narendra K Bairwa
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We are deeply grateful for the invaluable guidance and unwavering support provided by our esteemed faculty mentors. Their commitment to sharing knowledge, offering encouragement, and inspiring the next generation has left an indelible mark on our community.

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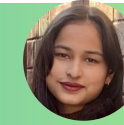
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We are incredibly proud of the outstanding work done by our dedicated editorial team, Genetic Guild. Their passion for excellence and commitment to delivering high-quality content have been instrumental in shaping our newsletter. Through their meticulous attention to detail and unwavering dedication, they have ensured that every issue is both informative and engaging for our readers.



Three Scientists Won the Nobel Prize in Physiology or Medicine 2025

The Mystery Inside You

Right now, as you read this, your body is doing something incredible. Millions of tiny immune cells are patrolling your body like security guards, fighting germs and keeping you healthy. But here's the mystery that confused scientists for years: Why don't these security guards attack your own body by mistake? Why don't our bodies constantly fight themselves?

This year, three scientists solved this mystery and won the Nobel Prize in Medicine. They discovered the body's hidden peacekeepers!

The Nobel Prize committee announced the winners: Mary E. Brunkow, Fred Ramsdell, and Shimon Sakaguchi. Together, they discovered that our bodies have special cells that stop our immune system from going crazy and attacking our own organs.

They found what scientists call "peripheral immune tolerance" - which is just a fancy way of saying our bodies have a built-in peacekeeping system.

Each scientist helped solve a different part of the puzzle:

Shimon Sakaguchi: The First Clue

Back in the 1990s, Sakaguchi noticed something strange. While most scientists were studying immune cells that attack germs, he found some cells that did the opposite. When he removed these special cells from mice, their bodies suddenly started attacking themselves. He called these cells "regulatory T-cells" or T-regs - our body's natural peacemakers.

Fred Ramsdell: The Genetic Secret

Ramsdell wanted to know what makes these peacekeeper cells work. He discovered a special gene called FOXP3 that acts like the peacekeepers' instruction manual. This gene tells cells how to be good peacekeepers. If this gene doesn't work properly, the peacekeeping system breaks down.

Mary E. Brunkow: The Important Confirmation

At the same time, Brunkow was studying the same gene. Her research helped prove that FOXP3 was really important. Having two different scientists find the same thing made the discovery much stronger.

A COMMITMENT
TO OUR PLANET'S ANIMALS



WORLD ANIMAL WELFARE DAY 4th of October 2025

Theme: "Save Animals, Save the Planet"

World Animal Day 2025 marks 100 years of advocating animal rights. Theme: "Save Animals, Save the Planet!" stresses links between animal and environmental welfare.

Their welfare is our mandate: act for the animals, and the planet will thrive.

History of World Animal Day

World Animal Day was first organized in 1925 by Heinrich Zimmermann, a German novelist and animal rights advocate, to promote animal rights and inspire global action.

Initially held on March 24 in Berlin with over 5,000 attendees, the date was changed to October 4 in 1929 to align with St. Francis of Assisi's feast day. Since then, it has grown into a global movement supported by governments, NGOs, and citizens.

Why It Matters Today

World Animal Day creates global awareness about threats like,

- Poaching and illegal wildlife trade
- Deforestation and urban expansion
- Climate change-induced species extinction
- Poor enforcement of animal protection laws.

The day encourages actions, from rescuing strays to large conservation campaigns, fostering a culture of empathy and responsibility.

Significance of World Animal Day

- World Animal Day is a platform for education and advocacy, raising awareness about issues like climate change, poaching, and habitat loss. It promotes animal rights and humane treatment, encouraging actions such as wildlife conservation and volunteering while fostering compassion for animals..
- By celebrating this day, people foster coexistence between humans and nature. WORLD ANIMAL DAY unites individuals to raise awareness and enhance education globally, ensuring animals can enjoy the lives they deserve.

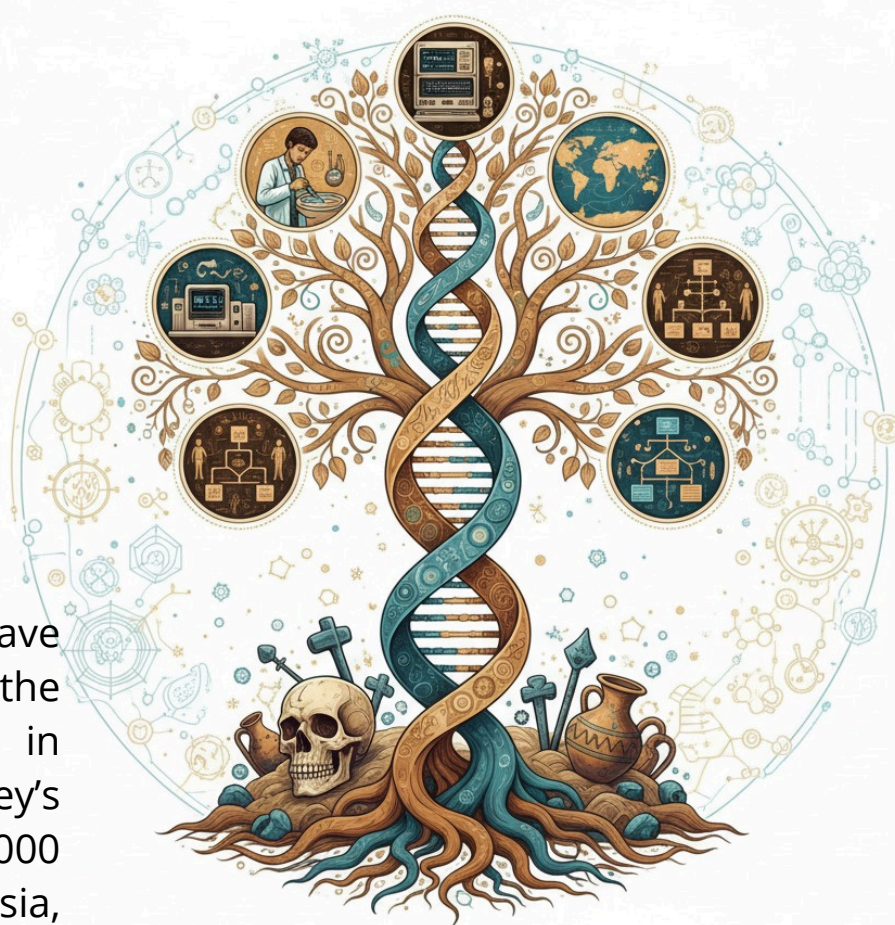


"Thanks to World Animal Day and the incredible platform it gives our projects each year, we are slowly but surely raising the status of animals in Asia. Our work continues to help and protect them all and create a world where animals are no longer exploited." -

**--- Jill Robinson
Founder and CEO of the Animals Asia Foundation**

DNA FROM ANCIENT BURIALS IN KASHMIR REVEALS GENETIC BRIDGE

In a landmark study, scientists have decoded ancient DNA from the Burzahom archaeological site in Kashmir, revealing that the valley's maternal ancestry spans nearly 7,000 years and connects it to Central Asia, the Swat Valley, and even parts of Europe.



DNA from Ancient Burials

Echoes of Our Ancestors Unveiled

WHY THE STUDY MATTERS?

This first ancient DNA study from Kashmir adds a vital chapter to South Asian archaeogenetics, linking India, Tibet, and Central Asia through shared ancestry. Globally, it broadens insight into human migrations across Eurasia. Remarkably, one skull bore marks of *trepanation early cranial surgery hinting at advanced anatomical knowledge in prehistoric Kashmir.

Researchers examined skeletal remains from 12 individuals dating from the Neolithic period (around 2000 BCE) to the medieval era. Four yielded usable mitochondrial DNA passed down through mothers allowing reconstruction of early genomes. A Neolithic sample carried the M65 lineage, still seen among modern Kashmiris and Tajiks of the Pamir Plateau. Another, from the Megalithic period (around 550 CE), showed the U2b2 lineage, also present in today's Kashmir and Pakistan's Swat region evidence of enduring genetic continuity.

DEVANSH GUPTA
(UG BIOTECHNOLOGY)

Pregnancy and Infant Loss Remembrance Day

October 15, 2025

Theme: "Together, we care."



Symbolism: Pink and Blue Ribbons: The pink and blue ribbon symbolizes remembrance and hope for families who have experienced such loss. Lighting a candle during the Global Wave of Light creates a chain of love and remembrance circling the globe.

"In remembering lives that never had the chance to begin, we honour hope, hold space for grief, and affirm that even in loss, we are not alone."

Pregnancy and Infant Loss Remembrance Day is observed annually on October 15 to honor the lives lost through miscarriage, stillbirth, Sudden Infant Death Syndrome (SIDS), ectopic pregnancy, medical termination, and the death of newborns. It is a day to remember, reflect, and support families who have faced one of the deepest human sorrows: the loss of a child.

Preventive Healthcare and Research

- Ongoing global research aims to reduce pregnancy and infant loss through improved prenatal screening, infection control, nutrition programs, and maternal health initiatives.
- Organizations like WHO and UNICEF continue to advocate for better perinatal care, vaccination coverage, and early detection of complications.

The Global Rate of Infant Loss (2025)

- According to recent global estimates, the infant mortality rate in 2025 stands at approximately 24.99 deaths per 1,000 live births, marking a 2.09% decline from 2024.
- Globally, the under-5 mortality rate was 37 deaths per 1,000 live births in 2023, with around 4.8 million children under age 5 dying worldwide. These numbers reflect improvement but also highlight the continuing need for accessible maternal and child healthcare.

Cultural and Societal Perspectives

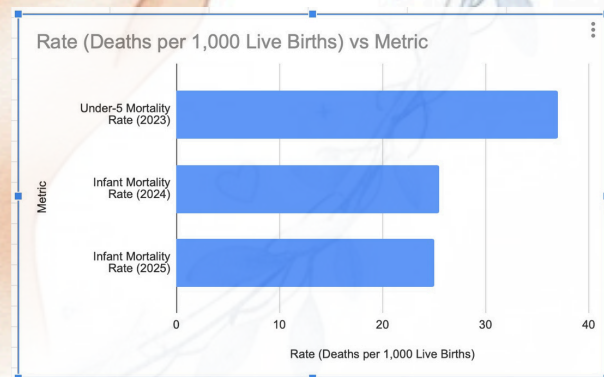
- In many cultures, miscarriage and infant loss are surrounded by stigma or silence. Families may struggle to grieve openly due to societal taboos.
- Awareness days like October 15 help break these barriers by encouraging conversations and validating the emotions of grieving parents.
- Different countries now recognize the day officially, organizing awareness walks, candlelight vigils, and discussions on maternal health and loss support.

Origin and Purpose

- The Remembrance Day was first founded in 2002 by bereaved mothers with the goal of breaking the silence surrounding pregnancy and infant loss.
- It aims to raise awareness, offer compassionate care, and provide emotional support to grieving families. It also serves as a day for individuals and communities to come together, share stories, and take part in global events such as the 'Wave of Light' ceremony.

Health Disparities

- The day also highlights how health inequalities lead to higher rates of loss in certain populations.
- Limited access to prenatal care, poverty, and geographic barriers contribute significantly to these disparities.
- Promoting equitable healthcare and maternal health education is essential to preventing avoidable losses.



How Students Can Contribute

College students and youth organizations can make a meaningful difference by Organizing campus candlelight vigils or awareness events, Sharing verified information on social media to break stigma, Inviting guest speakers to discuss maternal mental health, Partnering with NGOs to support women's health initiatives and Even small acts of compassion can create ripples of awareness and healing.

WORLD CEREBRAL PALSY DAY

6th October

World Cerebral Palsy Day, slated for 2025, carries a powerful and resonant theme: "Unique and United." This concept is a double-edged sword of celebration and action. On one hand, it champions the individuality of every person living with cerebral palsy (CP) acknowledging that no two experiences, challenges, or triumphs are identical. On the other, it calls for solidarity, recognizing that together, the CP community wields significant power to drive positive change. The ultimate aim is to foster a society where barriers crumble, ensuring equal chances and inherent respect for everyone navigating life with CP.

Precautionary Measures During Gestation

While CP itself outcomes from hooked up brain harm, know how and mitigating risks all through pregnancy is paramount. Reducing the chance of CP includes proactive prenatal care targeted on:

Infection Vigilance: Actively averting exposure to most important infections like German Measles, Zika, or Cytomegalovirus.

Immunization: Staying updated on essential vaccines.

Maternal Health: Maintaining tight manipulation over current fitness situations, along with diabetes.

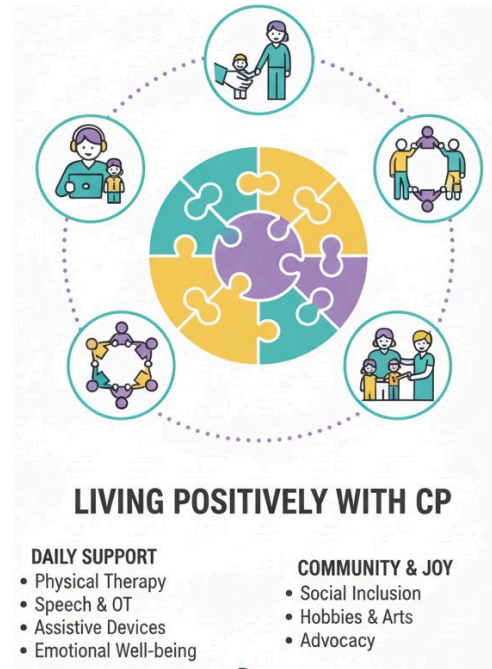
Lifestyle Choices: Strict abstinence from alcohol and smoking.

Blood Type Matching: Ensuring right screening for Rh incompatibility.

The "Unique and United" topic is a powerful name to motion. It compels us to look at the whole individual, their particular talents and spirit, whilst unifying our efforts to assure equitable access to care, training, and the overall spectrum of existence reviews.

Impact: Why Awareness Matters

The statistics provide a clear picture of the prevalence of CP and the depth of support needed. It stands out as the biggest mobility disorder in children. With approximately 1 million individuals in the United States and 18 million individuals worldwide, it is a large community. Beyond mobility, the challenges are often deeper: 75% of people suffer from severe pain, and communication remains a major barrier for one in four people who are unable to speak. An important fact sheet is that CP is non-progressive – the underlying brain damage does not worsen, although functional abilities may change with growth and healing.



Decoding Cerebral Palsy:

Cerebral palsy is essentially a set of conditions that affect motor control and posture. It originates from brain harm occurring at some stage in the important ranges of fetal development. Symptoms regularly surface early in adolescence and can range dramatically in severity. A hallmark sign often involves muscle stiffness or atypical reflexes.

Cerebral Palsy can be identified in different types:

Spastic CP: Characterized by using elevated muscle tone (tightness), often leading to jerky, uncontrolled actions or spasms.

Dyskinetic CP: Involves difficulties in coordinating voluntary muscle activity, mainly out of control, fluctuating actions.

Mixed CP: A presentation in which a person shows symptoms associated with both spastic and dyskinetic symptoms.

The wider landscape of CP also includes ataxic (balance and coordination problems) and hypotonic (low muscle tone), reflecting the complex ways in which CP can affect physical expression.

छठ माहपर्व

CHATTH MAHAPARV

Faith • Purity • Devotion

Chhath puja is a 4 day upavas/vrat observed in the Hindu calendar month of Karthik, which starts on shukla chaturthi and ends on shukla saptami, with the most important day being the night of Shashti tithi of shukla paksha. On the English calendar it typically falls during the months of October or mid-November.

The festival of Chhath Puja is one of the most revered and deeply-rooted observances in the Hindu calendar, especially in the states of Bihar, Jharkhand, Uttar Pradesh and in neighbouring Nepal. It is a four-day festival dedicated to the worship of the Sun God (Surya) and his sister, the goddess Chhathi Maiya (also perceived as an aspect of dawn or the rising Sun). The devotees observe rigorous rituals including baths in sacred water bodies, fasting, offerings at riverbanks at sunrise and sunset, all to express gratitude for the gift of life, for nature's bounty and invoke blessings of health, prosperity and longevity.

A Glimpse into the Four-Day Ritual:

Day 1: Nahay Khay (Bathe and Eat): Devotees, primarily women known as Vratin, take a dip in a holy water body and prepare a traditional meal of kaddu (bottle gourd) curry and rice, consumed after offering it to the Sun God.

Day 2: Kharna (A Day of Fasting): A strict day-long fast is observed, which is broken in the evening after sunset after offering kheer (rice pudding), puris, and fruits to the moon.

Day 3: Sandhya Arghya (Evening Offerings): This is the main day of the festival. Devotees gather at the water bodies to offer arghya (offerings of water, milk, and flowers) to the setting sun. The atmosphere is electrifying with folk songs and the glow of countless earthen lamps.

Day 4: Usha Arghya (Morning Offerings): Before sunrise, devotees return to the same ghat to offer prayers and arghya to the rising sun, marking the culmination of the festival. The fast is then broken with the distribution of the sanctified prasad.

The Science Behind the Faith:

While Chhath Puja is a profound spiritual observance, modern science finds several health benefits in its rituals. The process of standing in water for prolonged periods exposes the body to sunlight, which can help in the synthesis of Vitamin D. The detoxifying fast, combined with the consumption of simple, sattvic food, aids in cleansing the digestive system. Furthermore, the practice of solar meditation during sunrise and sunset is known to have a calming effect on the mind and body, regulating the circadian rhythm.

Prasad: The Divine Offering of Faith and Purity:

At the heart of Chhath Puja is its sacred prasad, which is prepared with utmost devotion and hygiene. The offerings are strictly vegetarian and cooked without salt, onions, or garlic. The main components include: Thekua , Fruits ,Coconuts and sweets.

Mythological & Spiritual Basis

Chhath honours the Sun—Surya—and his sister or consort (depending on tradition) Chhathi Maiya, acknowledging the primal role of the Sun in sustaining life, energy, growth and time-cycles.

The festival also emphasises gratitude for nature and water-bodies many rituals involve riverbanks, ghats, lakes, reinforcing the interconnection of human life with the environment.



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DNA FROM ANCIENT BURIALS IN KASHMIR REVEALS GENETIC BRIDGE

The Kashmir times.

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REMEMBRANCE DAY

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WORLD CEREBRAL PALSY DAY

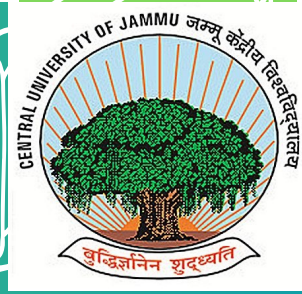
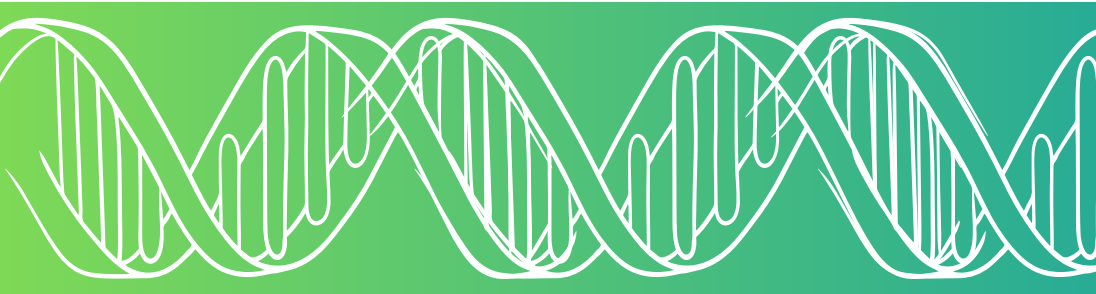
MAIRA AND VIDHI

DNA FROM ANCIENT BURIALS IN
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