

WEBVTT

NOTE duration: "00:02:15.509"

NOTE Confidence: 0.9690695

00:00:05.440 --> 00:00:07.060 The biggest mystery of biology

NOTE Confidence: 0.9690695

00:00:07.120 --> 00:00:08.320 is the brain. Who we

NOTE Confidence: 0.9690695

00:00:08.320 --> 00:00:10.400 are, what shapes it, what

NOTE Confidence: 0.9690695

00:00:10.400 --> 00:00:11.219 is the interaction

NOTE Confidence: 0.9451916

00:00:11.519 --> 00:00:13.519 between nature and nurture. In

NOTE Confidence: 0.9451916

00:00:13.519 --> 00:00:14.740 the lab we call that

NOTE Confidence: 0.9451916

00:00:14.880 --> 00:00:16.474 genetics and environment.

NOTE Confidence: 0.9430907

00:00:19.814 --> 00:00:21.515 My lab is really interested

NOTE Confidence: 0.9430907

00:00:21.575 --> 00:00:23.435 in the genetic predisposition

NOTE Confidence: 0.9609693

00:00:23.735 --> 00:00:25.915 and progression into brain disease,

NOTE Confidence: 0.9609693

00:00:26.055 --> 00:00:26.955 from anxiety

NOTE Confidence: 0.98100936

00:00:27.335 --> 00:00:28.075 to depression,

NOTE Confidence: 0.9981154

00:00:28.615 --> 00:00:30.154 from autism to addiction.

NOTE Confidence: 0.950798

00:00:30.710 --> 00:00:31.589 This is the question in

NOTE Confidence: 0.950798

00:00:31.589 --> 00:00:32.790 the lab, how do we
NOTE Confidence: 0.950798

00:00:32.790 --> 00:00:34.890 connect genetic risk to
NOTE Confidence: 0.87139195

00:00:35.350 --> 00:00:37.610 cellular changes to disease outcome?
NOTE Confidence: 0.9250312

00:00:41.430 --> 00:00:42.149 And we do that with
NOTE Confidence: 0.9250312

00:00:42.149 --> 00:00:43.269 our stem cell models. So
NOTE Confidence: 0.9250312

00:00:43.269 --> 00:00:44.470 we can make stem cells
NOTE Confidence: 0.9250312

00:00:44.470 --> 00:00:47.025 from people with autism or
NOTE Confidence: 0.9250312

00:00:47.025 --> 00:00:47.525 Alzheimer's,
NOTE Confidence: 0.9977467

00:00:47.905 --> 00:00:48.725 with schizophrenia
NOTE Confidence: 0.7841194

00:00:49.425 --> 00:00:50.085 or Parkinson's,
NOTE Confidence: 0.972092

00:00:50.545 --> 00:00:52.065 and turn those stem cells
NOTE Confidence: 0.972092

00:00:52.065 --> 00:00:53.185 into all of the major
NOTE Confidence: 0.972092

00:00:53.185 --> 00:00:54.325 cell types of the brain.
NOTE Confidence: 0.972092

00:00:54.385 --> 00:00:55.505 But then along the way,
NOTE Confidence: 0.972092

00:00:55.505 --> 00:00:56.785 we can add or remove
NOTE Confidence: 0.972092

00:00:56.785 --> 00:00:57.765 genetic risk.

NOTE Confidence: 0.9915995
00:00:58.640 --> 00:01:00.240 We can add risk to
NOTE Confidence: 0.9915995
00:01:00.240 --> 00:01:00.740 controls,
NOTE Confidence: 0.9900824
00:01:01.200 --> 00:01:02.960 remove it from particular patients,
NOTE Confidence: 0.9900824
00:01:02.960 --> 00:01:04.400 and ask how that changes
NOTE Confidence: 0.9900824
00:01:04.400 --> 00:01:05.600 the way the cell types
NOTE Confidence: 0.9900824
00:01:05.600 --> 00:01:07.300 linked to disease are functioning.
NOTE Confidence: 0.9900824
00:01:07.520 --> 00:01:08.720 And if we can understand
NOTE Confidence: 0.9900824
00:01:08.720 --> 00:01:09.600 that, can we put it
NOTE Confidence: 0.9900824
00:01:09.600 --> 00:01:10.340 in a pill?
NOTE Confidence: 0.98851395
00:01:10.655 --> 00:01:12.414 Can we bottle up that
NOTE Confidence: 0.98851395
00:01:12.414 --> 00:01:13.935 pathway and activate it or
NOTE Confidence: 0.98851395
00:01:13.935 --> 00:01:15.295 repress it? How do we
NOTE Confidence: 0.98851395
00:01:15.295 --> 00:01:16.034 help ensure
NOTE Confidence: 0.9755471
00:01:16.414 --> 00:01:17.534 that all of us can
NOTE Confidence: 0.9755471
00:01:17.534 --> 00:01:19.454 have our best phenotypic or
NOTE Confidence: 0.9755471

00:01:19.454 --> 00:01:21.134 clinical outcome independent of the
NOTE Confidence: 0.9755471

00:01:21.134 --> 00:01:22.015 risk that we were born
NOTE Confidence: 0.9755471

00:01:22.015 --> 00:01:22.515 with?
NOTE Confidence: 0.9812263

00:01:28.270 --> 00:01:29.710 I think we all understand
NOTE Confidence: 0.9812263

00:01:29.710 --> 00:01:30.670 today that there's not going
NOTE Confidence: 0.9812263

00:01:30.670 --> 00:01:31.790 to be one cure for
NOTE Confidence: 0.9812263

00:01:31.790 --> 00:01:32.290 cancer,
NOTE Confidence: 0.96095866

00:01:32.590 --> 00:01:33.870 that there's going to be
NOTE Confidence: 0.96095866

00:01:33.870 --> 00:01:35.870 dozens or hundreds of treatments
NOTE Confidence: 0.96095866

00:01:35.870 --> 00:01:37.710 for cancer dependent on the
NOTE Confidence: 0.96095866

00:01:37.710 --> 00:01:39.010 the genes and the mutations
NOTE Confidence: 0.98223674

00:01:39.385 --> 00:01:40.685 driving it in each person.
NOTE Confidence: 0.97981054

00:01:41.225 --> 00:01:42.424 What we're coming to understand
NOTE Confidence: 0.97981054

00:01:42.424 --> 00:01:43.384 is that the same is
NOTE Confidence: 0.97981054

00:01:43.384 --> 00:01:44.424 going to be true in
NOTE Confidence: 0.97981054

00:01:44.424 --> 00:01:45.965 psychiatric disorders and neurodegeneration.

NOTE Confidence: 0.97021234
00:01:46.265 --> 00:01:47.064 There's not going to be
NOTE Confidence: 0.97021234
00:01:47.064 --> 00:01:48.744 one cure for autism or
NOTE Confidence: 0.97021234
00:01:48.744 --> 00:01:50.424 one cure for Alzheimer's. There's
NOTE Confidence: 0.97021234
00:01:50.424 --> 00:01:51.784 going to be hundreds of
NOTE Confidence: 0.97021234
00:01:51.784 --> 00:01:53.384 treatments depending on the genetics
NOTE Confidence: 0.97021234
00:01:53.384 --> 00:01:54.420 that you were born with.
NOTE Confidence: 0.97021234
00:01:54.659 --> 00:01:56.259 And so I'm really interested
NOTE Confidence: 0.97021234
00:01:56.259 --> 00:01:58.119 in understanding the complex genetics
NOTE Confidence: 0.99555296
00:01:58.740 --> 00:02:00.759 of psychiatric disorders and neurodegenerative
NOTE Confidence: 0.99555296
00:02:00.900 --> 00:02:01.400 diseases
NOTE Confidence: 0.9866815
00:02:02.020 --> 00:02:04.020 towards understanding how many slices
NOTE Confidence: 0.9866815
00:02:04.020 --> 00:02:05.114 there are to each of
NOTE Confidence: 0.9866815
00:02:05.114 --> 00:02:07.034 these conditions, and to begin
NOTE Confidence: 0.9866815
00:02:07.034 --> 00:02:09.274 to find targeted interventions to
NOTE Confidence: 0.9866815
00:02:09.274 --> 00:02:10.394 help one patient at a
NOTE Confidence: 0.9866815

00:02:10.394 --> 00:02:10.894 time.