1
00:00:00,330 --> 00:00:04,840
Good afternoon, everybody, hope you enjoyed your lunch. My name's Ian Hitchcock.

2
00:00:04,860 --> 00:00:08,740
I'm an experimental haematologist, which means I'm not a clinician.

3
00:00:08,760 --> 00:00:12,300
I have a PhD. In fact, I don't actually like the look of blood.

4
00:00:13,880 --> 00:00:17,700
So when I have a blood draw, I actually have to look away or I'll pass out.

5
00:00:17,820 --> 00:00:25,950
Sometimes makes me question my career choices. So what I'm going to do today is tell you a little bit about a new centre that has

6
00:00:26,070 --> 00:00:30,190
literally just been opened a couple of months ago at the University of York,

7
00:00:30,360 --> 00:00:33,120
we call it the Centre for Blood Research at York.

8
00:00:33,750 --> 00:00:40,880
I'm going to tell you a little bit about the history of blood research in York, which of course is centred primarily initially around HMRN, which

9
00:00:42,120 --> 00:00:47,699
you're all more than familiar with. But what we're actually doing now in blood research, what the centre wants to do,

10
00:00:47,700 --> 00:00:52,919
but more importantly what we want to do looking forward, because we've actually had a reasonable amount of success,

11
00:00:52,920 --> 00:00:57,180
which we can talk about here, but what we're going to do in the next month,

12
00:00:57,210 --> 00:01:00,630
what we're going to do in the next years, and what we might be able to do in the next few decades.

13
00:01:02,310 --> 00:01:13,710
So just to give you a little bit of history. So the medical school, the Hull York Medical School opened between Hull and

York, there's a clue in the name, in 2003,

14
00:01:14,100 --> 00:01:19,800
and that really for the University of York, really brought in the first, sort of, biomedical research.

15
00:01:19,980 --> 00:01:24,990
But prior to that, there were kind of spots of medical research in the Department of Biology, that is.

16
00:01:26,010 --> 00:01:34,530
But really the opening of the Hull York Medical School really pushed the development of biomedical research at the University.

17
00:01:35,620 --> 00:01:41,570
And then of course, HMRN quickly followed that, as we were saying, it's nearly 20 years old,

18
00:01:41,600 --> 00:01:46,299
hooray to the HMR Network, which I'm not going to talk about much because obviously you're hearing about it now,

19
00:01:46,300 --> 00:01:53,410
you're all part of it as well, as a collaborative venture between the University of York academics and NHS hospitals and HMDS.

20
00:01:53,410 --> 00:02:02,890
You're more than familiar with this, it started in 2004. And then there was, that obviously did exceptionally well and has matured beautifully.

21
00:02:03,580 --> 00:02:09,010
But then the Department of Biology at the University of York decided to start a biomedical science degree.

22
00:02:09,670 --> 00:02:12,489
So that's good because you can bring in more undergraduates,

23
00:02:12,490 --> 00:02:18,760
but also when you bring in undergraduates to work on a biomedical science degree, you need biomedical scientists to teach it.

24
00:02:19,180 --> 00:02:25,659
This actually caused a wave of new appointments for people that taught but also researched biomedicine.

25
00:02:25,660 --> 00:02:31,420
And I was actually one of these ways of recruitment for I was I was in New York working on Haematology,

26
00:02:31,610 --> 00:02:35,620
and I was part of this wave of recruitment in the area of biomedical science.

27
00:02:38,170 --> 00:02:45,239
And then in 2018, we formed what's known as the York Biomedical Research Institute, or YBRI, and what the idea

28
00:02:45,240 --> 00:02:51,629
of this was to bring together all the people that worked in various topics

29
00:02:51,630 --> 00:02:56,430
in biomedicine, to come under sort of one roof if you like, into one Institute.

30
00:02:56,530 --> 00:03:03,960
So that's people that work in neuroscience and in mental health and in solid tumours and in microbiology and also haematology and infection.

31
00:03:06,580 --> 00:03:09,750
And then really what we're doing now is looking forward.

32
00:03:09,860 --> 00:03:15,069
So where are we now? So when it comes to blood research at York, if you think historically,

33
00:03:15,070 --> 00:03:21,280
obviously HMRN has had incredible success and is now mature to some 20 or so years old.

34
00:03:21,460 --> 00:03:25,420
You've seen a lot of the people that are already involved in this.

35
00:03:26,320 --> 00:03:29,379
And when it comes to the experimental side, so when I say experimental,

36
00:03:29,380 --> 00:03:37,140
we are the folks that tend to look at how these diseases might occur, it's quite often at kind of the atomic level.

37
00:03:37,330 --> 00:03:43,270
So really trying to understand what the mechanisms are that are underpinning the development of these diseases.

38
00:03:43,540 --> 00:03:47,110
And we've grown quite a lot in the last, sort of, four or five years.

39

00:03:47,920 --> 00:03:57,660
So we have Dave Kent along with me, Katherine Bridge and Jillian Barlow, Bill Grey, James Hewitson and all these folks that work in the experimental area of haematology.

40
00:03:57,670 --> 00:04:07,450
So we have this real strength in the epidemiology and the population side and a growing strength in the areas of experimental haematology.

41
00:04:09,220 --> 00:04:14,300
And I was actually appointed the theme lead. They wanted to call it immunology and infection and I was like ah ah,

42
00:04:15,050 --> 00:04:21,320
there's a topic missing and it ended up being called the immunology, haematology and infection theme.

43
00:04:21,620 --> 00:04:29,540
So I was able to head that up and really tried to drive the experimental haematology side in this area.

44
00:04:30,540 --> 00:04:36,780
And as a group, both at HMRN and the experimental side that are generally based in Biology we're actually doing pretty well.

45
00:04:37,050 --> 00:04:41,650
So we have I haven't updated the slide, I think we've got a little bit more than Â£22 million now.

46
00:04:41,650 --> 00:04:44,820
I think we were on about Â£24 million in open funding.

47
00:04:45,180 --> 00:04:47,490
This is from UCRI, which is essentially the Government.

48
00:04:48,060 --> 00:04:55,290
We have a lot of funding from charities, but also we have industrial partnerships and we're quite a big unit of people.

49
00:04:55,470 --> 00:05:00,629
There's about 70 of us, multiple academic staff, independent research fellows,

50
00:05:00,630 --> 00:05:05,700
so they're the folks that are on the ground, and do a lot of the developing their own research areas,

51
00:05:05,700 --> 00:05:11,280
postdocs, technicians, there are PhD students, there's clinical research nurses.

52
00:05:11,520 --> 00:05:14,879
So a whole spectrum of people that are working on these areas.

53
00:05:14,880 --> 00:05:22,110
And this just gives you an example of some of the people that give us funding, so there's Cancer Research UK that are obviously here as well.

54
00:05:22,110 --> 00:05:26,370
You can see Blood Cancer UK, we have quite a number of Blood Cancer UK grants.

55
00:05:26,610 --> 00:05:31,050
We also have funding from the Bill and Melinda Gates Foundation and the Wellcome Trust.

56
00:05:31,290 --> 00:05:36,350
And down here at the bottom you see some companies that you might recognise as well.

57
00:05:36,360 --> 00:05:38,370
So we do the basic research.

58
00:05:38,400 --> 00:05:47,220
The fundamental research is often funded by charities and the government and the more applied research that is quite often funded by industry partners.

59
00:05:49,750 --> 00:05:54,640
And some of the successes we've had recently. So, really thanks to Eve's hard work,

60
00:05:55,810 --> 00:06:02,920
we were able to be part of the new NIHR Biomedical Research Centre that's based in Leeds.

61
00:06:03,580 --> 00:06:10,720
It was always musculoskeletal disease up until this most recent funding round when they actually spread it out to six different,

62
00:06:10,930 --> 00:06:14,020
six different areas of interest and haematology was one.

63
00:06:14,350 --> 00:06:20,229
This really sort of reinforces York's reputation,

64
00:06:20,230 --> 00:06:28,780
building reputation now in haematology with part of this very large, I think Â£20 million with this as a Biomedical

Research Centre

65
00:06:29,020 --> 00:06:36,220
and really allows us to tap into the clinical side and the diagnostic side of research that's going on in Leeds.

66
00:06:38,320 --> 00:06:41,550
We're also a hub of what's known as the MRC,

67
00:06:41,560 --> 00:06:47,740
this is the government funded Mouse Genetics Network. Now, using mice in research is critically important,

68
00:06:47,740 --> 00:06:57,130
and using genetically modified mice in research is also critically important for translating our findings closer towards humans and to patients.

69
00:06:57,430 --> 00:07:06,850
And York has actually been selected as the hub for the haematology Mouse Genetics Network theme.

70
00:07:07,330 --> 00:07:14,920
So what that means is we lead the development of new models of haematological diseases and haematological malignancies in mice,

71
00:07:15,190 --> 00:07:23,739
and we actually control a theme that involves also London and Cambridge and Glasgow in these

72
00:07:23,740 --> 00:07:29,350
areas of developing these models for really critical translational haematology research.

73
00:07:31,740 --> 00:07:40,559
So really what we're able to do now, and this is sort of the aim that we've had for a while, is deliver groundbreaking science,

74
00:07:40,560 --> 00:07:49,500
but be able to go from single molecule, so an atomic level understanding of haematological disease all the way up to whole populations.

75
00:07:50,550 --> 00:07:57,270
So we wanted to be able to go from single molecules. So how two molecules, how two atoms come together?

76
00:07:57,540 --> 00:08:03,750
And the reason this is important is we need this level of understanding to understand why diseases develop.

77
00:08:04,080 --> 00:08:08,610
Why does blood cancer develop in certain people? How do these mutations work?

78
00:08:09,150 --> 00:08:12,660
And this is usually complicated, usually takes a long time,

79
00:08:12,990 --> 00:08:19,470
but without understanding exactly why a mutation causes somebody to be sick, we can't develop new drugs to try and target it.

80
00:08:20,130 --> 00:08:26,580
There's lots of work done on single molecules. We have people that are working with cells, in single cells.

81
00:08:26,590 --> 00:08:34,260
So understanding a cancer cell on its own, what are the changes in that single cancer cell that causes it to grow?

82
00:08:34,650 --> 00:08:39,209
This is an example from Dave Kent's lab, which is actually one blood stem cell

83
00:08:39,210 --> 00:08:44,640
and you can see it dividing over a time course into this huge population of cells.

84
00:08:44,850 --> 00:08:48,270
And every single one of these daughter cells is identical to the first one.

85
00:08:48,990 --> 00:08:56,100
So how do these cancers develop and how do they outcompete normal, non mutated blood cells?

86
00:08:57,210 --> 00:09:00,950
And then, of course, we can move to the whole populations with HMRN

87
00:09:00,960 --> 00:09:06,690
and the incredible level of data in understanding people that have

88
00:09:06,700 --> 00:09:10,829
these conditions and how treatments are successful and when they're not successful,

89
00:09:10,830 --> 00:09:15,810
and we've heard some fantastic stuff about that today. And we're pretty good at what we do.

90

00:09:15,960 --> 00:09:19,950
So these are just a selection of the papers in the various fields. A lot of

91
00:09:19,950 --> 00:09:26,790
this might not mean much to most of you, but what I can say is we tend to publish in not just the highest journals,

92
00:09:26,790 --> 00:09:31,230
the highest impact journals in our field, but also very high impact journals generally.

93
00:09:31,590 --> 00:09:37,560
And what that means is we often make kind of paradigm shifting discoveries in certain areas.

94
00:09:38,010 --> 00:09:47,670
So we're good at what we do. And this really drove the idea that we could form a standalone sense of looking into blood research.

95
00:09:49,490 --> 00:09:52,580
So we have HMRN and we have the experimental side.

96
00:09:52,580 --> 00:09:56,480
But of course, the one thing that we were really missing for a long time was the clinical.

97
00:09:57,820 --> 00:10:02,590
And I'm delighted to say that the next speaker today is going to be Adele Fielding.

98
00:10:02,830 --> 00:10:06,340
We recruited Adele under the Hull York Medical School

99
00:10:06,880 --> 00:10:15,460
as a clinical haematologist who is also an expert in the realms of understanding basic haematology and haematological malignancy research as well.

100
00:10:16,000 --> 00:10:28,240
She came to us from UCL and really completed this sort of, or started the completion of this multi skill centre in blood research.

101
00:10:28,750 --> 00:10:36,190
So we made a proposal to the University to start the Centre for Blood Research from understanding blood diseases from single molecules to whole populations.

102
00:10:36,820 --> 00:10:41,350
We've proposed for potential relocations across the Faculties.

103
00:10:41,350 --> 00:10:47,770
So there's people in different Departments, we want to try and get them all in under in one physical space.

104
00:10:48,850 --> 00:10:56,350
We want to develop more in clinical areas and we really want to have clinical PhD students, so clinicians

105
00:10:56,350 --> 00:11:01,960
that are already qualified clinically doing research on the ground and getting their PhDs.

106
00:11:03,100 --> 00:11:07,210
And this would go all the way across the whole kind of area that we're researching.

107
00:11:08,650 --> 00:11:13,270
And critically, we want to increase our translational output. So that's something experimentally

108
00:11:13,270 --> 00:11:19,870
we haven't done that well so far. We make a lot of what are the fundamental findings, we want to see if we can translate

109
00:11:19,870 --> 00:11:24,610
these findings into patient focussed therapeutic and diagnostic development.

110
00:11:25,970 --> 00:11:28,710
So what do we want to do? So we need space.

111
00:11:28,730 --> 00:11:34,960
We've run out of space because we've done pretty well and we've got these grants in and we can employ people and we've run out of space.

112
00:11:34,970 --> 00:11:42,950
We need new buildings. This is a proposal that's gone in to the university to build a new hybrid space that will allow both

113
00:11:42,950 --> 00:11:48,680
the experimental with the clinical and the population and epidemiology science to go under one roof.

114
00:11:49,010 --> 00:11:52,420
And the idea that we have these kind of positive, accidental

115
00:11:53,180 --> 00:12:00,620
collisions between scientists where we actually bump into each other and we discuss things that we're finding on a

regular basis.

116
00:12:02,570 --> 00:12:08,180
We want to include space to have small clinics and host patient public outreach events.

117
00:12:08,750 --> 00:12:14,959
Okay, you are centre, you are critical for everything we want to do in the Centre and we want people

118
00:12:14,960 --> 00:12:20,300
in the general area around us to be able to come and integrate with us,

119
00:12:20,300 --> 00:12:28,050
to be able to attend these kind of spaces. And we also want to have space that industrial partners could use so that

120
00:12:28,050 --> 00:12:32,730
they could actually host some of their own researchers in our academic space and

121
00:12:32,730 --> 00:12:36,600
they can tap into our understanding and the incredible technologies that we

122
00:12:36,600 --> 00:12:42,300
have at the University and be able to integrate with us in a much easier way.

123
00:12:44,240 --> 00:12:47,930
We want to train the next generation of haematology researchers,

124
00:12:48,350 --> 00:12:56,739
and we want to establish clinical and non-clinical PhD training programmes, so this is where people really get exposure and experience

125
00:12:56,740 --> 00:13:03,360
to understanding research. We want people to bloom where they're planted.

126
00:13:03,370 --> 00:13:06,900
So you want to try and attract people that are already here.

127
00:13:07,020 --> 00:13:12,659
Now, when it comes to a lot of the clinical PhD training programs, a lot of them are based, for example,

128
00:13:12,660 --> 00:13:19,050
in the Golden Triangle, so they're down in London, in Oxford and Cambridge, or they might be some in Manchester or

there might be some in Edinburgh.

129
00:13:20,040 --> 00:13:22,199
There's not that many in the area.

130
00:13:22,200 --> 00:13:28,380
and if people need to stay here for family reasons or financial reasons, they might not think they can do the PhDs here.

131
00:13:28,410 --> 00:13:33,480
We want to make it so they can stay in this region and do their clinical PhDs with us.

132
00:13:36,150 --> 00:13:41,480
And we also we want to go down to the people that are at the very start of their careers.

133
00:13:41,510 --> 00:13:48,350
So we want summer studentships, we want people from underrepresented backgrounds to have the experience of doing some summer studentships

134
00:13:48,690 --> 00:13:52,080
and Master's research projects that usually wouldn't be able to do it.

135
00:13:52,410 --> 00:13:55,620
So we need to make sure that they're funded correctly so they don't feel like they

136
00:13:55,620 --> 00:13:59,880
can't do it because they don't have the money and they need to do other jobs in the summer.

137
00:14:00,310 --> 00:14:03,570
want to pay them properly so they can have this research experience.

138
00:14:03,900 --> 00:14:10,440
And this has already been going through something called Generation Research for the last two or three years and is an incredible success.

139
00:14:10,920 --> 00:14:13,950
So this is something we really want to tap into and support.

140
00:14:15,840 --> 00:14:19,620
And we want our Centre to be patient focussed and we want it to be translational.

141
00:14:20,310 --> 00:14:26,400

We want to ensure our research is focussed on developing kinder and more effective treatments for patients.

142
00:14:26,880 --> 00:14:30,060
We're already getting some levels of success here.

143
00:14:30,390 --> 00:14:36,629
We've developed some drugs that are now in phase one clinical trials with our industrial partner that are specifically

144
00:14:36,630 --> 00:14:44,310
designed to be kinder and more effective for this certain disease that we're looking at, there's a type of malignancy called myeloproliferative neoplasm,

145
00:14:44,820 --> 00:14:49,020
and we've developed some antibody for these drugs, this is the first time an antibody that's been

146
00:14:49,020 --> 00:14:53,670
developed as a therapeutic for these diseases that is now in phase one clinical trials.

147
00:14:53,940 --> 00:14:58,060
So we're already delivering on some of these factors, but this is something we want to really build up.

148
00:14:59,770 --> 00:15:05,200
And we want to involve patients from the Yorkshire and Humberside region in research design.

149
00:15:05,440 --> 00:15:08,850
So it's not just these kind of meetings. We want you to be involved.

150
00:15:08,860 --> 00:15:14,020
When we have one of our, maybe crazy ideas, and sometimes these ideas are effective, sometimes they're not,

151
00:15:14,320 --> 00:15:17,590
we want you to be involved in how we design these experiments.

152
00:15:18,400 --> 00:15:22,150
We want to come to you and we want to invite you in and say, "this is our idea,

153
00:15:22,390 --> 00:15:29,110
what do you think?" Because the feedback we get from you is critical in how we treat what's the real

154
00:15:29,110 --> 00:15:34,120
problems of people with these diseases and how we go forward with our research.

155
00:15:36,700 --> 00:15:41,169
And we want to make sure that our researchers are supported in this

156
00:15:41,170 --> 00:15:46,270
engagement with patients by making sure that we arrange more of these kind of things.

157
00:15:46,360 --> 00:15:47,659
They could be more specific,

158
00:15:47,660 --> 00:15:54,110
they could be smaller and they could be based elsewhere, that you're engaged in what we're doing and understand what we try and do.

159
00:15:55,850 --> 00:15:59,570
So that's all I'm going to say today. I don't know how I did for time.

160
00:16:01,280 --> 00:16:05,149
But any questions I'm happy to take now or at the end, but just to sort of plant in your mind,

161
00:16:05,150 --> 00:16:13,920
what would you like to see from the Centre for Blood Research at York, and how could you help with the success of what we're doing?

162
00:16:14,210 --> 00:16:18,800
And how would you like to be involved in research that's going to go on

163
00:16:19,280 --> 00:16:22,300
at this Centre. And that's it for me. Thank you very much.