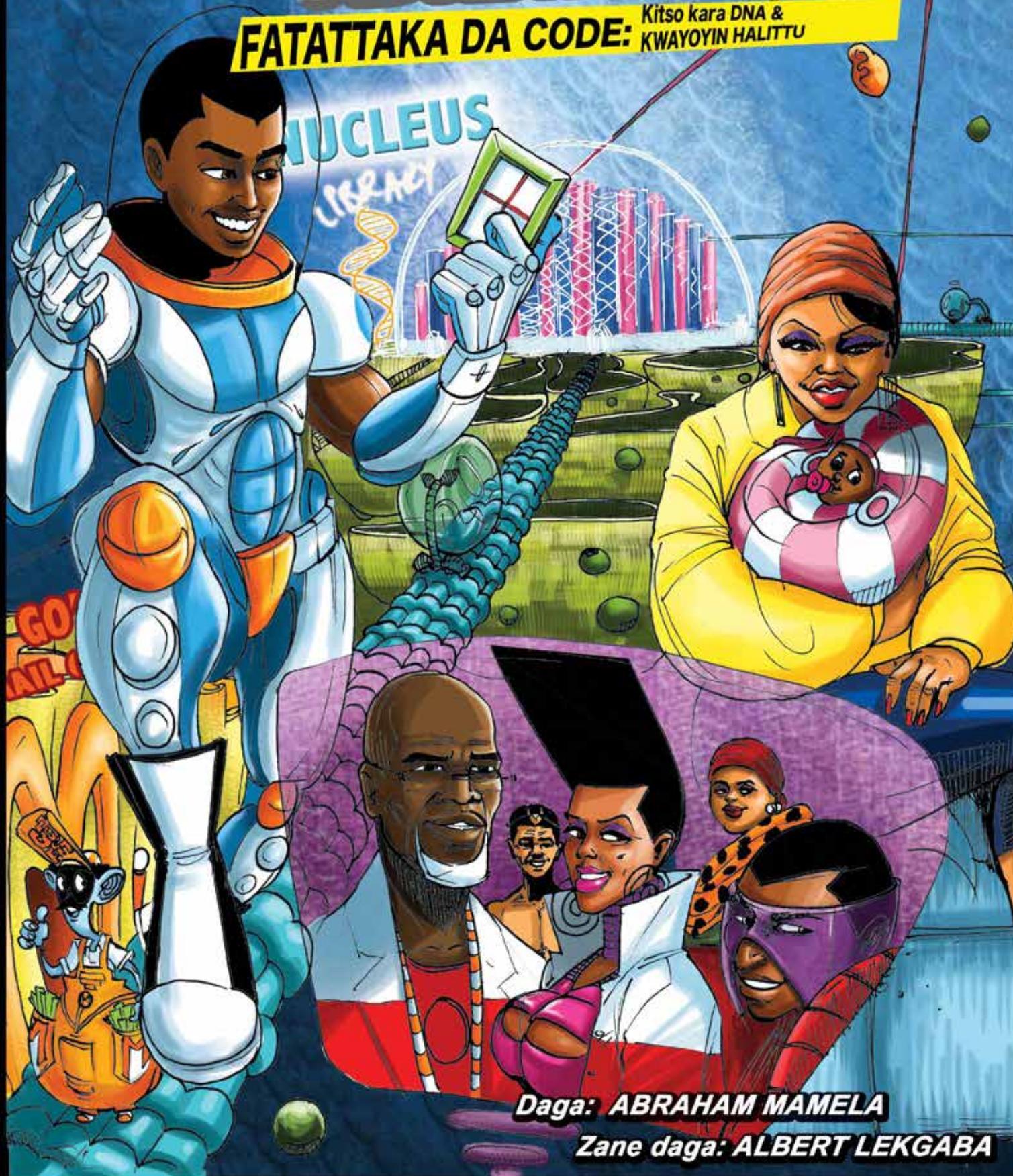


LITTAFIN 2

GENOME ADVENTURES

FATATTAKA DA CODE: Kitso kara DNA &
KWAYOYIN HALITTU



Daga: ABRAHAM MAMELA

Zane daga: ALBERT LEKGABA

FOREWORD



Science communication is a priority in Botswana's educational landscape. Beyond schools and colleges, the Ministry of Education and Skills Development has been at the forefront in taking measures to improve the appreciation of science by the general public. This is attested by the broadcast content aired in our national broadcasting media led by the Ministry of Education and Skills Development. Our efforts in this regard are consistent with a key pillar of vision 2016, namely, an informed and educated nation. This ambitious vision cannot be achieved without the cooperation of all stakeholders.

It is with the greatest delight to learn that the Botswana-Baylor Children's Clinical Centre of Excellence (COE), in trying to fulfill the goals of the Collaborative African Genomics Network (CAfGEN), is already contributing to this course through its flagship community engagement project -*Genome Adventures*. Funded jointly by Wellcome Trust and the US National Institutes of Health, *Genome Adventures* is presented in four comic books that seek to communicate and engage Batswana and other African countries on issues of science with a special focus on biomedical research.

In the first book entitled "Blast to the past" Kitso- the young hero of the book series explores heredity and genetics. In this, the second book, entitled "Cracking the code" Kitso with the assistance of several superheroes shrinks to microscopic size to explore how DNA and the genes affect the human body and its functions. Presented in a pictorial and entertaining way using simple language, this book can be enjoyed by all - young and old, less and more educated. I urge all learners to pay attention to the story and compare it to the content from their biology books for their benefit.

Aware that genetics is one of those topics that can be challenging to understand, I am happy to endorse and recommend *Genome Adventure Book Two* as an opportunity to our students and communities to learn genetics in an easy and more exciting style that combines story-telling comics and analogies to engage and educate its readers.

Significantly, the book features female scientists - an encouragement for our girl children to aspire to take science as a career. This is notable as Botswana is a signatory to the Southern African Development Community Science and Technology Protocol that requires members to close the numerical gap between female and male scientists.

I am informed that *Genome Adventures Comic Books* will be translated into Setswana, Luganda Swahili, Hausa, Arabic, French, Portuguese and featured in various social media in order to reach as many African People as possible.

On behalf of Batswana, and indeed all Africans, I take this opportunity to thank all those who are involved in bringing this project to fruition and to the Wellcome Trust and National Institutes of Health for providing funding support. We at the Botswana Ministry of Education and Skills Development we are happy to crack the code with Kitso. I invite you all to join.



Honourable Dr Unity Dow
Minister of Education and Skills Development
Republic of Botswana

KAMUS

KIMIYANCE

TUSHE- ABUBUWAN DA SUKA GINA DNA. SUN HADA DA ADENINE, THIAMINE, CYTOSINE DA GUANINE.

JIKIN TANTANIN- FATAR DA TA RABE TSAKANIN CIKIN KWAYAN HALITTA DA WAJEN TA.

CHROMOSOMES- DOGAYEN SANDUNAN DNA DA AKE SAMU A CIKIN NUCLEUS MASU DAUKE DA BAYANIN KWAYAN HALITTA.

CYTOPLASM- AMAZZI AGAFANA AGE EGGI AGAJJUZA AKATAFFAALI ERA NEKASABIKIBWA AKABUBI KAAKO.

DNA- KWAYAR HALITTAN DAKE DAUKE DA DUK WANNA BAYANIN DA DAN ADAM KE BUKATA DOMIN CIGABA DA GIRMA DA HAIHUWA.

NUCLEOTIDES- KWAYOYIN DA SUKA GINA DNA DA RNA.

GENOME- DUKKAN DNA DAKE CIKIN JIKIN HALITTA GABA DAYA.

GOLGI- HALITTA ME KAMA DA BUHU, WADDA KE CIKIN KWAYAN HALITTA. ANA AMFANI DA ITA NE WURIN CAN-JA/GYARA SANADARIN GINA JIKI.

HELIX- YADDA AKA MURDE KWAYAR DNA ZUWA GUDA BIYU.

LYMPHOCYTES- KWAYAR HALITTAN JINI DAKE BADA KARIYA GA JIKIN DAN ADAM.

MAYE GURBI- CANJI A DNA, WANDA KE FARUWA SAKAMAKON KARAWA, CIREWA KO CANJA YADDA AKA TSARA KWAYOYIN DNA.

TSAKIYA- HALITTAN DAKE TSAKIYAR UWAR KWAYAR HALITTA, DA AKA KEWAYE DA FATA BIYU, YANA DAUKE DA DNA.

ORGANELLE- DAYA DAGA CIKIN 'YAN' KWAYAN HALITTAN DAKE CIKIN UWAR KWAYAN HALITTA DAKE CIKIN CUTOPLASM.

SUNADARAN- KWAYOYIN GINA JIKIN DAN ADAM DA AKAYI DA 'AMINO ACIDS'. YADDA AKA TSARA 'AMINO ACIDS' SHIKE NUNA KO DNA ZAI IYA HAIFAR DA KWAYAN GINA JIKIN DA AKE SO.

RIBOSOMES- HALITTAN DAKE CIKIN UWAR KWAYAR HALITTA, INDA AKE BUGA KWAYAR SANADARIN GINA JIKIN DAN ADAM.

RNA- HALITTAN DAKE CIKIN UWAR KWAYAR HALITTA DA AKE AMFANI DASHI WURIN HAIFAR DA SANADARIN GINA JIKIN DAN ADAM.

KWAFI- KALMAR DA AKE AMFANI DA ITA WURIN NUNA YADDA AKE SAMAR DA SANADARIN GINA JIKI, IDAN ANYI AMFANI DA DNA A SAMAR DA RNA.

TRANSLATION- KALMAR DA AKE AMFANI DA ITA A NUNA YADDA AKE SAMAR DA SANADARIN GUNA JIKI A RIBOSOMES.

VESICLE- HALITTA MAI KAMA DA BUHU A CIKIN UWAR KWAYAR HALITTA, WADDA AKE AMFANI DA ITA WURIN RARRABA ABINCI A CIKIN JIKI.

X-RAY CRYSTALLOGRAPHY- WANNA FASAH DA AKE AMFANI DASHI WURIN FAHIMTAR SIFFAN ABUBUWA KAMAR DNA.

KITSO

DR. MABOKO

KGOSIGADI



BARKAI SUNA NA KITSO. INA ZAUNE A GARIN TLOKWEND A SIDAN GOGGO NA. INA SHA'AWAR. AN HAIFE NI DA CUTAR SIDA. AMMAN WANNAN BAI MAIDA NI BAYA BAI.

PHODISO

SUNA NAN PHODISO. AMMA KUNA IYA KIRA NA "GOGGO". INA RIKON DIYAR 'YAR-UWA TA KITSO BAYAN TA RASU. KUMA INA KAUNAR KITSO KAMAR YADDA NAKA KAUNAR SAURAN YARA NAI MUNA ZAUNE TARE A TLOKWENG, A WAJEN GARIN GABORONE-KILA MUNA MAKWABTAKA DAKUI



NINE SHUGABAN KUNGIYAR GENOME ADVENTURES (DUK ABUNDA KGOSIDADI ZAI GAYA MAKU) INA DA SIDDABARU MAI KAYATARWA DA HAR ZAN IYA SHIGA BANGO KUMA ZAN IYA BACEWA NI DA KEKE NA. KUMA BA IYA KAR SHI BA KENAN- (INA FASSARA MAFARKII!)

INA DA DADIN ZANCE KUM SHUGABAR MUTANE NA, EN BATSWANA!INA KAMA DA MATSAKAITAR KAKA, AMMA SANDAR TAFIYA TA NA DA (SPECIAL POWERS) DAGA KAKANNINMUI DA WADANNAN DIN, INA IYA (IKO DA OR CANZA) YANAYIN ISKA, TAFIYAR DA DABBOTTI, KUMA DA'WASU ABUBUWA MASU BADA AL'AJABI!



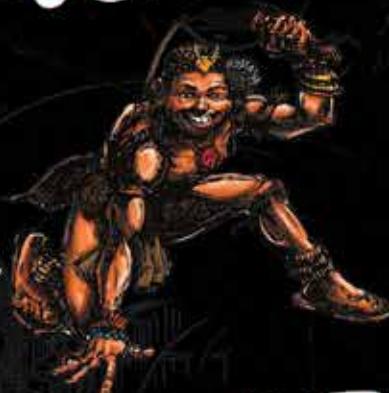
MARANYANE

BARKAI KAMAR YADDA SUNANA YAKE, INA SON FASAH. KU DUBA JIKI NAI RABI NA NA'URA. RABIN KUMA MUTUM. INA DA BASIRA KUMA INA SON AMFANI DA NA'URORIN ZAMANII



SUNA NA XGAO-TCGAI (KO XT A SAUKAKE). INA ALFAHARI DA NI MUTUMIN SAN NE- WASU NA KIRAN MUTANEN MU "MUTANEN DAJI" KO "BASARWA". NI MA SHAHARAREN JARUMI WANDA KE IYA ZUWA ZAMANI DABAM DABAM! MA'ANAR SUNANA "KAIFIN-HANGE" SABODA KAIFIN GANI NA KAMAR WUKA, ZAN IYA HANGO ABUNDA ZAI FARU NAN GABA.

XGAO-TCGAI



MMATLI



SUNA NA MMATLI. NI DAN BINCIKE NA KIMIYYA NEI KUMA NA IYA SIDDABARU NA MAIDA ABUBUWA KANANA DA IDO BAYA IYA GANI, HAR MA DA MUTANEI INA SHA'AWAR ABUBUWAN KAYATARWA DA KIMIYYA KE TAIMAKA MANA WAJEN GANOWA KUMA ZON SO A BOTSWANA, YAN MATA DA YAWA SU ZAMA YAN KIMIYYA KAMAR NI!

ANA CIKIN HAKA..... MUN KOMA A DAKIN BINCIKE
A JAMIAR DAKE CAMBRIDGE.

TOH, KITSO, MISALIN SHEKARA
1950, MASU BINCIKE SUN
FAHIMCI ABUBUWA DA YAWA
GAME DA KWAYOYIN HALITTA,
AMMA BASU FAHIMCI SIRRIN
SHI BA— YADDA YAKE DA ALAKA
DA RAYUWA.

MUTANE GUDA BIYU, MASU SUNA
WATSON DA CRICK, SU SUKA FAR
GANO YADDA HALITTAN
KWAYOYIN HALITTAR SUKE.

ME?

NUCLEOTIDES SUNE
KWAYOYIN DA SUKA
HADU SUKA GINA
KWAYAR HALITTA.
KUMA SUN KASU
KASHI HUDU.

SUNE KALMOMIN DA
AKA GINA KWAYAR
HALITTA. ANA KIRAN
SU ADENINE (A),

THIAMINE (T), CYTOSINE (C) AND
GUANINE (G). WATSON DA CRICK
SUNYI AMFANI DASU WAJEN
FAHIMTAR YADDA AKA GINA
KWAYAR HALITTA.

MENENE WADANNAN
KALMOMIN, A, T, C, G?



HAKANE? WANNAN NE
KWAYAR HALITTA? TAYI
KAMA DA LADAR DA AKA
LANKWASHE.

SHI AKE KIRA '
DEOXYRIBONUCLEIC ACID'
KO KUNA 'DNA' A TAKAICE.
KUMA RASSAN SHI GUDA

BIYU SHI AKE KIRA
"DOUBLE HELIX".
RASSAN GUDA BIYU SUN NAN-
NADE JUNA, KUMA KO WANIA, T,
C, G SUN HADE DA 'YAN UWAN SU.



EH, ABIN SHA'AWA FA.

'A' YANA HADUWA DA
'T', 'C' YANA HADUWA
DA 'G'. ABIN SHA'AWA?

WACE MATA CE
WACCAN, KUMA ME
TAKE YI?

BA WATSON DA CRICK
BANE KAWAI ZASU
SAMMI LAMBAR YABON FAHIM TAR
DNA BA. BAKA TUNANIN MAZA
BASU BANE KAWAI ZASU IYA ZAMA
MASU ILIMIN FASAHA?



YAR UWA TA CE—MAI SUNA ROSALIND
FRANKLIN, MAI ILIMIN FASAHA, TANA
RIKE DA HOTON DNA DATA DAUKA.

IDAN KA DUBA DA KYAU,
ZAKA IYA FAHIM TAR
HOTON.



KINA NUFIN MACE TA GANO
YADDAA DNA YAKE?

WADANNAN HOTUNA NE
AKAYI AMFANI DASU WAJEN
FAHIMTAR KWAYAR HALITTAN
DNA. AMMA ZAN BARI KA GANO
ABINDA NIKE NIFI DA KANKA.

ZO MU KOMA GIDA.

AMMA FA HAR YANZUN
BAN GANE BA. XT YACE
KWAYAR HALITTAN YANA
CIKIN JIKIN KO WANII DAN
ADAM. WANNAN YANA
NUFIN INA DA HALITTA ME
KAMAR LADA KENAN A
CIKIN JIKI NA?

BARI MU BINCIKA, KA
SHIRYA? FARAA TUNANI.

KITSO, HAR YANZUN
FA BINCIKEM MU DA
SAURA.

ZA KA KOYI
ABUBUWA DA
YAWA.

NA SAN YADDAA
ZAMUYI.

YA ZAMUYI?

YANZUN MENENE
DABARA?

WANNAN NE LOKACIN DA
KAKE TA JIRA, KITSO.

HAR YANZUN
BAKI FADA
MINI TSAARIN BA.
MENENE TSAARIN?

LOKACI YAYI DA ZAMU GA
ABINDA KE FARUWA A CIKIN
JIKIN DAN ADAM. KA GA
KWAYAR HALITTA DA I
DON KA.

TSAYA, BA DAI KANA NUFIN

HAKANE

ZAMU TURAKA A
CIKIN JIJIYOYIN
JININ TOBASHIN KA
TUMO.



LOKACI YAYI DA
ZAMU RAGE
GIRMA ZUWA
DAYA KO BIYU.

MU RAGE?
WAI WAI,
INA ZUWA.

BA ZAKA IYA GANIN
KWAYAN HALITTA BA
SOSAI, KO ZAKA IYA?

KUMA KANA SON
KA GANI KO?

A'A...

EH...



KWARAI KO YANA SON YA
GANI. KA YARDA DANI, BA
MATSALA. ZAMU NUNA MA
DUK WANI ABU DA YA
KAMATA KA FAHIMTA.
KARBI WANNAN.

ZAMU IYA AMFANI DA WANNAN
DOMIN SADARWA. MU FARAH,
MU FARAH, DAYA—BIYU—UKU.
KANA JI NA?

TOH YANZUN MUYI
WANNAN.



TOH YANZUN
MUYI WANNAN



KAMAR YANA DA KYAU.

BA MATSALA, HAKA YAYI.

SUNAN SHI LYMPHOCYTE,
KWAYAR JININ DAKE BA JIKI
KARIYA. YAYI DAIDAI.

WOAH

YAN UWA NA, KUNA
GANIN WANNAN?
KUNA GANI? KUNA
JI NA?

NUCLEAS

H.I.
LIBMAN



HALLO?



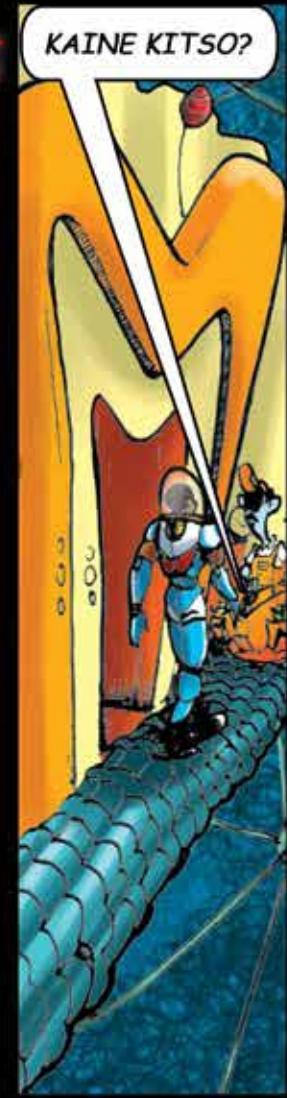
HUH, BAN SAN KO ME YA KAWO
MATSALA BA.



25:47s

25:46s

KAINNE KITSO?



INA DA WASIKA
ZUWA GAREKA.



WASIKA ZUWA KITSO,
BARKA DA ZUWA GARIN KWAYOYIN HALITTA!

KAMAR YADDAA KAKE GANI, KAI DA KOMO WA YAYI YAWA. YANZUN HAKA
KANA WAJEN KWAYAN HALITTA NE, KUMA KO WANI DAKI SUNAN SHI
'ORGANELLE'. KO WANI ORGANELLE YANA DA AIKIN SA DOMIN KWAYAN
HALITTA TACI GABA DA AIKIN TA.

AMMA KASH, DAGA YANZUN, ZAKA CI GABA DA BINCIKEN SAURAN KAI
KADAI. FATAR KWAYAR HALITTAN YANA HANA MUJI MAGANAN KA Y
ADDA YA KAMATA, SABODA HAKA BA ZAMU IYA KAMA KA A NA'URAM
MU BA. AMMA KARKA DAMU. MUNA KOKARIN KARA MA NA'URAN
MAGANAN MU KARFI. AMMA DAGA YANZUN, YI AMFANI DA ABIN
DA KA KOYA DOMIN SAMUN MAFITA. ZAMUYI KOKARIN NEMAN KA.

ALLAH BADA SA'A.

YAN UWAN KA NA BINCIKE HALITTA.

KO BAKA JI DADIN
WANNAN LABARIN BANE?

DOLE IN NEMI
MAFITA YANZUN.
MATSALAR SHINE
BAN SAN INDA ZAN
FARA BA YANZUN.

KARKA DAMU, YARO.
KAYI KOKARI KA SAMU
TAKARDA.

21:45s

KAGA WASU 'RIBOSOMES'
A CHAN, ZAKA IYA SAMUN
TAKARDA A WURIN.

NAGODE, MAILMAN!

EHEN, NA SAMU.
YANZUN YA ZAN IYA
FITO DASHI DAGA NAN?

KA DANNA LAMBAR
DA TA DACE.

KASAN LAMBAR
TAKARDAN KOFAR
FIT?

A'A. AMMA KAN
IYA GANOWA
DA KANKA.

A DAKIN KARATU
MANA.

DAKIN
KARATU
KUMA?

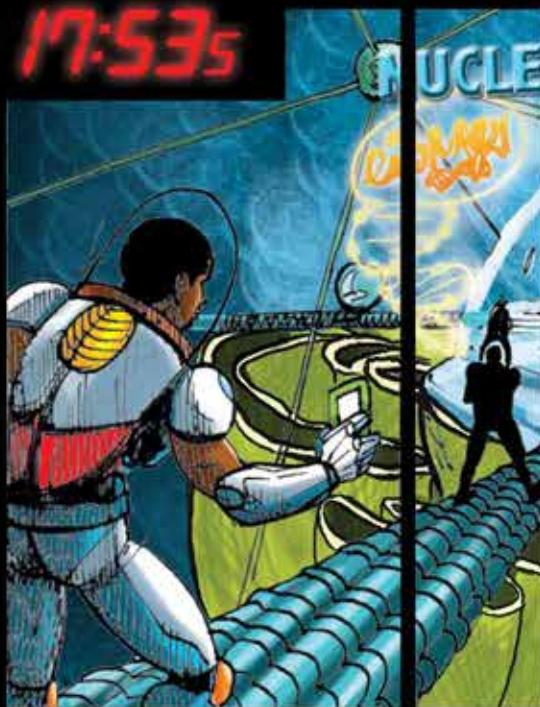
EH, DAKIN ILIMI, BABBAN
DAKI, A TSAKIYAR
KWAYAR HALITTA, INDA
AKE KIRA 'NUCLEOUS'.

ZAKA IYA SAMUN
DUK WANI LABARIN
DA KAKE NEMA. BA
MA WANNAN KAWA
BA, SHINE BABBAN
DAKI A CIKIN
KWAYAN HALITTA
GABA DAYA.

ALLAH BADA
SA'A. NI KAM
ZAN KOMA
AIKI.

YA KAMATA IN RIKA
ZUWA DAKIN KARATU
KODA YAUSHE.

17:53s



15:34s



WANI TAIMAKO
ZAN IYA MAK?



YANA CHAN GIDAN
SAMA. KA BINCICA A
'YAR' KWAYAR
HALITTA MAI LAMBA
2.67. KABI LAMBOBIN
KAWAI.

3:06s



DAN UWA, YA ZA'AYI IN
SAMU 'YAR' KWAYAR
HALITTA ME LAMBA 2.67?

AI YANA DA SAUKI SOSAI.
AKWAI DUBBAN 'YAN' KWAYAN
HALITTA A CIKIN NUCLEUS,
AMMA KO WANNA SANDA AN
SHIRYA SHI NE ZUWA
HAWA 46

KO WANNA DAYA YANA DA 23
DAGA KO WACE SANDA—
MASU SUNA CHROMOSOMES.
KA NEMI SANDA NA BIYU,
SAI KA NEMI 'YAR' KWAYAR
2.67.

NA FAHIMTA.

YAUWA, YANZUN
KA NEMI 'YAR'
KWAYAR HALITTA
ME LAMBA 2.67.

TSAYA, WANNAN 'YAR'
KWAYAR HALITTAN
TANA DA KALMOMI
DAIDAI DA WADANDA
WATSON DA CRICK SUKA
BAYYANA LOKACIN DA
SUCA GANO KWAYAR
HALITTAN DNA—WATAU
A,T,C,G!

10:00s

KA FAHIMTA KENAN.
KAMAR YADDAA KA GANI,
KWAYAR HALITTAN SUNA
DA HARUFFA GUDA HUDU.

YANZUN ABINDA ZANYI
SHINE IN KAWO WANNAN
LITTAFI A 'RIBOSOME', IN
SHIGAR DA LAMBAR SANNAN
IN DAUKI TAKARDA NA.

NAGODE

DAKATA. BA ZAKA IYA
FITA DA LITTAFI DAGA
DAKIN NAN BA.

AMMA INA BUKATAN
WANNAN LAMBAR
DOMIN IN TAFI GIDA.

KANA IYA YIN
PHOTOCOPY A CHAN.

07:50s

DAKATA! ME YASA NIKETA
GANIN HARAFIN U AMMA BA
T BA? KO MASHIN DIN TA
LALACE NE? KO KUMA RABO
NA NE?

IDAN KA WALLAFA
KWAYAR HALITTA A
NAN, DUK T DIN
SUKAN CANJA
ZUWA U. U YANA
NUFIN URACIL—U YAFI
WALLAFAWA DA SAURI
BISA GA T.

SAI ANJIMA.

WOW, NAGODE.
KIN TAIMAKE NI.

KITSO, INA MAIMATAWA,
IDAN KANA JIN MU, KA
TABBATAR MUNA LAFIYAN
KA KALAU.

05:51s

KAR KU DAMU, LAFIYA NA
KALAU. BA ZAKU YARDAD
ABINDA NA GANO BA. DUBI
WANNAN.



KA GANO ABINDA AKECE MA
TRANSCRIPTION—BARKA.

AI ABIN DA SAUKI. NA
WALLAFA DNA DA YAWA.

WADANNA ABINDA
KA WALLAFA SHINE
RNA.



KWARAI! IDAN KA SHIGAR DA RNA DAKA WALLAFA, RIBOSOMES ZASU KAMALA ABINDA AKE CE
MA TRANSLATION, SANNAN SU HAIFAR DA ABIN GINA JIKI (PROTEIN)—WANNAN SHINE
TAKARDAN DA ZAKA YI AMFANI DASHI DOMIN FITA CIKIN KWAYAN HALITTA. KWARAI! IDAN
KA SHIGAR DA RNA DAKA WALLAFA, RIBOSOMES ZASU KAMALA ABINDA AKE CE MA TRANSLA-
TION, SANNAN SU HAIFAR DA ABIN GINA JIKI (PROTEIN)—WANNAN SHINE TAKARDAN DA
ZAKA YI AMFANI DASHI DOMIN FITA CIKIN KWAYAN HALITTA.

WANNAN SHINE
HANYAR DA ZAKA
BI, KITSO.

04:14s



INA BAKIN CIKIN BARIN
WANNAN WURIN.

INA SHA'AWAR
WURIN, HAR MA DAI
DAKIN KARATU DA
NUCLEUS.

IDAN KA KOMA GIDA KA
ZIYARCI GIDAN KARATUN
KU.

TSAYA, WANNAN
BASHI BANE TAKARD
NA NA ZUWA GIDA.
ME YA FARU?

KAI, KILA KA KIRKIRO
RNA WANDA AKA
CANJA A LOKACIN DA
KAKE WALLAFA WA NE.

CANJIN RNA YANA FARUWA NE A
LOKACIN DA AKA KARA, KO AKA CIRE,
KO AKA CANJA SHIRI—WANDA KE
HAIFAR DA KWAYAR GINA JIKI
DABAN.

KILA SHAFI DAYA YA
BACE. SAIKA KOMA DAKIN
KARATU KA NEMO SHI.

WANNAN NAKA NE?

NAGODE SOSAI,
RANKI YA DADE....

NA CECI RAYUWAR KA
KO? AI NA SANI.

03:20s

BARKA, KITSO. KAYI NASARA.
TA FI, MOTA NA JIRANKA.

ZASU TAIMAKE
KA ZUWA GIDA.

KITSO! KA SAMU
TAKARDAN KA. GA
MOTAN KA.

02:22s

NAGODE.

01:53s



KAYI NASARA, KITSO!
KAYI BUGUN GABA DA
KANKA. KA SHIRYA BARIN
JIKIN DAN ADAM ZUWA
GIDA?

NA MO RE SOSAI,
AMMA INA TUNANIN
NA GAMAYAWON
BUDE IDO YANZUN.

WHAO, WACCAN
KWAYAN HALITTAN
TAYI DABAN. TAYI
KAMA DA AYABA.



TOH, KA
KULA FA.

WANNAN BAIYI KYAU
BA KO KADAN.

00:05s



FATATTAKA DA CODE: BINCIKEN DA KITSO KEYI AKAN DNA DA 'YAN' KWAYOYIN HALITA

BUGU MAI LAMBA 1.0, FARKON BUGAWA A SHEKARA 2015

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GODIYA

TYA COMIC LITTAFI NE SAMFURIN NA HAJ IN} O} ARIN DA
WADANNAN:

SHIRIN TSIWURWURI DA ZANE:

ABRAHAM MAMELA, ALBERT LEKGABA, EDWARD PETTITT

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GARGADI

DOMIN MUN YI} O} ARIN TABBATAR DA AMINCIN KIMIYYA ABINDA KE CIKI NA WANNAN LITTAFIN, DA BAYANIN KUNSHE A CIKIN WANCAN BA DOLE BA NE YA NUFIN CEWA A MAIMAKON LIKITA SHAWARA. JAMA'A A KARKASHIN DOKOKIN, MARUBUTA DA KUMA WALLAFA WANNAN LITTAFI DA SU JAMIÁI, BA ZA M, DA LISSAFI DA KUMA YARDA, KO KUMA RAUNIN DA YA FARU, ASARA KO LALACEWAR ABIN DA YA TASO A AMINCI DA BAYANAI A CIKIN WANNAN LITTAFI.

DUK HAKKOKI

BA NA WANNAN KABA'AR IYA REPRODUCED, ADANA A CIKIN GYARA TSARIN, KO DAUKAR KWAYARA KOWACE TSARI KO TA KOWANE HANYA, LANTARKI, INJI,

PHOTOCOPYING, RIKODI, KO BA HAKA BA, BA TARE DA NA DA IZINI A RUBUCE DAGA BOTSWANA-BAYLOR YARA CLINICAL CENTRE NA KYAU, PLOT 1836, ASIBITIN WAY, PRINCESS MARINA HOSPITAL, PRIVATE BAG BR129, GABORONE, BOTSWANA.



GENOME ADVENTURES

GENOME KASADAR SIGAR M WELLCOME TRUST-EN JAMA'A ALKAWARI HIMMA AFRIKA HADIN BAKI GENOMICS NETWORK (CAFGEN). CAFGEN NE MEMBA NA HUMAN GADAR HALI DA KUMA HEALTH A AFRIKA CONSORTIUM (H3AFRICA) DA AKA HADEWA DA BOTSWANA-BAYLOR YARA CLINICAL CENTRE OF KYAU (COE). GENOME KASADAR UTILIZES DAMAR GINI TARON BITA, COMICS ILIMI, DA KUMA KAFOFIN WATSA LABARUN AL'UMMA, TAFIYAR ASU RUWA DA TSAKI, KAFOFIN WATSA LABARAI PRACTITIONERS, DA JAMA'A - MUSAMMAN MATASA - A GENOMICS DA ILIMIN HALITTU DA AIKIN LIKITA BINCIKE. OUR GENOME KASADAR COMIC LITTAFIN JERIN BUGA LAMBA ILMANTAR DA MASU KARATU A KAN TARIHIN GADAR HALI DA KUMA HALITTAR JINI, DA TSARI DA KUMA AIKI NA DNA DA KWAYOYIN HALITTU, DA LINK TSAKANIN GENOMICS DA KUMA KIWON LAFIYA, DA KUMA TSARI GA SHIGA JAMI'A A CIKIN WANNA ILIMIN HALITTU DA AIKIN LIKITA KO GENOMICS BINCIKE BINCIKEN, CIKI HAR DA DA'A AL'AMURRAN DA SUKA SHAFI DANGANE DA SANAR DA YARD, SAMPLE SHIPPING DA KUMA AJIYA, DA KUMA AL'UMMA ALKAWARI.

KWA TAARIFA ZAIDI, TAFADHARI TEMBELEA MITANDAO YETU YA KIJAMII:

-  GENOMEADVENTURES.WEEBLY.COM
-  FACEBOOK.COM/GENOMEADVENTURES
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