
RESEARCHING
CARDIAC
BIOLOGY

1
00:00:28,395 --> 00:00:15,014
[MUSIC]

2
00:00:28,395 --> 00:00:29,095
>> WE'RE ONE OF THE FIRST LABS

3
00:00:29,095 --> 00:00:30,497
TO BE SENDING CARDIOVASCULAR

4
00:00:30,497 --> 00:00:31,898
PROGENITOR CELLS, SO WE KNOW

5
00:00:31,898 --> 00:00:32,699
THAT THEY'RE AN EARLY

6
00:00:32,699 --> 00:00:33,833
POPULATION OF CELLS.

7
00:00:33,833 --> 00:00:34,667
THEY'RE VERY POTENT

8
00:00:34,667 --> 00:00:35,969
IN WHAT THEY CAN BECOME.

9
00:00:35,969 --> 00:00:37,804
WE'RE ABLE TO CREATE

10
00:00:37,804 --> 00:00:38,738
DIFFERENT TYPES OF CARDIAC

11
00:00:38,738 --> 00:00:40,006
TISSUE, WHETHER IT BE

12
00:00:40,006 --> 00:00:41,107
CARDIOMYOCYTES, THE HEART

13
00:00:41,107 --> 00:00:42,942

MUSCLE CELLS, OR ENDOTHELIUM,

14
00:00:42,942 --> 00:00:45,612
THE LINING OF BLOOD VESSELS.

15
00:00:45,612 --> 00:00:46,780
THESE CELLS THAT WE WORK WITH

16
00:00:46,780 --> 00:00:48,248
HAVE THE CAPACITY TO BECOME

17
00:00:48,248 --> 00:00:49,349
A VARIETY OF DIFFERENT

18
00:00:49,349 --> 00:00:51,351
CARDIOVASCULAR DERIVATIVES,

19
00:00:51,351 --> 00:00:52,819
AND THEY FUNCTION IN A UNIQUE

20
00:00:52,819 --> 00:00:53,787
WAY IN RESPONSE TO

21
00:00:53,787 --> 00:00:54,854
THE ENVIRONMENT AND

22
00:00:54,854 --> 00:00:55,889
TO DIFFERENT TREATMENTS.

23
00:00:55,889 --> 00:00:56,723
AND SO THERE'S A LOT THAT

24
00:00:56,723 --> 00:00:57,724
WE CAN LEARN FROM

25
00:00:57,724 --> 00:00:58,958
THESE EXPERIMENTS.

26
00:00:58,958 --> 00:00:59,759
SO THE KEARNS-JONKER

27
00:00:59,759 --> 00:01:00,627
LABORATORY HAS BEEN STUDYING

28
00:01:00,627 --> 00:01:02,262
CARDIOVASCULAR PROGENITOR CELLS

29
00:01:02,262 --> 00:01:03,463
FOR A WHILE, AND USING THEM

30
00:01:03,463 --> 00:01:04,864
FOR CARDIAC REPAIR AND

31
00:01:04,864 --> 00:01:06,032
DEVELOPING BIOLOGICALLY

32
00:01:06,032 --> 00:01:07,300
ACTIVE TISSUES.

33
00:01:07,300 --> 00:01:07,967
WE'LL BE LOOKING AT

34
00:01:07,967 --> 00:01:09,102
DISPARITIES IN THE RESPONSE

35
00:01:09,102 --> 00:01:10,804
OF CELLS OBTAINED FROM

36
00:01:10,804 --> 00:01:12,005
NEONATAL PATIENTS VERSUS

37
00:01:12,005 --> 00:01:13,373
ADULT PATIENTS, AND

38
00:01:13,373 --> 00:01:14,507

HOW THAT DISPARITY EXISTS

39
00:01:14,507 --> 00:01:15,909
ON A MOLECULAR LEVEL.

40
00:01:15,909 --> 00:01:16,609
WE'LL BE ABLE TO COMPARE

41
00:01:16,609 --> 00:01:18,311
THE MICROGRAVITY-EXPOSED CELLS

42
00:01:18,311 --> 00:01:19,913
TO THE SIMULATED-EXPOSED CELLS

43
00:01:19,913 --> 00:01:21,414
USING THE SAME CLONES.

44
00:01:21,414 --> 00:01:22,782
WE'LL BE ABLE TO COMPARE

45
00:01:22,782 --> 00:01:24,083
THESE TWO RESULTS AND SEE

46
00:01:24,083 --> 00:01:25,285
IF WE CAN USE SIMULATED

47
00:01:25,285 --> 00:01:26,686
MICROGRAVITY OR EVEN

48
00:01:26,686 --> 00:01:27,921
SOME TYPE OF MICROGRAVITY

49
00:01:27,921 --> 00:01:29,255
INSPIRED TREATMENT TO HELP

50
00:01:29,255 --> 00:01:31,658
REALLY PROMOTE CARDIAC REPAIR.

51
00:01:31,658 --> 00:01:32,659
WE'RE REALLY EXCITED FOR

52
00:01:32,659 --> 00:01:33,493
THIS SPACEFLIGHT.

53
00:01:33,493 --> 00:01:34,627
WE'VE BEEN LEARNING

54
00:01:34,627 --> 00:01:35,495
QUITE A BIT EVEN FROM

55
00:01:35,495 --> 00:01:37,263
THE SIMULATIONS, AND WE THINK

56
00:01:37,263 --> 00:01:38,264
THAT WITH THIS SPACEFLIGHT,

57
00:01:38,264 --> 00:01:39,466
WE'LL BE ABLE TO TRULY

58
00:01:39,466 --> 00:01:40,800
EXTEND THESE OBSERVATIONS,

59
00:01:40,800 --> 00:01:42,435
AND HOPEFULLY PROMOTE

60
00:01:42,435 --> 00:01:44,204
CARDIAC REPAIR, DEVELOP

61
00:01:44,204 --> 00:01:46,573
BIOLOGIC ACTIVE TISSUE, AND

62
00:01:46,573 --> 00:01:48,675
EVEN ADVANCE THESE INSIGHTS