

# Rheumatology

with Dr Nigil Haroon

## Talking points

### Knowledge

1. What is ankylosing spondylitis (AS) and what happens to someone who develops the disease?
2. Who is most likely to develop AS, and when?

### Comprehension

3. Which cytokine do people with AS have more of compared to people who do not have AS?
4. What are major histocompatibility complexes and what do they do?

### Application

5. What would you ask each of Nigil's team members if you wanted to find out more about their research?
6. What benefits do you think personalised medicine approaches might have for people living with AS?

### Analysis

7. Why are Nigil and his team motivated to work on finding new cures for AS?
8. After reading all of the personal interviews from Nigil and the other lab members, who do you relate to the most? Why?
9. Mansi and Shaghayegh both mention reading books as something they were most interested in at school. What links do you think exist between fiction and science?

### Synthesis

10. Patricia explained how some diseases, like AS, can go undiagnosed for years. Can you imagine a possible solution to this? How do you think people could become more aware of conditions like AS and recognise the symptoms earlier?

### Evaluation

11. Nigil's lab is made up of people from all over the world. How do you think having a multicultural work environment will benefit the research team? Can you think of any challenges it might bring?
12. Mariia and Shaghayegh mention using animal models in their experiments. To what extent do you think using animals in experiments is justified in the context of AS research?

## Activities

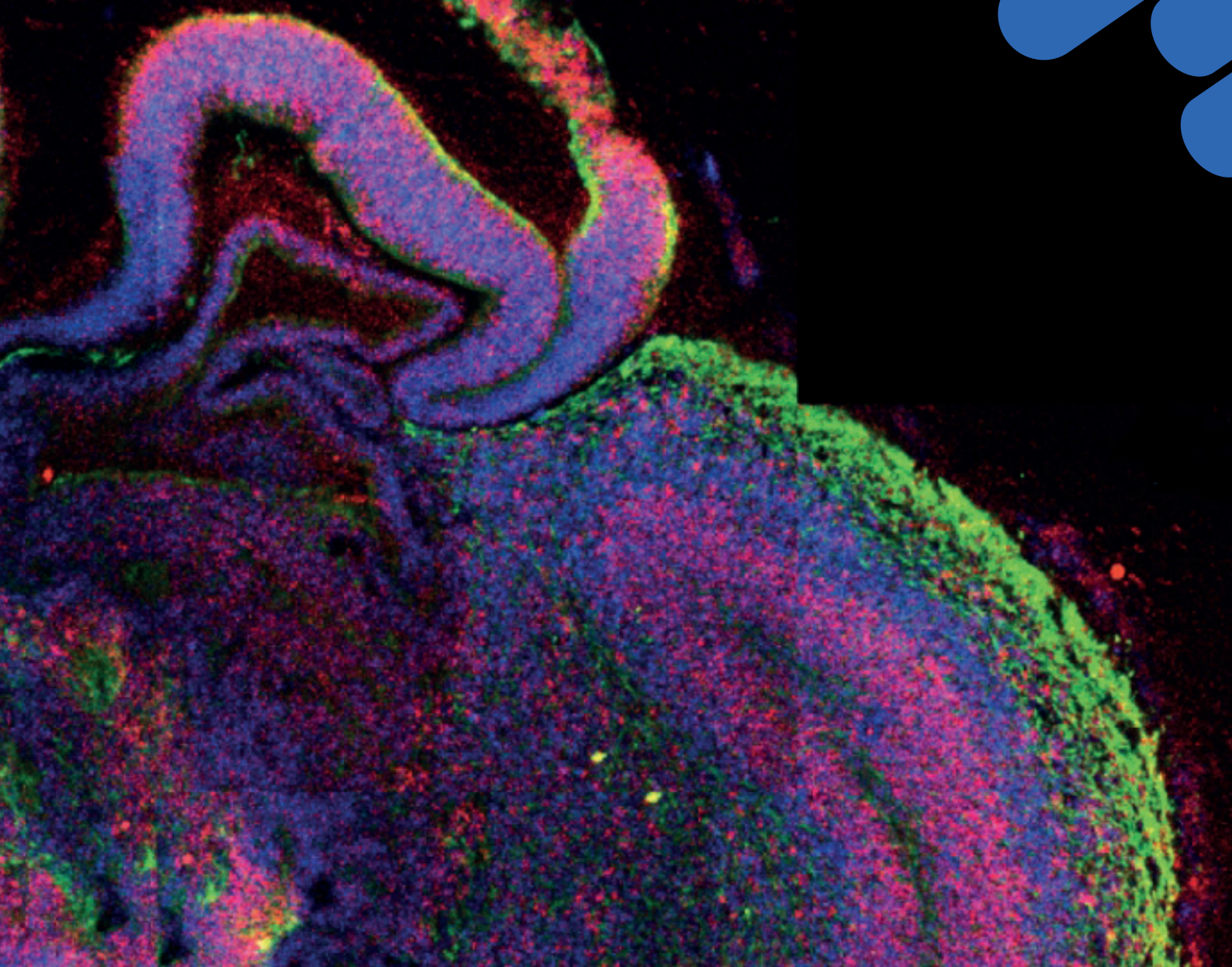
### 1. Make your own organoid

Research an organ of your choice and make a mock-organoid of it! As Mariia mentioned, organoids are tiny 3D-models that researchers use to help mimic the function of real organs.

When choosing your organoid, think about which diseases it will help researchers to learn more about. Why is this organ an important one to replicate?

To make your organoid, draw out a copy of the organ you are representing on a large piece of paper, making sure to label its parts and their functions. Use recycled materials, such as plastic trays and toilet rolls, or craft supplies, such as card, tissue paper and plasticine, to make your organoid. Make sure that your organoid is big enough that you can explain it to others (even though real organoids are microscopic in size!)

Once you have created your organoid, show it to your classmates, friends or family. See if they can guess what organ it is, and explain



to them why it is important and which diseases it will help researchers fight.

## 2. Animal testing debate

The research team use animal testing techniques to develop new cures and treatment methods for people living with AS. However, not everyone is comfortable with this practice.

Host a debate about animal testing for medical research with your classmates.

Organise yourself into two groups, one arguing for animal testing in medical research, and the other arguing against it. (The group you are in does not have to match your personal viewpoint on the topic.)

Before you do your research on the topic, write down a few notes about what your initial opinion of the topic is, how you feel about it and why.

When you are preparing for the debate, make sure to come up with a strong

introduction, three arguments, and a conclusion for your side of the debate.

Think about questions such as:

- Is animal testing humane?
- How necessary is it, and what alternatives are there, if any?
- How is it regulated?
- How many human lives are saved because of animal testing?
- How many animal lives are lost?

If you are home-schooled or not able to do this activity in a group, flip a coin to decide which side to argue for before creating and delivering a presentation to justify your position. Once you have done this, do the same but for the opposite argument.

After you have hosted the debate or presentation, go back to the initial notes that you wrote down. Has your opinion changed at all? Is there more to either side of the debate than you first imagined?

## More resources

- Read about organoids and how they work: [www.sciencealert.com/what-is-an-organoid](http://www.sciencealert.com/what-is-an-organoid)
- Watch these five short videos by the John Hopkins institute on AS: [www.youtube.com/watch?v=eFriEKJUHA8](https://www.youtube.com/watch?v=eFriEKJUHA8)
- Read this information sheet written by Nigil about AS on Arthritis Society of Canada: [arthritis.ca/about-arthritis/arthritis-types-\(a-z\)/types/ankylosing-spondylitis](http://arthritis.ca/about-arthritis/arthritis-types-(a-z)/types/ankylosing-spondylitis)