WEBVTT

NOTE duration: ”00:03:03.637”

NOTE Confidence: 0.9323151

00:00:04.319 --> 00:00:06.259 Lineage plasticity is a process

NOTE Confidence: 0.9323151

00:00:06.399 --> 00:00:07.759 which cancer cell can change

NOTE Confidence: 0.9323151

00:00:07.759 --> 00:00:08.420 their identity

NOTE Confidence: 0.9422385

00:00:08.880 --> 00:00:10.639 and become someone they are

NOTE Confidence: 0.9422385

00:00:10.639 --> 00:00:12.160 not before. Think about the

NOTE Confidence: 0.9422385

00:00:12.160 --> 00:00:13.759 whole concept of any anti

NOTE Confidence: 0.9422385

00:00:13.759 --> 00:00:15.325 cancer treatment. These kinds of

NOTE Confidence: 0.9422385

00:00:15.325 --> 00:00:17.165 cell have some identity, make

NOTE Confidence: 0.9422385

00:00:17.165 --> 00:00:18.685 them different from normal cells.

NOTE Confidence: 0.9422385

00:00:18.685 --> 00:00:19.885 Right? So we can target

NOTE Confidence: 0.9422385

00:00:19.885 --> 00:00:21.565 them by our anti cancer

NOTE Confidence: 0.9422385

00:00:21.565 --> 00:00:22.065 therapies.

NOTE Confidence: 0.9489499

00:00:26.045 --> 00:00:27.565 My lab, trying to answer

NOTE Confidence: 0.9489499

00:00:27.565 --> 00:00:28.545 three big questions.

NOTE Confidence: 0.9715563

00:00:28.925 --> 00:00:29.744 First is

NOTE Confidence: 0.94705665

00:00:30.090 --> 00:00:31.690 why cancer cell are able

NOTE Confidence: 0.94705665

00:00:31.690 --> 00:00:33.050 to escape the anti cancer

NOTE Confidence: 0.94705665

00:00:33.050 --> 00:00:34.409 therapy we designed for them,

NOTE Confidence: 0.94705665

00:00:34.409 --> 00:00:35.450 and how can we stop

NOTE Confidence: 0.94705665

00:00:35.450 --> 00:00:37.470 that? And second question is

NOTE Confidence: 0.94705665

00:00:37.770 --> 00:00:39.390 most of anti cancer therapy

NOTE Confidence: 0.94705665

00:00:39.450 --> 00:00:41.050 only work in a small

NOTE Confidence: 0.94705665

00:00:41.050 --> 00:00:42.729 proportion of patient. So we

NOTE Confidence: 0.94705665

00:00:42.729 --> 00:00:44.005 want to know, can we

NOTE Confidence: 0.94705665

00:00:44.005 --> 00:00:45.205 actually find a way to

NOTE Confidence: 0.94705665

00:00:45.205 --> 00:00:47.445 predict which patient responds to

NOTE Confidence: 0.94705665

00:00:47.445 --> 00:00:49.525 which therapy and match the

NOTE Confidence: 0.94705665

00:00:49.525 --> 00:00:51.125 perfect therapy for the perfect

NOTE Confidence: 0.94705665

00:00:51.125 --> 00:00:51.625 patient?

NOTE Confidence: 0.92702305

00:00:52.165 --> 00:00:53.445 And third is we try

NOTE Confidence: 0.92702305

00:00:53.445 --> 00:00:55.285 and develop new therapies for

NOTE Confidence: 0.92702305

00:00:55.285 --> 00:00:57.205 some cancer do not respond

NOTE Confidence: 0.92702305

00:00:57.205 --> 00:00:59.205 to any therapy exist right

NOTE Confidence: 0.92702305

00:00:59.205 --> 00:01:00.399 now. Now. So we are

NOTE Confidence: 0.92702305

00:01:00.399 --> 00:01:01.520 working very close to the

NOTE Confidence: 0.92702305

00:01:01.520 --> 00:01:04.000 physician colleagues at Yale and

NOTE Confidence: 0.92702305

00:01:04.000 --> 00:01:05.440 using all the cutting edge

NOTE Confidence: 0.92702305

00:01:05.440 --> 00:01:06.880 technology in my lab trying

NOTE Confidence: 0.92702305

00:01:06.880 --> 00:01:07.920 to solve these three big

NOTE Confidence: 0.92702305

00:01:07.920 --> 00:01:08.420 questions.

NOTE Confidence: 0.919081

00:01:12.145 --> 00:01:13.905 This small rare clone has

NOTE Confidence: 0.919081

00:01:13.905 --> 00:01:15.025 the ability to change it

NOTE Confidence: 0.919081

00:01:15.025 --> 00:01:16.305 to some different cell it

NOTE Confidence: 0.919081

00:01:16.305 --> 00:01:18.145 doesn't look like. But with

NOTE Confidence: 0.919081

00:01:18.145 --> 00:01:20.145 special transatomic and single cell,

NOTE Confidence: 0.919081

00:01:20.145 --> 00:01:21.425 first we can mapping them.

NOTE Confidence: 0.919081

00:01:21.425 --> 00:01:22.625 We can know what you're

NOTE Confidence: 0.919081

00:01:22.625 --> 00:01:23.745 actually changing to a new

NOTE Confidence: 0.919081

00:01:23.745 --> 00:01:25.525 one. And with artificial intelligence,

NOTE Confidence: 0.9572992

00:01:25.850 --> 00:01:27.289 which AI do the best,

NOTE Confidence: 0.9572992

00:01:27.289 --> 00:01:28.890 is find a pattern. We

NOTE Confidence: 0.9572992

00:01:28.890 --> 00:01:30.409 do not what your identity

NOTE Confidence: 0.9572992

00:01:30.409 --> 00:01:31.929 is, but we can capture

NOTE Confidence: 0.9572992

00:01:31.929 --> 00:01:33.229 the pattern you change

NOTE Confidence: 0.8740966

00:01:33.929 --> 00:01:35.450 and then design three d

NOTE Confidence: 0.8740966

00:01:35.450 --> 00:01:36.429 cultured organoid.

NOTE Confidence: 0.9074259

00:01:37.049 --> 00:01:38.329 Organoid, you can think about

NOTE Confidence: 0.9074259

00:01:38.329 --> 00:01:39.709 is like a mini pseudotumor.

NOTE Confidence: 0.90351963

00:01:40.275 --> 00:01:41.815 We can generate those pseudotumor

NOTE Confidence: 0.96516126

00:01:42.115 --> 00:01:43.715 from a patient tumor, which

NOTE Confidence: 0.96516126

00:01:43.715 --> 00:01:45.235 means we can test a

NOTE Confidence: 0.96516126

00:01:45.235 --> 00:01:47.735 specific drug. Basically, we predict

NOTE Confidence: 0.96516126

00:01:47.955 --> 00:01:49.315 your next move and give

NOTE Confidence: 0.96516126

00:01:49.315 --> 00:01:50.595 you the drug already waiting

NOTE Confidence: 0.96516126

00:01:50.595 --> 00:01:51.095 there.

NOTE Confidence: 0.996533

00:01:51.795 --> 00:01:52.535 This platform

NOTE Confidence: 0.9676748

00:01:52.915 --> 00:01:54.135 works close together.

NOTE Confidence: 0.86634016

00:01:54.515 --> 00:01:55.015 Basically,

NOTE Confidence: 0.793508

00:01:55.395 --> 00:01:55.895 it's

NOTE Confidence: 0.7280558

00:01:56.250 --> 00:01:56.750 examine,

NOTE Confidence: 0.87983674

00:01:57.210 --> 00:01:57.710 prediction,

NOTE Confidence: 0.9988694

00:01:59.050 --> 00:01:59.790 and testing

NOTE Confidence: 0.9177736

00:02:00.170 --> 00:02:01.850 and will help us to

NOTE Confidence: 0.9177736

00:02:01.850 --> 00:02:03.310 solve the three big questions.

NOTE Confidence: 0.915801

00:02:06.890 --> 00:02:08.250 If we can find all

NOTE Confidence: 0.915801

00:02:08.250 --> 00:02:10.615 those rare cologne for not

NOTE Confidence: 0.915801

00:02:10.675 --> 00:02:12.035 all the tumor, but every

NOTE Confidence: 0.915801

00:02:12.035 --> 00:02:12.935 different patient,

NOTE Confidence: 0.9470383

00:02:13.235 --> 00:02:14.675 each of the rare cologne

NOTE Confidence: 0.9470383

00:02:14.675 --> 00:02:15.955 which cause their tumor may

NOTE Confidence: 0.9470383

00:02:15.955 --> 00:02:17.315 relapse in the future, and

NOTE Confidence: 0.9470383

00:02:17.315 --> 00:02:18.775 then we can design therapies

NOTE Confidence: 0.9606122

00:02:19.075 --> 00:02:20.355 to stop that before the

NOTE Confidence: 0.9606122

00:02:20.355 --> 00:02:21.415 tumor even relapses.

NOTE Confidence: 0.92700666

00:02:21.875 --> 00:02:23.100 And the second goal is

NOTE Confidence: 0.92700666

00:02:23.340 --> 00:02:25.260 use this precision medicine which

NOTE Confidence: 0.92700666

00:02:25.260 --> 00:02:26.880 based on AI algorithm prediction

NOTE Confidence: 0.92700666

00:02:27.100 --> 00:02:28.960 and those little pseudo tumor

NOTE Confidence: 0.92700666

00:02:29.020 --> 00:02:29.760 group platform.

NOTE Confidence: 0.95555216

00:02:30.139 --> 00:02:31.920 We can give each patient

NOTE Confidence: 0.95555216

00:02:32.060 --> 00:02:33.920 a very different treatment design

NOTE Confidence: 0.95555216

00:02:33.980 --> 00:02:35.280 based on AI prediction.

NOTE Confidence: 0.9345297

00:02:36.695 --> 00:02:38.155 And we'll have the most

NOTE Confidence: 0.9345297

00:02:38.294 --> 00:02:39.895 effective treatment before you even

NOTE Confidence: 0.9345297

00:02:39.895 --> 00:02:41.095 give the patient to help

NOTE Confidence: 0.9345297

00:02:41.095 --> 00:02:42.315 our physician colleagues.

NOTE Confidence: 0.95757115

00:02:43.895 --> 00:02:45.095 Right now, our lab is

NOTE Confidence: 0.95757115

00:02:45.095 --> 00:02:46.375 working on prostate cancer and

NOTE Confidence: 0.95757115

00:02:46.375 --> 00:02:48.215 also bladder cancer, and especially

NOTE Confidence: 0.95757115

00:02:48.215 --> 00:02:49.575 because we're in the urology

NOTE Confidence: 0.95757115

00:02:49.575 --> 00:02:49.950 department.

NOTE Confidence: 0.9130727

00:02:50.430 --> 00:02:51.709 But you can see the

NOTE Confidence: 0.9130727

00:02:51.709 --> 00:02:53.150 platform we built, the AI

NOTE Confidence: 0.9130727

00:02:53.150 --> 00:02:55.069 system, the special transatomic, and

NOTE Confidence: 0.9130727

00:02:55.069 --> 00:02:55.730 the pseudotumor,

NOTE Confidence: 0.9959097

00:02:56.110 --> 00:02:57.230 we can use the same

NOTE Confidence: 0.9959097

00:02:57.230 --> 00:02:58.849 platform to any different cancers.