
ASTRONAUT KATE RUBINS
ADVANCES DNA SEQUENCING IN SPACE

1
00:00:07,990 --> 00:00:06,070
[Music]

2
00:00:11,509 --> 00:00:08,000
kate while you do that i have a few

3
00:00:15,030 --> 00:00:11,519
words for you so today marks four years

4
00:00:17,430 --> 00:00:15,040
four months three weeks and five days

5
00:00:20,310 --> 00:00:17,440
since one monumental jump of paradigm

6
00:00:22,630 --> 00:00:20,320
shifting space science occurred when you

7
00:00:23,910 --> 00:00:22,640
for the first time sequence dna beyond

8
00:00:26,070 --> 00:00:23,920
the bounds of earth

9
00:00:27,750 --> 00:00:26,080
since that time six of your crew members

10
00:00:29,029 --> 00:00:27,760
have advanced that work

11
00:00:30,870 --> 00:00:29,039
and demonstrated significant

12
00:00:32,470 --> 00:00:30,880
advancements in microbiology through

13
00:00:34,630 --> 00:00:32,480

culture dependent and culture

14
00:00:36,870 --> 00:00:34,640
independent identification of microbes

15
00:00:38,150 --> 00:00:36,880
human diagnostics when native rna was

16
00:00:40,389 --> 00:00:38,160
prepped and directly sequenced on

17
00:00:42,389 --> 00:00:40,399
station and in fundamental biology when

18
00:00:44,389 --> 00:00:42,399
sequencing was used to assess dna repair

19
00:00:47,190 --> 00:00:44,399
following cellular transformation and

20
00:00:48,630 --> 00:00:47,200
crispr based dna damage all on board and

21
00:00:50,229 --> 00:00:48,640
that came from the minds of a team of

22
00:00:51,430 --> 00:00:50,239
high school students who won genes in

23
00:00:55,189 --> 00:00:51,440
space

24
00:00:56,950 --> 00:00:55,199
and today marks another significant

25
00:00:59,189 --> 00:00:56,960
achievement with the collection

26
00:01:01,910 --> 00:00:59,199
preparation and sequencing of highly

27
00:01:04,390 --> 00:01:01,920
complex and multiplex samples on behalf

28
00:01:06,630 --> 00:01:04,400
of the biomolecule sequencer team

29
00:01:08,390 --> 00:01:06,640
aka minanti myself

30
00:01:10,070 --> 00:01:08,400
sarah stalramo aaron burton and

31
00:01:11,830 --> 00:01:10,080
christian john and the whole space

32
00:01:13,590 --> 00:01:11,840
flight science community we thank you

33
00:01:15,429 --> 00:01:13,600
for continuing to push

34
00:01:17,109 --> 00:01:15,439
space science through your work on board

35
00:01:18,550 --> 00:01:17,119
and through all you do to socialize and

36
00:01:20,630 --> 00:01:18,560
emphasize the importance of molecular

37
00:01:22,870 --> 00:01:20,640
biology in space

38
00:01:24,310 --> 00:01:22,880

thank you kate

39
00:01:26,710 --> 00:01:24,320
oh my gosh you guys are gonna make me

40
00:01:28,710 --> 00:01:26,720
cry this is so cool um i'm just

41
00:01:30,230 --> 00:01:28,720
incredibly excited to see this and i've

42
00:01:33,030 --> 00:01:30,240
been talking about multiplexing for

43
00:01:34,550 --> 00:01:33,040
years so this is amazing

44
00:01:37,030 --> 00:01:34,560
that you guys have been able to do this

45
00:01:38,230 --> 00:01:37,040
and and it's it's really really really

46
00:01:39,990 --> 00:01:38,240
fun to

47
00:01:41,590 --> 00:01:40,000
be at the pointy end of this sphere here

48
00:01:43,109 --> 00:01:41,600
and and to

49
00:01:45,190 --> 00:01:43,119
get a chance to do the sequencing in

50
00:01:47,109 --> 00:01:45,200
space so i'm very excited about this and

51
00:01:49,510 --> 00:01:47,119
i can't wait until we're sequencing

52
00:01:51,510 --> 00:01:49,520
multiplexing 96 well plates swabbing

53
00:01:58,230 --> 00:01:51,520
everything on the space station