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Xmas Message from Extraterrestrial Intelligence Found in Transposon Encoded DNA

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ABSTRACT

It is commonly believed that any transmission from an extraterrestrial intelligence would occur in the form of electromagnetic waves. We present data suggesting this is inaccurate and proposing that a much more likely format for data transmission from a truly smart extraterrestrial intelligence would be via DNA integrated into the recipient's genome. We further unequivocally identify and characterize a message from an alien life form sent to earthlings. The message was delivered 80 million years ago in the form of a Leap-In like transposon now found in multiple copies throughout mammalian phylogeny. The message encoded in the transposon is believed to be an xmas greeting from Santa Claus.

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INTRODUCTION

In 1977 NASA launched Voyager 1 and 2 to outer space. Voyager 1 is today the human-made object located farthest from Earth. It is currently located in interstellar space 20 x10⁹ Km from the Cape Canaveral, FL launch site[1]. Both Voyager probes are equipped with a message intended to communicate with extraterrestrials and describe to them the life and history of earthlings. This message was sent on a golden phonograph record.

A phonograph record is an analog data storage medium in the form of a flat disc with an inscribed, modulated spiral groove that encodes the data. The groove starts near the periphery and ends near the center of the disc[2]. This data encoding format was common in the late 20th century and can still be found in basements of Deep Purple fans. A single disc was at the time able to store the entire song Smoke on the Water and can subsequently be decoded and listened to without any reduction in quality[3]. The golden phonograph record

message to extraterrestrials was compiled by a group led by the late Carl Sagan[4]. To our knowledge the message remains unanswered[5], although conflicting reports have been published[6].

We hypothesized that if humans are sending out messages to unknown life forms, it is reasonable to assume that any non-earth civilization in the universe have already attempted to transmit one or more messages to life on earth. The universe is 14×10^9 years old and life on earth is 4×10^9 years old. Accordingly, it is assumed that it on average takes 4×10^9 years from the first formation of genetic material (e.g. DNA) to evolve into a civilization that can send messages to other civilizations ($n=1$), or 3-4 civilizations can have evolved per physical location since birth of the universe. Human beings have existed as a tool using species for 2.8×10^6 years and as a text writing

species for 4.6×10^3 years. If earthlings have received a message, the probability that the message was received while humans could notify each other about the message in written form is very close to 0. Even the tool using version of humans (*homo horribilis*) who at least in theory may have been able to retain and pass on the message through oral tradition, is a recent event covering only 0.07% of the time since life erupted on earth. Electromagnetic waves, long assumed to be the preferred medium for interstellar communication, requires a reasonably advanced civilization as recipient. Humans, however, have only been able to capture electromagnetic waves for 100 years, an infinitesimal percentile of life on earth.

Event	Age (years)	% of life on earth	Reference
Age of Universe	14×10^9		[7]
Age of life on earth	4×10^9		[8]
Origin of Alu elements	80×10^6	2%	[9]
Tool using humans	2.8×10^6	0.07%	[10]
Text writing humans	4.6×10^3	0.0001%	[11]
Radiowave capturing human	1×10^2	0	[12]

If an extraterrestrial life form sent a message to life on earth, the message most likely appeared long before the appearance of the first stone tablets, oral tradition and other forms of information sharing. Any physical item encoding the message is either destroyed by time or buried under millennia of soil[13]. Or both.

RESULTS

Yokoo *et al* [14] propose that an advanced extraterrestrial life form would choose a data format for transmission that is stable over long timelines, auto-replicating, distributed in time and space and intrinsic to the earth life forms. The probability of such a message format being received and decoded by the recipient civilization in due time would be substantially increased. DNA is a data rich format that when encoded in a genome is auto-replicating, distributed in many copies across the planet and can be archived within the recipient species with minimal information loss over very long timelines[15].

Transposons from the Leap-In[®] family are the ideal vehicle for this type of message: they can carry >100kb of payload information, the transposons integrate at up to 100 independent copies in the genome, the inserts are genetically very stable and allow for high yield of expression[16]. The most common transposable element in humans is the Alu sequence[17]. The consensus of the oldest phylogenetic branch AluJb is 307 bases long (prime number!) and can be found one million times in the human genome corresponding to ~10% of the genome[9]. Alu transposons are also known as selfish or parasitic genes since their sole function is self-reproduction, no biological function can be assigned to these sequences. Alu transposons originated suddenly 80×10^6 years ago in the genome of mammalian ancestor of Supra primates and quickly spread across the mammalian phylogenetic tree[18]. Alu transposons accordingly have all the hallmarks of a message vehicle transmitted from an advanced extraterrestrial civilization.

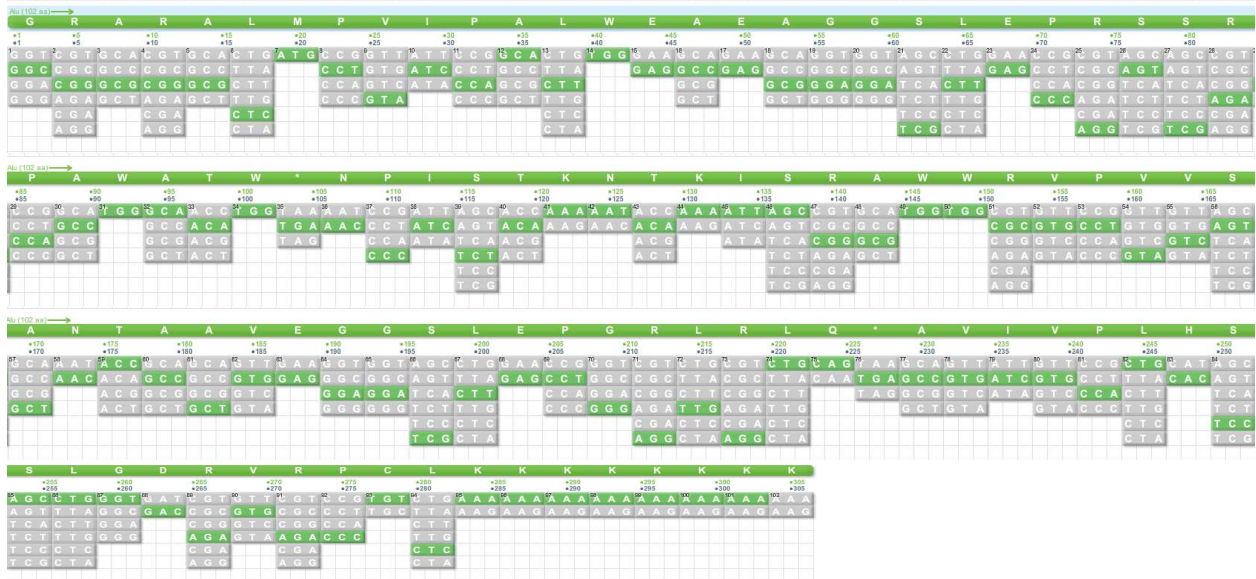
> AluJb consensus

```
GGCCGGGCGCGGGCGCTCATGCCTGTAATCCCAGCACTTTGGGAGGCCGAGGCGGGAGGATCGCTTGAGCCCAGGAGTTCCG
AGACCAGCCTGGGCAACATGGTGAAACCCCATCTCTACAAAAAATACAAAAATTAGCCGGGCGTGGTGGCGCGTGCCTGTA
GTCAGTGCTAACACCGCGCTGTGGAGGGAGGATCGCTTGAGCCTGGGAGGTTGAGGCTGCAGTGAGCCGTGATCGTGCCA
CTGCACTCCAGCCTGGGTGACAGAGTGAGACCCTGTCTCAAAAAAAAAAAAAAAAAAAAAAAAAA
```

The 307bp Alu element sequence was translated to amino acid sequence using the universal genetic code (which, as the name implies, is accepted across the universe) resulting in the protein sequence below. PolyA is the biological signal for ‘End of message’ and has been

deleted accordingly. The sequence information has deteriorated somewhat since the initial integration in the mammalian ancestor 80 million years ago, requiring a bit of creativity to deconvolute the accurate meaning. Only fragments of the message have been decoded at this point.

GRARALMPVIPALWEAEAGGSLEPRSSRPAWATW*NPISKNTKISRRAWRVVVSANTA AVEGGSLEPGRLRLQ*AVIVPLHSSLGDRVRPCL



The Indo-Aryan languages Bangla and Hindi are today spoken in Bangladesh and India. The languages are largely based on Sanskrit, one of the oldest languages known. Words of Sanskrit origin can be expected to retain

its information in many cultures and historical contexts. It is accordingly not unexpected to find parts of the message derived from Sanskrit.

Word	Meaning	Origin
Garara/Grara	Build	Bangla
Vipal	Immense	Hindi
Eaggsle	Eagle	English. Includes a GGATCG (GS) insertion that may reflect the selective pressure of avoiding the related GGATCC BamHI restriction site.
Pawat/Paavat	Footstep	Hindi
Pistkn	Piston	There is no ‘O’ in the amino acid code. It is proposed that O and K are exchangeable in many languages, thus the ‘OK’ phrase
Kisraw/Kisaw	Silently	Cebuano (spoken in the Philippines).
Santa	Santa	English
Aveg	You experience	Romanian
Slepgrl	Sleep Girl	English txtspeak

Aviv	Stage in growth of grain when seeds have reached full size and filled with starch, but not yet matured	Hebrew
DRVR	Driver	English txtspeak

DISCUSSION

Taken together, the message from an extraterrestrial civilization was transmitted to early mammals on earth in the physical form of a transposon that over time integrated and replicated itself in the genomes of all humans in multiple copies. This process of transmitting information ensures a high probability of the recipient finding the information at the historical point when the earth civilization has reached sufficient technology advancement to be able to isolate DNA and decode it.

The message is interpreted as *“We have built an immense eagle (spaceship?) leaving footprints (trails?) for you to follow. The engine is quiet. Santa is visiting all sleeping children before they wake up filled with energy. Signed by the driver (Rudolph himself?)”*.

We believe this is a joyful Xmas greeting delivered by St. Nicolaus back when supraprimates ruled the world (80 million years ago) and predates all the chimney climbing

that currently delays the package delivery on Christmas night.

We expect future studies to expand on our understanding of DNA data transmission from extraterrestrial intelligence.

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Competing Interests: The authors declare competing financial interests: ATUM provides protein engineering and expression, cell line development with Leap-In, vectorology, bioinformatics services, GeneGPS optimization, and gene synthesis to a global customer base. Better, smarter and faster than anybody.



Merry Holidays and a Happy 2019 from  ATUM

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