WEBVTT

00:00:00.000 --> 00:00:03.666 It has been a a really remarkable and

00:00:03.666 --> 00:00:05.982 heartbreaking year of losses for our

00:00:05.982 --> 00:00:08.277 department and we're here today to

00:00:08.277 --> 00:00:10.899 remember and celebrate one of them.

00:00:10.900 --> 00:00:12.934 One of the Giants personal friend

00:00:12.934 --> 00:00:15.500 of mine and a mentor of mine as

00:00:15.500 --> 00:00:18.060 well as so many of us Bob Malice.

00:00:18.060 --> 00:00:20.559 Bob, known to to most of you,

00:00:20.560 --> 00:00:24.204 I think, was a central figure in the

00:00:24.204 --> 00:00:25.460 department in residency training.

00:00:25.460 --> 00:00:27.540 He ran the Neuroscience Research

00:00:27.540 --> 00:00:29.892 training program and and mentored a

00:00:29.892 --> 00:00:31.460 generation of physician scientists

00:00:31.460 --> 00:00:34.309 and was one of the most generous

NOTE Confidence: 0.852937552

00:00:34.309 --> 00:00:36.728 giving people that I've ever met.

NOTE Confidence: 0.852937552

00:00:36.730 --> 00:00:38.974 In addition to being an extraordinary

NOTE Confidence: 0.852937552

00:00:38.974 --> 00:00:41.223 scientist and A and a pillar

NOTE Confidence: 0.852937552

00:00:41.223 --> 00:00:42.246 of our community.

NOTE Confidence: 0.852937552

00:00:42.250 --> 00:00:45.268 We had hoped he died unexpectedly.

NOTE Confidence: 0.852937552

00:00:45.270 --> 00:00:48.672 As you all know, in the summer of 2020.

NOTE Confidence: 0.852937552

00:00:48.680 --> 00:00:49.722 At home.

NOTE Confidence: 0.852937552

00:00:49.722 --> 00:00:53.890 And we had hoped to gather in person,

NOTE Confidence: 0.852937552

00:00:53.890 --> 00:00:55.861 and we've delayed this memorial a bit in the

NOTE Confidence: 0.852937552

00:00:55.861 --> 00:00:57.825 hope that we'd be able to gather in person.

NOTE Confidence: 0.852937552

00:00:57.830 --> 00:00:59.180 But as it's become clear that

NOTE Confidence: 0.852937552

00:00:59.180 --> 00:01:00.599 we don't know when that will,

NOTE Confidence: 0.852937552

00:01:00.600 --> 00:01:01.810 when that will be possible,

NOTE Confidence: 0.852937552

00:01:01.810 --> 00:01:02.606 it's really.

NOTE Confidence: 0.852937552

00:01:02.606 --> 00:01:05.392 A heartbreaking joy to be here together

NOTE Confidence: 0.852937552

00:01:05.392 --> 00:01:07.777 and gathering his memory today.

NOTE Confidence: 0.834921512857143

00:01:10.110 --> 00:01:11.616 We're joined, I believe, by Bob's

NOTE Confidence: 0.834921512857143

00:01:11.616 --> 00:01:14.076 wife Jean, daughters Katie and Emily.

NOTE Confidence: 0.834921512857143

00:01:14.076 --> 00:01:17.490 Jean sent me and Sean this picture yesterday,

NOTE Confidence: 0.834921512857143

00:01:17.490 --> 00:01:20.619 which I think captures much about Bob.

NOTE Confidence: 0.9106405375

00:01:23.410 --> 00:01:25.756 This is Bob on the CNRU and the

NOTE Confidence: 0.9106405375

00:01:25.756 --> 00:01:26.808 Connecticut Mental Health Center,

NOTE Confidence: 0.9106405375

00:01:26.810 --> 00:01:28.265 a place he loved holding

NOTE Confidence: 0.9106405375

00:01:28.265 --> 00:01:29.720 two people that he loved.

NOTE Confidence: 0.9106405375

00:01:29.720 --> 00:01:31.100 Katie and Emily and with the

NOTE Confidence: 0.9106405375

00:01:31.100 --> 00:01:32.380 smile that we all loved.

NOTE Confidence: 0.9334579

00:01:35.000 --> 00:01:36.238 Two things I want to bring to

NOTE Confidence: 0.9334579

00:01:36.240 --> 00:01:38.370 people's attention before before

NOTE Confidence: 0.9334579

00:01:38.370 --> 00:01:39.820 moving on with the program.

NOTE Confidence: 0.9334579

00:01:39.820 --> 00:01:42.320 The first is that immediately

NOTE Confidence: 0.9334579

00:01:42.320 --> 00:01:45.124 after this grand rounds,

NOTE Confidence: 0.9334579

00:01:45.124 --> 00:01:46.936 we normally have our neuroscience research,

NOTE Confidence: 0.9334579

00:01:46.940 --> 00:01:47.594 training program,

NOTE Confidence: 0.9334579

00:01:47.594 --> 00:01:49.556 seminar and that is open to

NOTE Confidence: 0.9334579

00:01:49.556 --> 00:01:51.106 everyone today and we're going

NOTE Confidence: 0.9334579

00:01:51.106 --> 00:01:52.780 to be sharing memories of Bob.

NOTE Confidence: 0.9334579

00:01:52.780 --> 00:01:54.980 We have several of his men tease from

NOTE Confidence: 0.9334579

00:01:54.980 --> 00:01:57.500 over the years going back 20 years,

NOTE Confidence: 0.9334579

00:01:57.500 --> 00:01:58.760 joining us to speak briefly,

NOTE Confidence: 0.9334579

00:01:58.760 --> 00:02:00.342 and there'll be space for others to

NOTE Confidence: 0.9334579

00:02:00.342 --> 00:02:01.778 share thoughts and memories as well.

NOTE Confidence: 0.9334579

00:02:01.780 --> 00:02:04.759 I will paste this zoom link into the chat.

NOTE Confidence: 0.9334579

00:02:04.760 --> 00:02:06.404 And anyone who who has any

NOTE Confidence: 0.9334579

00:02:06.404 --> 00:02:08.022 difficulty with it is welcome to

NOTE Confidence: 0.9334579

00:02:08.022 --> 00:02:10.140 email me and I can send it to you.

NOTE Confidence: 0.9334579

00:02:10.140 --> 00:02:12.549 That's at 11:45.

NOTE Confidence: 0.9334579

00:02:12.550 --> 00:02:14.146 We also recently learned we are,

NOTE Confidence: 0.9334579

00:02:14.150 --> 00:02:16.340 not surprisingly not the only ones

NOTE Confidence: 0.9334579

00:02:16.340 --> 00:02:18.514 who are who are heartbroken by

NOTE Confidence: 0.9334579

00:02:18.514 --> 00:02:20.319 Bob's passing and remembering him.

NOTE Confidence: 0.9334579

00:02:20.320 --> 00:02:22.040 His medical school class.

NOTE Confidence: 0.9334579

00:02:22.040 --> 00:02:25.613 Bob was a Yale Medical School class of 1987.

NOTE Confidence: 0.9334579

00:02:25.613 --> 00:02:27.842 That's where he met Gene and they

NOTE Confidence: 0.9334579

00:02:27.842 --> 00:02:30.278 have set up a student Research

NOTE Confidence: 0.9334579

00:02:30.278 --> 00:02:31.910 fellowship fund that's collecting

NOTE Confidence: 0.9334579

00:02:31.910 --> 00:02:34.747 funds in his honor that will continue

NOTE Confidence: 0.9334579

00:02:34.747 --> 00:02:36.742 his dedication to training and

NOTE Confidence: 0.9334579

00:02:36.742 --> 00:02:38.599 mentorship by supporting research

NOTE Confidence: 0.9334579

00:02:38.599 --> 00:02:41.084 for medical students going forward.

NOTE Confidence: 0.9334579

00:02:41.090 --> 00:02:43.540 If you contact the Yale Medical School.

NOTE Confidence: 0.9334579

00:02:43.540 --> 00:02:45.502 Alumni office they'll be able to

NOTE Confidence: 0.9334579

00:02:45.502 --> 00:02:47.420 give you information about this fund.

NOTE Confidence: 0.9334579

00:02:47.420 --> 00:02:49.093 It is open for donations from anyone

NOTE Confidence: 0.9334579

00:02:49.093 --> 00:02:50.910 that's set up by the medical school.

NOTE Confidence: 0.91350114

00:02:53.630 --> 00:02:55.946 So with that I wanna turn the turn the.

NOTE Confidence: 0.91350114

00:02:55.946 --> 00:02:58.164 I guess that's not really a podium but turn

NOTE Confidence: 0.91350114

00:02:58.164 --> 00:03:00.276 the zoom over to John for further comments.

NOTE Confidence: 0.208675787666667

00:03:11.400 --> 00:03:12.630 John, you're muted.

NOTE Confidence: 0.815549075

00:03:14.440 --> 00:03:18.670 OK. Sorry, thank you. I.

NOTE Confidence: 0.815549075

00:03:18.670 --> 00:03:21.010 Thank you Chris and and thank

NOTE Confidence: 0.815549075

00:03:21.010 --> 00:03:23.203 you everyone for joining us

NOTE Confidence: 0.815549075

00:03:23.203 --> 00:03:25.538 today to celebrate Bob's life.

NOTE Confidence: 0.815549075

00:03:25.540 --> 00:03:27.412 I particularly want to

NOTE Confidence: 0.815549075

00:03:27.412 --> 00:03:29.284 thank Jean Katie Emily.

NOTE Confidence: 0.815549075

00:03:29.290 --> 00:03:31.438 For an Emily for joining us,

NOTE Confidence: 0.815549075

00:03:31.440 --> 00:03:34.056 it's bittersweet to be here together

NOTE Confidence: 0.815549075

00:03:34.056 --> 00:03:36.440 to reflect on Bob's life. He

NOTE Confidence: 0.93656308

00:03:36.450 --> 00:03:37.800 was such a special guy.

NOTE Confidence: 0.761548438

00:03:38.720 --> 00:03:40.560 And his early and unexpected

NOTE Confidence: 0.761548438

00:03:40.560 --> 00:03:43.030 death was was really tragic.

NOTE Confidence: 0.964616929

00:03:46.360 --> 00:03:48.766 But I think there's so much

NOTE Confidence: 0.964616929

00:03:48.766 --> 00:03:50.370 to celebrate that that.

NOTE Confidence: 0.964616929

00:03:50.370 --> 00:03:54.226 We will be kind of heartened by the

NOTE Confidence: 0.964616929

00:03:54.226 --> 00:03:56.834 discussion that follows his death.

NOTE Confidence: 0.964616929

00:03:56.834 --> 00:03:59.044 Still seems unnatural to me.

NOTE Confidence: 0.964616929

00:03:59.050 --> 00:04:00.430 Scientific generation span

NOTE Confidence: 0.964616929

00:04:00.430 --> 00:04:02.730 about three to five years,

NOTE Confidence: 0.964616929

00:04:02.730 --> 00:04:05.532 and by this criterion I'm one

NOTE Confidence: 0.964616929

00:04:05.532 --> 00:04:07.400 generation older than pop.

NOTE Confidence: 0.964616929

00:04:07.400 --> 00:04:08.916 He's been my friend,

NOTE Confidence: 0.964616929

00:04:08.916 --> 00:04:11.979 or was my friend for almost 40 years.

NOTE Confidence: 0.964616929

00:04:11.980 --> 00:04:15.704 I was his psych 101 section

NOTE Confidence: 0.964616929

00:04:15.704 --> 00:04:19.000 Coleader his psychiatry resident.

NOTE Confidence: 0.964616929

00:04:19.000 --> 00:04:20.910 His attending his unit chief

NOTE Confidence: 0.964616929

00:04:20.910 --> 00:04:22.438 and then his chair.

NOTE Confidence: 0.838012203333333

00:04:24.630 --> 00:04:25.683 As Eric Nestler,

NOTE Confidence: 0.838012203333333

00:04:25.683 --> 00:04:27.789 one of his first mentor said,

NOTE Confidence: 0.838012203333333

00:04:27.790 --> 00:04:30.310 we always thought of him as the kid.

NOTE Confidence: 0.838012203333333

00:04:30.310 --> 00:04:32.350 And the kid has died.

NOTE Confidence: 0.838012203333333

00:04:32.350 --> 00:04:35.330 While we're here together today.

NOTE Confidence: 0.838012203333333

00:04:35.330 --> 00:04:37.290 And the unfairness of all

NOTE Confidence: 0.838012203333333

00:04:37.290 --> 00:04:38.858 that is still painful,

NOTE Confidence: 0.838012203333333

00:04:38.860 --> 00:04:39.835 I don't want to take

NOTE Confidence: 0.838012203333333

00:04:39.835 --> 00:04:40.810 up too much time today,

NOTE Confidence: 0.838012203333333

00:04:40.810 --> 00:04:43.138 but I'd like to share some

NOTE Confidence: 0.838012203333333

00:04:43.138 --> 00:04:44.918 reflections about Bob that I

NOTE Confidence: 0.838012203333333

00:04:44.918 --> 00:04:46.653 prepared initially for his funeral.

NOTE Confidence: 0.8774853

00:04:49.060 --> 00:04:52.770 1st. Bob was his own man.

00:04:52.770 --> 00:04:55.010 He was a brain scientist who worked

00:04:55.010 --> 00:04:56.630 to alleviate human suffering.

00:04:56.630 --> 00:04:59.072 And the scope of his accomplishments

00:04:59.072 --> 00:05:01.000 surprised many, including his family.

00:05:01.000 --> 00:05:03.590 And this was a consequence of his

00:05:03.661 --> 00:05:05.947 deep humility and focus on others.

00:05:05.950 --> 00:05:07.186 At the time of his death,

00:05:07.190 --> 00:05:09.350 Bob was professor of psychiatry,

00:05:09.350 --> 00:05:11.198 the head of the Clinical Neuroscience

00:05:11.198 --> 00:05:13.338 Research unit of the Connecticut Mental

00:05:13.338 --> 00:05:16.465 Health Center and the leader of three

00:05:16.465 --> 00:05:18.285 separate research training programs.

00:05:18.290 --> 00:05:21.746 Remarkably, he had five other grants.

00:05:21.750 --> 00:05:22.920 Despite all this,

00:05:22.920 --> 00:05:25.406 he made time for cello, guitar,

00:05:25.406 --> 00:05:27.550 outdoor activities in tennis.

NOTE Confidence: 0.850739471176471

00:05:30.240 --> 00:05:32.277 Bob was also one of the most

NOTE Confidence: 0.850739471176471

00:05:32.277 --> 00:05:33.561 remarkable mentors in teachers

NOTE Confidence: 0.850739471176471

00:05:33.561 --> 00:05:35.655 in the history of our department.

NOTE Confidence: 0.850739471176471

00:05:35.660 --> 00:05:38.376 In this he takes after his mentor,

NOTE Confidence: 0.850739471176471

00:05:38.380 --> 00:05:39.396 George Heninger.

NOTE Confidence: 0.850739471176471

00:05:39.396 --> 00:05:42.302 He was passionate about psychiatry, research,

NOTE Confidence: 0.850739471176471

00:05:42.302 --> 00:05:45.296 training and a fierce advocate for the C&RU.

NOTE Confidence: 0.850739471176471

00:05:45.296 --> 00:05:48.488 After his death, his trainees commented that

NOTE Confidence: 0.850739471176471

00:05:48.488 --> 00:05:51.570 they often came to Yale because of him.

NOTE Confidence: 0.850739471176471

00:05:51.570 --> 00:05:53.510 They thrived at Yale because

NOTE Confidence: 0.850739471176471

00:05:53.510 --> 00:05:55.062 of his caring support,

NOTE Confidence: 0.850739471176471

00:05:55.070 --> 00:05:58.052 and they discovered their own potential

NOTE Confidence: 0.850739471176471

00:05:58.052 --> 00:06:01.230 because Bob listened openly to their ideas.

NOTE Confidence: 0.850739471176471

00:06:01.230 --> 00:06:04.110 They improved because of his incisive

NOTE Confidence: 0.850739471176471

00:06:04.110 --> 00:06:07.014 feedback and they got through rough patches

NOTE Confidence: 0.850739471176471

00:06:07.014 --> 00:06:09.290 because of Bob's infectious optimism,

NOTE Confidence: 0.850739471176471

00:06:09.290 --> 00:06:12.489 good humor and faith in their potential.

NOTE Confidence: 0.850739471176471

00:06:12.490 --> 00:06:15.244 Each one of our trainees was special to him.

NOTE Confidence: 0.850739471176471

00:06:15.250 --> 00:06:18.196 He was thrilled by their triumphs.

NOTE Confidence: 0.850739471176471

00:06:18.200 --> 00:06:19.960 And graduate students sought him

NOTE Confidence: 0.850739471176471

00:06:19.960 --> 00:06:22.087 out at national meetings for a

NOTE Confidence: 0.850739471176471

00:06:22.087 --> 00:06:23.917 booster dose of the Mallison magic.

NOTE Confidence: 0.850739471176471

00:06:23.920 --> 00:06:26.236 It's not surprising that he received

NOTE Confidence: 0.850739471176471

00:06:26.236 --> 00:06:28.218 the Outstanding Teacher award from

NOTE Confidence: 0.850739471176471

00:06:28.218 --> 00:06:32.170 the psychiatry residents in 2010.

NOTE Confidence: 0.850739471176471

00:06:32.170 --> 00:06:34.486 Bob was also a brilliant scientist.

NOTE Confidence: 0.850739471176471

00:06:34.490 --> 00:06:36.946 He was a Phi Beta Kappa graduate of

NOTE Confidence: 0.850739471176471

00:06:36.946 --> 00:06:38.928 Williams College and Alpha Omega Alpha,

NOTE Confidence: 0.850739471176471

00:06:38.930 --> 00:06:42.158 graduate of Yale Medical School and AP,

NOTE Confidence: 0.850739471176471

00:06:42.158 --> 00:06:44.528 a leadership fellow during his

NOTE Confidence: 0.850739471176471

00:06:44.528 --> 00:06:46.960 residency and received many honors.

NOTE Confidence: 0.850739471176471

00:06:46.960 --> 00:06:49.903 He had the vision and courage to focus his

NOTE Confidence: 0.850739471176471

00:06:49.903 --> 00:06:52.459 efforts on important scientific question.

NOTE Confidence: 0.850739471176471

00:06:52.460 --> 00:06:56.023 To invest years in learning or even

NOTE Confidence: 0.850739471176471

00:06:56.023 --> 00:06:58.420 developing scientific methods from SPECT

NOTE Confidence: 0.850739471176471

00:06:58.420 --> 00:07:02.100 and genetics as we're going to hear today.

NOTE Confidence: 0.850739471176471

00:07:02.100 --> 00:07:05.022 And these approaches would enable him

NOTE Confidence: 0.850739471176471

00:07:05.022 --> 00:07:07.820 to pursue these important questions.

NOTE Confidence: 0.850739471176471

00:07:07.820 --> 00:07:10.452 He also had the discipline to see these

NOTE Confidence: 0.850739471176471

00:07:10.452 --> 00:07:12.650 projects through to successful completion.

NOTE Confidence: 0.850739471176471

00:07:12.650 --> 00:07:14.006 His projects were jewels,

NOTE Confidence: 0.850739471176471

00:07:14.006 --> 00:07:16.040 he did not waste his time.

NOTE Confidence: 0.88553735

00:07:18.370 --> 00:07:20.994 And and you're going to hear a lot

NOTE Confidence: 0.88553735

00:07:20.994 --> 00:07:23.408 today about the important findings

NOTE Confidence: 0.88553735

00:07:23.408 --> 00:07:26.924 that he generated in his research.

NOTE Confidence: 0.88553735

00:07:26.930 --> 00:07:29.050 Bob was insatiably curious.

NOTE Confidence: 0.88553735

00:07:29.050 --> 00:07:31.170 His trainees described his

NOTE Confidence: 0.88553735

00:07:31.170 --> 00:07:34.138 openness to their ideas and his

NOTE Confidence: 0.88553735

00:07:34.138 --> 00:07:36.413 passion for learning with them.

NOTE Confidence: 0.88553735

00:07:36.420 --> 00:07:39.136 Bob not only led his laboratory seminar,

NOTE Confidence: 0.88553735

00:07:39.140 --> 00:07:41.892 but he was a long standing attendee at

NOTE Confidence: 0.88553735

00:07:41.892 --> 00:07:44.179 the Molecular Psychiatry Lab meeting,

NOTE Confidence: 0.88553735

00:07:44.180 --> 00:07:45.710 and more recently,

NOTE Confidence: 0.88553735

00:07:45.710 --> 00:07:48.260 the Anteater Vigner Imaging Lab

NOTE Confidence: 0.88553735

00:07:48.260 --> 00:07:50.752 Lab meeting Alan and Teach eviction

NOTE Confidence: 0.88553735

00:07:50.752 --> 00:07:52.960 assistant professor at the time said,

NOTE Confidence: 0.88553735

00:07:52.960 --> 00:07:55.298 I wonder what he was doing here.

NOTE Confidence: 0.88553735

00:07:55.300 --> 00:07:56.280 The head of the CNR.

NOTE Confidence: 0.88553735

00:07:56.280 --> 00:07:57.492 You was attending.

NOTE Confidence: 0.88553735

00:07:57.492 --> 00:08:00.320 My lab meeting was I being audited.

NOTE Confidence: 0.88553735

00:08:00.320 --> 00:08:02.858 It took me 10 weeks to realize that he

NOTE Confidence: 0.88553735

00:08:02.858 --> 00:08:05.487 was simply curious and eager to learn.

NOTE Confidence: 0.88553735

00:08:05.490 --> 00:08:08.346 Like Socrates, Bob preferred to explore

NOTE Confidence: 0.88553735

00:08:08.346 --> 00:08:10.250 challenging questions through dialogue.

NOTE Confidence: 0.88553735

00:08:10.250 --> 00:08:11.650 To put it another way,

NOTE Confidence: 0.88553735

00:08:11.650 --> 00:08:13.234 Bob loved to chat.

NOTE Confidence: 0.88553735

00:08:13.234 --> 00:08:16.052 Jane Taylor noted every week Bob met

NOTE Confidence: 0.88553735

00:08:16.052 --> 00:08:18.565 with Ron Duman for about an hour.

NOTE Confidence: 0.88553735

00:08:18.570 --> 00:08:20.705 I could hear them talk next door

NOTE Confidence: 0.88553735

00:08:20.705 --> 00:08:22.889 when he was done with Rob Ron,

NOTE Confidence: 0.88553735

00:08:22.889 --> 00:08:25.580 he would stop by my office and we would

NOTE Confidence: 0.88553735

00:08:25.650 --> 00:08:28.366 chat for science for another 45 minutes.

NOTE Confidence: 0.88553735

00:08:28.370 --> 00:08:32.058 I treasured those discussions.

NOTE Confidence: 0.88553735

00:08:32.060 --> 00:08:33.930 And what about that laugh?

NOTE Confidence: 0.88553735

00:08:33.930 --> 00:08:36.010 Bob enjoyed a good laugh.

NOTE Confidence: 0.88553735

00:08:36.010 --> 00:08:37.705 His ubiquitous laugh was a

NOTE Confidence: 0.88553735

00:08:37.705 --> 00:08:39.770 celebration of the ironies of life.

NOTE Confidence: 0.88553735

00:08:39.770 --> 00:08:41.945 An invitation to join him

NOTE Confidence: 0.88553735

00:08:41.945 --> 00:08:43.685 in humble self reflection,

NOTE Confidence: 0.88553735

00:08:43.690 --> 00:08:46.408 a supportive connection that cut tension,

NOTE Confidence: 0.88553735

00:08:46.410 --> 00:08:48.575 and an expression of his

NOTE Confidence: 0.88553735

00:08:48.575 --> 00:08:49.874 infectious personal optimism.

NOTE Confidence: 0.88553735

00:08:49.880 --> 00:08:53.065 We could really use that laugh today.

NOTE Confidence: 0.88553735

00:08:53.070 --> 00:08:55.910 For Bob, Family came first.

NOTE Confidence: 0.88553735

00:08:55.910 --> 00:08:58.006 Bob and Gene are two of the finest

NOTE Confidence: 0.88553735

00:08:58.006 --> 00:08:59.807 people that I've ever met and

NOTE Confidence: 0.88553735

00:08:59.807 --> 00:09:01.327 they were a remarkable couple.

NOTE Confidence: 0.88553735

00:09:01.330 --> 00:09:04.948 I think of Bob and Gene as together forever.

NOTE Confidence: 0.88553735

00:09:04.950 --> 00:09:07.068 Bob and I were also members

NOTE Confidence: 0.88553735

00:09:07.068 --> 00:09:09.429 of the fathers of Twins club.

NOTE Confidence: 0.88553735

00:09:09.430 --> 00:09:10.766 When Gene was pregnant,

NOTE Confidence: 0.88553735

00:09:10.766 --> 00:09:13.218 Bob asked me for the truth about

NOTE Confidence: 0.88553735

00:09:13.218 --> 00:09:15.504 being the father of newborn twins.

NOTE Confidence: 0.88553735

00:09:15.510 --> 00:09:18.958 I told him you can't handle the truth.

NOTE Confidence: 0.88553735

00:09:18.960 --> 00:09:21.070 But of course he could.

NOTE Confidence: 0.88553735

00:09:21.070 --> 00:09:23.268 I was most impressed that Bob reduced

NOTE Confidence: 0.88553735

00:09:23.268 --> 00:09:25.277 his academic effort to spend more time

NOTE Confidence: 0.88553735

00:09:25.277 --> 00:09:27.679 at home when the twins were in high school.

NOTE Confidence: 0.88553735

00:09:27.680 --> 00:09:29.170 Bob had a special bond

NOTE Confidence: 0.88553735

00:09:29.170 --> 00:09:30.660 with Katie and with Emily,

NOTE Confidence: 0.88553735

00:09:30.660 --> 00:09:32.984 and he was incredibly proud of them.

NOTE Confidence: 0.88553735

00:09:32.990 --> 00:09:35.570 I periodically saw Bob shopping with

NOTE Confidence: 0.88553735

00:09:35.570 --> 00:09:38.780 Katie or Emily and I thought grown

NOTE Confidence: 0.88553735

00:09:38.780 --> 00:09:42.063 children agreeing to shop with their father.

NOTE Confidence: 0.88553735

00:09:42.070 --> 00:09:42.594 Wow.

NOTE Confidence: 0.88553735

00:09:42.594 --> 00:09:45.738 That said a lot to me.

NOTE Confidence: 0.88553735

00:09:45.740 --> 00:09:49.180 We are a better department because of bye.

NOTE Confidence: 0.88553735

00:09:49.180 --> 00:09:51.546 Bob and Bob and bodied and expressed

NOTE Confidence: 0.88553735

00:09:51.546 --> 00:09:52.912 characteristics and value that

NOTE Confidence: 0.88553735

00:09:52.912 --> 00:09:54.646 continued to make us a better

NOTE Confidence: 0.88553735

00:09:54.646 --> 00:09:56.120 and more resilient community,

NOTE Confidence: 0.88553735

00:09:56.120 --> 00:09:59.744 including integrity, compassion,

NOTE Confidence: 0.88553735

00:09:59.744 --> 00:10:03.540 curiosity, generosity, dedication,

NOTE Confidence: 0.88553735

00:10:03.540 --> 00:10:06.300 professionalism, creativity,

NOTE Confidence: 0.88553735

00:10:06.300 --> 00:10:09.060 collegiality, humility,

NOTE Confidence: 0.88553735

00:10:09.060 --> 00:10:10.236 and of course,

NOTE Confidence: 0.88553735

00:10:10.236 --> 00:10:12.196 a good sense of humor.

NOTE Confidence: 0.88553735

00:10:12.200 --> 00:10:13.648 I'm thrilled that we're

NOTE Confidence: 0.88553735

00:10:13.648 --> 00:10:14.734 celebrating Bob today,

NOTE Confidence: 0.88553735

00:10:14.740 --> 00:10:16.768 and I look forward to hearing

NOTE Confidence: 0.88553735

00:10:16.768 --> 00:10:17.782 from our speakers.

NOTE Confidence: 0.88553735

00:10:17.790 --> 00:10:21.738 So at this point Chris I I.

NOTE Confidence: 0.88553735

00:10:21.740 --> 00:10:23.819 Turn the virtual podium back to you.

NOTE Confidence: 0.952805602

00:10:27.390 --> 00:10:29.565 Thank you John so much

NOTE Confidence: 0.952805602

00:10:29.565 --> 00:10:31.740 for this for those words.

NOTE Confidence: 0.952805602

00:10:31.740 --> 00:10:36.510 We're joined now by by two of Bob's friends

NOTE Confidence: 0.952805602

00:10:36.510 --> 00:10:39.040 and longtime collaborators here at Yale,

NOTE Confidence: 0.952805602

00:10:39.040 --> 00:10:41.434 who will share reflections on their

NOTE Confidence: 0.952805602

00:10:41.434 --> 00:10:43.848 their time with him as friends

NOTE Confidence: 0.952805602

00:10:43.848 --> 00:10:46.952 and colleagues and and also as as

NOTE Confidence: 0.952805602

00:10:46.952 --> 00:10:50.440 scientists working together first

NOTE Confidence: 0.952805602

00:10:50.440 --> 00:10:53.153 please to introduce Doctor Rich Carson.

NOTE Confidence: 0.952805602

00:10:53.153 --> 00:10:56.459 Doctor Carson is professor of radiology,

NOTE Confidence: 0.952805602

00:10:56.460 --> 00:10:59.566 and lots of other things here at Yale and

NOTE Confidence: 0.952805602

00:10:59.566 --> 00:11:01.920 longtime director of the Yale Pet Center,

NOTE Confidence: 0.952805602

00:11:01.920 --> 00:11:04.280 where he's LED an extraordinary

NOTE Confidence: 0.952805602

00:11:04.280 --> 00:11:06.640 innovative program of of research

NOTE Confidence: 0.952805602

00:11:06.720 --> 00:11:08.984 probing the the the living human

NOTE Confidence: 0.952805602

00:11:08.984 --> 00:11:11.180 brain in ways that others cannot.

NOTE Confidence: 0.952805602

00:11:11.180 --> 00:11:12.640 And it was a longtime

NOTE Confidence: 0.952805602

00:11:12.640 --> 00:11:14.100 collaboration of Bobs for decades,

NOTE Confidence: 0.952805602

00:11:14.100 --> 00:11:16.116 and we'll hear about some of that.

NOTE Confidence: 0.952805602

00:11:16.120 --> 00:11:17.860 Some of that journey today.

NOTE Confidence: 0.952805602

00:11:17.860 --> 00:11:19.337 Rich, thank you for being with us.

NOTE Confidence: 0.703957677727272

00:11:20.750 --> 00:11:22.666 Thanks so much Chris.

NOTE Confidence: 0.703957677727272

00:11:22.666 --> 00:11:27.186 This is a D Bonner and a privilege and

NOTE Confidence: 0.703957677727272

00:11:27.186 --> 00:11:29.760 what I wish I really didn't have to have.

NOTE Confidence: 0.703957677727272

00:11:29.760 --> 00:11:31.256 I think that's true with all of us.

NOTE Confidence: 0.703957677727272

00:11:31.260 --> 00:11:32.940 We really wish we weren't here

NOTE Confidence: 0.703957677727272

00:11:32.940 --> 00:11:35.063 today to talk about the talk about

NOTE Confidence: 0.703957677727272

00:11:35.063 --> 00:11:36.638 our dear colleague and friend.

NOTE Confidence: 0.703957677727272

00:11:36.640 --> 00:11:38.404 And you know I started this with a very

NOTE Confidence: 0.703957677727272

00:11:38.404 --> 00:11:39.848 formal slide Doctor Robert Malesan,

NOTE Confidence: 0.703957677727272

00:11:39.850 --> 00:11:41.050 but this he's Bob.

NOTE Confidence: 0.703957677727272

00:11:41.050 --> 00:11:42.550 He was Bob to everybody.

NOTE Confidence: 0.703957677727272

00:11:42.550 --> 00:11:44.917 He was a normal human being and I think

NOTE Confidence: 0.703957677727272

00:11:44.917 --> 00:11:46.990 we're going to be a little redundant

NOTE Confidence: 0.703957677727272

00:11:46.990 --> 00:11:49.679 today about the the joys of working with Bob.

NOTE Confidence: 0.703957677727272

00:11:49.680 --> 00:11:50.958 You heard a little bit about

NOTE Confidence: 0.703957677727272

00:11:50.958 --> 00:11:52.190 the resume I just wanted.

NOTE Confidence: 0.703957677727272

00:11:52.190 --> 00:11:53.306 Just to remind it,

NOTE Confidence: 0.703957677727272

00:11:53.306 --> 00:11:54.980 it'll come in handy in terms

NOTE Confidence: 0.703957677727272

00:11:55.045 --> 00:11:56.827 of the topic will raise today.

NOTE Confidence: 0.703957677727272

00:11:56.830 --> 00:11:57.910 These are real Yeley.

NOTE Confidence: 0.703957677727272

00:11:57.910 --> 00:11:59.530 That's why I put that background

NOTE Confidence: 0.703957677727272

00:11:59.588 --> 00:12:01.530 in my screen today it is empty

NOTE Confidence: 0.703957677727272

00:12:01.530 --> 00:12:02.850 here is residence here.

NOTE Confidence: 0.703957677727272

00:12:02.850 --> 00:12:04.810 Did a brief sojourn down

NOTE Confidence: 0.703957677727272

00:12:04.810 --> 00:12:06.770 I-95 at in Philadelphia Penn,

NOTE Confidence: 0.703957677727272

00:12:06.770 --> 00:12:09.353 but rest the rest of the time he was

NOTE Confidence: 0.703957677727272

00:12:09.353 --> 00:12:12.235 here and what an impact that he had here.

NOTE Confidence: 0.703957677727272

00:12:12.240 --> 00:12:13.734 Now the aspect of Bob's career

NOTE Confidence: 0.703957677727272

00:12:13.734 --> 00:12:15.569 that I'm going to talk about is

NOTE Confidence: 0.703957677727272

00:12:15.569 --> 00:12:17.129 going to be related to imaging.

NOTE Confidence: 0.703957677727272

00:12:17.130 --> 00:12:17.790 No surprise,

NOTE Confidence: 0.703957677727272

00:12:17.790 --> 00:12:20.430 and the parts we want to talk about

NOTE Confidence: 0.703957677727272

00:12:20.504 --> 00:12:23.115 are the two technologies that Bob use.

NOTE Confidence: 0.703957677727272

00:12:23.120 --> 00:12:25.500 Throughout his career here to

NOTE Confidence: 0.703957677727272

00:12:25.500 --> 00:12:27.880 really do molecular imaging within

NOTE Confidence: 0.703957677727272

00:12:27.957 --> 00:12:30.279 the brain using SPECT and PET and

NOTE Confidence: 0.703957677727272

00:12:30.279 --> 00:12:32.050 and just set the stage for those

NOTE Confidence: 0.703957677727272

00:12:32.112 --> 00:12:34.272 of you who this might be new when

NOTE Confidence: 0.703957677727272

00:12:34.272 --> 00:12:36.027 we're looking at how to measure how

NOTE Confidence: 0.703957677727272

00:12:36.027 --> 00:12:37.500 to image something in the brain,

NOTE Confidence: 0.703957677727272

00:12:37.500 --> 00:12:39.528 we're going to choose some relevant

NOTE Confidence: 0.703957677727272

00:12:39.528 --> 00:12:41.729 molecular target or receptor or transporter.

NOTE Confidence: 0.703957677727272

00:12:41.730 --> 00:12:43.546 We'll develop a molecule,

NOTE Confidence: 0.703957677727272

00:12:43.546 --> 00:12:45.816 a radioactive molecule like tracer.

NOTE Confidence: 0.703957677727272

00:12:45.820 --> 00:12:47.328 A radiopharmaceutical will get

NOTE Confidence: 0.703957677727272

00:12:47.328 --> 00:12:48.836 approval for human use,

NOTE Confidence: 0.703957677727272

00:12:48.840 --> 00:12:50.346 will inject it into the patients,

NOTE Confidence: 0.703957677727272

00:12:50.350 --> 00:12:51.840 or maybe we're doing animals.

NOTE Confidence: 0.703957677727272

00:12:51.840 --> 00:12:54.006 We collect images with a scanner.

NOTE Confidence: 0.703957677727272

00:12:54.010 --> 00:12:55.254 We measure uptake overtime,

NOTE Confidence: 0.703957677727272

00:12:55.254 --> 00:12:56.809 and we analyze the data.

NOTE Confidence: 0.703957677727272

00:12:56.810 --> 00:12:58.298 That's our bread and butter that

NOTE Confidence: 0.703957677727272

00:12:58.298 --> 00:13:00.031 we do every day really dependent

NOTE Confidence: 0.703957677727272

00:13:00.031 --> 00:13:01.407 on the novel chemistry.

NOTE Confidence: 0.703957677727272

00:13:01.410 --> 00:13:04.152 Looking at a selective target in

NOTE Confidence: 0.703957677727272

00:13:04.152 --> 00:13:06.114 the brain and what's really great

NOTE Confidence: 0.703957677727272

00:13:06.114 --> 00:13:08.061 is when we have targets that look

NOTE Confidence: 0.703957677727272

00:13:08.061 --> 00:13:09.349 at specific brain proteins,

NOTE Confidence: 0.703957677727272

00:13:09.350 --> 00:13:11.900 receptors and transporters and enzymes.

NOTE Confidence: 0.703957677727272

00:13:11.900 --> 00:13:13.524 And if we do our math right,

NOTE Confidence: 0.703957677727272

00:13:13.530 --> 00:13:15.126 if we can do our imaging right,

NOTE Confidence: 0.703957677727272

00:13:15.130 --> 00:13:17.580 we can make images of the receptors

NOTE Confidence: 0.703957677727272

00:13:17.580 --> 00:13:19.968 and what's really interesting here is

NOTE Confidence: 0.703957677727272

00:13:19.968 --> 00:13:22.506 it's the total receptor minus what's

NOTE Confidence: 0.703957677727272

00:13:22.506 --> 00:13:24.779 already occupied by the endogenous.

NOTE Confidence: 0.703957677727272

00:13:24.780 --> 00:13:25.177 Dopamine,

NOTE Confidence: 0.703957677727272

00:13:25.177 --> 00:13:25.574 serotonin,

NOTE Confidence: 0.703957677727272

00:13:25.574 --> 00:13:28.353 what have you and obviously we've had

NOTE Confidence: 0.703957677727272

00:13:28.353 --> 00:13:30.941 great success in applying that in a

NOTE Confidence: 0.703957677727272

00:13:30.941 --> 00:13:33.040 myriad of neuro psychiatric disorders.

NOTE Confidence: 0.703957677727272

00:13:33.040 --> 00:13:35.600 We could also try to take apart this

NOTE Confidence: 0.703957677727272

00:13:35.600 --> 00:13:37.820 combination of receptors and occupancy.

NOTE Confidence: 0.703957677727272

00:13:37.820 --> 00:13:39.652 Because the occupied receptors,

NOTE Confidence: 0.703957677727272

00:13:39.652 --> 00:13:41.942 whether that be with the

NOTE Confidence: 0.703957677727272

00:13:41.942 --> 00:13:43.980 endogenous log in or with a drug,

NOTE Confidence: 0.703957677727272

00:13:43.980 --> 00:13:45.772 we don't see them and that gives

NOTE Confidence: 0.703957677727272

00:13:45.772 --> 00:13:47.675 us a measure of that that we

NOTE Confidence: 0.703957677727272

00:13:47.675 --> 00:13:49.015 can look at drug occupancies

NOTE Confidence: 0.703957677727272

00:13:49.015 --> 00:13:50.880 as well as their transmitters.

NOTE Confidence: 0.703957677727272

00:13:50.880 --> 00:13:52.020 And here's the cartoon,

NOTE Confidence: 0.703957677727272

00:13:52.020 --> 00:13:53.730 and it's actually cartoon that comes

NOTE Confidence: 0.703957677727272

00:13:53.779 --> 00:13:55.483 out of work done done here at ylvis.

NOTE Confidence: 0.703957677727272

00:13:55.490 --> 00:13:57.134 If you imagine a little receptor

NOTE Confidence: 0.703957677727272

00:13:57.134 --> 00:13:58.900 there D2 receptor and you imagine

NOTE Confidence: 0.703957677727272

00:13:58.900 --> 00:14:00.120 the dopamine molecule sitting

NOTE Confidence: 0.703957677727272

00:14:00.120 --> 00:14:01.340 in the synapse and

NOTE Confidence: 0.877646655416667

00:14:01.395 --> 00:14:03.236 we had a tracer, here's a pet

NOTE Confidence: 0.877646655416667

00:14:03.236 --> 00:14:04.604 tracer carbon 11 raclopride.

NOTE Confidence: 0.877646655416667

00:14:04.610 --> 00:14:07.482 If we altered that by changing the doping

NOTE Confidence: 0.877646655416667

00:14:07.482 --> 00:14:09.514 concentration here by giving amphetamine

NOTE Confidence: 0.877646655416667

00:14:09.514 --> 00:14:11.604 to generate more dopamine release,

NOTE Confidence: 0.877646655416667

00:14:11.610 --> 00:14:13.370 it would alter our signal.

NOTE Confidence: 0.877646655416667

00:14:13.370 --> 00:14:16.037 So a great tool, a little complicated

NOTE Confidence: 0.877646655416667

00:14:16.037 --> 00:14:18.314 tool sensitive to the total amount

NOTE Confidence: 0.877646655416667

00:14:18.314 --> 00:14:20.432 of our target protein but also

NOTE Confidence: 0.877646655416667

00:14:20.432 --> 00:14:22.317 the endogenous activity that's

NOTE Confidence: 0.877646655416667

00:14:22.317 --> 00:14:25.288 going on makes it interesting.

NOTE Confidence: 0.877646655416667

00:14:25.288 --> 00:14:26.620 And challenging.

NOTE Confidence: 0.877646655416667

00:14:26.620 --> 00:14:28.909 Now when we compare these two technologies,

NOTE Confidence: 0.877646655416667

00:14:28.910 --> 00:14:31.574 SPECT and PET, let's just get a little

NOTE Confidence: 0.877646655416667

00:14:31.574 --> 00:14:33.879 background for what we're talking about.

NOTE Confidence: 0.877646655416667

00:14:33.880 --> 00:14:36.920 Inspect a single photon tomography.

NOTE Confidence: 0.877646655416667

00:14:36.920 --> 00:14:39.216 We use the isotopes that just give

NOTE Confidence: 0.877646655416667

00:14:39.216 --> 00:14:41.876 off 1 gamma ray at a time in Pat.

NOTE Confidence: 0.877646655416667

00:14:41.876 --> 00:14:44.242 We're using isotopes to give off positrons.

NOTE Confidence: 0.877646655416667

00:14:44.250 --> 00:14:48.020 That's antimatter positive electrons inspect.

NOTE Confidence: 0.877646655416667

00:14:48.020 --> 00:14:50.477 The isotopes tend to have half light,

NOTE Confidence: 0.877646655416667

00:14:50.480 --> 00:14:52.976 use atoms like iodine and technetium,

NOTE Confidence: 0.877646655416667

00:14:52.980 --> 00:14:54.968 kind of bigger atoms a little harder

NOTE Confidence: 0.877646655416667

00:14:54.968 --> 00:14:57.129 to fit into biological molecules.

NOTE Confidence: 0.877646655416667

00:14:57.130 --> 00:15:00.352 In Petra Lucky we can use fluorine and carbon

NOTE Confidence: 0.877646655416667

00:15:00.352 --> 00:15:03.048 easier to add into biological molecules.

NOTE Confidence: 0.877646655416667

00:15:03.050 --> 00:15:05.288 Specht things work a little longer,

NOTE Confidence: 0.877646655416667

00:15:05.290 --> 00:15:06.482 half lives and hours.

NOTE Confidence: 0.877646655416667

00:15:06.482 --> 00:15:08.270 Pet moves a little quicker here.

NOTE Confidence: 0.877646655416667

00:15:08.270 --> 00:15:10.880 20 minutes to two hours.

NOTE Confidence: 0.877646655416667

00:15:10.880 --> 00:15:12.338 Respect you can actually buy the

NOTE Confidence: 0.877646655416667

00:15:12.338 --> 00:15:14.062 isotope so they are a little pricey

NOTE Confidence: 0.877646655416667

00:15:14.062 --> 00:15:15.700 and you can make do the chemistry.

NOTE Confidence: 0.877646655416667

00:15:15.700 --> 00:15:17.404 And here we need an on site cyclotron.

NOTE Confidence: 0.877646655416667

00:15:17.410 --> 00:15:19.402 There's our cyclotron right there and

NOTE Confidence: 0.877646655416667

00:15:19.402 --> 00:15:21.619 because you have these long half-life,

NOTE Confidence: 0.877646655416667

00:15:21.620 --> 00:15:23.456 SPECT can take a little while.

NOTE Confidence: 0.877646655416667

00:15:23.460 --> 00:15:25.134 You could have the kinetics that

NOTE Confidence: 0.877646655416667

00:15:25.134 --> 00:15:26.818 take a little while pets got

NOTE Confidence: 0.877646655416667

00:15:26.818 --> 00:15:28.348 to work a little bit quicker.

NOTE Confidence: 0.877646655416667

00:15:28.350 --> 00:15:30.066 Now, in the imaging device side,

NOTE Confidence: 0.877646655416667

00:15:30.070 --> 00:15:31.925 the scanners that we use inspector often.

NOTE Confidence: 0.877646655416667

00:15:31.930 --> 00:15:33.820 These clinically useful rotating camera

NOTE Confidence: 0.877646655416667

00:15:33.820 --> 00:15:36.570 cameras for a number of different indications

NOTE Confidence: 0.877646655416667

00:15:36.570 --> 00:15:39.370 of heavily used in cardiology for pet.

NOTE Confidence: 0.877646655416667

00:15:39.370 --> 00:15:41.570 We need these dedicated systems

NOTE Confidence: 0.877646655416667

00:15:41.570 --> 00:15:42.890 definitely more expensive.

NOTE Confidence: 0.877646655416667

00:15:42.890 --> 00:15:44.230 Respect well, the image resolution

NOTE Confidence: 0.877646655416667

00:15:44.230 --> 00:15:46.350 is not as good as we might like.

NOTE Confidence: 0.877646655416667

00:15:46.350 --> 00:15:47.508 It's getting better all the time,

NOTE Confidence: 0.877646655416667

00:15:47.510 --> 00:15:49.715 but we're certainly at the 1 centimeter

NOTE Confidence: 0.877646655416667

00:15:49.715 --> 00:15:52.049 stage pets really push that further along.

NOTE Confidence: 0.877646655416667

00:15:52.050 --> 00:15:54.186 Specht has not the greatest sensitivity.

NOTE Confidence: 0.877646655416667

00:15:54.190 --> 00:15:55.330 It's got collimators,

NOTE Confidence: 0.877646655416667

00:15:55.330 --> 00:15:58.756 pets doing a little bit better and SPECT the

NOTE Confidence: 0.877646655416667

00:15:58.756 --> 00:16:00.666 quantification getting the numbers right.

NOTE Confidence: 0.877646655416667

00:16:00.670 --> 00:16:02.006 It's pretty hard pet.

NOTE Confidence: 0.877646655416667

00:16:02.006 --> 00:16:05.090 Just by the nature of having two gamma rays,

NOTE Confidence: 0.877646655416667

00:16:05.090 --> 00:16:07.448 tends to make it easy there.

NOTE Confidence: 0.877646655416667

00:16:07.450 --> 00:16:09.330 Nevertheless.

NOTE Confidence: 0.877646655416667

00:16:09.330 --> 00:16:11.304 Yale has a fabulous history of

NOTE Confidence: 0.877646655416667

00:16:11.304 --> 00:16:13.568 both SPECT and PET in the brain.

NOTE Confidence: 0.877646655416667

00:16:13.570 --> 00:16:15.388 I'm very happy staying in the 1990s.

NOTE Confidence: 0.877646655416667

00:16:15.388 --> 00:16:16.478 You remember that's when Bob

NOTE Confidence: 0.877646655416667

00:16:16.478 --> 00:16:17.794 was just coming at, you know,

NOTE Confidence: 0.877646655416667

00:16:17.794 --> 00:16:18.904 coming out into his fellowship,

NOTE Confidence: 0.877646655416667

00:16:18.910 --> 00:16:19.198 etc.

NOTE Confidence: 0.877646655416667

00:16:19.198 --> 00:16:20.926 The best place in the world

NOTE Confidence: 0.877646655416667

00:16:20.926 --> 00:16:22.397 to do quantitative brain SPECT

NOTE Confidence: 0.877646655416667

00:16:22.397 --> 00:16:23.767 in the world was yeah,

NOTE Confidence: 0.877646655416667

00:16:23.770 --> 00:16:25.338 OK and it was over at the

NOTE Confidence: 0.877646655416667

00:16:25.338 --> 00:16:26.010 VA but scientifically.

NOTE Confidence: 0.877646655416667

00:16:26.010 --> 00:16:28.122 Based in psychiatry and led by a number

NOTE Confidence: 0.877646655416667

00:16:28.122 --> 00:16:30.546 of the names we've heard already today,

NOTE Confidence: 0.877646655416667

00:16:30.550 --> 00:16:31.742 also including Bob Dennis,

NOTE Confidence: 0.877646655416667

00:16:31.742 --> 00:16:33.530 now PEP began to move into.

NOTE Confidence: 0.877646655416667

00:16:33.530 --> 00:16:35.626 Yeah in the late 1990s at the VA,

NOTE Confidence: 0.877646655416667

00:16:35.630 --> 00:16:38.105 but our pet center opened a few years later

NOTE Confidence: 0.877646655416667

00:16:38.110 --> 00:16:40.380 and one of the reasons we have a pet center.

NOTE Confidence: 0.877646655416667

00:16:40.380 --> 00:16:42.828 And one other big reasons why I'm here today

NOTE Confidence: 0.877646655416667

00:16:42.828 --> 00:16:45.356 is because of the demand from psychiatry.

NOTE Confidence: 0.877646655416667

00:16:45.360 --> 00:16:47.960 'cause of the great 1990s

NOTE Confidence: 0.877646655416667

00:16:47.960 --> 00:16:50.545 experience of being able to work

NOTE Confidence: 0.877646655416667

00:16:50.545 --> 00:16:52.197 in quantitative molecular imaging.

NOTE Confidence: 0.854757208333333

00:16:52.200 --> 00:16:54.252 First respect and Bob was absolutely

NOTE Confidence: 0.854757208333333

00:16:54.252 --> 00:16:56.978 key to that growth of that of both

NOTE Confidence: 0.854757208333333

00:16:56.978 --> 00:16:58.916 because of his experience of Spectat

NOTE Confidence: 0.854757208333333

00:16:58.984 --> 00:17:00.724 yelling so many applications that

NOTE Confidence: 0.854757208333333

00:17:00.724 --> 00:17:03.319 I'll try to detail how we have pet.

NOTE Confidence: 0.854757208333333

00:17:03.319 --> 00:17:05.088 And you know, perhaps not being

NOTE Confidence: 0.854757208333333

00:17:05.088 --> 00:17:06.618 a little self serving here,

NOTE Confidence: 0.854757208333333

00:17:06.620 --> 00:17:09.244 but thanks to psychiatry and thanks to Bob,

NOTE Confidence: 0.854757208333333

00:17:09.250 --> 00:17:10.430 maybe we might be the.

NOTE Confidence: 0.854757208333333

00:17:10.430 --> 00:17:12.632 Arguably the best place to do

NOTE Confidence: 0.854757208333333

00:17:12.632 --> 00:17:15.206 brain pet nowadays to go on with

NOTE Confidence: 0.854757208333333

00:17:15.206 --> 00:17:16.916 the great history of SPECT.

NOTE Confidence: 0.854757208333333

00:17:16.920 --> 00:17:18.105 Alright, so let's talk about

NOTE Confidence: 0.854757208333333

00:17:18.105 --> 00:17:19.053 some of his accomplishments.

NOTE Confidence: 0.854757208333333

00:17:19.060 --> 00:17:20.453 I'd like to kind of walk through

NOTE Confidence: 0.854757208333333

00:17:20.453 --> 00:17:21.820 some of his Seminole papers.

NOTE Confidence: 0.854757208333333

00:17:21.820 --> 00:17:23.080 First on the spec side,

NOTE Confidence: 0.854757208333333

00:17:23.080 --> 00:17:25.930 going back into into the 1990s.

NOTE Confidence: 0.854757208333333

00:17:25.930 --> 00:17:28.345 So here's a classic paper that he

NOTE Confidence: 0.854757208333333

00:17:28.345 --> 00:17:30.552 did with Bob Ennis on looking at and

NOTE Confidence: 0.854757208333333

00:17:30.552 --> 00:17:32.096 this was one of the first papers

NOTE Confidence: 0.854757208333333

00:17:32.096 --> 00:17:33.460 that demonstrated that cartoon.

NOTE Confidence: 0.854757208333333

00:17:33.460 --> 00:17:36.133 I showed that if we give a drug that

NOTE Confidence: 0.854757208333333

00:17:36.133 --> 00:17:38.299 alters the the neurotransmitters,

NOTE Confidence: 0.854757208333333

00:17:38.300 --> 00:17:40.414 we can see that with our molecular

NOTE Confidence: 0.854757208333333

00:17:40.414 --> 00:17:42.200 imaging here, done in nonhuman primates.

NOTE Confidence: 0.854757208333333

00:17:42.200 --> 00:17:43.380 So here's the example.

NOTE Confidence: 0.854757208333333

00:17:43.380 --> 00:17:45.596 Here's what some of the images look like.

NOTE Confidence: 0.854757208333333

00:17:45.600 --> 00:17:46.856 Image through a baboon.

NOTE Confidence: 0.854757208333333

00:17:46.856 --> 00:17:49.150 Brain he's seen the uptake into the

NOTE Confidence: 0.854757208333333

00:17:49.150 --> 00:17:51.600 striatum and the data are collected overtime.

NOTE Confidence: 0.854757208333333

00:17:51.600 --> 00:17:53.238 Here's what the time course looks

NOTE Confidence: 0.854757208333333

00:17:53.238 --> 00:17:55.239 like here in a control baboon.

NOTE Confidence: 0.854757208333333

00:17:55.240 --> 00:17:56.850 And then they do exactly the kind

NOTE Confidence: 0.854757208333333

00:17:56.850 --> 00:17:58.078 of validations you need to do.

NOTE Confidence: 0.854757208333333

00:17:58.080 --> 00:17:59.290 You need to say, OK,

NOTE Confidence: 0.854757208333333

00:17:59.290 --> 00:18:01.070 let's validate that we're measuring

NOTE Confidence: 0.854757208333333

00:18:01.070 --> 00:18:02.494 the particular occupancy here.

NOTE Confidence: 0.854757208333333

00:18:02.500 --> 00:18:04.220 The D2 receptors give haloperidol

NOTE Confidence: 0.854757208333333

00:18:04.220 --> 00:18:04.908 the compete,

NOTE Confidence: 0.854757208333333

00:18:04.910 --> 00:18:07.040 and we got a beautiful displacement,

NOTE Confidence: 0.854757208333333

00:18:07.040 --> 00:18:08.546 and then the more interesting part,

00:18:08.550 --> 00:18:10.265 and indirect activity give a

00:18:10.265 --> 00:18:11.980 drug that doesn't bind directly,

00:18:11.980 --> 00:18:14.278 but increases the competitor dope mean.

00:18:14.280 --> 00:18:16.864 We also get a very long lived displacement.

00:18:16.870 --> 00:18:19.728 And this really opened the doors 1992

00:18:19.728 --> 00:18:22.234 for being able to do these dynamic

00:18:22.234 --> 00:18:24.650 measurements of neurotransmitter changes.

00:18:24.650 --> 00:18:27.443 Inspect and a pet which got to

00:18:27.443 --> 00:18:29.729 humans about five years later.

00:18:29.730 --> 00:18:31.974 Bob was involved in so many

00:18:31.974 --> 00:18:33.947 different aspects of using SPECT

00:18:33.947 --> 00:18:35.967 imaging in the 1990s hearing.

00:18:35.970 --> 00:18:36.318 Yeah,

00:18:36.318 --> 00:18:39.102 here's an example of just knowing the basics.

00:18:39.110 --> 00:18:41.105 How do you evaluate a new molecule?

00:18:41.110 --> 00:18:42.374 And here's some images.

NOTE Confidence: 0.854757208333333

00:18:42.374 --> 00:18:43.524 Again, in this case,

NOTE Confidence: 0.854757208333333

00:18:43.524 --> 00:18:45.470 in a cynomolgus monkey and the process

NOTE Confidence: 0.854757208333333

00:18:45.530 --> 00:18:47.538 that you do to develop a nutrition that

NOTE Confidence: 0.854757208333333

00:18:47.538 --> 00:18:49.548 you can look at these time courses.

NOTE Confidence: 0.854757208333333

00:18:49.550 --> 00:18:51.010 Looking that in the target

NOTE Confidence: 0.854757208333333

00:18:51.010 --> 00:18:53.188 regions here in the striatum for a

NOTE Confidence: 0.854757208333333

00:18:53.188 --> 00:18:54.833 different dopamine transporter or a

NOTE Confidence: 0.854757208333333

00:18:54.833 --> 00:18:56.680 background region in the cerebellum.

NOTE Confidence: 0.854757208333333

00:18:56.680 --> 00:18:58.342 And again the validations not only

NOTE Confidence: 0.854757208333333

00:18:58.342 --> 00:19:00.439 giving the drugs that should displace it.

NOTE Confidence: 0.854757208333333

00:19:00.440 --> 00:19:02.480 But also checking the selectivity,

NOTE Confidence: 0.854757208333333

00:19:02.480 --> 00:19:04.394 checking that if you're selected for

NOTE Confidence: 0.854757208333333

00:19:04.394 --> 00:19:06.783 dope mean the proxy team is oxy teen

NOTE Confidence: 0.854757208333333

00:19:06.783 --> 00:19:08.803 is not going to produce those kind

NOTE Confidence: 0.854757208333333

00:19:08.803 --> 00:19:10.920 of specific challenges and that's the

NOTE Confidence: 0.854757208333333

00:19:10.920 --> 00:19:12.840 great part of Bob's intellectual curiosity.

NOTE Confidence: 0.854757208333333

00:19:12.840 --> 00:19:13.920 As John mentioned,

NOTE Confidence: 0.854757208333333

00:19:13.920 --> 00:19:16.080 was not just applying these tools

NOTE Confidence: 0.854757208333333

00:19:16.080 --> 00:19:17.889 in clinical populations,

NOTE Confidence: 0.854757208333333

00:19:17.890 --> 00:19:19.790 but understanding the basics.

NOTE Confidence: 0.854757208333333

00:19:19.790 --> 00:19:21.690 Recognizing how you can

NOTE Confidence: 0.854757208333333

00:19:21.690 --> 00:19:23.700 use these technologies.

NOTE Confidence: 0.854757208333333

00:19:23.700 --> 00:19:25.692 Here's another paper now starting to

NOTE Confidence: 0.854757208333333

00:19:25.692 --> 00:19:27.840 move this into human into cocaine.

NOTE Confidence: 0.854757208333333

00:19:27.840 --> 00:19:29.730 People with cocaine use disorder.

NOTE Confidence: 0.854757208333333

00:19:29.730 --> 00:19:30.864 I thought we didn't call it that.

NOTE Confidence: 0.854757208333333

00:19:30.870 --> 00:19:33.461 Back then and now looking at how how

NOTE Confidence: 0.854757208333333

00:19:33.461 --> 00:19:35.148 you when you give a particular drug.

NOTE Confidence: 0.854757208333333

00:19:35.150 --> 00:19:36.182 In this case,

NOTE Confidence: 0.854757208333333

00:19:36.182 --> 00:19:37.558 giving cocaine how that

NOTE Confidence: 0.854757208333333

00:19:37.558 --> 00:19:38.590 directly is measurable

NOTE Confidence: 0.930307941764706

00:19:38.648 --> 00:19:40.538 in the images that we can obtain.

NOTE Confidence: 0.930307941764706

00:19:40.540 --> 00:19:42.150 So here's the example again.

NOTE Confidence: 0.930307941764706

00:19:42.150 --> 00:19:43.928 Using spec, things are a little slow,

NOTE Confidence: 0.930307941764706

00:19:43.930 --> 00:19:45.614 but you're collecting data

NOTE Confidence: 0.930307941764706

00:19:45.614 --> 00:19:47.193 and watching overtime. How?

NOTE Confidence: 0.930307941764706

00:19:47.193 --> 00:19:48.758 When you give a different

NOTE Confidence: 0.930307941764706

00:19:48.758 --> 00:19:50.010 doses here of cocaine,

NOTE Confidence: 0.930307941764706

00:19:50.010 --> 00:19:53.306 how you can see reductions in the activity,

NOTE Confidence: 0.930307941764706

00:19:53.310 --> 00:19:54.165 measurements and measuring

NOTE Confidence: 0.930307941764706

00:19:54.165 --> 00:19:55.590 and they're not big signals,

NOTE Confidence: 0.930307941764706

00:19:55.590 --> 00:19:57.166 so you've got to be doing things right.

NOTE Confidence: 0.930307941764706

00:19:57.170 --> 00:20:00.398 In this case 5 or 16% at doses of

NOTE Confidence: 0.930307941764706

00:20:00.398 --> 00:20:02.540 20 or 40 milligrams of cocaine.

NOTE Confidence: 0.930307941764706

00:20:02.540 --> 00:20:04.400 Getting an initial dose response

NOTE Confidence: 0.930307941764706

00:20:04.400 --> 00:20:06.048 curve demonstrating that, yes,

00:20:06.048 --> 00:20:08.160 you're measuring this target

00:20:08.160 --> 00:20:10.800 exactly where cocaine is hitting

00:20:10.880 --> 00:20:13.340 in live human subjects in 1995.

00:20:13.340 --> 00:20:16.560 Or here's an example looking at another

00:20:16.560 --> 00:20:18.520 potential drug that might be useful here.

00:20:18.520 --> 00:20:20.960 Opening the door for what has become very

00:20:20.960 --> 00:20:23.020 common in the Pharmaceutical industry

00:20:23.020 --> 00:20:25.335 to assess drug occupancy directly,

00:20:25.340 --> 00:20:26.436 will those drugs work?

00:20:26.436 --> 00:20:27.258 And here again,

00:20:27.260 --> 00:20:29.115 looking for a very different

00:20:29.115 --> 00:20:31.343 mount using a molecule beta CIT

00:20:31.343 --> 00:20:32.756 labeled with I 123 that.

00:20:32.756 --> 00:20:33.272 13 hour,

00:20:33.272 --> 00:20:35.194 half life and being able to again

00:20:35.194 --> 00:20:36.764 demonstrate a dose response where

NOTE Confidence: 0.930307941764706

00:20:36.764 --> 00:20:38.732 you get a bigger reduction with

NOTE Confidence: 0.930307941764706

00:20:38.732 --> 00:20:41.007 that higher dose and these kind of

NOTE Confidence: 0.930307941764706

00:20:41.007 --> 00:20:43.120 Seminole studies back in the 90s,

NOTE Confidence: 0.930307941764706

00:20:43.120 --> 00:20:45.322 open the eyes in the pharmaceutical

NOTE Confidence: 0.930307941764706

00:20:45.322 --> 00:20:47.826 industries to be able to say that

NOTE Confidence: 0.930307941764706

00:20:47.826 --> 00:20:49.758 wow doing molecular imaging is a

NOTE Confidence: 0.930307941764706

00:20:49.758 --> 00:20:52.236 great tool not only to understand how

NOTE Confidence: 0.930307941764706

00:20:52.236 --> 00:20:54.286 patients were but also to understand

NOTE Confidence: 0.930307941764706

00:20:54.286 --> 00:20:56.254 how the drugs were to understand

NOTE Confidence: 0.930307941764706

00:20:56.254 --> 00:20:58.348 how much occupancy you would get

NOTE Confidence: 0.930307941764706

00:20:58.350 --> 00:21:00.140 in different targets at different

NOTE Confidence: 0.930307941764706

00:21:00.140 --> 00:21:01.930 doses and learning to extend.

NOTE Confidence: 0.930307941764706

00:21:01.930 --> 00:21:03.946 Will the drug dose we need to give.

NOTE Confidence: 0.930307941764706

00:21:03.950 --> 00:21:06.211 Be such that we'll be able to

NOTE Confidence: 0.930307941764706

00:21:06.211 --> 00:21:08.117 get our clinical effect before

00:21:08.117 --> 00:21:09.849 we get adverse effects.

00:21:09.850 --> 00:21:12.450 One more is that with the nature of

00:21:12.450 --> 00:21:14.988 this very unique molecule beta CIT,

00:21:14.990 --> 00:21:16.778 it actually is one that binds

00:21:16.778 --> 00:21:17.970 to two different sites,

00:21:17.970 --> 00:21:19.670 dopamine transporters, as you've seen,

00:21:19.670 --> 00:21:20.618 also serotonin transporters.

00:21:20.618 --> 00:21:22.514 And here we take advantage of

00:21:22.514 --> 00:21:23.955 the imaging characteristics of

00:21:23.955 --> 00:21:26.097 different regions of the brain have

00:21:26.097 --> 00:21:27.730 clearly different distributions.

00:21:27.730 --> 00:21:29.480 So here we could look at this

00:21:29.480 --> 00:21:30.770 now and depressed subjects.

00:21:30.770 --> 00:21:32.653 Now we're looking at both the brain

00:21:32.653 --> 00:21:34.842 stem looking at that measurement of the

00:21:34.842 --> 00:21:36.502 serotonin and showing that reduction

NOTE Confidence: 0.930307941764706

00:21:36.502 --> 00:21:39.002 in depressed subjects and how the

NOTE Confidence: 0.930307941764706

00:21:39.002 --> 00:21:40.268 interesting relationship between.

NOTE Confidence: 0.930307941764706

00:21:40.270 --> 00:21:42.230 What's going on in the in the

NOTE Confidence: 0.930307941764706

00:21:42.230 --> 00:21:43.845 brainstem compared to the dopaminergic

NOTE Confidence: 0.930307941764706

00:21:43.845 --> 00:21:45.645 signal going on the strident,

NOTE Confidence: 0.930307941764706

00:21:45.650 --> 00:21:47.534 so those first early steps of

NOTE Confidence: 0.930307941764706

00:21:47.534 --> 00:21:49.906 looking at 2 markers, in this case,

NOTE Confidence: 0.930307941764706

00:21:49.906 --> 00:21:52.510 2 markers at once with the same

NOTE Confidence: 0.930307941764706

00:21:52.595 --> 00:21:55.487 tracer and the same human subjects.

NOTE Confidence: 0.930307941764706

00:21:55.490 --> 00:21:58.526 Now I went back and asked, actually,

NOTE Confidence: 0.930307941764706

00:21:58.526 --> 00:21:59.806 I'm sorry, one more looking.

NOTE Confidence: 0.930307941764706

00:21:59.810 --> 00:22:02.168 Also, going back to cocaine abstinence.

NOTE Confidence: 0.930307941764706

00:22:02.170 --> 00:22:03.541 Looking now, evaluating,

NOTE Confidence: 0.930307941764706

00:22:03.541 --> 00:22:05.826 understanding the progression of absence.

NOTE Confidence: 0.930307941764706

00:22:05.830 --> 00:22:08.406 How can we use our molecular imaging

NOTE Confidence: 0.930307941764706

00:22:08.406 --> 00:22:10.506 tools following patients in this case

NOTE Confidence: 0.930307941764706

00:22:10.506 --> 00:22:12.360 over absence again with beta CIT.

NOTE Confidence: 0.930307941764706

00:22:12.360 --> 00:22:12.896 And again,

NOTE Confidence: 0.930307941764706

00:22:12.896 --> 00:22:14.236 now we see this interesting

NOTE Confidence: 0.930307941764706

00:22:14.236 --> 00:22:15.360 during the abstinent phase,

NOTE Confidence: 0.930307941764706

00:22:15.360 --> 00:22:17.460 we actually see increases in

NOTE Confidence: 0.930307941764706

00:22:17.460 --> 00:22:19.560 the availability of our tracer.

NOTE Confidence: 0.930307941764706

00:22:19.560 --> 00:22:21.072 Now remember that introduction.

NOTE Confidence: 0.930307941764706

00:22:21.072 --> 00:22:22.584 This gets interesting because

NOTE Confidence: 0.930307941764706

00:22:22.584 --> 00:22:24.597 if I have a higher signal,

NOTE Confidence: 0.930307941764706

00:22:24.600 --> 00:22:26.685 is that because I've upregulated

NOTE Confidence: 0.930307941764706

00:22:26.685 --> 00:22:27.519 the receptors?

NOTE Confidence: 0.930307941764706

00:22:27.520 --> 00:22:29.614 Or is that because I have

NOTE Confidence: 0.930307941764706

00:22:29.614 --> 00:22:31.010 lower levels of computers?

NOTE Confidence: 0.930307941764706

00:22:31.010 --> 00:22:31.340 Dopamine?

NOTE Confidence: 0.930307941764706

00:22:31.340 --> 00:22:33.980 In this case competing at the receptor site?

NOTE Confidence: 0.935605032222222

00:22:33.980 --> 00:22:35.660 Little challenge to be able to

NOTE Confidence: 0.935605032222222

00:22:35.660 --> 00:22:37.380 take apart that, but one of those,

NOTE Confidence: 0.935605032222222

00:22:37.380 --> 00:22:39.387 I know that Bob would wax poetic on

NOTE Confidence: 0.935605032222222

00:22:39.387 --> 00:22:40.972 thinking about the right experimental

NOTE Confidence: 0.935605032222222

00:22:40.972 --> 00:22:43.307 designs to try to take those mechanistic.

NOTE Confidence: 0.935605032222222

00:22:43.310 --> 00:22:46.886 Issues apart in real human patients.

NOTE Confidence: 0.935605032222222

00:22:46.890 --> 00:22:47.790 Now, as I was mentioning,

NOTE Confidence: 0.935605032222222

00:22:47.790 --> 00:22:49.470 I went back and asked for some

NOTE Confidence: 0.935605032222222

00:22:49.470 --> 00:22:50.610 remembrances from Bob and his.

NOTE Confidence: 0.935605032222222

00:22:50.610 --> 00:22:52.668 Bob of course, was at Yale here

NOTE Confidence: 0.935605032222222

00:22:52.668 --> 00:22:54.492 in psychiatry for many many years

NOTE Confidence: 0.935605032222222

00:22:54.492 --> 00:22:56.550 and he he worked closely with Bob

NOTE Confidence: 0.935605032222222

00:22:56.610 --> 00:22:58.650 in those original kind of studies.

NOTE Confidence: 0.935605032222222

00:22:58.650 --> 00:23:01.160 He described Bob kind hearted, warm,

NOTE Confidence: 0.935605032222222

00:23:01.160 --> 00:23:02.800 intelligent, hardworking and modest.

NOTE Confidence: 0.935605032222222

00:23:02.800 --> 00:23:04.006 You're going to hear these over

NOTE Confidence: 0.935605032222222

00:23:04.006 --> 00:23:04.609 and over again,

NOTE Confidence: 0.935605032222222

00:23:04.610 --> 00:23:06.346 but Bob sends a wonderful anecdote that I

NOTE Confidence: 0.935605032222222

00:23:06.346 --> 00:23:08.168 was really excited to share with you today.

NOTE Confidence: 0.935605032222222

00:23:08.170 --> 00:23:09.945 He remembers those long nights

NOTE Confidence: 0.935605032222222

00:23:09.945 --> 00:23:12.133 they spent working in with the

NOTE Confidence: 0.935605032222222

00:23:12.133 --> 00:23:13.848 monkeys two or three morning.

NOTE Confidence: 0.935605032222222

00:23:13.850 --> 00:23:16.850 Apparently so back then, to do spec that.

NOTE Confidence: 0.935605032222222

00:23:16.850 --> 00:23:18.650 Yeah, what you had to do in an animal?

NOTE Confidence: 0.935605032222222

00:23:18.650 --> 00:23:19.960 Well, you could use the

NOTE Confidence: 0.935605032222222

00:23:19.960 --> 00:23:21.270 cameras over at the hospital,

NOTE Confidence: 0.935605032222222

00:23:21.270 --> 00:23:23.454 but only after the clinic was closed

NOTE Confidence: 0.935605032222222

00:23:23.454 --> 00:23:25.308 so they locked down a baboon.

NOTE Confidence: 0.935605032222222

00:23:25.310 --> 00:23:26.385 Get the ready apparently have

NOTE Confidence: 0.935605032222222

00:23:26.385 --> 00:23:27.245 to install a diaper,

NOTE Confidence: 0.935605032222222

00:23:27.250 --> 00:23:29.466 take the tunnel over to your New Haven,

NOTE Confidence: 0.935605032222222

00:23:29.470 --> 00:23:31.458 and then you start scanning a little

NOTE Confidence: 0.935605032222222

00:23:31.458 --> 00:23:33.129 evening or midnight scanning there.

NOTE Confidence: 0.935605032222222

00:23:33.130 --> 00:23:35.080 And of course, we had that 13 hour half life,

NOTE Confidence: 0.935605032222222

00:23:35.080 --> 00:23:37.864 so these could go for quite some time.

NOTE Confidence: 0.935605032222222

00:23:37.870 --> 00:23:39.170 And and Bob Dennis describes,

NOTE Confidence: 0.935605032222222

00:23:39.170 --> 00:23:41.130 our dear Bob is just a real trooper.

NOTE Confidence: 0.935605032222222

00:23:41.130 --> 00:23:42.786 Great companion in those long ones,

NOTE Confidence: 0.935605032222222

00:23:42.790 --> 00:23:44.886 but he replies with one really good anecdote

NOTE Confidence: 0.935605032222222

00:23:44.886 --> 00:23:46.920 and we'll see Jean if you remember this.

NOTE Confidence: 0.935605032222222

00:23:46.920 --> 00:23:48.754 That that was one night where neither

NOTE Confidence: 0.935605032222222

00:23:48.754 --> 00:23:50.832 of our two psychiatrists apparently had

NOTE Confidence: 0.935605032222222

00:23:50.832 --> 00:23:53.304 trouble putting in an intravenous line.

NOTE Confidence: 0.935605032222222

00:23:53.310 --> 00:23:54.081 A venous line.

NOTE Confidence: 0.935605032222222

00:23:54.081 --> 00:23:56.420 We inject that in all of our tracers.

NOTE Confidence: 0.935605032222222

00:23:56.420 --> 00:23:57.648 So Bob called Gene.

NOTE Confidence: 0.935605032222222

00:23:57.648 --> 00:24:00.172 At that point she was doing her residency

NOTE Confidence: 0.935605032222222

00:24:00.172 --> 00:24:03.220 in ENT and Jean came over for the console.

NOTE Confidence: 0.935605032222222

00:24:03.220 --> 00:24:04.810 We don't think she dealt with

NOTE Confidence: 0.935605032222222

00:24:04.810 --> 00:24:05.870 such hairy patients routinely,

NOTE Confidence: 0.935605032222222

00:24:05.870 --> 00:24:07.390 but nevertheless with moved,

NOTE Confidence: 0.935605032222222

00:24:07.390 --> 00:24:09.802 you know, follow very positively to

NOTE Confidence: 0.935605032222222

00:24:09.802 --> 00:24:12.280 a successful outcome for this study.

NOTE Confidence: 0.935605032222222

00:24:12.280 --> 00:24:13.449 So I've been a share is that,

NOTE Confidence: 0.935605032222222

00:24:13.450 --> 00:24:13.948 you know,

NOTE Confidence: 0.935605032222222

00:24:13.948 --> 00:24:15.940 losing Bob so early was just terribly unfair,

NOTE Confidence: 0.935605032222222

00:24:15.940 --> 00:24:17.350 not only a wonderful human being,

NOTE Confidence: 0.935605032222222

00:24:17.350 --> 00:24:18.583 but a tremendous.

NOTE Confidence: 0.935605032222222

00:24:18.583 --> 00:24:20.227 Professional accomplished so much

NOTE Confidence: 0.935605032222222

00:24:20.227 --> 00:24:22.243 and certainly had much much more

NOTE Confidence: 0.935605032222222

00:24:22.243 --> 00:24:24.480 to be able to contribute.

NOTE Confidence: 0.935605032222222

00:24:24.480 --> 00:24:24.985 Well,

NOTE Confidence: 0.935605032222222

00:24:24.985 --> 00:24:28.015 I mentioned that Yale moved from

NOTE Confidence: 0.935605032222222

00:24:28.015 --> 00:24:31.117 SPECT to PET and and I know,

NOTE Confidence: 0.935605032222222

00:24:31.120 --> 00:24:32.656 we know there's a lot of technical reasons.

NOTE Confidence: 0.935605032222222

00:24:32.660 --> 00:24:33.024 I outlined.

NOTE Confidence: 0.935605032222222

00:24:33.024 --> 00:24:33.934 My pet might be better,

NOTE Confidence: 0.935605032222222

00:24:33.940 --> 00:24:35.548 but I think one of the biggest reasons

NOTE Confidence: 0.935605032222222

00:24:35.548 --> 00:24:36.999 was those short half lives in pet.

NOTE Confidence: 0.935605032222222

00:24:37.000 --> 00:24:38.800 You cannot scan into midnight,

NOTE Confidence: 0.935605032222222

00:24:38.800 --> 00:24:39.788 so I think operationally,

NOTE Confidence: 0.935605032222222

00:24:39.788 --> 00:24:41.600 it's just a better place to do so.

NOTE Confidence: 0.935605032222222

00:24:41.600 --> 00:24:44.304 Let me try to share some of Bob

NOTE Confidence: 0.935605032222222

00:24:44.304 --> 00:24:45.764 selected accomplishments in our last

NOTE Confidence: 0.935605032222222

00:24:45.764 --> 00:24:47.795 now decade and a half that I had

NOTE Confidence: 0.935605032222222

00:24:47.795 --> 00:24:49.748 the luxury of being able to work.

NOTE Confidence: 0.935605032222222

00:24:49.750 --> 00:24:51.178 With people like Bob here at

NOTE Confidence: 0.935605032222222

00:24:51.178 --> 00:24:52.550 Yale with our pet center,

NOTE Confidence: 0.935605032222222

00:24:52.550 --> 00:24:54.998 so I'll start with one of his initial

NOTE Confidence: 0.935605032222222

00:24:54.998 --> 00:24:56.899 studies here in cocaine subjects,

NOTE Confidence: 0.935605032222222

00:24:56.900 --> 00:24:58.530 working with a particular Tracy.

NOTE Confidence: 0.935605032222222

00:24:58.530 --> 00:24:59.330 Now a new target,

NOTE Confidence: 0.935605032222222

00:24:59.330 --> 00:25:00.530 and we'll have the numbers of

NOTE Confidence: 0.800817472857143

00:25:00.577 --> 00:25:01.429 new targets and pet.

NOTE Confidence: 0.800817472857143

00:25:01.430 --> 00:25:03.440 This is binding to the norepinephrine

NOTE Confidence: 0.800817472857143

00:25:03.440 --> 00:25:05.113 transporter again going to be

NOTE Confidence: 0.800817472857143

00:25:05.113 --> 00:25:06.508 sensitive to that in cocaine.

NOTE Confidence: 0.800817472857143

00:25:06.510 --> 00:25:08.220 And here's what some of the images look like.

NOTE Confidence: 0.800817472857143

00:25:08.220 --> 00:25:09.306 You may zoom in with pet.

NOTE Confidence: 0.800817472857143

00:25:09.310 --> 00:25:11.424 We can see some high resolution targets.

NOTE Confidence: 0.800817472857143

00:25:11.430 --> 00:25:13.290 We could see the midbrain structures,

NOTE Confidence: 0.800817472857143

00:25:13.290 --> 00:25:14.750 even the locusts arulius.

NOTE Confidence: 0.800817472857143

00:25:14.750 --> 00:25:15.902 And in fact when you look very

NOTE Confidence: 0.800817472857143

00:25:15.902 --> 00:25:17.946 carefully at the shape of the uptake,

NOTE Confidence: 0.800817472857143

00:25:17.950 --> 00:25:19.085 you actually see the ring

NOTE Confidence: 0.800817472857143

00:25:19.085 --> 00:25:20.580 shape of the of the locus.

NOTE Confidence: 0.800817472857143

00:25:20.580 --> 00:25:21.693 And now again,

NOTE Confidence: 0.800817472857143

00:25:21.693 --> 00:25:23.919 taking advantage of that quantitative issues,

NOTE Confidence: 0.800817472857143

00:25:23.920 --> 00:25:25.480 doing things like recognizing

NOTE Confidence: 0.800817472857143

00:25:25.480 --> 00:25:27.040 age effects in norepinephrine,

NOTE Confidence: 0.800817472857143

00:25:27.040 --> 00:25:28.696 transporter availability and then

NOTE Confidence: 0.800817472857143

00:25:28.696 --> 00:25:30.766 looking again between a healthy

NOTE Confidence: 0.800817472857143

00:25:30.766 --> 00:25:32.446 controls and a cocaine subjects

NOTE Confidence: 0.800817472857143

00:25:32.446 --> 00:25:34.258 and seeing even in the locusts,

NOTE Confidence: 0.800817472857143

00:25:34.260 --> 00:25:36.270 even in that small region

NOTE Confidence: 0.800817472857143

00:25:36.270 --> 00:25:37.878 and apparent up regulation,

NOTE Confidence: 0.800817472857143

00:25:37.880 --> 00:25:39.180 I'll use that word carefully.

NOTE Confidence: 0.800817472857143

00:25:39.180 --> 00:25:41.034 Bob would correct me because we

NOTE Confidence: 0.800817472857143

00:25:41.034 --> 00:25:42.979 don't know the combination of as

NOTE Confidence: 0.800817472857143

00:25:42.979 --> 00:25:44.604 an increase in urban efferent

NOTE Confidence: 0.800817472857143

00:25:44.604 --> 00:25:46.158 transporters or decreased occupancy

NOTE Confidence: 0.800817472857143

00:25:46.158 --> 00:25:47.718 by endogenous norepinephrine,

NOTE Confidence: 0.800817472857143

00:25:47.720 --> 00:25:49.505 interesting stories and those answers

NOTE Confidence: 0.800817472857143

00:25:49.505 --> 00:25:52.049 are still still still to be obtained.

NOTE Confidence: 0.800817472857143

00:25:52.050 --> 00:25:54.187 We moved on with many other targets here.

NOTE Confidence: 0.800817472857143

00:25:54.190 --> 00:25:55.350 Here's the collaborative study where

NOTE Confidence: 0.800817472857143

00:25:55.350 --> 00:25:57.089 Bob working with one of his men tease.

NOTE Confidence: 0.800817472857143

00:25:57.090 --> 00:25:58.486 They've met a ski,

NOTE Confidence: 0.800817472857143

00:25:58.486 --> 00:26:01.348 who I know will talk later and is now

NOTE Confidence: 0.800817472857143

00:26:01.348 --> 00:26:03.140 the medical director over in the pet

NOTE Confidence: 0.800817472857143

00:26:03.196 --> 00:26:05.284 center about serotonin 1B and again

NOTE Confidence: 0.800817472857143

00:26:05.284 --> 00:26:07.230 looking in cocaine dependent subjects.

NOTE Confidence: 0.800817472857143

00:26:07.230 --> 00:26:08.688 Here's what those images look like.

NOTE Confidence: 0.800817472857143

00:26:08.690 --> 00:26:10.925 A very unique distribution looking

NOTE Confidence: 0.800817472857143

00:26:10.925 --> 00:26:13.160 high uptake in striatum and

NOTE Confidence: 0.800817472857143

00:26:13.160 --> 00:26:15.210 simple cortex there and again.

NOTE Confidence: 0.800817472857143

00:26:15.210 --> 00:26:17.317 Here we see the opposite effect that

NOTE Confidence: 0.800817472857143

00:26:17.317 --> 00:26:19.729 we're seeing in the serotonin 1B targets.

NOTE Confidence: 0.800817472857143

00:26:19.730 --> 00:26:22.676 We're seeing reductions in frontal cortex.

NOTE Confidence: 0.800817472857143

00:26:22.680 --> 00:26:23.901 In hypothalamus etc.

NOTE Confidence: 0.800817472857143

00:26:23.901 --> 00:26:25.936 Compared to the healthy controls

NOTE Confidence: 0.800817472857143

00:26:25.936 --> 00:26:28.705 and again we have that confound

NOTE Confidence: 0.800817472857143

00:26:28.705 --> 00:26:30.118 this receptor downregulation,

NOTE Confidence: 0.800817472857143

00:26:30.120 --> 00:26:31.986 is this alterations in serotonin because

NOTE Confidence: 0.800817472857143

00:26:31.986 --> 00:26:34.389 we do know this market from other

NOTE Confidence: 0.800817472857143

00:26:34.389 --> 00:26:36.579 studies is sensitive to serotonin levels,

NOTE Confidence: 0.800817472857143

00:26:36.580 --> 00:26:38.204 so good challenges there in terms of

NOTE Confidence: 0.800817472857143

00:26:38.204 --> 00:26:39.820 the tools that we can investigate.

NOTE Confidence: 0.800817472857143

00:26:39.820 --> 00:26:43.215 So we follow patients along and look

NOTE Confidence: 0.800817472857143

00:26:43.215 --> 00:26:45.369 at their neuropharmacology in vivo.

NOTE Confidence: 0.800817472857143

00:26:45.370 --> 00:26:47.645 But a real important target we went

NOTE Confidence: 0.800817472857143

00:26:47.645 --> 00:26:49.410 through was looking at dopamine

NOTE Confidence: 0.800817472857143

00:26:49.410 --> 00:26:50.866 targets again in cocaine.

NOTE Confidence: 0.800817472857143

00:26:50.870 --> 00:26:53.400 Obviously the relevance of dopamine

NOTE Confidence: 0.800817472857143

00:26:53.400 --> 00:26:55.014 given cocaine's direct effects

NOTE Confidence: 0.800817472857143

00:26:55.014 --> 00:26:56.486 at these targets there.

NOTE Confidence: 0.800817472857143

00:26:56.490 --> 00:26:57.894 And so here's where we see

NOTE Confidence: 0.800817472857143

00:26:57.894 --> 00:26:59.490 that now using a new tracer,

NOTE Confidence: 0.800817472857143

00:26:59.490 --> 00:27:00.186 something called pH.

NOTE Confidence: 0.800817472857143

00:27:00.186 --> 00:27:01.810 You know this is an interesting target.

NOTE Confidence: 0.800817472857143

00:27:01.810 --> 00:27:03.370 This is a an agonist.

NOTE Confidence: 0.800817472857143

00:27:03.370 --> 00:27:04.640 It was originally developed by

NOTE Confidence: 0.800817472857143

00:27:04.640 --> 00:27:06.503 Merck in the 80s as a possible

NOTE Confidence: 0.800817472857143

00:27:06.503 --> 00:27:08.105 drug for a number of different.

NOTE Confidence: 0.800817472857143

00:27:08.110 --> 00:27:11.030 I believe in Parkinson's disease at the time,

NOTE Confidence: 0.800817472857143

00:27:11.030 --> 00:27:13.046 but it also has an interesting

NOTE Confidence: 0.800817472857143

00:27:13.046 --> 00:27:14.054 characteristic 'cause this

NOTE Confidence: 0.800817472857143

00:27:14.054 --> 00:27:15.816 tracer binds to both dopamine D2.

NOTE Confidence: 0.800817472857143

00:27:15.820 --> 00:27:16.873 And D3 receptors,

NOTE Confidence: 0.800817472857143

00:27:16.873 --> 00:27:18.277 and the differential distribution

NOTE Confidence: 0.800817472857143

00:27:18.277 --> 00:27:20.322 of those in the brain lets us

NOTE Confidence: 0.800817472857143

00:27:20.322 --> 00:27:22.060 look at both at the same time.

NOTE Confidence: 0.800817472857143

00:27:22.060 --> 00:27:24.136 Now people have been using other

NOTE Confidence: 0.800817472857143

00:27:24.136 --> 00:27:25.732 molecules than pH, you know,

NOTE Confidence: 0.800817472857143

00:27:25.732 --> 00:27:26.836 and found D2 changes,

NOTE Confidence: 0.800817472857143

00:27:26.840 --> 00:27:28.720 but here it could look at the D3

NOTE Confidence: 0.800817472857143

00:27:28.720 --> 00:27:30.581 changes and looking down at a very

NOTE Confidence: 0.800817472857143

00:27:30.581 --> 00:27:32.517 focal region in the Niagara and then

NOTE Confidence: 0.800817472857143

00:27:32.517 --> 00:27:34.421 you can see that our cocaine subjects

NOTE Confidence: 0.800817472857143

00:27:34.421 --> 00:27:37.400 have a higher availability in the night.

NOTE Confidence: 0.800817472857143

00:27:37.400 --> 00:27:39.290 Are the source of the dopamine neurons

NOTE Confidence: 0.800817472857143

00:27:39.290 --> 00:27:41.000 compared to the healthy controls?

NOTE Confidence: 0.800817472857143

00:27:41.000 --> 00:27:42.460 And interestingly within those

NOTE Confidence: 0.800817472857143

00:27:42.460 --> 00:27:44.650 values you can see that lovely

NOTE Confidence: 0.952130758181818

00:27:44.712 --> 00:27:46.446 correlation. Between in this case,

NOTE Confidence: 0.952130758181818

00:27:46.446 --> 00:27:48.267 their years of cocaine use both in

NOTE Confidence: 0.952130758181818

00:27:48.267 --> 00:27:49.947 the Niagara and also in the Palatine,

NOTE Confidence: 0.952130758181818

00:27:49.950 --> 00:27:53.250 an area rich in D3 receptors.

NOTE Confidence: 0.952130758181818

00:27:53.250 --> 00:27:55.060 This was a good challenge.

NOTE Confidence: 0.952130758181818

00:27:55.060 --> 00:27:57.167 This was an area we needed to

NOTE Confidence: 0.952130758181818

00:27:57.167 --> 00:27:58.710 know what's going on there.

NOTE Confidence: 0.952130758181818

00:27:58.710 --> 00:28:01.398 Is that because there's increased receptors

NOTE Confidence: 0.952130758181818

00:28:01.398 --> 00:28:04.349 is there less dopamine that's going on?

NOTE Confidence: 0.952130758181818

00:28:04.350 --> 00:28:05.855 And it had great relevance in terms

NOTE Confidence: 0.952130758181818

00:28:05.855 --> 00:28:07.808 of how you might treat these patients,

NOTE Confidence: 0.952130758181818

00:28:07.810 --> 00:28:09.930 and one of the great joys of my life was

NOTE Confidence: 0.952130758181818

00:28:09.983 --> 00:28:11.761 writing a beautiful grant with Bob to

NOTE Confidence: 0.952130758181818

00:28:11.761 --> 00:28:14.168 be able to directly address this comment.

NOTE Confidence: 0.952130758181818

00:28:14.170 --> 00:28:15.528 And I would love to show you

NOTE Confidence: 0.952130758181818

00:28:15.528 --> 00:28:16.697 the results of that. Grant,

NOTE Confidence: 0.952130758181818

00:28:16.697 --> 00:28:18.846 but unfortunately we didn't get it funded,

NOTE Confidence: 0.952130758181818

00:28:18.850 --> 00:28:20.467 so but it was a great joy.

NOTE Confidence: 0.952130758181818

00:28:20.470 --> 00:28:22.408 I'll come back to the story

NOTE Confidence: 0.952130758181818

00:28:22.408 --> 00:28:23.700 of writing with Bob.

NOTE Confidence: 0.952130758181818

00:28:23.700 --> 00:28:24.904 Some more recent studies,

NOTE Confidence: 0.952130758181818

00:28:24.904 --> 00:28:25.807 again with pH.

NOTE Confidence: 0.952130758181818

00:28:25.810 --> 00:28:26.414 Now again,

NOTE Confidence: 0.952130758181818

00:28:26.414 --> 00:28:27.924 Dave Matuseski leading those but

NOTE Confidence: 0.952130758181818

00:28:27.924 --> 00:28:30.569 led by Bob or in terms of looking at

NOTE Confidence: 0.952130758181818

00:28:30.569 --> 00:28:32.684 social status studies or being able to

NOTE Confidence: 0.952130758181818

00:28:32.684 --> 00:28:34.875 look at the interactions of other markers.

NOTE Confidence: 0.952130758181818

00:28:34.880 --> 00:28:36.812 Obesity as well as that again

NOTE Confidence: 0.952130758181818

00:28:36.812 --> 00:28:38.690 in cocaine use individuals.

NOTE Confidence: 0.952130758181818

00:28:38.690 --> 00:28:39.212 And again,

NOTE Confidence: 0.952130758181818

00:28:39.212 --> 00:28:41.300 here's some of those if we look now

NOTE Confidence: 0.952130758181818

00:28:41.359 --> 00:28:43.459 looking at measures of social status,

NOTE Confidence: 0.952130758181818

00:28:43.460 --> 00:28:44.486 the BS MSS.

NOTE Confidence: 0.952130758181818

00:28:44.486 --> 00:28:46.880 Across both cocaine use and healthy controls,

NOTE Confidence: 0.952130758181818

00:28:46.880 --> 00:28:48.392 we get much more of a dynamic range

NOTE Confidence: 0.952130758181818

00:28:48.392 --> 00:28:49.847 and it gets to be interesting.

NOTE Confidence: 0.952130758181818

00:28:49.850 --> 00:28:53.050 Is this one common pathway across both pitch?

NOTE Confidence: 0.952130758181818

00:28:53.050 --> 00:28:54.334 Whereas there are different?

NOTE Confidence: 0.952130758181818

00:28:54.334 --> 00:28:56.578 Relationship that we see here or if

NOTE Confidence: 0.952130758181818

00:28:56.578 --> 00:28:58.156 we bring in obesity this relations

NOTE Confidence: 0.952130758181818

00:28:58.156 --> 00:29:00.057 again in the substantia nigra or

NOTE Confidence: 0.952130758181818

00:29:00.057 --> 00:29:01.817 overlapping with the ventral tegmental

NOTE Confidence: 0.952130758181818

00:29:01.817 --> 00:29:03.550 area and looking at our pH now.

NOTE Confidence: 0.952130758181818

00:29:03.550 --> 00:29:05.461 Our dopamine measures that we go there

NOTE Confidence: 0.952130758181818

00:29:05.461 --> 00:29:07.627 and being able to see that relationship.

NOTE Confidence: 0.952130758181818

00:29:07.630 --> 00:29:11.308 The interaction of drug abuse disorders,

NOTE Confidence: 0.952130758181818

00:29:11.310 --> 00:29:14.202 cocaine use disorders and in this

NOTE Confidence: 0.952130758181818

00:29:14.202 --> 00:29:16.800 case obesity as measured by BMI.

NOTE Confidence: 0.952130758181818

00:29:16.800 --> 00:29:18.897 The last paper I wanna do and this one

NOTE Confidence: 0.952130758181818

00:29:18.897 --> 00:29:20.994 is even sadder because it didn't come

NOTE Confidence: 0.952130758181818

00:29:20.994 --> 00:29:23.224 out till after Bob passed the most

NOTE Confidence: 0.952130758181818

00:29:23.224 --> 00:29:25.408 recent work using our synaptic density agent.

NOTE Confidence: 0.952130758181818

00:29:25.410 --> 00:29:27.906 You see BJ led by Gustavo and and

NOTE Confidence: 0.952130758181818

00:29:27.906 --> 00:29:30.279 of course pioneered and mentored.

NOTE Confidence: 0.952130758181818

00:29:30.280 --> 00:29:31.316 Of course by Bob.

NOTE Confidence: 0.952130758181818

00:29:31.316 --> 00:29:33.230 What kind of changes do we also

NOTE Confidence: 0.952130758181818

00:29:33.230 --> 00:29:34.410 see in the synapses?

NOTE Confidence: 0.952130758181818

00:29:34.410 --> 00:29:34.722 Again,

NOTE Confidence: 0.952130758181818

00:29:34.722 --> 00:29:37.218 the marker we have is sensitive to a

NOTE Confidence: 0.952130758181818

00:29:37.218 --> 00:29:38.881 presynaptic terminal there and what

NOTE Confidence: 0.952130758181818

00:29:38.881 --> 00:29:40.819 basically able to see in multiple

NOTE Confidence: 0.952130758181818

00:29:40.882 --> 00:29:43.374 parts of the brain reductions and singulate,

NOTE Confidence: 0.952130758181818

00:29:43.380 --> 00:29:44.466 prefrontal cortex etc.

NOTE Confidence: 0.952130758181818

00:29:44.466 --> 00:29:46.638 No differences in the white matter.

NOTE Confidence: 0.952130758181818

00:29:46.640 --> 00:29:48.080 Kind of our control region.

NOTE Confidence: 0.952130758181818

00:29:48.080 --> 00:29:49.712 And when you do the parametric

NOTE Confidence: 0.952130758181818

00:29:49.712 --> 00:29:51.476 imaging it focus in particular on

NOTE Confidence: 0.952130758181818

00:29:51.476 --> 00:29:53.336 the prefrontal cortex and then not

NOTE Confidence: 0.952130758181818

00:29:53.336 --> 00:29:55.319 just the group differences there.

NOTE Confidence: 0.952130758181818

00:29:55.320 --> 00:29:57.552 But to me often these are the most

NOTE Confidence: 0.952130758181818

00:29:57.552 --> 00:29:59.413 interesting ones about looking at

NOTE Confidence: 0.952130758181818

00:29:59.413 --> 00:30:01.069 their relationships within the

NOTE Confidence: 0.952130758181818

00:30:01.069 --> 00:30:01.897 patient populations.

NOTE Confidence: 0.952130758181818

00:30:01.900 --> 00:30:04.798 Kind of in an R Doc way of measures

NOTE Confidence: 0.952130758181818

00:30:04.798 --> 00:30:07.895 here of usage of cocaine over days

NOTE Confidence: 0.952130758181818

00:30:07.895 --> 00:30:09.239 or chronicity there.

NOTE Confidence: 0.952130758181818

00:30:09.240 --> 00:30:11.816 And looking at that in terms of the

NOTE Confidence: 0.952130758181818

00:30:11.816 --> 00:30:13.424 different directions that we get and

NOTE Confidence: 0.952130758181818

00:30:13.424 --> 00:30:15.536 when you got a graph like this where

NOTE Confidence: 0.952130758181818

00:30:15.536 --> 00:30:18.149 you have interesting differential changes.

NOTE Confidence: 0.952130758181818

00:30:18.150 --> 00:30:19.725 Of either frequency of use

NOTE Confidence: 0.952130758181818

00:30:19.725 --> 00:30:20.985 or length of absence.

NOTE Confidence: 0.952130758181818

00:30:20.990 --> 00:30:23.102 From there you could just see

NOTE Confidence: 0.952130758181818

00:30:23.102 --> 00:30:25.410 and hear the wheels spinning and

NOTE Confidence: 0.952130758181818

00:30:25.410 --> 00:30:27.888 Bob working with cassava to build

NOTE Confidence: 0.877404463636363

00:30:27.890 --> 00:30:28.988 the possible hypothesis.

NOTE Confidence: 0.877404463636363

00:30:28.988 --> 00:30:31.810 The story of what might be going on.

NOTE Confidence: 0.877404463636363

00:30:31.810 --> 00:30:33.994 How do we interpret our imaging data both

NOTE Confidence: 0.877404463636363

00:30:33.994 --> 00:30:36.826 to look at what it's telling us about the

NOTE Confidence: 0.877404463636363

00:30:36.826 --> 00:30:38.655 disease and progression of the disease

NOTE Confidence: 0.877404463636363

00:30:38.655 --> 00:30:40.889 and absence of disease at the same time?

NOTE Confidence: 0.877404463636363

00:30:40.889 --> 00:30:43.122 Really thinking hard about what might be

NOTE Confidence: 0.877404463636363

00:30:43.122 --> 00:30:45.716 the the artifacts that might be getting.

NOTE Confidence: 0.877404463636363

00:30:45.720 --> 00:30:47.795 If you don't think about

NOTE Confidence: 0.877404463636363

00:30:47.795 --> 00:30:49.455 interpreting your data correctly.

NOTE Confidence: 0.877404463636363

00:30:49.460 --> 00:30:51.530 Well, I reached out to some of Bob Morrow.

NOTE Confidence: 0.877404463636363

00:30:51.530 --> 00:30:53.240 One more thing that could keep

NOTE Confidence: 0.877404463636363

00:30:53.240 --> 00:30:54.660 forget that thanks to Bob.

NOTE Confidence: 0.877404463636363

00:30:54.660 --> 00:30:56.020 Remember that little residency Bob

NOTE Confidence: 0.877404463636363

00:30:56.020 --> 00:30:58.556 did down in pen for a year while he

NOTE Confidence: 0.877404463636363

00:30:58.556 --> 00:30:59.956 built relationships there as well.

NOTE Confidence: 0.877404463636363

00:30:59.960 --> 00:31:01.913 And thanks to that we have a

NOTE Confidence: 0.877404463636363

00:31:01.913 --> 00:31:03.399 collaborative grant with the folks

NOTE Confidence: 0.877404463636363

00:31:03.399 --> 00:31:05.175 at Penn and their addiction center.

NOTE Confidence: 0.877404463636363

00:31:05.180 --> 00:31:07.020 Do you able to look at addiction and

NOTE Confidence: 0.877404463636363

00:31:07.020 --> 00:31:08.854 looking at things like MU and Kappa

NOTE Confidence: 0.877404463636363

00:31:08.854 --> 00:31:10.819 opioid receptors which we can do with pet.

NOTE Confidence: 0.877404463636363

00:31:10.820 --> 00:31:12.492 Looking at neuroinflammation markers

NOTE Confidence: 0.877404463636363

00:31:12.492 --> 00:31:15.000 and unfortunately as the grant was

NOTE Confidence: 0.877404463636363

00:31:15.067 --> 00:31:17.283 getting kicked off we lost Bob and so

NOTE Confidence: 0.877404463636363

00:31:17.283 --> 00:31:19.488 now every year at our annual meeting.

NOTE Confidence: 0.877404463636363

00:31:19.490 --> 00:31:22.115 We have the official Bob Robert team

NOTE Confidence: 0.877404463636363

00:31:22.115 --> 00:31:24.624 Allison Lecture and Marco Leyton gave

NOTE Confidence: 0.877404463636363

00:31:24.624 --> 00:31:27.240 that about addictions and imaging of

NOTE Confidence: 0.877404463636363

00:31:27.240 --> 00:31:29.621 addictions at at our at our last so

NOTE Confidence: 0.877404463636363

00:31:29.621 --> 00:31:31.790 called Pace day that we like to call.

NOTE Confidence: 0.877404463636363

00:31:31.790 --> 00:31:33.750 Well let me share some other thoughts

NOTE Confidence: 0.877404463636363

00:31:33.750 --> 00:31:35.555 about Bob from other imaging colleagues

NOTE Confidence: 0.877404463636363

00:31:35.555 --> 00:31:37.669 that we've had to work with and

NOTE Confidence: 0.877404463636363

00:31:37.723 --> 00:31:39.659 I I asked that I got some really

NOTE Confidence: 0.877404463636363

00:31:39.659 --> 00:31:40.808 nice stories from people.

NOTE Confidence: 0.877404463636363

00:31:40.808 --> 00:31:43.873 So Arena asked you was shared with me about

NOTE Confidence: 0.877404463636363

00:31:43.873 --> 00:31:46.407 Bob was always generous with his time,

NOTE Confidence: 0.877404463636363

00:31:46.410 --> 00:31:48.022 whether it's for career

NOTE Confidence: 0.877404463636363

00:31:48.022 --> 00:31:49.634 advice or granted vice.

NOTE Confidence: 0.877404463636363

00:31:49.640 --> 00:31:52.848 Then just came to the point and even

NOTE Confidence: 0.877404463636363

00:31:52.848 --> 00:31:54.824 helped mentor your marinas bentes

NOTE Confidence: 0.877404463636363

00:31:54.824 --> 00:31:56.352 something that's really really

NOTE Confidence: 0.877404463636363

00:31:56.352 --> 00:31:58.428 valuable and she mentioned you know

NOTE Confidence: 0.877404463636363

00:31:58.428 --> 00:31:59.892 when they made a conference is

NOTE Confidence: 0.877404463636363

00:31:59.892 --> 00:32:01.818 he was just a normal human being.

NOTE Confidence: 0.877404463636363

00:32:01.820 --> 00:32:02.266 You know,

NOTE Confidence: 0.877404463636363

00:32:02.266 --> 00:32:04.280 you talk about the weather and eating a nap,

NOTE Confidence: 0.877404463636363

00:32:04.280 --> 00:32:05.480 but he was always there.

NOTE Confidence: 0.877404463636363

00:32:05.480 --> 00:32:08.504 Whatever you needed, he was always there.

NOTE Confidence: 0.877404463636363

00:32:08.510 --> 00:32:11.046 What a joy to have someone like that,

NOTE Confidence: 0.877404463636363

00:32:11.050 --> 00:32:12.754 and Mark pretends to share just

NOTE Confidence: 0.877404463636363

00:32:12.754 --> 00:32:13.890 remembering of that laugh.

NOTE Confidence: 0.877404463636363

00:32:13.890 --> 00:32:15.962 I can't help but smile when I

NOTE Confidence: 0.877404463636363

00:32:15.962 --> 00:32:17.618 remember and read, read my brain,

NOTE Confidence: 0.877404463636363

00:32:17.618 --> 00:32:18.883 you know, replace his laugh.

NOTE Confidence: 0.877404463636363

00:32:18.883 --> 00:32:20.924 His sense of humor, his nature,

NOTE Confidence: 0.877404463636363

00:32:20.924 --> 00:32:23.509 it just glued people together.

NOTE Confidence: 0.877404463636363

00:32:23.510 --> 00:32:25.393 And when you had those meetings and

NOTE Confidence: 0.877404463636363

00:32:25.393 --> 00:32:27.270 how things worked well and I remember,

NOTE Confidence: 0.877404463636363

00:32:27.270 --> 00:32:28.052 you know,

NOTE Confidence: 0.877404463636363

00:32:28.052 --> 00:32:31.105 Mark was leading a multi multi ply grant.

NOTE Confidence: 0.877404463636363

00:32:31.105 --> 00:32:32.565 Different folks for awhile.

NOTE Confidence: 0.877404463636363

00:32:32.570 --> 00:32:32.978 Jane Taylor.

NOTE Confidence: 0.877404463636363

00:32:32.978 --> 00:32:35.050 I was lucky to be part of that and

NOTE Confidence: 0.877404463636363

00:32:35.050 --> 00:32:36.606 sometimes they're pretty complicated.

00:32:36.610 --> 00:32:38.666 You know you were you were mixing preclinical

00:32:38.666 --> 00:32:40.559 and clinical and different aspects of that.

00:32:40.560 --> 00:32:43.080 And Bob was just a glue that kept these

00:32:43.080 --> 00:32:45.340 kept these groups working together.

00:32:45.340 --> 00:32:47.240 Keen understanding of what's going

00:32:47.240 --> 00:32:48.380 on in science.

00:32:48.380 --> 00:32:50.711 Deep love for his family and just

00:32:50.711 --> 00:32:52.499 a wonderful wonderful human being.

00:32:52.500 --> 00:32:55.594 Got a lovely story from Evan Morris.

00:32:55.600 --> 00:32:56.916 He says, you know,

00:32:56.916 --> 00:32:58.890 as we as as John mentioned.

00:32:58.890 --> 00:33:00.315 Obviously Bob was playing his

00:33:00.315 --> 00:33:02.160 cello in the Yale Medical School,

00:33:02.160 --> 00:33:04.140 and Evan shares that, you know,

00:33:04.140 --> 00:33:05.140 he and his family.

00:33:05.140 --> 00:33:06.640 His lab would go there and

NOTE Confidence: 0.865373922307692

00:33:06.701 --> 00:33:08.640 watch Bob Play and Evan shares how

NOTE Confidence: 0.865373922307692

00:33:08.640 --> 00:33:10.380 Bob played with his eyes closed.

NOTE Confidence: 0.865373922307692

00:33:10.380 --> 00:33:12.326 And of course we images are imagining.

NOTE Confidence: 0.865373922307692

00:33:12.330 --> 00:33:14.255 That he's got some nice hi-tech projection

NOTE Confidence: 0.865373922307692

00:33:14.255 --> 00:33:16.589 of the music on the inside of his eyelids.

NOTE Confidence: 0.865373922307692

00:33:16.590 --> 00:33:17.722 Probably not the case,

NOTE Confidence: 0.865373922307692

00:33:17.722 --> 00:33:19.850 but only playing with his eyes closed.

NOTE Confidence: 0.865373922307692

00:33:19.850 --> 00:33:21.985 But what that lovely grin

NOTE Confidence: 0.865373922307692

00:33:21.985 --> 00:33:23.266 that supply management?

NOTE Confidence: 0.865373922307692

00:33:23.270 --> 00:33:24.950 You know when we think about science,

NOTE Confidence: 0.865373922307692

00:33:24.950 --> 00:33:25.750 it's hard to know.

NOTE Confidence: 0.865373922307692

00:33:25.750 --> 00:33:27.510 How do we map those into our brains?

NOTE Confidence: 0.865373922307692

00:33:27.510 --> 00:33:30.366 And for people who are good at music,

NOTE Confidence: 0.865373922307692

00:33:30.370 --> 00:33:31.242 not me. You know,

NOTE Confidence: 0.865373922307692

00:33:31.242 --> 00:33:32.969 you can imagine it's the same kind of.

NOTE Confidence: 0.865373922307692

00:33:32.970 --> 00:33:34.848 It's a hard thing to quantify.

NOTE Confidence: 0.865373922307692

00:33:34.850 --> 00:33:36.210 He reveled in that music.

NOTE Confidence: 0.865373922307692

00:33:36.210 --> 00:33:38.370 It gave him great pleasure and it was

NOTE Confidence: 0.865373922307692

00:33:38.370 --> 00:33:40.547 related to how you think about science.

NOTE Confidence: 0.865373922307692

00:33:40.550 --> 00:33:43.326 How you can work together as a group.

NOTE Confidence: 0.865373922307692

00:33:43.330 --> 00:33:46.489 As an orchestra must do to build some beauty,

NOTE Confidence: 0.865373922307692

00:33:46.490 --> 00:33:48.120 to do something that you

NOTE Confidence: 0.865373922307692

00:33:48.120 --> 00:33:49.424 just couldn't do alone,

NOTE Confidence: 0.865373922307692

00:33:49.430 --> 00:33:51.210 and being able to translate

NOTE Confidence: 0.865373922307692

00:33:51.210 --> 00:33:52.990 that from something like music

NOTE Confidence: 0.865373922307692

00:33:53.051 --> 00:33:54.767 into something like science.

NOTE Confidence: 0.865373922307692

00:33:54.770 --> 00:33:56.506 It is really a joy and really,

NOTE Confidence: 0.865373922307692

00:33:56.510 --> 00:33:57.455 reflection of Bob.

NOTE Confidence: 0.865373922307692

00:33:57.455 --> 00:33:59.660 Now one of my favorites came from

NOTE Confidence: 0.865373922307692

00:33:59.721 --> 00:34:01.835 Sophie Holmes and it ties into the

NOTE Confidence: 0.865373922307692

00:34:01.835 --> 00:34:03.780 music that that Evan brought up,

NOTE Confidence: 0.865373922307692

00:34:03.780 --> 00:34:05.360 and Sophie relates that.

NOTE Confidence: 0.865373922307692

00:34:05.360 --> 00:34:09.096 Few years ago she was he was Bob was

NOTE Confidence: 0.865373922307692

00:34:09.096 --> 00:34:10.960 talking or talking about his latest project,

NOTE Confidence: 0.865373922307692

00:34:10.960 --> 00:34:11.768 the impact.

NOTE Confidence: 0.865373922307692

00:34:11.768 --> 00:34:14.060 The vitamin D most recent grant,

NOTE Confidence: 0.865373922307692

00:34:14.060 --> 00:34:16.220 how it affects brain and dopamine

NOTE Confidence: 0.865373922307692

00:34:16.220 --> 00:34:17.450 and so Sophie Shiver. Then.

NOTE Confidence: 0.865373922307692

00:34:17.450 --> 00:34:18.840 Now she's studying Parkinson's disease.

NOTE Confidence: 0.865373922307692

00:34:18.840 --> 00:34:20.800 OK, there was some synergies,

NOTE Confidence: 0.865373922307692

00:34:20.800 --> 00:34:22.744 and so they began to meet and they

NOTE Confidence: 0.865373922307692

00:34:22.744 --> 00:34:24.700 would talk about everything you know,

NOTE Confidence: 0.865373922307692

00:34:24.700 --> 00:34:25.540 that's the what happened when

NOTE Confidence: 0.865373922307692

00:34:25.540 --> 00:34:26.212 you talked to Bob.

NOTE Confidence: 0.865373922307692

00:34:26.220 --> 00:34:27.837 You didn't just stay on the science,

NOTE Confidence: 0.865373922307692

00:34:27.840 --> 00:34:29.088 talk about life and.

NOTE Confidence: 0.865373922307692

00:34:29.088 --> 00:34:30.024 And apparently music,

NOTE Confidence: 0.865373922307692

00:34:30.030 --> 00:34:31.780 so Sophie tell Bob about a BBC

NOTE Confidence: 0.865373922307692

00:34:31.780 --> 00:34:33.489 Radio show that she was aware

NOTE Confidence: 0.865373922307692

00:34:33.489 --> 00:34:34.984 of called Desert Island Discs.

NOTE Confidence: 0.865373922307692

00:34:34.990 --> 00:34:36.908 And apparently what happens on this show?

NOTE Confidence: 0.865373922307692

00:34:36.910 --> 00:34:38.604 Famous people come and talk about if

NOTE Confidence: 0.865373922307692

00:34:38.604 --> 00:34:40.210 they were stranded on a desert island,

NOTE Confidence: 0.865373922307692

00:34:40.210 --> 00:34:43.720 what would be the 10 discs that they do so?

NOTE Confidence: 0.865373922307692

00:34:43.720 --> 00:34:45.340 Both sadly and not surprisingly,

NOTE Confidence: 0.865373922307692

00:34:45.340 --> 00:34:46.306 Bob sent her.

NOTE Confidence: 0.865373922307692

00:34:46.306 --> 00:34:48.560 This was this is the cut from

NOTE Confidence: 0.865373922307692

00:34:48.640 --> 00:34:50.940 the list of Bobs Desert Island

NOTE Confidence: 0.865373922307692

00:34:50.940 --> 00:34:53.025 Discs that he would like to do

NOTE Confidence: 0.865373922307692

00:34:53.025 --> 00:34:54.300 in a cut and paste those off.

NOTE Confidence: 0.865373922307692

00:34:54.300 --> 00:34:55.870 Thanks to Sophie for sending

NOTE Confidence: 0.865373922307692

00:34:55.870 --> 00:34:57.440 a good chunk of classical.

NOTE Confidence: 0.865373922307692

00:34:57.440 --> 00:34:59.660 Some of the favorites, some Beethoven,

NOTE Confidence: 0.865373922307692

00:34:59.660 --> 00:35:03.218 some Brahms, some Elgars Enigma variations,

NOTE Confidence: 0.865373922307692

00:35:03.220 --> 00:35:04.865 the dodgy over springs seaberry

NOTE Confidence: 0.865373922307692

00:35:04.865 --> 00:35:06.980 Bob and then some popular things.

NOTE Confidence: 0.865373922307692

00:35:06.980 --> 00:35:07.980 Pretty Woman.

NOTE Confidence: 0.865373922307692

00:35:07.980 --> 00:35:10.480 I can see clearly now.

NOTE Confidence: 0.865373922307692

00:35:10.480 --> 00:35:11.725 Build me up,

NOTE Confidence: 0.865373922307692

00:35:11.725 --> 00:35:13.385 Buttercup theme from Forrest

NOTE Confidence: 0.865373922307692

00:35:13.385 --> 00:35:15.619 Gump and over the rainbow.

NOTE Confidence: 0.865373922307692

00:35:15.620 --> 00:35:18.212 How Bob to be able to put those

NOTE Confidence: 0.865373922307692

00:35:18.212 --> 00:35:19.820 things together so Sophie joins us

NOTE Confidence: 0.865373922307692

00:35:19.820 --> 00:35:21.901 to say how well you know she really

NOTE Confidence: 0.865373922307692

00:35:21.901 --> 00:35:23.931 tries to channel Bob about being not

NOTE Confidence: 0.865373922307692

00:35:23.931 --> 00:35:25.912 just a good scientist doing it with

NOTE Confidence: 0.865373922307692

00:35:25.912 --> 00:35:27.620 humor about being a good human being.

NOTE Confidence: 0.865373922307692

00:35:27.620 --> 00:35:29.042 We know with science will live

NOTE Confidence: 0.865373922307692

00:35:29.042 --> 00:35:31.133 on and so we had said she takes

NOTE Confidence: 0.865373922307692

00:35:31.133 --> 00:35:32.753 vitamin D every day so perhaps

NOTE Confidence: 0.865373922307692

00:35:32.817 --> 00:35:34.307 another good legacy of Bob.

NOTE Confidence: 0.865373922307692

00:35:34.310 --> 00:35:37.810 Alright I need to sum it up.

NOTE Confidence: 0.865373922307692

00:35:37.810 --> 00:35:41.450 I miss him. I think we all do.

NOTE Confidence: 0.865373922307692

00:35:41.450 --> 00:35:44.110 It's a great friend colleague.

NOTE Confidence: 0.854974980714286

00:35:44.110 --> 00:35:45.678 Now I'm, you know, I'm a math

NOTE Confidence: 0.854974980714286

00:35:45.678 --> 00:35:47.307 engineering by so you know you gotta,

NOTE Confidence: 0.854974980714286

00:35:47.310 --> 00:35:49.228 you gotta organize your points added up,

NOTE Confidence: 0.854974980714286

00:35:49.230 --> 00:35:50.460 try to be quantitative alright?

NOTE Confidence: 0.854974980714286

00:35:50.460 --> 00:35:52.420 So what are the points I want to make of

NOTE Confidence: 0.854974980714286

00:35:52.477 --> 00:35:54.616 that pop respectful goes back I remember one

NOTE Confidence: 0.854974980714286

00:35:54.616 --> 00:35:57.132 of the very first group meetings I had with

NOTE Confidence: 0.854974980714286

00:35:57.132 --> 00:35:59.528 Bob on a protocol was that cocaine study.

NOTE Confidence: 0.854974980714286

00:35:59.530 --> 00:36:00.920 This was really early in

NOTE Confidence: 0.854974980714286

00:36:00.920 --> 00:36:02.310 the pet Center small group.

NOTE Confidence: 0.854974980714286

00:36:02.310 --> 00:36:04.110 There we got everybody together

NOTE Confidence: 0.854974980714286

00:36:04.110 --> 00:36:05.910 to set up the protocol.

NOTE Confidence: 0.854974980714286

00:36:05.910 --> 00:36:07.266 Now we have a young team,

NOTE Confidence: 0.854974980714286

00:36:07.270 --> 00:36:09.830 pretty small and and some of the medical

NOTE Confidence: 0.854974980714286

00:36:09.830 --> 00:36:12.609 staff that we had some our ends at the time.

NOTE Confidence: 0.854974980714286

00:36:12.610 --> 00:36:14.380 You know they were not experience

NOTE Confidence: 0.854974980714286

00:36:14.380 --> 00:36:15.345 working with. Addiction.

NOTE Confidence: 0.854974980714286

00:36:15.345 --> 00:36:17.970 And they were expressing a little bit

NOTE Confidence: 0.854974980714286

00:36:17.970 --> 00:36:19.600 of angst, a little bit of confidence.

NOTE Confidence: 0.854974980714286

00:36:19.600 --> 00:36:22.060 There's Bob and what he did.

NOTE Confidence: 0.854974980714286

00:36:22.060 --> 00:36:23.880 Oh, I remember that to this day.

NOTE Confidence: 0.854974980714286

00:36:23.880 --> 00:36:25.896 Just how you express how you

NOTE Confidence: 0.854974980714286

00:36:25.896 --> 00:36:27.240 treat people respect you,

NOTE Confidence: 0.854974980714286

00:36:27.240 --> 00:36:28.904 tune into their anxiety,

NOTE Confidence: 0.854974980714286

00:36:28.904 --> 00:36:30.568 their concerns express the

NOTE Confidence: 0.854974980714286

00:36:30.568 --> 00:36:32.600 thing being ready to helping,

NOTE Confidence: 0.854974980714286

00:36:32.600 --> 00:36:34.721 ready to talk about how to explain

NOTE Confidence: 0.854974980714286

00:36:34.721 --> 00:36:36.740 the importance of what you're doing,

NOTE Confidence: 0.854974980714286

00:36:36.740 --> 00:36:39.683 how to do it carefully, it was unbelievable.

NOTE Confidence: 0.854974980714286

00:36:39.683 --> 00:36:43.800 I was the mentee that day for sure.

NOTE Confidence: 0.854974980714286

00:36:43.800 --> 00:36:44.142 Obviously,

NOTE Confidence: 0.854974980714286

00:36:44.142 --> 00:36:46.194 we've already heard about his creativity,

NOTE Confidence: 0.854974980714286

00:36:46.200 --> 00:36:47.964 the ability to bring in ideas

NOTE Confidence: 0.854974980714286

00:36:47.964 --> 00:36:49.851 from the basic sciences from the

NOTE Confidence: 0.854974980714286

00:36:49.851 --> 00:36:51.476 technical from the imaging side,

NOTE Confidence: 0.854974980714286

00:36:51.480 --> 00:36:53.240 into the clinical realm,

NOTE Confidence: 0.854974980714286

00:36:53.240 --> 00:36:55.440 how to synergize those things

NOTE Confidence: 0.854974980714286

00:36:55.440 --> 00:36:56.858 together that was fun.

NOTE Confidence: 0.854974980714286

00:36:56.860 --> 00:36:58.420 Obviously a fabulous collaborator.

NOTE Confidence: 0.854974980714286

00:36:58.420 --> 00:37:00.760 How to bring people together and

NOTE Confidence: 0.854974980714286

00:37:00.823 --> 00:37:03.199 whether it be because of that laugh or

NOTE Confidence: 0.854974980714286

00:37:03.199 --> 00:37:05.109 just because of his nature personality

NOTE Confidence: 0.854974980714286

00:37:05.109 --> 00:37:07.371 more come out this some much greater

NOTE Confidence: 0.854974980714286

00:37:07.371 --> 00:37:09.597 than that of the individual parts.

NOTE Confidence: 0.854974980714286

00:37:09.600 --> 00:37:11.335 Talked about his generosity with

NOTE Confidence: 0.854974980714286

00:37:11.335 --> 00:37:13.610 his time with his interest funding.

NOTE Confidence: 0.854974980714286

00:37:13.610 --> 00:37:16.186 All of those things are great collaborator.

NOTE Confidence: 0.854974980714286

00:37:16.190 --> 00:37:17.670 What you'd like to be?

NOTE Confidence: 0.854974980714286

00:37:17.670 --> 00:37:20.785 I'd love to watch his brain work.

NOTE Confidence: 0.854974980714286

00:37:20.790 --> 00:37:23.261 That last study we mentioned imagining when

NOTE Confidence: 0.854974980714286

00:37:23.261 --> 00:37:26.207 one factor was positively one was negatively.

NOTE Confidence: 0.854974980714286

00:37:26.210 --> 00:37:27.410 What's the mechanism?

NOTE Confidence: 0.854974980714286

00:37:27.410 --> 00:37:28.610 What's going on?

NOTE Confidence: 0.854974980714286

00:37:28.610 --> 00:37:29.770 How could we do that?

NOTE Confidence: 0.854974980714286

00:37:29.770 --> 00:37:31.597 How would that tie in with the

NOTE Confidence: 0.854974980714286

00:37:31.597 --> 00:37:33.906 animal work that we might do as we

NOTE Confidence: 0.854974980714286

00:37:33.906 --> 00:37:35.376 translate that into human subjects?

NOTE Confidence: 0.854974980714286

00:37:35.380 --> 00:37:36.988 We already heard about his modesty?

NOTE Confidence: 0.854974980714286

00:37:36.990 --> 00:37:37.614 You know,

NOTE Confidence: 0.854974980714286

00:37:37.614 --> 00:37:39.486 he just talk about a poor

NOTE Confidence: 0.854974980714286

00:37:39.486 --> 00:37:41.452 physician from Idaho, but boy,

NOTE Confidence: 0.854974980714286

00:37:41.452 --> 00:37:43.707 underneath so much more there.

NOTE Confidence: 0.854974980714286

00:37:43.710 --> 00:37:46.074 And just a key to helping

NOTE Confidence: 0.854974980714286

00:37:46.074 --> 00:37:47.650 them build that team.

NOTE Confidence: 0.854974980714286

00:37:47.650 --> 00:37:49.930 When he put things together,

NOTE Confidence: 0.854974980714286

00:37:49.930 --> 00:37:51.995 he craft them building that story and

NOTE Confidence: 0.854974980714286

00:37:51.995 --> 00:37:54.727 it could be done at whatever was the

NOTE Confidence: 0.854974980714286

00:37:54.727 --> 00:37:57.110 appropriate level for the audience involved,

NOTE Confidence: 0.854974980714286

00:37:57.110 --> 00:37:59.230 and that was great just to be able to say.

NOTE Confidence: 0.854974980714286

00:37:59.230 --> 00:38:00.806 How do you start that in the beginning?

NOTE Confidence: 0.854974980714286

00:38:00.810 --> 00:38:02.136 How do you put things together?

00:38:02.140 --> 00:38:03.715 How do you add those things together

00:38:03.715 --> 00:38:05.876 and not to make not only to be able

00:38:05.876 --> 00:38:07.320 to make it scientifically relevant,

00:38:07.320 --> 00:38:10.728 but also incredibly entertaining?

00:38:10.730 --> 00:38:12.620 You'll hear later this afternoon

00:38:12.620 --> 00:38:14.510 about he's a mentor extraordinaire

00:38:14.567 --> 00:38:16.086 to all of us at that point,

00:38:16.090 --> 00:38:19.010 and just so giving about that and getting

00:38:19.010 --> 00:38:23.518 great joy and seeing his mentees grow.

00:38:23.520 --> 00:38:26.173 And Oh my God,

00:38:26.173 --> 00:38:27.919 I wish I could write like

00:38:27.920 --> 00:38:29.152 I mentioned that grant.

00:38:29.152 --> 00:38:31.000 And what a joy and boy,

00:38:31.000 --> 00:38:32.450 if you read this grant,

00:38:32.450 --> 00:38:34.361 you know you could tell which paragraphs

NOTE Confidence: 0.93394541

00:38:34.361 --> 00:38:36.197 Bob wrote and which ones I wrote.

NOTE Confidence: 0.93394541

00:38:36.200 --> 00:38:38.100 Mine was pretty, you know,

NOTE Confidence: 0.93394541

00:38:38.100 --> 00:38:41.082 tedious and technical and boring and Bob

NOTE Confidence: 0.93394541

00:38:41.082 --> 00:38:45.059 Hope it just jumped off the page. What a joy.

NOTE Confidence: 0.93394541

00:38:45.059 --> 00:38:47.857 All part of his ability to synthesize the

NOTE Confidence: 0.93394541

00:38:47.857 --> 00:38:50.594 tell the stories to bring people together.

NOTE Confidence: 0.93394541

00:38:50.600 --> 00:38:51.896 What a joy. Alright?

NOTE Confidence: 0.93394541

00:38:51.896 --> 00:38:52.988 Well, how do we sum it up?

NOTE Confidence: 0.93394541

00:38:52.990 --> 00:38:56.520 You know, I I'm you know I'm bad tend to,

NOTE Confidence: 0.93394541

00:38:56.520 --> 00:38:58.572 you know give numbers and sum up the scores.

NOTE Confidence: 0.93394541

00:38:58.580 --> 00:38:59.840 What is the bottom line?

NOTE Confidence: 0.93394541

00:38:59.840 --> 00:39:02.087 When you add up all of these

NOTE Confidence: 0.93394541

00:39:02.087 --> 00:39:04.359 characteristics of a fabulous scientist,

NOTE Confidence: 0.93394541

00:39:04.360 --> 00:39:05.340 what do we look for?

NOTE Confidence: 0.93394541

00:39:05.340 --> 00:39:06.960 We look for quantitative metrics.

NOTE Confidence: 0.93394541

00:39:06.960 --> 00:39:08.580 We look for a comparative marker.

NOTE Confidence: 0.93394541

00:39:08.580 --> 00:39:10.232 While Bob was it,

NOTE Confidence: 0.93394541

00:39:10.232 --> 00:39:14.000 he was the gold standard of human beings.

NOTE Confidence: 0.93394541

00:39:14.000 --> 00:39:15.692 We'll miss him tremendously.

NOTE Confidence: 0.93394541

00:39:15.692 --> 00:39:16.538 Thank you.

NOTE Confidence: 0.860007635

00:39:19.360 --> 00:39:20.080 Thank you.

NOTE Confidence: 0.937479

00:39:26.400 --> 00:39:28.330 Thank you so much, rich for

NOTE Confidence: 0.937479

00:39:28.330 --> 00:39:29.920 sharing that both the science

NOTE Confidence: 0.911691515625

00:39:29.985 --> 00:39:31.917 and the memories of Bob Person.

NOTE Confidence: 0.911691515625

00:39:31.920 --> 00:39:33.824 We're going to pivot now after hearing

NOTE Confidence: 0.911691515625

00:39:33.824 --> 00:39:35.550 about all of those extraordinary

NOTE Confidence: 0.911691515625

00:39:35.550 --> 00:39:36.831 accomplishments and functional

NOTE Confidence: 0.911691515625

00:39:36.831 --> 00:39:38.807 brain imaging it will astonish

NOTE Confidence: 0.911691515625

00:39:38.807 --> 00:39:40.676 those of you who didn't know Bob,

NOTE Confidence: 0.911691515625

00:39:40.680 --> 00:39:42.318 but not those of you who did that.

NOTE Confidence: 0.911691515625

00:39:42.318 --> 00:39:44.006 He had an entire other scientific

NOTE Confidence: 0.911691515625

00:39:44.006 --> 00:39:46.190 career looking at genetics.

NOTE Confidence: 0.911691515625

00:39:46.190 --> 00:39:47.622 Bob already well established

NOTE Confidence: 0.911691515625

00:39:47.622 --> 00:39:49.054 in brain brain imaging,

NOTE Confidence: 0.911691515625

00:39:49.060 --> 00:39:52.108 pivoted in mid career to to learn about

NOTE Confidence: 0.911691515625

00:39:52.108 --> 00:39:54.411 genetics and and explore their and

NOTE Confidence: 0.911691515625

00:39:54.411 --> 00:39:56.570 his companion and collaborator and I.

NOTE Confidence: 0.911691515625

00:39:56.570 --> 00:39:58.406 Believe teacher, there was Joel Gertner,

NOTE Confidence: 0.911691515625

00:39:58.410 --> 00:39:59.882 who's with us today.

NOTE Confidence: 0.911691515625

00:39:59.882 --> 00:40:01.722 Joel is foundation fund professor

NOTE Confidence: 0.911691515625

00:40:01.722 --> 00:40:04.160 of psychiatry and a really a

NOTE Confidence: 0.911691515625

00:40:04.160 --> 00:40:05.764 giant in psychiatric genetics.

NOTE Confidence: 0.911691515625

00:40:05.770 --> 00:40:07.800 And a longtime collaborator across

NOTE Confidence: 0.911691515625

00:40:07.800 --> 00:40:09.424 time and across continents.

NOTE Confidence: 0.911691515625

00:40:09.430 --> 00:40:10.210 With Bob and Joel,

NOTE Confidence: 0.911691515625

00:40:10.210 --> 00:40:11.907 thank you for being here to share some

NOTE Confidence: 0.911691515625

00:40:11.907 --> 00:40:13.540 of your thoughts and memories today.

NOTE Confidence: 0.862931655

00:40:17.090 --> 00:40:21.322 Thank you Chris and. Thanks Richard,

NOTE Confidence: 0.862931655

00:40:21.322 --> 00:40:23.730 that was really the Bob I knew too.

NOTE Confidence: 0.933698717647059

00:40:29.590 --> 00:40:33.010 So I'm going to talk about our work together

NOTE Confidence: 0.933698717647059

00:40:33.010 --> 00:40:36.548 in Thailand over a period of two decades,

NOTE Confidence: 0.933698717647059

00:40:36.550 --> 00:40:39.097 and I'm going to break it into three parts.

NOTE Confidence: 0.933698717647059

00:40:39.100 --> 00:40:41.590 I'm starting with our work on

NOTE Confidence: 0.933698717647059

00:40:41.590 --> 00:40:44.351 opioid use disorder and in northern

NOTE Confidence: 0.933698717647059

00:40:44.351 --> 00:40:46.387 Thai Hill tribe population.

NOTE Confidence: 0.933698717647059

00:40:46.390 --> 00:40:48.088 Then I'm going to talk briefly

NOTE Confidence: 0.933698717647059

00:40:48.088 --> 00:40:49.220 about our training grants.

NOTE Confidence: 0.933698717647059

00:40:49.220 --> 00:40:51.868 We had two D 43 five year training

NOTE Confidence: 0.933698717647059

00:40:51.868 --> 00:40:54.149 grants which were quite successful.

NOTE Confidence: 0.933698717647059

00:40:54.150 --> 00:40:56.124 And then our current and continuing

NOTE Confidence: 0.933698717647059

00:40:56.124 --> 00:40:57.875 studies of substance use disorders

NOTE Confidence: 0.933698717647059

00:40:57.875 --> 00:41:00.000 in Bangkok and Shanghai, Thailand.

00:41:03.810 --> 00:41:06.882 So starting with opioid use disorder

00:41:06.882 --> 00:41:09.900 and northern Thai hilltribe population.

00:41:09.900 --> 00:41:11.840 And it was really interesting

00:41:11.840 --> 00:41:13.780 how this work came about.

00:41:13.780 --> 00:41:15.845 The starting point was Bob's

00:41:15.845 --> 00:41:17.497 recruitment of a postdoc,

00:41:17.500 --> 00:41:19.948 Doctorado, Polsak and Aaron.

00:41:19.948 --> 00:41:25.102 And he came to work on Bob's cocaine

00:41:25.102 --> 00:41:28.066 Health Administration paradigms and.

00:41:28.070 --> 00:41:29.286 His other imaging work,

00:41:29.286 --> 00:41:31.501 but he also had an interest in

00:41:31.501 --> 00:41:34.800 genetics and he was a Thai national.

00:41:34.800 --> 00:41:37.964 And his mom was the founding chairman

00:41:37.964 --> 00:41:40.878 of Psychiatry at the CU Longhorn

00:41:40.878 --> 00:41:43.333 Faculty of Medicine in Bangkok,

00:41:43.340 --> 00:41:45.956 which is one of the leading

NOTE Confidence: 0.904727381818182

00:41:45.956 --> 00:41:47.700 academic institutions in Thailand.

NOTE Confidence: 0.904727381818182

00:41:47.700 --> 00:41:49.100 Around the time that Adipol

NOTE Confidence: 0.904727381818182

00:41:49.100 --> 00:41:50.500 came to work with Bob,

NOTE Confidence: 0.904727381818182

00:41:50.500 --> 00:41:52.844 Bob and I had been talking for a

NOTE Confidence: 0.904727381818182

00:41:52.844 --> 00:41:55.302 few years about wanting to start

NOTE Confidence: 0.904727381818182

00:41:55.302 --> 00:41:57.174 work researching substance use

NOTE Confidence: 0.904727381818182

00:41:57.174 --> 00:41:59.439 disorders and a genetic isolate.

NOTE Confidence: 0.904727381818182

00:41:59.440 --> 00:42:03.296 So at the time, this was a very.

NOTE Confidence: 0.904727381818182

00:42:03.300 --> 00:42:05.706 Popular and prevalent way to do

NOTE Confidence: 0.904727381818182

00:42:05.706 --> 00:42:07.310 gene mapping population isolates

NOTE Confidence: 0.904727381818182

00:42:07.381 --> 00:42:08.950 have lower heterogeneity.

NOTE Confidence: 0.904727381818182

00:42:08.950 --> 00:42:11.834 On the genes that are important and

NOTE Confidence: 0.904727381818182

00:42:11.834 --> 00:42:15.560 isolates might have lower effect sizes.

NOTE Confidence: 0.904727381818182

00:42:15.560 --> 00:42:18.824 And so we decided to seek

NOTE Confidence: 0.904727381818182

00:42:18.824 --> 00:42:22.240 such an isolate in Thailand.

00:42:22.240 --> 00:42:25.754 And the started where we all angled

00:42:25.754 --> 00:42:29.013 invitations Bob at Apple and me to

00:42:29.013 --> 00:42:31.678 a night of Sponsored Conference,

00:42:31.680 --> 00:42:34.440 10 Pacific Conference on stimulant use

00:42:34.440 --> 00:42:37.630 in Bangkok that was in October 2000.

00:42:37.630 --> 00:42:41.662 So at this meeting we met various Sud

00:42:41.662 --> 00:42:44.959 researchers who are active in Thailand.

00:42:44.960 --> 00:42:45.646 Alan Leshner,

00:42:45.646 --> 00:42:47.018 the director of Hnyda,

00:42:47.020 --> 00:42:49.211 also attended and we talked to him

00:42:49.211 --> 00:42:50.780 about our plans for work.

00:42:50.780 --> 00:42:53.018 He was very enthusiastic about our

00:42:53.018 --> 00:42:55.721 plans and about Human Genetics and

00:42:55.721 --> 00:42:58.356 substance use disorders in general.

00:42:58.360 --> 00:43:00.370 And we also met several people

00:43:00.370 --> 00:43:02.643 at that meeting who continued to

NOTE Confidence: 0.904727381818182

00:43:02.643 --> 00:43:04.798 be collaborators on our project,

NOTE Confidence: 0.904727381818182

00:43:04.800 --> 00:43:06.980 including Kepong Center Twinkle.

NOTE Confidence: 0.904727381818182

00:43:06.980 --> 00:43:09.160 And by the way,

NOTE Confidence: 0.904727381818182

00:43:09.160 --> 00:43:11.841 the custom in Thailand is to use

NOTE Confidence: 0.904727381818182

00:43:11.841 --> 00:43:14.299 first names preceded by the honorific,

NOTE Confidence: 0.904727381818182

00:43:14.300 --> 00:43:17.000 so I'll call him Doctor Ketapang,

NOTE Confidence: 0.904727381818182

00:43:17.000 --> 00:43:18.950 because the last names are complicated

NOTE Confidence: 0.904727381818182

00:43:18.950 --> 00:43:20.820 even for people in Thailand.

NOTE Confidence: 0.904727381818182

00:43:20.820 --> 00:43:23.540 Doctor KPT was then as now a director

NOTE Confidence: 0.904727381818182

00:43:23.540 --> 00:43:26.338 of Swan Prong Hospital in Shanghai,

NOTE Confidence: 0.904727381818182

00:43:26.340 --> 00:43:28.850 which is the largest hospital

NOTE Confidence: 0.904727381818182

00:43:28.850 --> 00:43:31.360 in the north of Thailand.

NOTE Confidence: 0.904727381818182

00:43:31.360 --> 00:43:33.916 So this is a picture of Bob and add

NOTE Confidence: 0.904727381818182

00:43:33.916 --> 00:43:36.655 a poll that's adipol on the right

NOTE Confidence: 0.904727381818182

00:43:36.660 --> 00:43:39.138 at the Grand Palace in Bangkok.

NOTE Confidence: 0.904727381818182

00:43:39.140 --> 00:43:40.340 This was taken, I believe,

NOTE Confidence: 0.904727381818182

00:43:40.340 --> 00:43:41.876 on our second trip to Thailand,

NOTE Confidence: 0.904727381818182

00:43:41.880 --> 00:43:45.910 which would have been in 2001.

NOTE Confidence: 0.904727381818182

00:43:45.910 --> 00:43:48.905 So we researched possibilities for

NOTE Confidence: 0.904727381818182

00:43:48.905 --> 00:43:52.439 finding an isolate in Thailand and

NOTE Confidence: 0.904727381818182

00:43:52.439 --> 00:43:55.305 our inquiries let us to the north

NOTE Confidence: 0.904727381818182

00:43:55.305 --> 00:43:58.734 part of the country where there

NOTE Confidence: 0.904727381818182

00:43:58.734 --> 00:44:02.770 were numerous villages that had

NOTE Confidence: 0.904727381818182

00:44:02.770 --> 00:44:04.950 homogeneous minority Hill tried,

NOTE Confidence: 0.904727381818182

00:44:04.950 --> 00:44:05.896 tried populations.

NOTE Confidence: 0.904727381818182

00:44:05.896 --> 00:44:08.734 So a specific hilltribe that was

NOTE Confidence: 0.904727381818182

00:44:08.734 --> 00:44:10.694 important and opioid trafficking

NOTE Confidence: 0.904727381818182

00:44:10.694 --> 00:44:13.508 was identified and then a specific

NOTE Confidence: 0.904727381818182

00:44:13.508 --> 00:44:15.600 town about 40 minutes from Shang.

NOTE Confidence: 0.904727381818182

00:44:15.600 --> 00:44:16.748 My past mayor rim.

NOTE Confidence: 0.904727381818182

00:44:16.748 --> 00:44:19.175 And in this town there was a very

NOTE Confidence: 0.904727381818182

00:44:19.175 --> 00:44:21.089 high rate of opioid use disorder,

NOTE Confidence: 0.904727381818182

00:44:21.090 --> 00:44:23.467 which is what we were looking for and

NOTE Confidence: 0.904727381818182

00:44:23.467 --> 00:44:25.369 also all of the inhabitants mapped

NOTE Confidence: 0.904727381818182

00:44:25.369 --> 00:44:28.580 to one of five clans or extended pedigrees,

NOTE Confidence: 0.904727381818182

00:44:28.580 --> 00:44:30.758 which is ideal for linkage mapping

NOTE Confidence: 0.904727381818182

00:44:30.758 --> 00:44:33.037 which was the main technique that

NOTE Confidence: 0.904727381818182

00:44:33.037 --> 00:44:35.299 was used before the GWAS era.

NOTE Confidence: 0.904727381818182

00:44:35.300 --> 00:44:37.545 And we pretty promptly received

NOTE Confidence: 0.904727381818182

00:44:37.545 --> 00:44:40.260 a supplement on my ongoing hnyda

NOTE Confidence: 0.904727381818182

00:44:40.260 --> 00:44:43.374 opioid use disorder grant to start

NOTE Confidence: 0.904727381818182

00:44:43.374 --> 00:44:45.450 work training interviewers and

NOTE Confidence: 0.938368467647059

00:44:45.534 --> 00:44:48.887 recruiting in the town that we identified.

NOTE Confidence: 0.938368467647059

00:44:48.890 --> 00:44:52.705 So popular belief was that opioid

NOTE Confidence: 0.938368467647059

00:44:52.705 --> 00:44:54.640 use was prevalent all over

NOTE Confidence: 0.938368467647059

00:44:54.709 --> 00:44:56.949 Thailand and at one point it was,

NOTE Confidence: 0.938368467647059

00:44:56.950 --> 00:44:58.700 but by the time we started our

NOTE Confidence: 0.938368467647059

00:44:58.700 --> 00:45:00.600 work this was no longer the case,

NOTE Confidence: 0.938368467647059

00:45:00.600 --> 00:45:01.990 largely due to what was

NOTE Confidence: 0.938368467647059

00:45:01.990 --> 00:45:03.102 called the Royal Project,

NOTE Confidence: 0.938368467647059

00:45:03.110 --> 00:45:05.457 where the Thai Royal family invested

NOTE Confidence: 0.938368467647059

00:45:05.457 --> 00:45:08.726 a lot of effort and political capital

NOTE Confidence: 0.938368467647059

00:45:08.730 --> 00:45:11.829 and a crop displacement program that

NOTE Confidence: 0.938368467647059

00:45:11.829 --> 00:45:14.202 was and remains to this day highly

NOTE Confidence: 0.938368467647059

00:45:14.202 --> 00:45:16.486 successful at diverting opioid production

NOTE Confidence: 0.938368467647059

00:45:16.486 --> 00:45:19.046 to production of various vegetables.

NOTE Confidence: 0.938368467647059

00:45:19.050 --> 00:45:21.626 This is a photograph of a historic

NOTE Confidence: 0.938368467647059

00:45:21.630 --> 00:45:23.310 I've taken about 10 years ago at

NOTE Confidence: 0.938368467647059

00:45:23.310 --> 00:45:25.127 the airport in Shanghai, Shanghai,

NOTE Confidence: 0.938368467647059

00:45:25.127 --> 00:45:29.166 showing some of the products that were

NOTE Confidence: 0.938368467647059

00:45:29.166 --> 00:45:31.740 grown as an alternative to opioids,

NOTE Confidence: 0.938368467647059

00:45:31.740 --> 00:45:34.908 but there were still isolated areas

NOTE Confidence: 0.938368467647059

00:45:34.908 --> 00:45:38.092 where there was a lot of opioid use.

NOTE Confidence: 0.938368467647059

00:45:38.100 --> 00:45:41.043 So this is a picture taken in Mayor M.

NOTE Confidence: 0.938368467647059

00:45:41.050 --> 00:45:43.839 It's out of pole on the far right to

NOTE Confidence: 0.938368467647059

00:45:43.839 --> 00:45:45.862 out of polls left is Kim Chancery

NOTE Confidence: 0.938368467647059

00:45:45.862 --> 00:45:48.560 who is a social worker who worked in

NOTE Confidence: 0.938368467647059

00:45:48.560 --> 00:45:50.810 many of the hilltribe populations.

NOTE Confidence: 0.938368467647059

00:45:50.810 --> 00:45:53.298 And then Bob and then the guy on

NOTE Confidence: 0.938368467647059

00:45:53.298 --> 00:45:56.143 the far left is our collaborator

NOTE Confidence: 0.938368467647059

00:45:56.143 --> 00:45:57.745 from Shimla University.

NOTE Confidence: 0.938368467647059

00:45:57.750 --> 00:46:00.390 This picture I took a few years later,

NOTE Confidence: 0.938368467647059

00:46:00.390 --> 00:46:02.672 but it showed an annual Hmong Hill

NOTE Confidence: 0.938368467647059

00:46:02.672 --> 00:46:04.727 tribe gathering and the theme of

NOTE Confidence: 0.938368467647059

00:46:04.727 --> 00:46:06.755 their annual gathering and parade that

NOTE Confidence: 0.938368467647059

00:46:06.755 --> 00:46:08.910 year with substance use disorders,

NOTE Confidence: 0.938368467647059

00:46:08.910 --> 00:46:11.388 which shows how recognized the problem is.

NOTE Confidence: 0.938368467647059

00:46:11.390 --> 00:46:13.637 Even in that community with a kid

NOTE Confidence: 0.938368467647059

00:46:13.637 --> 00:46:16.421 dressed up as a pack of cigarettes and

NOTE Confidence: 0.938368467647059

00:46:16.421 --> 00:46:18.919 someone else dressed up as a strange.

NOTE Confidence: 0.938368467647059

00:46:18.920 --> 00:46:22.154 And the location of the village was

NOTE Confidence: 0.938368467647059

00:46:22.154 --> 00:46:25.023 also very close to the Golden Triangle,

NOTE Confidence: 0.938368467647059

00:46:25.023 --> 00:46:28.511 which at one point was a very important

NOTE Confidence: 0.938368467647059

00:46:28.511 --> 00:46:30.879 Nexus through drug trafficking

NOTE Confidence: 0.938368467647059

00:46:30.879 --> 00:46:32.655 in Southeast Asia.

NOTE Confidence: 0.799338488

00:46:36.960 --> 00:46:41.360 So I will digress briefly.

NOTE Confidence: 0.799338488

00:46:41.360 --> 00:46:43.052 And discuss some of the travel

NOTE Confidence: 0.799338488

00:46:43.052 --> 00:46:44.840 that we did over the years.

NOTE Confidence: 0.799338488

00:46:44.840 --> 00:46:49.080 This is a one way trip from JFK to Bangkok.

NOTE Confidence: 0.799338488

00:46:49.080 --> 00:46:52.258 It covers nearly 10,000 miles each way,

NOTE Confidence: 0.799338488

00:46:52.260 --> 00:46:55.428 so 20,000 miles in throughout trip.

NOTE Confidence: 0.799338488

00:46:55.430 --> 00:46:57.690 31 hours door to door,

NOTE Confidence: 0.799338488

00:46:57.690 --> 00:47:01.702 but we didn't always go through Tokyo.

NOTE Confidence: 0.799338488

00:47:01.702 --> 00:47:05.734 And in covering I would estimate

NOTE Confidence: 0.799338488

00:47:05.740 --> 00:47:08.650 1.2 million miles over 19 years.

NOTE Confidence: 0.799338488

00:47:08.650 --> 00:47:10.438 These are some of the airports

NOTE Confidence: 0.799338488

00:47:10.438 --> 00:47:12.495 that we visited in some of the

NOTE Confidence: 0.799338488

00:47:12.495 --> 00:47:14.775 layer overs that we had and I don't

NOTE Confidence: 0.799338488

00:47:14.775 --> 00:47:16.980 know if you can see my pointer,

NOTE Confidence: 0.799338488

00:47:16.980 --> 00:47:19.610 but that's Narita and Tokyo,

NOTE Confidence: 0.799338488

00:47:19.610 --> 00:47:23.006 Shanghai, Hong Kong, CSX is Changsha,

NOTE Confidence: 0.799338488

00:47:23.010 --> 00:47:26.188 China, Saigon or Ho Chi Minh City,

NOTE Confidence: 0.799338488

00:47:26.190 --> 00:47:28.622 Bangkok, Shinmai and Pucket.

NOTE Confidence: 0.799338488

00:47:28.622 --> 00:47:31.750 We visited Pucket IN20O4 on a PTSD

NOTE Confidence: 0.799338488

00:47:31.750 --> 00:47:33.375 project after the big tsunami.

NOTE Confidence: 0.799338488

00:47:33.380 --> 00:47:35.060 There.

NOTE Confidence: 0.799338488

00:47:35.060 --> 00:47:38.762 And in seeking the most economical

NOTE Confidence: 0.799338488

00:47:38.762 --> 00:47:41.428 fares so that we could stretch our

00:47:41.428 --> 00:47:42.960 grant money as far as we could,

00:47:42.960 --> 00:47:45.834 we often had to accept overnight layovers.

00:47:45.834 --> 00:47:48.876 This is Bob making the best

00:47:48.876 --> 00:47:52.329 of a forced layover in Paris.

00:47:52.330 --> 00:47:56.178 This is walking along the water in Helsinki.

00:47:56.180 --> 00:47:57.895 There was a period of time when

00:47:57.895 --> 00:47:59.588 the best fares were on thin air,

00:47:59.590 --> 00:48:01.750 but at the cost of really long layovers.

00:48:01.750 --> 00:48:05.166 So we did that a few times and

00:48:05.166 --> 00:48:07.749 really kind of enjoyed them.

00:48:07.750 --> 00:48:09.358 Getting back to the work in

00:48:09.358 --> 00:48:10.775 northern Thailand in order to

00:48:10.775 --> 00:48:11.927 proceed with this project,

00:48:11.930 --> 00:48:14.810 we had to meet with the town elders

00:48:14.810 --> 00:48:18.000 to establish a research collaboration

00:48:18.000 --> 00:48:20.058 and get on the agreement of the

NOTE Confidence: 0.799338488

00:48:20.058 --> 00:48:22.407 heads of the town and the leaders.

NOTE Confidence: 0.799338488

00:48:22.410 --> 00:48:24.522 So this was taken at one of the

NOTE Confidence: 0.799338488

00:48:24.522 --> 00:48:26.328 meetings that we had the guy in

NOTE Confidence: 0.799338488

00:48:26.328 --> 00:48:28.260 the lower right is named when and

NOTE Confidence: 0.799338488

00:48:28.260 --> 00:48:30.060 he became one of our collaborators

NOTE Confidence: 0.799338488

00:48:30.126 --> 00:48:31.626 and our local team leader.

NOTE Confidence: 0.799338488

00:48:31.630 --> 00:48:33.850 He was also the town headman.

NOTE Confidence: 0.799338488

00:48:33.850 --> 00:48:35.354 This picture actually reminds

NOTE Confidence: 0.799338488

00:48:35.354 --> 00:48:37.139 me of Rembrandt's night watch.

NOTE Confidence: 0.799338488

00:48:37.139 --> 00:48:40.130 If you can call that to mind briefly.

NOTE Confidence: 0.799338488

00:48:40.130 --> 00:48:42.686 And that was in July 20.

NOTE Confidence: 0.799338488

00:48:42.690 --> 00:48:43.372 Oh one.

NOTE Confidence: 0.799338488

00:48:43.372 --> 00:48:45.759 And this is after that meeting you

NOTE Confidence: 0.799338488

00:48:45.759 --> 00:48:48.864 can see Chancery again and Bob and our

NOTE Confidence: 0.799338488

00:48:48.864 --> 00:48:51.126 dear friend and collaborator Henry Krantzler.

NOTE Confidence: 0.799338488

00:48:51.130 --> 00:48:52.948 You did a lot of work with us in

NOTE Confidence: 0.799338488

00:48:52.948 --> 00:48:54.860 setting up the assessments and the

NOTE Confidence: 0.799338488

00:48:54.860 --> 00:48:56.735 translation of the instrument into

NOTE Confidence: 0.799338488

00:48:56.735 --> 00:48:59.769 Thai and the testing of that instrument.

NOTE Confidence: 0.799338488

00:48:59.770 --> 00:49:03.746 So we translated our instruments into Thai.

NOTE Confidence: 0.799338488

00:49:03.750 --> 00:49:05.430 This is a screenshot of the sada,

NOTE Confidence: 0.799338488

00:49:05.430 --> 00:49:08.470 the semi structured assessment for

NOTE Confidence: 0.799338488

00:49:08.470 --> 00:49:09.890 drug dependence and alcoholism,

NOTE Confidence: 0.799338488

00:49:09.890 --> 00:49:11.665 which is the same instrument

NOTE Confidence: 0.799338488

00:49:11.665 --> 00:49:12.740 that we use here.

NOTE Confidence: 0.799338488

00:49:12.740 --> 00:49:15.095 So we have directly comparable

NOTE Confidence: 0.799338488

00:49:15.095 --> 00:49:17.780 measures in Thailand in the US.

NOTE Confidence: 0.799338488

00:49:17.780 --> 00:49:18.630 And indeed,

NOTE Confidence: 0.799338488

00:49:18.630 --> 00:49:22.030 one of our publications that Bob led out

NOTE Confidence: 0.799338488

00:49:22.113 --> 00:49:24.910 of this work was a study in interrater

NOTE Confidence: 0.799338488

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00:49:24.910 --> 00:49:27.860 liability of the TICADA instrument,

NOTE Confidence: 0.799338488

00:49:27.860 --> 00:49:30.568 which was done with.

NOTE Confidence: 0.799338488

00:49:30.570 --> 00:49:32.710 Several of our most important

NOTE Confidence: 0.799338488

00:49:32.710 --> 00:49:33.800 tie collaborators, Dr.

NOTE Confidence: 0.799338488

00:49:33.800 --> 00:49:34.030 Rossman,

NOTE Confidence: 0.799338488

00:49:34.030 --> 00:49:35.870 who we do a lot of work with.

NOTE Confidence: 0.799338488

00:49:35.870 --> 00:49:36.798 Doctor Kepong,

NOTE Confidence: 0.799338488

00:49:36.798 --> 00:49:39.582 who I already mentioned out of

NOTE Confidence: 0.799338488

00:49:39.582 --> 00:49:42.389 Whole Bob's former postdoc and OP,

NOTE Confidence: 0.799338488

00:49:42.390 --> 00:49:45.108 what who is a cancer genomics

NOTE Confidence: 0.799338488

00:49:45.108 --> 00:49:46.467 researcher at Chulalongkorn,

NOTE Confidence: 0.799338488

00:49:46.470 --> 00:49:47.919 who we still do a lot of work with?

NOTE Confidence: 0.945213212857143

00:49:50.180 --> 00:49:52.357 In order to get this work done,

NOTE Confidence: 0.945213212857143

00:49:52.360 --> 00:49:54.698 we went with the team to descend

NOTE Confidence: 0.945213212857143

00:49:54.698 --> 00:49:57.271 on the village a few times to

NOTE Confidence: 0.945213212857143

00:49:57.271 --> 00:49:58.763 help with the interviewing.

NOTE Confidence: 0.945213212857143

00:49:58.770 --> 00:50:01.470 Which basically meant that we move

NOTE Confidence: 0.945213212857143

00:50:01.470 --> 00:50:04.122 papers around because neither of us

NOTE Confidence: 0.945213212857143

00:50:04.122 --> 00:50:06.444 speak Thai except for really important

NOTE Confidence: 0.945213212857143

00:50:06.444 --> 00:50:08.699 words like thank you and mango.

NOTE Confidence: 0.945213212857143

00:50:08.700 --> 00:50:11.230 And that's at a pole.

NOTE Confidence: 0.945213212857143

00:50:11.230 --> 00:50:13.378 And this is Bob doing the

NOTE Confidence: 0.945213212857143

00:50:13.378 --> 00:50:16.098 blood draw in the village.

NOTE Confidence: 0.945213212857143

00:50:16.100 --> 00:50:18.584 The nurse is a nurse from

NOTE Confidence: 0.945213212857143

00:50:18.584 --> 00:50:19.826 Swan Prong Hospital,

NOTE Confidence: 0.945213212857143

00:50:19.830 --> 00:50:21.020 Ketapang Hospital.

NOTE Confidence: 0.892787655714286

00:50:23.250 --> 00:50:25.791 So we canvassed the village and we

NOTE Confidence: 0.892787655714286

00:50:25.791 --> 00:50:28.621 found that as we thought there were

NOTE Confidence: 0.892787655714286

00:50:28.621 --> 00:50:31.420 high rates of opioid use disorder in.

NOTE Confidence: 0.892787655714286

00:50:31.420 --> 00:50:35.670 This village close to Shanghai.

NOTE Confidence: 0.892787655714286

00:50:35.670 --> 00:50:38.934 And we did get some very

NOTE Confidence: 0.892787655714286

00:50:38.934 --> 00:50:40.566 interesting population genetics

NOTE Confidence: 0.892787655714286

00:50:40.566 --> 00:50:42.530 publications out of this work.

NOTE Confidence: 0.892787655714286

00:50:42.530 --> 00:50:44.014 Two of them, the one on top.

NOTE Confidence: 0.892787655714286

00:50:44.020 --> 00:50:47.362 We showed using genetic markers that the

NOTE Confidence: 0.892787655714286

00:50:47.362 --> 00:50:49.342 Hmong are genetically quite different

NOTE Confidence: 0.892787655714286

00:50:49.342 --> 00:50:51.769 from the Thai and Chinese who make

NOTE Confidence: 0.892787655714286

00:50:51.769 --> 00:50:54.310 up the bulk of the Thai population.

NOTE Confidence: 0.892787655714286

00:50:54.310 --> 00:50:56.366 And then if you look at the lower

NOTE Confidence: 0.892787655714286

00:50:56.366 --> 00:50:57.681 figure from another publication

NOTE Confidence: 0.892787655714286

00:50:57.681 --> 00:50:59.536 with a more extensive marker

NOTE Confidence: 0.892787655714286

00:50:59.536 --> 00:51:01.150 set on in the lower right,

NOTE Confidence: 0.892787655714286

00:51:01.150 --> 00:51:04.390 you see data that one of our postdocs

NOTE Confidence: 0.892787655714286

00:51:04.390 --> 00:51:07.245 collected with a set of different

NOTE Confidence: 0.892787655714286

00:51:07.245 --> 00:51:09.690 hilltribe populations in northern Thailand,

NOTE Confidence: 0.892787655714286

00:51:09.690 --> 00:51:12.174 showing that they are also genetically

NOTE Confidence: 0.892787655714286

00:51:12.174 --> 00:51:13.830 distinct from each other,

NOTE Confidence: 0.892787655714286

00:51:13.830 --> 00:51:15.015 which has implications

NOTE Confidence: 0.892787655714286

00:51:15.015 --> 00:51:16.595 for our continuing work.

NOTE Confidence: 0.905910516875

00:51:18.970 --> 00:51:20.752 So for the hilltribe work we

NOTE Confidence: 0.905910516875

00:51:20.752 --> 00:51:21.940 ended up with participation

NOTE Confidence: 0.905910516875

00:51:22.001 --> 00:51:23.645 from four of the five families,

NOTE Confidence: 0.905910516875

00:51:23.650 --> 00:51:26.606 about 200 subjects and all which it

NOTE Confidence: 0.905910516875

00:51:26.606 --> 00:51:29.350 may be hard to imagine in today's era

NOTE Confidence: 0.905910516875

00:51:29.430 --> 00:51:31.985 of sample sizes of over a million

NOTE Confidence: 0.905910516875

00:51:31.985 --> 00:51:34.702 actually can be sufficient for linkage

NOTE Confidence: 0.905910516875

00:51:34.702 --> 00:51:37.267 mapping in a population isolate,

NOTE Confidence: 0.905910516875

00:51:37.270 --> 00:51:39.374 but the problem we had was that the

NOTE Confidence: 0.905910516875

00:51:39.374 --> 00:51:41.514 fifth family was the one with the

NOTE Confidence: 0.905910516875

00:51:41.514 --> 00:51:43.074 greatest concentration of opioid use

NOTE Confidence: 0.905910516875

00:51:43.132 --> 00:51:46.310 disorder and the greatest involvement in

NOTE Confidence: 0.905910516875

00:51:46.310 --> 00:51:49.306 trafficking and that family despite our.

NOTE Confidence: 0.905910516875

00:51:49.306 --> 00:51:52.092 Assurances at the beginning of the project

NOTE Confidence: 0.905910516875

00:51:52.092 --> 00:51:54.297 declined to participate in the study,

NOTE Confidence: 0.905910516875

00:51:54.300 --> 00:51:57.520 so we were left with insufficient power.

NOTE Confidence: 0.905910516875

00:51:57.520 --> 00:51:59.004 However, we had collaborations

NOTE Confidence: 0.905910516875

00:51:59.004 --> 00:52:00.859 in the north of Thailand.

NOTE Confidence: 0.905910516875

00:52:00.860 --> 00:52:02.948 We had our instruments translated into

NOTE Confidence: 0.905910516875

00:52:02.948 --> 00:52:06.087 Thai and we had a basic understanding the

NOTE Confidence: 0.905910516875

00:52:06.087 --> 00:52:08.601 population genetics in the majority and

NOTE Confidence: 0.905910516875

00:52:08.671 --> 00:52:11.056 the minority populations in Thailand,

NOTE Confidence: 0.905910516875

00:52:11.060 --> 00:52:13.328 and with that we decided to continue

NOTE Confidence: 0.905910516875

00:52:13.328 --> 00:52:15.809 our work in outbred populations as

NOTE Confidence: 0.905910516875

00:52:15.809 --> 00:52:18.209 opposed to population isolates in

NOTE Confidence: 0.905910516875

00:52:18.209 --> 00:52:20.875 Bangkok with a focus on methamphetamine

NOTE Confidence: 0.905910516875

00:52:20.875 --> 00:52:23.060 dependence rather than opioid dependence,

NOTE Confidence: 0.905910516875

00:52:23.060 --> 00:52:25.100 and that shift in substance focus

NOTE Confidence: 0.905910516875

00:52:25.100 --> 00:52:27.790 was a matter of necessity because.

NOTE Confidence: 0.905910516875

00:52:27.790 --> 00:52:28.213 Methamphetamine,

NOTE Confidence: 0.905910516875

00:52:28.213 --> 00:52:31.174 as a result of the royal project,

NOTE Confidence: 0.905910516875

00:52:31.180 --> 00:52:33.284 was by now the nature substance of abuse.

NOTE Confidence: 0.905910516875

00:52:33.290 --> 00:52:34.398 In most of Thailand.

NOTE Confidence: 0.933481352

00:52:37.200 --> 00:52:39.342 Before I go on and talk

NOTE Confidence: 0.933481352

00:52:39.342 --> 00:52:40.770 specifically about that work,

NOTE Confidence: 0.933481352

00:52:40.770 --> 00:52:43.338 I I would like to talk briefly about

NOTE Confidence: 0.933481352

00:52:43.338 --> 00:52:46.577 our D 43 international training grants.

NOTE Confidence: 0.933481352

00:52:46.580 --> 00:52:48.640 We've had numerous trainings over

NOTE Confidence: 0.933481352

00:52:48.640 --> 00:52:52.248 the year and we were very proud that

NOTE Confidence: 0.933481352

00:52:52.250 --> 00:52:54.686 most of our key collaborators in

NOTE Confidence: 0.933481352

00:52:54.686 --> 00:52:57.211 Thailand now are graduates of the

NOTE Confidence: 0.933481352

00:52:57.211 --> 00:52:59.276 Yale Chu Longhorn Training program.

NOTE Confidence: 0.933481352

00:52:59.280 --> 00:53:01.560 And they were quite productive,

NOTE Confidence: 0.933481352

00:53:01.560 --> 00:53:02.934 especially Bob's trainees,

NOTE Confidence: 0.933481352

00:53:02.934 --> 00:53:06.140 and work with him where you see

NOTE Confidence: 0.933481352

00:53:06.140 --> 00:53:08.628 work done in the US and our samples

NOTE Confidence: 0.933481352

00:53:08.628 --> 00:53:11.980 here when Doctor Rossman was

NOTE Confidence: 0.933481352

00:53:11.980 --> 00:53:16.586 here in Bobs Lab working on his.

NOTE Confidence: 0.933481352

00:53:16.590 --> 00:53:19.342 Very important cocaine self

NOTE Confidence: 0.933481352

00:53:19.342 --> 00:53:20.718 administration paradigm.

NOTE Confidence: 0.8579812

00:53:22.820 --> 00:53:27.344 But that work also continued in a

NOTE Confidence: 0.8579812

00:53:27.344 --> 00:53:29.305 tide treatment cohort that rossmont

NOTE Confidence: 0.8579812

00:53:29.305 --> 00:53:31.410 collected mostly by herself.

NOTE Confidence: 0.8579812

00:53:31.410 --> 00:53:34.774 She also did work in Rus Sodis

NOTE Confidence: 0.8579812

00:53:34.774 --> 00:53:37.396 sample when she was here and

NOTE Confidence: 0.8579812

00:53:37.396 --> 00:53:40.926 again continued the work with.

NOTE Confidence: 0.8579812

00:53:40.930 --> 00:53:43.570 Studies of the that rate of

NOTE Confidence: 0.8579812

00:53:43.570 --> 00:53:46.380 methamphetamine use and sex differences,

NOTE Confidence: 0.8579812

00:53:46.380 --> 00:53:48.759 and that I'd treatment center and

NOTE Confidence: 0.8579812

00:53:48.759 --> 00:53:51.231 I'm going to tell you about that Thai

NOTE Confidence: 0.8579812

00:53:51.231 --> 00:53:53.228 treatment center tenure at hospital a

NOTE Confidence: 0.8579812

00:53:53.228 --> 00:53:56.610 little bit more in the slides ahead.

NOTE Confidence: 0.8579812

00:53:56.610 --> 00:53:58.675 As part of the D 43 grants,

NOTE Confidence: 0.8579812

00:53:58.680 --> 00:54:01.116 we also had over the years,

NOTE Confidence: 0.8579812

00:54:01.120 --> 00:54:04.645 about half dozen training courses

NOTE Confidence: 0.8579812

00:54:04.645 --> 00:54:08.485 for trainees at true Longhorn and

NOTE Confidence: 0.8579812

00:54:08.485 --> 00:54:10.993 other institutions in Thailand

NOTE Confidence: 0.8579812

00:54:10.993 --> 00:54:13.899 where we brought faculty from

NOTE Confidence: 0.8579812

00:54:13.900 --> 00:54:16.070 multiple institutions in the US.

NOTE Confidence: 0.8579812

00:54:16.070 --> 00:54:18.887 But we were also very glad to bring people

NOTE Confidence: 0.8579812

00:54:18.887 --> 00:54:21.270 from Yale UC Godfrey Pearlson here,

NOTE Confidence: 0.8579812

00:54:21.270 --> 00:54:25.150 along with Bob myself and Doctor Ming Lee,

NOTE Confidence: 0.8579812

00:54:25.150 --> 00:54:27.194 who at the time was at University

NOTE Confidence: 0.8579812

00:54:27.194 --> 00:54:27.778 of Virginia.

NOTE Confidence: 0.8579812

00:54:27.780 --> 00:54:29.445 So those training courses went

NOTE Confidence: 0.8579812

00:54:29.445 --> 00:54:31.910 very well and I think we're much

NOTE Confidence: 0.8579812

00:54:31.910 --> 00:54:34.118 appreciated by the people at Chula,

NOTE Confidence: 0.8579812

00:54:34.120 --> 00:54:35.620 and this is from another chorus.

NOTE Confidence: 0.8579812

00:54:35.620 --> 00:54:38.048 This is the chorus.

NOTE Confidence: 0.8579812

00:54:38.050 --> 00:54:40.552 In the SADA instrument where the

NOTE Confidence: 0.8579812

00:54:40.552 --> 00:54:42.730 main instructor was Jordi Nunez,

NOTE Confidence: 0.8579812

00:54:42.730 --> 00:54:46.006 who continues to work with us.

NOTE Confidence: 0.8579812

00:54:46.010 --> 00:54:47.258 On our type projects,

NOTE Confidence: 0.8579812

00:54:47.258 --> 00:54:49.130 and she's the person in the

NOTE Confidence: 0.8579812

00:54:49.200 --> 00:54:51.559 photograph who is neither Bob nor me.

NOTE Confidence: 0.858015216666666

00:54:54.410 --> 00:54:57.320 So I'm going to spend the rest of the time

NOTE Confidence: 0.858015216666666

00:54:57.389 --> 00:55:01.090 talking about our studies of substance

NOTE Confidence: 0.858015216666666

00:55:01.090 --> 00:55:05.970 use disorders in Bangkok and Shanghai.

NOTE Confidence: 0.858015216666666

00:55:05.970 --> 00:55:10.354 So our acquaintance with substance use

NOTE Confidence: 0.858015216666666

00:55:10.354 --> 00:55:13.659 disorders and the research situation

NOTE Confidence: 0.858015216666666

00:55:13.660 --> 00:55:15.610 in Bangkok and Chiang Mai dated

NOTE Confidence: 0.858015216666666

00:55:15.610 --> 00:55:18.390 back to some of our very earliest

NOTE Confidence: 0.858015216666666

00:55:18.390 --> 00:55:22.640 trips where our Chula colleagues

NOTE Confidence: 0.858015216666666

00:55:22.640 --> 00:55:27.423 took us to tour Tanya Rock Hospital,

NOTE Confidence: 0.858015216666666

00:55:27.423 --> 00:55:30.189 which is the largest substance use

NOTE Confidence: 0.858015216666666

00:55:30.189 --> 00:55:32.200 disorder hospital in Thailand.

NOTE Confidence: 0.919448780588235

00:55:34.650 --> 00:55:36.834 This is a photograph that I took

NOTE Confidence: 0.919448780588235

00:55:36.834 --> 00:55:39.106 many years later of one of the open

NOTE Confidence: 0.919448780588235

00:55:39.106 --> 00:55:40.919 wards and Tonya Rock Hospital,

NOTE Confidence: 0.919448780588235

00:55:40.919 --> 00:55:43.950 but I also still recall on the

NOTE Confidence: 0.919448780588235

00:55:44.037 --> 00:55:46.837 first trip I made there with Bob.

NOTE Confidence: 0.919448780588235

00:55:46.840 --> 00:55:50.718 We walked around the grounds which are.

NOTE Confidence: 0.919448780588235

00:55:50.720 --> 00:55:53.030 Quite beautiful with beautiful tropical

NOTE Confidence: 0.919448780588235

00:55:53.030 --> 00:55:56.000 vegetation like most places in Thailand.

NOTE Confidence: 0.919448780588235

00:55:56.000 --> 00:55:58.200 But one of the awards it was award

NOTE Confidence: 0.919448780588235

00:55:58.200 --> 00:56:00.415 where they were treating adolescents

NOTE Confidence: 0.919448780588235

00:56:00.415 --> 00:56:02.547 with methamphetamine use disorders.

NOTE Confidence: 0.919448780588235

00:56:02.550 --> 00:56:04.336 And they were, you know, kids.

NOTE Confidence: 0.919448780588235

00:56:04.336 --> 00:56:07.222 They looked to be ages something

NOTE Confidence: 0.919448780588235

00:56:07.222 --> 00:56:11.499 like 14 to 16 and they were sitting

NOTE Confidence: 0.919448780588235

00:56:11.499 --> 00:56:13.731 around a table in the center of the

NOTE Confidence: 0.919448780588235

00:56:13.731 --> 00:56:15.699 room coloring and coloring books.

NOTE Confidence: 0.779504098333333

00:56:18.390 --> 00:56:22.878 Also, these are a couple of.

NOTE Confidence: 0.779504098333333

00:56:22.880 --> 00:56:24.932 Menus of places that we went

NOTE Confidence: 0.779504098333333

00:56:24.932 --> 00:56:26.820 to and non tourist areas.

NOTE Confidence: 0.779504098333333

00:56:26.820 --> 00:56:29.220 I found this one particularly chilling.

NOTE Confidence: 0.6132163

00:56:33.180 --> 00:56:33.950 And.

NOTE Confidence: 0.912059894

00:56:36.350 --> 00:56:39.720 After we finished our work

NOTE Confidence: 0.912059894

00:56:39.720 --> 00:56:41.385 in Northern Thailand,

NOTE Confidence: 0.912059894

00:56:41.385 --> 00:56:44.160 we got our 01 funding.

NOTE Confidence: 0.912059894

00:56:44.160 --> 00:56:48.109 So far two RO ones to study the

NOTE Confidence: 0.912059894

00:56:48.109 --> 00:56:49.738 genetics of methamphetamine

NOTE Confidence: 0.912059894

00:56:49.738 --> 00:56:51.910 dependence and type populations.

NOTE Confidence: 0.912059894

00:56:51.910 --> 00:56:54.172 So the most recent one which

NOTE Confidence: 0.912059894

00:56:54.172 --> 00:56:56.589 was funded in the mid 2000s,

NOTE Confidence: 0.912059894

00:56:56.590 --> 00:56:59.138 had aims of collecting

NOTE Confidence: 0.912059894

00:56:59.138 --> 00:57:01.686 2000 subjects in Bangkok,

NOTE Confidence: 0.912059894

00:57:01.690 --> 00:57:04.018 1000 severely affected with

NOTE Confidence: 0.912059894

00:57:04.018 --> 00:57:06.346 methamphetamine dependence and 1000

NOTE Confidence: 0.912059894

00:57:06.346 --> 00:57:08.878 exposed controls and assess them all

NOTE Confidence: 0.912059894

00:57:08.878 --> 00:57:11.500 with the full version of the TICADA.

NOTE Confidence: 0.912059894

00:57:11.500 --> 00:57:13.271 So I want to stress that this

NOTE Confidence: 0.912059894

00:57:13.271 --> 00:57:15.459 is a very extensive instrument.

NOTE Confidence: 0.912059894

00:57:15.460 --> 00:57:17.980 It has over 3500 items.

NOTE Confidence: 0.912059894

00:57:17.980 --> 00:57:20.722 It covers all major SUD's major

NOTE Confidence: 0.912059894

00:57:20.722 --> 00:57:23.220 psychiatric traits and medical history.

NOTE Confidence: 0.912059894

00:57:23.220 --> 00:57:26.216 So to collect 2000 data points with

NOTE Confidence: 0.912059894

00:57:26.216 --> 00:57:28.301 this instrument that often would

NOTE Confidence: 0.912059894

00:57:28.301 --> 00:57:31.173 take two to six hours to go through

NOTE Confidence: 0.912059894

00:57:31.257 --> 00:57:33.627 was a really major undertaking,

NOTE Confidence: 0.912059894

00:57:33.630 --> 00:57:36.982 but it also resulted in a trove of

NOTE Confidence: 0.912059894

00:57:36.982 --> 00:57:38.799 information because the interview

NOTE Confidence: 0.912059894

00:57:38.799 --> 00:57:43.030 was so detailed it required.

NOTE Confidence: 0.912059894

00:57:43.030 --> 00:57:46.280 Putting together a large and very

NOTE Confidence: 0.912059894

00:57:46.280 --> 00:57:49.190 carefully trained cadre of interviewers,

NOTE Confidence: 0.912059894

00:57:49.190 --> 00:57:52.599 and this required a lot of involvement

NOTE Confidence: 0.912059894

00:57:52.599 --> 00:57:56.070 from Bob and myself and up to his death.

NOTE Confidence: 0.912059894

00:57:56.070 --> 00:57:58.850 Bob participated weekly in ASADA

NOTE Confidence: 0.912059894

00:57:58.850 --> 00:58:01.870 meeting to review cases with our two

NOTE Confidence: 0.912059894

00:58:01.870 --> 00:58:04.257 Longhorn and Swan Prong collaborators

NOTE Confidence: 0.912059894

00:58:04.257 --> 00:58:06.909 to maintain quality control.

NOTE Confidence: 0.912059894

00:58:06.910 --> 00:58:09.232 And we also traveled to Thailand

NOTE Confidence: 0.912059894

00:58:09.232 --> 00:58:10.006 quite frequently.

NOTE Confidence: 0.912059894

00:58:10.010 --> 00:58:11.780 And Jordi Nunez often traveled

NOTE Confidence: 0.912059894

00:58:11.780 --> 00:58:13.196 with us to hold.

NOTE Confidence: 0.912059894

00:58:13.200 --> 00:58:14.636 Training refresher courses in

NOTE Confidence: 0.912059894

00:58:14.636 --> 00:58:17.198 the SADDAH to make sure that our

NOTE Confidence: 0.912059894

00:58:17.198 --> 00:58:19.274 diagnosis continue to be valid and

NOTE Confidence: 0.912059894

00:58:19.274 --> 00:58:21.036 reliable and then the eventual

NOTE Confidence: 0.912059894

00:58:21.036 --> 00:58:23.004 goal is to collect enough subjects

NOTE Confidence: 0.912059894

00:58:23.004 --> 00:58:26.164 for a reasonably powered set of

NOTE Confidence: 0.912059894

00:58:26.164 --> 00:58:28.668 genome wide association studies.

NOTE Confidence: 0.912059894

00:58:28.670 --> 00:58:31.506 This is a picture taken at one

NOTE Confidence: 0.912059894

00:58:31.506 --> 00:58:33.582 of the kickoff meetings we had

NOTE Confidence: 0.912059894

00:58:33.582 --> 00:58:36.538 for this grant project at Chula,

NOTE Confidence: 0.912059894

00:58:36.538 --> 00:58:40.544 where we held a big soccer training

NOTE Confidence: 0.912059894

00:58:40.544 --> 00:58:43.520 with many interviewers who came to

NOTE Confidence: 0.912059894

00:58:43.616 --> 00:58:47.910 work with us in this iPhone Panorama photo.

NOTE Confidence: 0.912059894

00:58:47.910 --> 00:58:51.072 You can barely see Jordi at the

NOTE Confidence: 0.912059894

00:58:51.072 --> 00:58:53.177 front showing slides and leading

NOTE Confidence: 0.912059894

00:58:53.177 --> 00:58:54.440 the training course.

NOTE Confidence: 0.87581014

00:58:56.900 --> 00:58:59.556 Just I'll come back to this number again,

NOTE Confidence: 0.87581014

00:58:59.560 --> 00:59:01.954 but jumping forward to the present day.

NOTE Confidence: 0.87581014

00:59:01.960 --> 00:59:04.068 We've succeeded in recruiting

NOTE Confidence: 0.87581014

00:59:04.068 --> 00:59:06.176 already almost 5000 subjects,

NOTE Confidence: 0.87581014

00:59:06.180 --> 00:59:08.136 which is much more than twice

NOTE Confidence: 0.87581014

00:59:08.136 --> 00:59:10.160 our goal of 2000 subjects.

NOTE Confidence: 0.87581014

00:59:10.160 --> 00:59:15.596 So I view our effort in Thailand today

NOTE Confidence: 0.87581014

00:59:15.596 --> 00:59:18.359 as highly successful in this way.

NOTE Confidence: 0.87581014

00:59:18.360 --> 00:59:21.249 And also, although.

NOTE Confidence: 0.925828642

00:59:25.400 --> 00:59:27.460 Please mute whoever that was,

NOTE Confidence: 0.925828642

00:59:27.460 --> 00:59:29.840 although we don't have enough power to

NOTE Confidence: 0.925828642

00:59:29.840 --> 00:59:31.400 study methamphetamine use disorder,

NOTE Confidence: 0.925828642

00:59:31.400 --> 00:59:35.048 yet there are some genes of large effect

NOTE Confidence: 0.925828642

00:59:35.048 --> 00:59:37.862 for alcohol use disorder and therefore

NOTE Confidence: 0.925828642

00:59:37.862 --> 00:59:40.910 using our Thai sample we were able to

NOTE Confidence: 0.925828642

00:59:40.989 --> 00:59:44.225 publish the first substance, use disorder,

NOTE Confidence: 0.925828642

00:59:44.225 --> 00:59:48.155 GWAS and type population in 2018.

NOTE Confidence: 0.925828642

00:59:48.160 --> 00:59:50.696 The lead analyst on this was Hung Zhao,

NOTE Confidence: 0.925828642

00:59:50.700 --> 00:59:53.180 who's now assistant professor.

NOTE Confidence: 0.925828642

00:59:53.180 --> 00:59:55.040 Here at Yale.

NOTE Confidence: 0.925828642

00:59:55.040 --> 00:59:58.584 And this shows a Manhattan plot in a

NOTE Confidence: 0.925828642

00:59:58.584 --> 01:00:00.361 regional Manhattan plot indicating

NOTE Confidence: 0.925828642

01:00:00.361 --> 01:00:02.285 the genome wide significant

NOTE Confidence: 0.925828642

01:00:02.285 --> 01:00:05.404 finding that we had in this Thai

NOTE Confidence: 0.925828642

01:00:05.404 --> 01:00:07.394 population for alcohol use disorder,

NOTE Confidence: 0.925828642

01:00:07.400 --> 01:00:10.100 which is that LD H2,

NOTE Confidence: 0.925828642

01:00:10.100 --> 01:00:13.236 which is a known genetic variant in

NOTE Confidence: 0.925828642

01:00:13.236 --> 01:00:15.944 some Asian populations where there is a

NOTE Confidence: 0.925828642

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01:00:15.944 --> 01:00:18.620 functional null variant at LDH 2 that

NOTE Confidence: 0.925828642

01:00:18.620 --> 01:00:20.848 interferes with alcohol metabolism.

NOTE Confidence: 0.774546875714286

01:00:23.140 --> 01:00:26.017 We have since gone on and added

NOTE Confidence: 0.774546875714286

01:00:26.017 --> 01:00:28.658 more Thai subjects to our goose and

NOTE Confidence: 0.774546875714286

01:00:28.660 --> 01:00:31.677 also none of meta analysis with a

NOTE Confidence: 0.774546875714286

01:00:31.677 --> 01:00:33.999 relatively small number of additional

NOTE Confidence: 0.774546875714286

01:00:33.999 --> 01:00:36.837 Asian subjects we could put together

NOTE Confidence: 0.774546875714286

01:00:36.840 --> 01:00:39.243 and we have a paper in press led by

NOTE Confidence: 0.774546875714286

01:00:39.243 --> 01:00:40.988 Hong Zhao and Neuropsychopharmacology

NOTE Confidence: 0.774546875714286

01:00:40.988 --> 01:00:43.796 with the largest yet eud GWAS,

NOTE Confidence: 0.774546875714286

01:00:43.800 --> 01:00:46.760 where we now have two very strong hits.

NOTE Confidence: 0.774546875714286

01:00:46.760 --> 01:00:48.536 For those of you who aren't

NOTE Confidence: 0.774546875714286

01:00:48.536 --> 01:00:49.720 familiar with Manhattan plots,

NOTE Confidence: 0.774546875714286

01:00:49.720 --> 01:00:51.610 this is a log rhythmic scale.

NOTE Confidence: 0.774546875714286

01:00:51.610 --> 01:00:55.450 One at 80H1B and the other close to 80 H 2.

NOTE Confidence: 0.774546875714286

01:00:55.450 --> 01:00:59.118 So the alcohol work moves forward. Uhm?

NOTE Confidence: 0.774546875714286

01:00:59.118 --> 01:01:02.058 Our analysis for methamphetamine dependence

NOTE Confidence: 0.774546875714286

01:01:02.058 --> 01:01:06.200 have not yet yielded significant results.

NOTE Confidence: 0.774546875714286

01:01:06.200 --> 01:01:09.492 This is a preliminary analysis we did a

NOTE Confidence: 0.774546875714286

01:01:09.492 --> 01:01:12.388 year ago to go with the grant submission.

NOTE Confidence: 0.774546875714286

01:01:12.390 --> 01:01:14.514 Where I would say this Manhattan

NOTE Confidence: 0.774546875714286

01:01:14.514 --> 01:01:15.576 plot looks promising,

NOTE Confidence: 0.774546875714286

01:01:15.580 --> 01:01:17.532 although we don't have

NOTE Confidence: 0.774546875714286

01:01:17.532 --> 01:01:18.996 significant findings yet.

NOTE Confidence: 0.774546875714286

01:01:19.000 --> 01:01:20.725 But again, we're presently updating

NOTE Confidence: 0.774546875714286

01:01:20.725 --> 01:01:23.200 it with nearly twice the sample size,

NOTE Confidence: 0.774546875714286

01:01:23.200 --> 01:01:26.112 so we have high hopes for

NOTE Confidence: 0.774546875714286

01:01:26.112 --> 01:01:27.116 methamphetamine dependence.

NOTE Confidence: 0.774546875714286

01:01:27.116 --> 01:01:31.180 Also, if we're able to renew the grant.

NOTE Confidence: 0.774546875714286

01:01:31.180 --> 01:01:33.861 This is a picture of Bob and

NOTE Confidence: 0.774546875714286

01:01:33.861 --> 01:01:35.609 Rossman in front of OP.

NOTE Confidence: 0.774546875714286

01:01:35.610 --> 01:01:37.620 What slab building this was

NOTE Confidence: 0.774546875714286

01:01:37.620 --> 01:01:39.678 taken about five years ago.

NOTE Confidence: 0.89443612

01:01:41.700 --> 01:01:44.280 On one of the last trips

NOTE Confidence: 0.89443612

01:01:44.280 --> 01:01:46.000 we all made together.

NOTE Confidence: 0.89443612

01:01:46.000 --> 01:01:49.090 And this is a trip I made to meet with

NOTE Confidence: 0.89443612

01:01:49.174 --> 01:01:52.429 collaborators in Thailand last December.

NOTE Confidence: 0.89443612

01:01:52.430 --> 01:01:56.446 And dumb. OP E Watt and Rossman now

NOTE Confidence: 0.89443612

01:01:56.446 --> 01:02:00.366 masked up the hotel lobby with COVID Santa,

NOTE Confidence: 0.89443612

01:02:00.370 --> 01:02:04.720 but the work is moving forward.

NOTE Confidence: 0.89443612

01:02:04.720 --> 01:02:08.580 So if we think about.

NOTE Confidence: 0.89443612

01:02:08.580 --> 01:02:10.938 This part of Bob Bob's legacy,

NOTE Confidence: 0.89443612

01:02:10.940 --> 01:02:12.380 and as we've already discussed,

NOTE Confidence: 0.89443612

01:02:12.380 --> 01:02:14.760 Bob has many, many legacies.

NOTE Confidence: 0.89443612

01:02:14.760 --> 01:02:16.500 But if we consider the legacies

NOTE Confidence: 0.89443612

01:02:16.500 --> 01:02:18.290 of the work in Thailand.

NOTE Confidence: 0.89443612

01:02:18.290 --> 01:02:20.765 Uhm? Together,

NOTE Confidence: 0.89443612

01:02:20.765 --> 01:02:23.090 we've completed the most detailed

NOTE Confidence: 0.89443612

01:02:23.090 --> 01:02:25.547 work today on population genetics

NOTE Confidence: 0.89443612

01:02:25.547 --> 01:02:27.627 of minority type populations.

NOTE Confidence: 0.89443612

01:02:27.630 --> 01:02:30.066 We worked on the translation of

NOTE Confidence: 0.89443612

01:02:30.066 --> 01:02:31.690 two modern psychiatric assessments

NOTE Confidence: 0.89443612

01:02:31.754 --> 01:02:33.925 and to tie the Sada and a new

NOTE Confidence: 0.89443612

01:02:33.925 --> 01:02:35.169 bio bank instrument which

NOTE Confidence: 0.89443612

01:02:35.169 --> 01:02:37.080 will be using moving forward.

NOTE Confidence: 0.89443612

01:02:37.080 --> 01:02:39.585 We have collected the largest

NOTE Confidence: 0.89443612

01:02:39.585 --> 01:02:42.090 Asian Asian sample to date.

NOTE Confidence: 0.89443612

01:02:42.090 --> 01:02:44.098 Ascertain very carefully and

NOTE Confidence: 0.89443612

01:02:44.098 --> 01:02:46.569 informative for substance use, disorder,

NOTE Confidence: 0.89443612

01:02:46.569 --> 01:02:49.323 genetics and we published the first

NOTE Confidence: 0.89443612

01:02:49.323 --> 01:02:51.990 suw glosses and that population.

NOTE Confidence: 0.89443612

01:02:51.990 --> 01:02:56.550 We have now a very richly phenotyped sample,

NOTE Confidence: 0.89443612

01:02:56.550 --> 01:02:58.374 because remember how detailed

NOTE Confidence: 0.89443612

01:02:58.374 --> 01:03:00.654 the sada is a method?

NOTE Confidence: 0.89443612

01:03:00.660 --> 01:03:02.688 Methamphetamine dependence and psychosis

NOTE Confidence: 0.89443612

01:03:02.688 --> 01:03:05.730 but also of alcohol use disorder,

NOTE Confidence: 0.89443612

01:03:05.730 --> 01:03:07.386 nicotine dependence,

NOTE Confidence: 0.89443612

01:03:07.386 --> 01:03:09.042 kratom ketamin,

NOTE Confidence: 0.89443612

01:03:09.042 --> 01:03:09.870 PTSD,

NOTE Confidence: 0.89443612

01:03:09.870 --> 01:03:12.774 depression and a range of psychiatric

NOTE Confidence: 0.89443612

01:03:12.774 --> 01:03:14.710 traits and deeply phenotype

NOTE Confidence: 0.89443612

01:03:14.787 --> 01:03:16.536 sample of over 5000 subjects.

NOTE Confidence: 0.89443612

01:03:16.536 --> 01:03:18.654 That's including the ones on this

NOTE Confidence: 0.89443612

01:03:18.654 --> 01:03:21.955 R 01 that I showed you and also 800

NOTE Confidence: 0.89443612

01:03:21.955 --> 01:03:23.640 collected previously by Rossman.

NOTE Confidence: 0.89443612

01:03:23.640 --> 01:03:27.173 On another on study that our

NOTE Confidence: 0.89443612

01:03:27.173 --> 01:03:29.338 friends and colleagues in Bangkok

NOTE Confidence: 0.89443612

01:03:29.338 --> 01:03:32.079 are mining at this very moment.

01:03:32.080 --> 01:03:33.004 And most important,

01:03:33.004 --> 01:03:35.160 and I think this would have been

01:03:35.223 --> 01:03:37.119 the most important thing to Bob.

01:03:37.120 --> 01:03:39.885 The training of a cadre of outstanding

01:03:39.885 --> 01:03:41.436 independent researchers in Bangkok

01:03:41.436 --> 01:03:43.260 at Chula and in Chiang Mai,

01:03:43.260 --> 01:03:47.820 and psychiatric genetics and neuroimaging.

01:03:47.820 --> 01:03:51.026 Who currently are the basis of our

01:03:51.026 --> 01:03:53.465 collaborative team and who also

01:03:53.465 --> 01:03:55.915 continue to press forward with

01:03:55.915 --> 01:03:58.115 their own independent research

01:03:58.115 --> 01:04:00.687 and their other collaborations.

01:04:00.690 --> 01:04:03.448 And we have many plans to cement

01:04:03.448 --> 01:04:06.199 that legacy and continue the work.

01:04:06.200 --> 01:04:08.324 We want to continue the time

01:04:08.324 --> 01:04:11.039 meth project on the A1 for the

NOTE Confidence: 0.89443612

01:04:11.039 --> 01:04:13.475 competitive renewal is about to be

NOTE Confidence: 0.89443612

01:04:13.475 --> 01:04:15.620 submitted now in a biobank format

NOTE Confidence: 0.89443612

01:04:15.620 --> 01:04:18.009 with the aim now to collect.

NOTE Confidence: 0.791744675555556

01:04:20.220 --> 01:04:21.912 10,000 additional subjects,

NOTE Confidence: 0.791744675555556

01:04:21.912 --> 01:04:25.296 the D 43 renewal is pending.

NOTE Confidence: 0.791744675555556

01:04:25.300 --> 01:04:28.340 We've gotten on good signals that it could

NOTE Confidence: 0.791744675555556

01:04:28.340 --> 01:04:31.220 be funded in the next couple of weeks.

NOTE Confidence: 0.791744675555556

01:04:31.220 --> 01:04:32.788 The name of the project is now

NOTE Confidence: 0.791744675555556

01:04:32.788 --> 01:04:35.018 the Robert team, Allison, Yale,

NOTE Confidence: 0.791744675555556

01:04:35.018 --> 01:04:38.913 Chulalongkorn, stress alcohol use and

NOTE Confidence: 0.791744675555556

01:04:38.913 --> 01:04:41.250 psychopathology training program.

NOTE Confidence: 0.791744675555556

01:04:41.250 --> 01:04:44.456 It's directed now at NI AAA and NIMH.

NOTE Confidence: 0.791744675555556

01:04:44.456 --> 01:04:46.320 As Nidahas continued today,

NOTE Confidence: 0.791744675555556

01:04:46.320 --> 01:04:47.668 emphasize Human Genetics work.

NOTE Confidence: 0.791744675555556

01:04:47.668 --> 01:04:51.022 We have a new R 01 with the Thai

NOTE Confidence: 0.791744675555556

01:04:51.022 --> 01:04:53.127 collaborators about to be reviewed,

NOTE Confidence: 0.791744675555556

01:04:53.130 --> 01:04:56.455 extending the work to PTSD and depression.

NOTE Confidence: 0.791744675555556

01:04:56.460 --> 01:04:58.170 And with thanks to all

NOTE Confidence: 0.791744675555556

01:04:58.170 --> 01:04:59.196 my other collaborators,

NOTE Confidence: 0.791744675555556

01:04:59.200 --> 01:05:00.550 very deep thanks to Mark.

NOTE Confidence: 0.791744675555556

01:05:00.550 --> 01:05:02.846 But Enza, who has stepped in and

NOTE Confidence: 0.791744675555556

01:05:02.846 --> 01:05:04.540 helped to continue this work,

NOTE Confidence: 0.791744675555556

01:05:04.540 --> 01:05:07.490 and our many collaborators at.

NOTE Confidence: 0.791744675555556

01:05:07.490 --> 01:05:09.900 Yell Chula and swadhin problem.

NOTE Confidence: 0.847918565

01:05:13.110 --> 01:05:16.780 And so. This is Bob.

NOTE Confidence: 0.9028741

01:05:18.910 --> 01:05:21.490 At a restaurant in Bangkok?

NOTE Confidence: 0.9028741

01:05:21.490 --> 01:05:24.232 I'm in a great mood with a

NOTE Confidence: 0.9028741

01:05:24.232 --> 01:05:25.196 colorful beverage with a

NOTE Confidence: 0.9028741

01:05:25.196 --> 01:05:26.890 flower in it in front of him.

NOTE Confidence: 0.9028741

01:05:26.890 --> 01:05:29.818 He liked those kinds of drinks.

NOTE Confidence: 0.9028741

01:05:29.820 --> 01:05:32.988 Looking forward to.

NOTE Confidence: 0.9028741

01:05:32.990 --> 01:05:35.930 The meal, but mostly to the meeting

NOTE Confidence: 0.9028741

01:05:35.930 --> 01:05:39.190 with Ross Manapua and our other

NOTE Confidence: 0.9028741

01:05:39.190 --> 01:05:41.154 collaborators that we're about

NOTE Confidence: 0.9028741

01:05:41.154 --> 01:05:43.950 to go onto that afternoon. And.

NOTE Confidence: 0.53072261

01:05:46.770 --> 01:05:51.968 We owe Bob a big. Thank you for

NOTE Confidence: 0.53072261

01:05:51.968 --> 01:05:54.204 all of that and it was a real

NOTE Confidence: 0.53072261

01:05:54.204 --> 01:05:56.059 privilege to work with them.

NOTE Confidence: 0.53072261

01:05:56.060 --> 01:05:57.328 Thank you for your attention.

NOTE Confidence: 0.855093636666667

01:06:03.590 --> 01:06:06.149 Joel, thank you.

NOTE Confidence: 0.855093636666667

01:06:06.150 --> 01:06:07.383 It's really extraordinary

NOTE Confidence: 0.855093636666667

01:06:07.383 --> 01:06:09.849 to see the breadth of Bob's

NOTE Confidence: 0.855093636666667

01:06:09.849 --> 01:06:11.958 work across these two talks.

NOTE Confidence: 0.855093636666667

01:06:11.960 --> 01:06:14.942 And the breadth of the the universe

NOTE Confidence: 0.855093636666667

01:06:14.942 --> 01:06:17.342 of people he touched across

NOTE Confidence: 0.855093636666667

01:06:17.342 --> 01:06:19.352 generations across the globe across

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NOTE Confidence: 0.855093636666667

01:06:19.352 --> 01:06:21.270 areas of science and medicine.

NOTE Confidence: 0.957652572

01:06:25.640 --> 01:06:26.690 Thank you all for being

NOTE Confidence: 0.973283405555555

01:06:26.700 --> 01:06:29.220 here today. I'm sure we could stay for hours,

NOTE Confidence: 0.973283405555555

01:06:29.220 --> 01:06:31.656 sharing memories and talking about Bob.

NOTE Confidence: 0.973283405555555

01:06:31.660 --> 01:06:32.956 There will be a chance to do that

NOTE Confidence: 0.973283405555555

01:06:32.956 --> 01:06:34.546 with some of his men tease at the

NOTE Confidence: 0.973283405555555

01:06:34.546 --> 01:06:36.612 NRTP seminar at 11:45 and I've again

NOTE Confidence: 0.973283405555555

01:06:36.612 --> 01:06:38.360 pasted that link into the chat.

NOTE Confidence: 0.973283405555555

01:06:38.360 --> 01:06:40.526 Please feel free to join us if you have.

NOTE Confidence: 0.973283405555555

01:06:40.526 --> 01:06:42.567 If you have the time. Mitchell,

NOTE Confidence: 0.973283405555555

01:06:42.567 --> 01:06:44.409 John, thank you for your comments.

NOTE Confidence: 0.973283405555555

01:06:44.410 --> 01:06:47.052 Your memories and thank you everyone for

NOTE Confidence: 0.973283405555555

01:06:47.052 --> 01:06:49.770 being with us today as we as we remember

NOTE Confidence: 0.973283405555555

01:06:49.841 --> 01:06:51.716 a friend and a giant in our department.