ANTHROPOLOGY NEWS DIARY

(AND)

08.10.2021

FOR UPSC CSE MAINS

This series provides compilation of daily CURRENT AFFAIRS of Anthropology. It is aimed at addressing the requirement of aspirants to add contemporary aspects of the subject to the answers. It also helps in understanding the trends of anthropology across India and the world.

NOTE: Please attempt the questions given at the end of the document and can upload on the telegram channel: Sosin for Anthropology Q&A, for peer review.
INDEX

A. BIOLOGICAL ANTHROPOLOGY
1. Crohn’s Disease..................................................................................................................03
2. Inherited Genes Revelation ..................................................................................................03
3. Senescent Cell Removal .........................................................................................................04
4. Ancient Microbes & Modern Diseases..................................................................................05

B. TRIBAL ANTHROPOLOGY
1. Tribal dialects preservation .....................................................................................................06

UPSC ANTHROPOLOGY PREVIOUS YEAR QUESTIONS.................................................................................06
PRACTICE QUESTIONS FOR PEER REVIEW..................................................................................................06

Note - For convenience, the respective reference links have been dropped at the end of every topic.
A. BIOLOGICAL ANTHROPOLOGY

1. Crohn’s Disease
   - Crohn’s disease is a type of bowel disease that causes inflammation in the intestines.
   - Experts believe that a combination of genetic factors and environmental triggers leads to Crohn’s disease.
   - The National Human Genome Research Institute notes that if one parent has Crohn’s disease, a child has a 7–9% risk of developing the disease. However, if both parents have IBD, that risk increases to about 35%.
   - Researchers are still investigating how genetics influences the development of Crohn’s disease. Various genes may increase a person’s likelihood of developing IBD. Studies have identified more than 200 genes that may have links to this condition.
   - The immune system may mistake gut bacteria, which are harmless, as invaders and launch a response to destroy them. This response leads to inflammation and symptoms of Crohn’s disease.
   - Genetic testing identifies whether a person carries a mutation in a gene that could cause Crohn’s disease.
   - However, if someone does have an inherited gene mutation, it does not necessarily mean that they will develop Crohn’s disease. The gene just increases their risk.

Reference: https://www.medicalnewstoday.com/articles/is-crohns-disease-genetic#summary

2. Inherited Genes Revelation

Context:
Using neural networks, researchers have developed a new method to search the human genome for beneficial mutations from Neanderthals and other archaic humans. These humans are known to have interbred with modern humans, but the overall fate of the genetic material inherited from them is still largely unknown. Among others, the researchers found previously unreported mutations involved in core pathways in metabolism, blood-related diseases and immunity.

Highlights:
   - Thousands of years ago, archaic humans such as Neanderthals and Denisovans went extinct. But before that, they interbred with the ancestors of present-day humans, who still to this day carry genetic mutations from the extinct species.
   - Over 40 percent of the Neanderthal genome is thought to have survived in different present-day humans of non-African descent, but spread out so that any individual genome is only composed of up to two percent Neanderthal material.
   - Some human populations also carry genetic material from Denisovans -- a mysterious group of archaic humans that may have lived in Eastern Eurasia and Oceania thousands of years ago.
   - The introduction of beneficial genetic material into our gene pool, a process known as adaptive introgression, often happened because it was advantageous to humans after they expanded across the globe.
   - To name a few examples, scientists believe some of the mutations affected skin development and metabolism. But many mutations are still undiscovered.
The researchers developed a deep learning method called 'genomatnn' that jointly models introgression, which is the transfer of genetic information between species, and natural selection. The model was developed in order to identify regions in the human genome where this introgression could have happened.

The new method is based on a so-called convolutional neural network (CNN), which is a type of deep learning framework commonly used in image and video recognition.

Using hundreds of thousands of simulations, the researchers at the University of Copenhagen trained the CNN to identify patterns in images of the genome that would be produced by adaptive introgression with archaic humans.

In European genomes, the researchers found two strong candidates for adaptive introgression from Neanderthals in regions of the genome that affect phenotypes related to blood, including blood cell counts. In Melanesian genomes, we found candidate variants introgressed from Denisovans that potentially affected a wide range of traits, such as blood-related diseases, tumor suppression, skin development, metabolism, and various neurological diseases. It's not clear how such traits are affected in present-day carriers of the archaic variants, e.g. neutrally, positively or negatively, although historically the introgressed genetic material is assumed to have had a positive effect on those individuals carrying them.

The next stage for the research team is to adapt the method to more complex demographic and selection scenarios to understand the overall fate of Neanderthal genetic material.

Future work could also involve developing a CNN that can detect adaptive introgression from a ghost population, for cases in which genomic data from the source is unavailable.

Reference:
https://www.sciencedaily.com/releases/2021/06/210617115536.htm

3. Senescent Cell Removal

Cell senescence, when stressed cells can no longer divide to make new cells, is considered a factor in aging and in some diseases. As your body ages, increasing amounts of cells enter into a state of senescence.

Senolytic drugs as anti-aging drugs are a promising approach to remove senescent cells, but researchers are still trying to figure out the role of cellular senescence and different ways to approach it.

Researchers at the University of California, San Francisco (UCSF), report they have discovered how immune cells naturally clear the body of senescent cells. Their new findings in mice may lead to new strategies and approaches to treating age-related chronic diseases with immunotherapy.

The accumulation of senescent cells within tissues can drive the progression of diseases, wrote the researchers.

While removal of senescent cells with senolytic drugs has emerged as a promising therapeutic approach, the ubiquitous target of these drugs makes clinical applications challenging.

Immune cells known as invariant Natural Killer T (iNKT) cells function as a surveillance system, eliminating cells such as senescent cells. However, iNKT cells become less active with age and factors that contribute to chronic disease.

The researchers started to investigate different ways to stimulate this natural surveillance system that offers an alternative to senolytic drugs.
● The scientists discovered they could remove senescent cells by using lipid antigens to activate iNKT cells. Researchers observed improvements in mice with diet-induced obesity. Their blood glucose levels improved, and mice with lung fibrosis had fewer damaged cells.

The results provide the first evidence that iNKT cells can eliminate senescent cells in these two distinct models where tissue dysfunction is dependent on the accumulation of senescent cells.

Reference:

4. Ancient Microbes & Modern Diseases

Context:
Scientists have found dramatic differences between gut microbiomes from ancient North American peoples and modern microbiomes, offering new evidence on how these microbes may evolve with different diets.

Highlights:
● The scientists analyzed microbial DNA found in indigenous human paleofeces (desiccated excrement) from unusually dry caves in Utah and northern Mexico with extremely high levels of genomic sequencing.

● Performing genomic analysis more broadly and deeply than previous studies on ancient human gut microbiomes, the study was the first to reveal novel species of microbes in the specimen.

● In previous studies of children in Finland and Russia, Kostic and his colleagues showed that children in industrialized regions, who were much more likely to develop type 1 diabetes than those in non-industrialized areas, also had very different gut microbiomes.

● The differences between microbiome populations were striking. For instance, a bacteria known as Treponema succinifaciens "is not in a single Western microbiome that we analyzed, but it's in every single one of the eight ancient microbiomes.

● The ancient microbiomes also had relatively higher numbers than the modern industrial microbiomes of transposases (transposable elements of DNA sequences that can change location in the genome).

● Moreover, the ancient microbial populations incorporated fewer genes related to antibiotic resistance. The ancient samples also featured lower numbers of genes that produce proteins that degrade the intestinal mucus layer, which then can produce inflammation that is linked with various diseases.

● In addition to carbon-14 dating, the scientists used dietary analyses and other methods to validate that the selected samples were indeed human and not contaminated by soil or by other animals such as dogs, she says.

● The investigators also confirmed that the chosen samples displayed the patterns of decay that all DNA is known to exhibit over time.

● The team performed far deeper sequencing of DNA than what was achieved in previous efforts, at least 100 million reads, with 400 million reads of DNA for one specimen.
● The researchers plan to expand their studies to many other ancient microbiome specimens, aiming to detect novel microbial species and trying to predict their metabolic functions.

Reference:
https://www.sciencedaily.com/releases/2021/05/210512115639.htm

B. TRIBAL ANTHROPOLOGY

1. Tribal dialects preservation

Context:
ITANAGAR: Pasighat East MLA Kaling Moyong has passionately appealed to the Tangsa community to protect and promote their dialects saying that many dialects in the State are on the verge of extinction mainly because of the young generations who do not use them in their day-to-day life.

Highlights:
● While extending Moh-Mol festival greetings to the people, the Tangsas were appreciated for preserving and promoting their traditional costumes and rich culture.
● Most of the festivals in Arunachal Pradesh are related to agriculture and the spirit of celebration is the same though names are different.
● The Tangsa artisans and weavers were urged to participate at Trade Fairs inside and outside the State.
● Secretary General of Arunachal Chambers of Commerce and Industries (ACCI) Toko Tatung described Jairampur and Nampong as a mini India.
● While appreciating the local MLA Laisam Simai for the unprecedented development he had ushered in the region with his unstinted effort and meticulous planning, Tatung requested the people not to depend only on government jobs which are hard to come by, instead engage in gainful business entrepreneurship to sustain their livelihood.
● The Tangsas are spread across Changlang district and also in upper Assam and Myanmar.
● The Tangsas are striving hard to preserve their rich and varied culture irrespective of professing different faiths. He urged the community members especially, the youths to travel the proverbial extra mile to safeguard their dialects, costumes, folk songs, folk dances and other rich legacies inherited from their great ancestors.

Reference:
UPSC Previous year questions based on today’s concept:

2. Linguistic elements in Indian Population. (10 Marks - 2016)

DAILY PRACTICE QUESTION/S FOR MAINS 2021.
Pl do not forget to upload your answer sheet for a peer review on the telegram channel:

Sosin for Anthropology Q&A

1. Bring about the salient features of Second Linguistic Survey of India. (20 Marks)