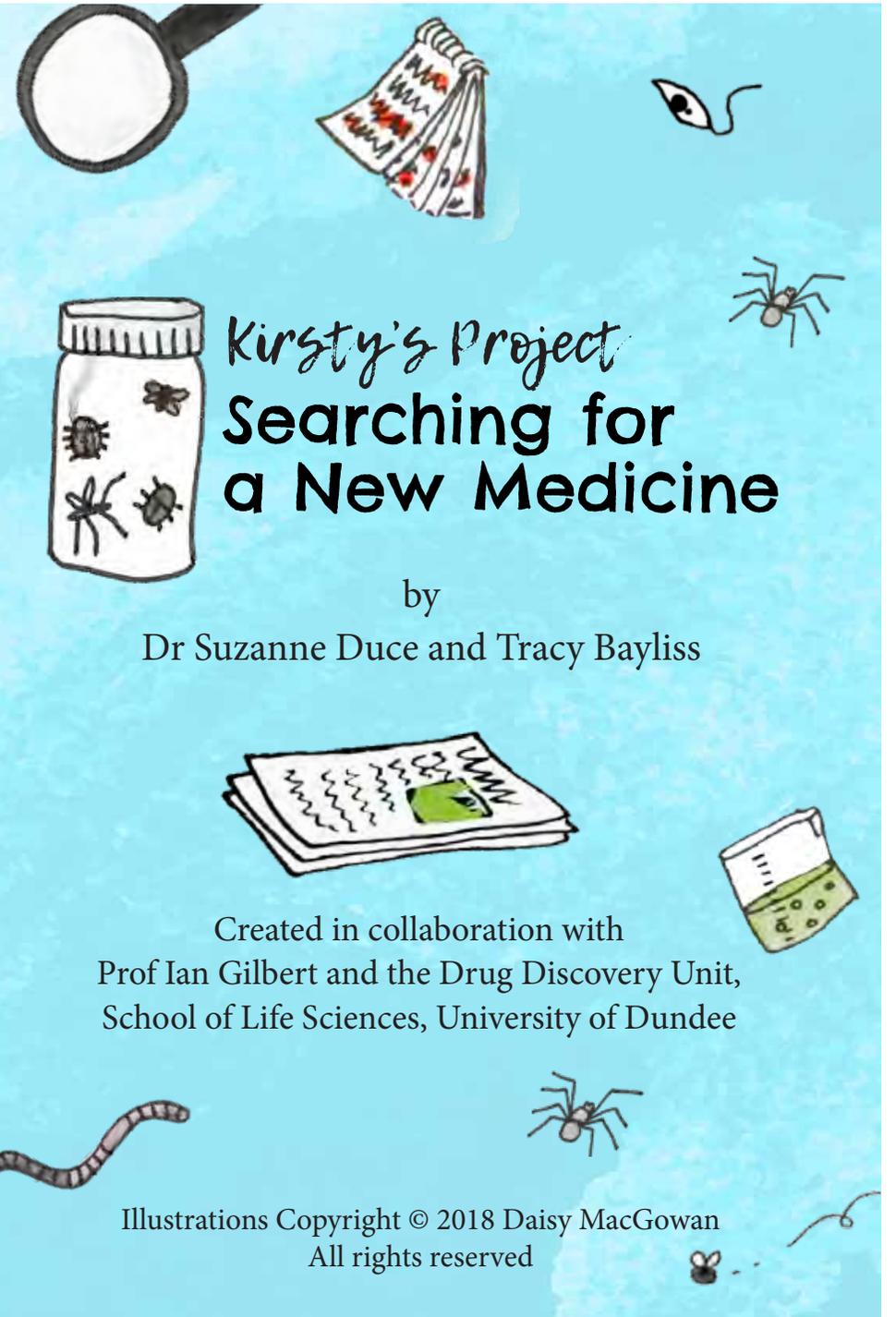


Kirsty's Project
Searching for
a New Medicine

by Dr Suzanne Duce and Tracy Bayliss

Illustrated by Daisy MacGowan



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a New Medicine

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Created in collaboration with
Prof Ian Gilbert and the Drug Discovery Unit,
School of Life Sciences, University of Dundee

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Thank you to Dr Manu De Rycker for his insightful tour of the Drug Discovery Unit at the University of Dundee.

A big thank you to Prof Ian Gilbert, Erin Hardee and Ali Floyd for their feedback.

We acknowledge the Wellcome Trust for funding this drug discovery project.

And finally, we dedicate this book to the team of scientists at the Drug Discovery Unit and at GSK for their fantastic work on leishmaniasis that inspired this book.





Kirsty loves creepy crawlies. The creepier, the better!

Kirsty spends hours in her garden in Dundee searching for insects. She peers into every nook and cranny looking for bugs and beasties.

She finds lots of different creatures. Some have six legs. Some have eight. Some have twenty and others have no legs at all.



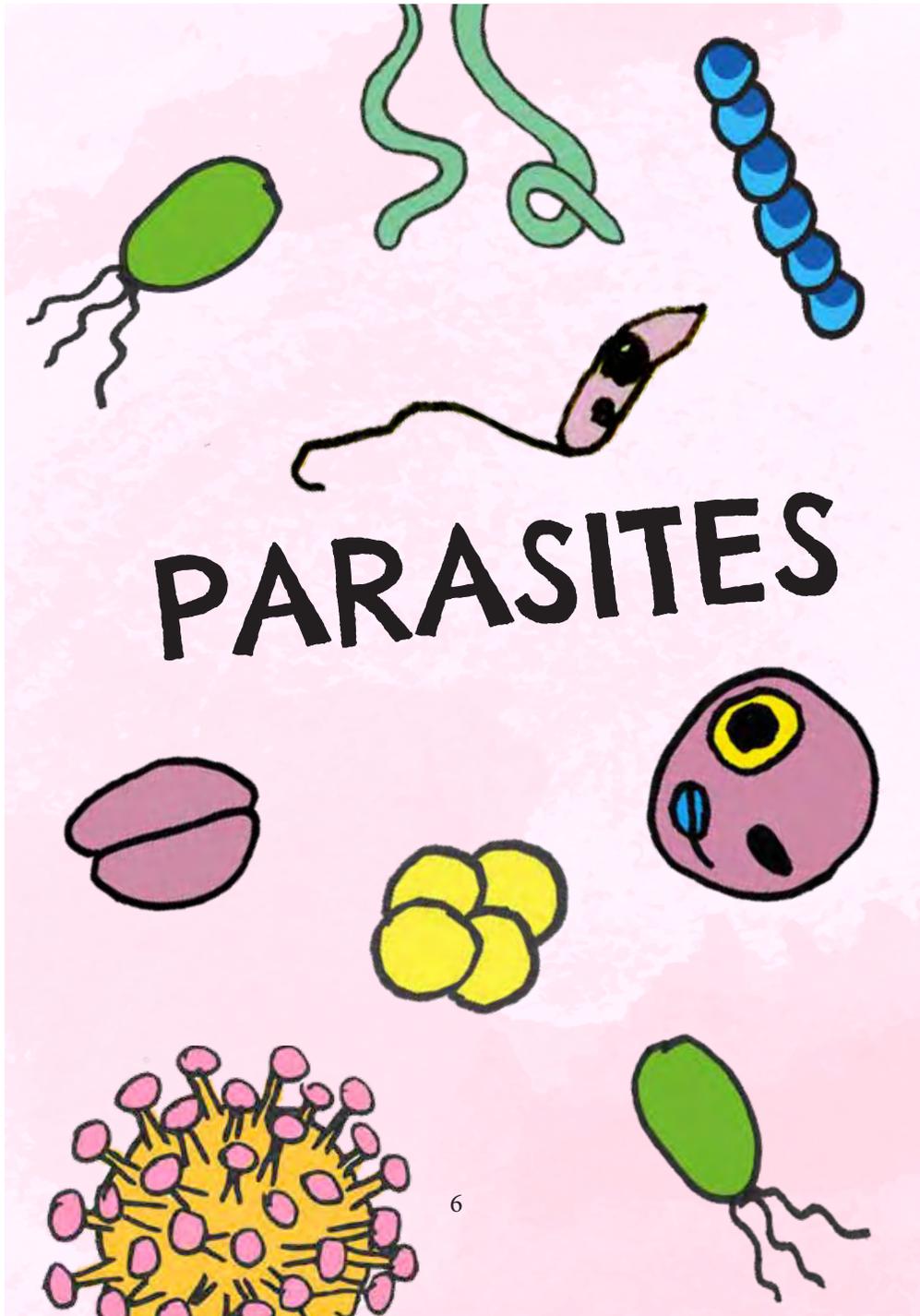
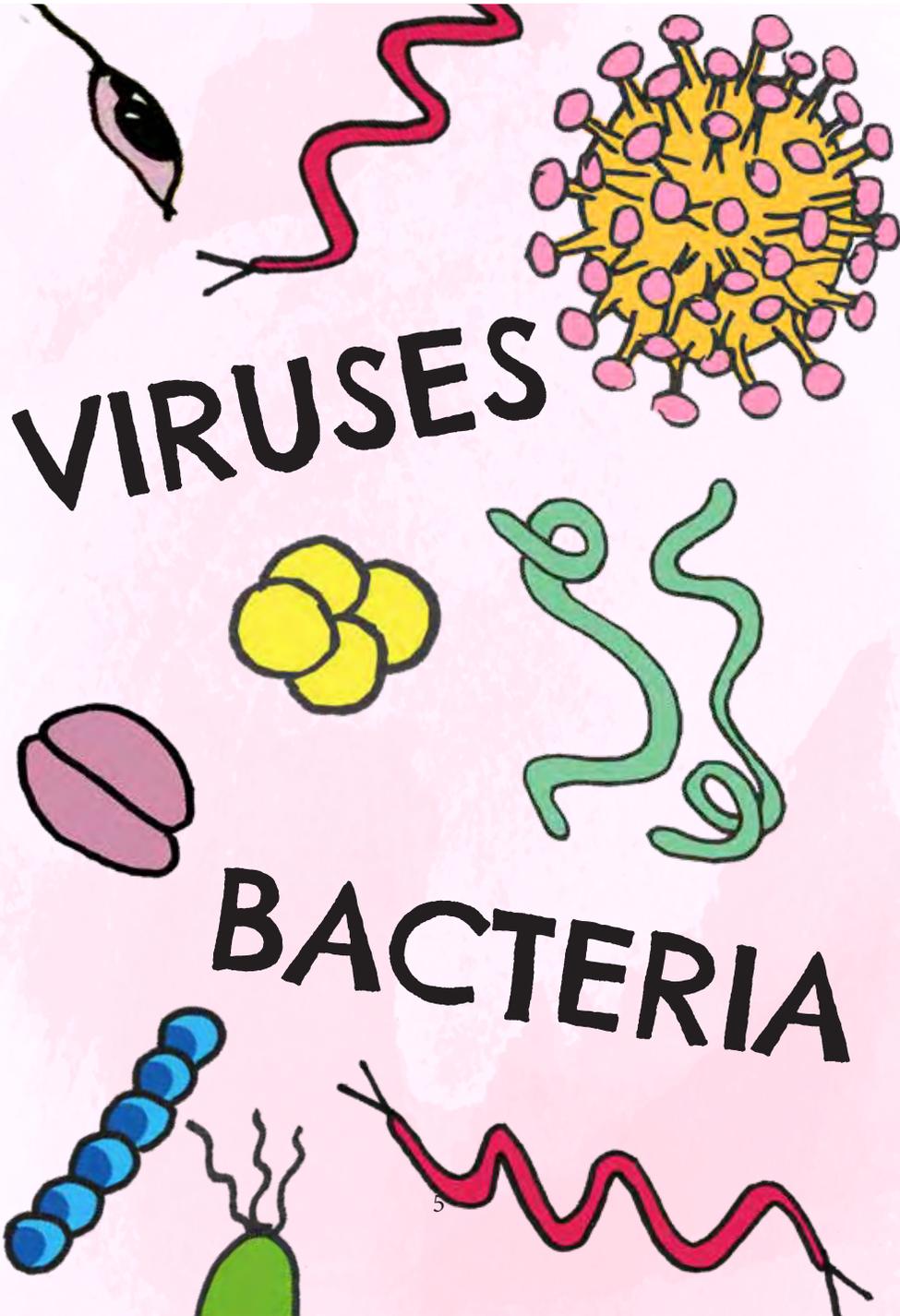
One day, Kirsty came to school and found her teacher Mr O'Brien had a surprise for the class. "Good morning everyone," he said. "Today we are all going to be scientists. This means that we will ask questions about the world around us and then look for the answers. To help us get started, after lunch we will visit the City Library."

The teacher asked everyone to think of a topic that they wanted to research for their reports. Kirsty already knew lots about creepy crawlies. She wondered if there was anything even tinier.



A helpful librarian told her just where to look...in the science section! There, on the top shelf, she found the perfect book.



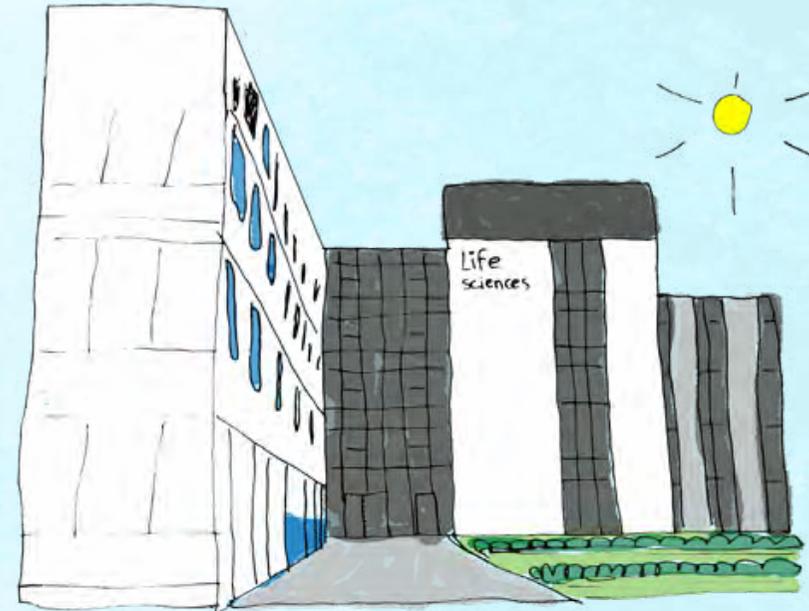


The book was called 'Microscopic Marvels'. It showed her a whole world of microbes, even smaller and weirder than the bugs in her garden. So small that you need a microscope to see them.

At the library, they also got the chance to use the computers to help research their projects. Kirsty discovered that, just down the road, there were teams of scientists at the University of Dundee who studied parasites, bacteria and viruses.



At the weekend they had an Open Day! Anyone could come along and see what was happening inside the big white building.



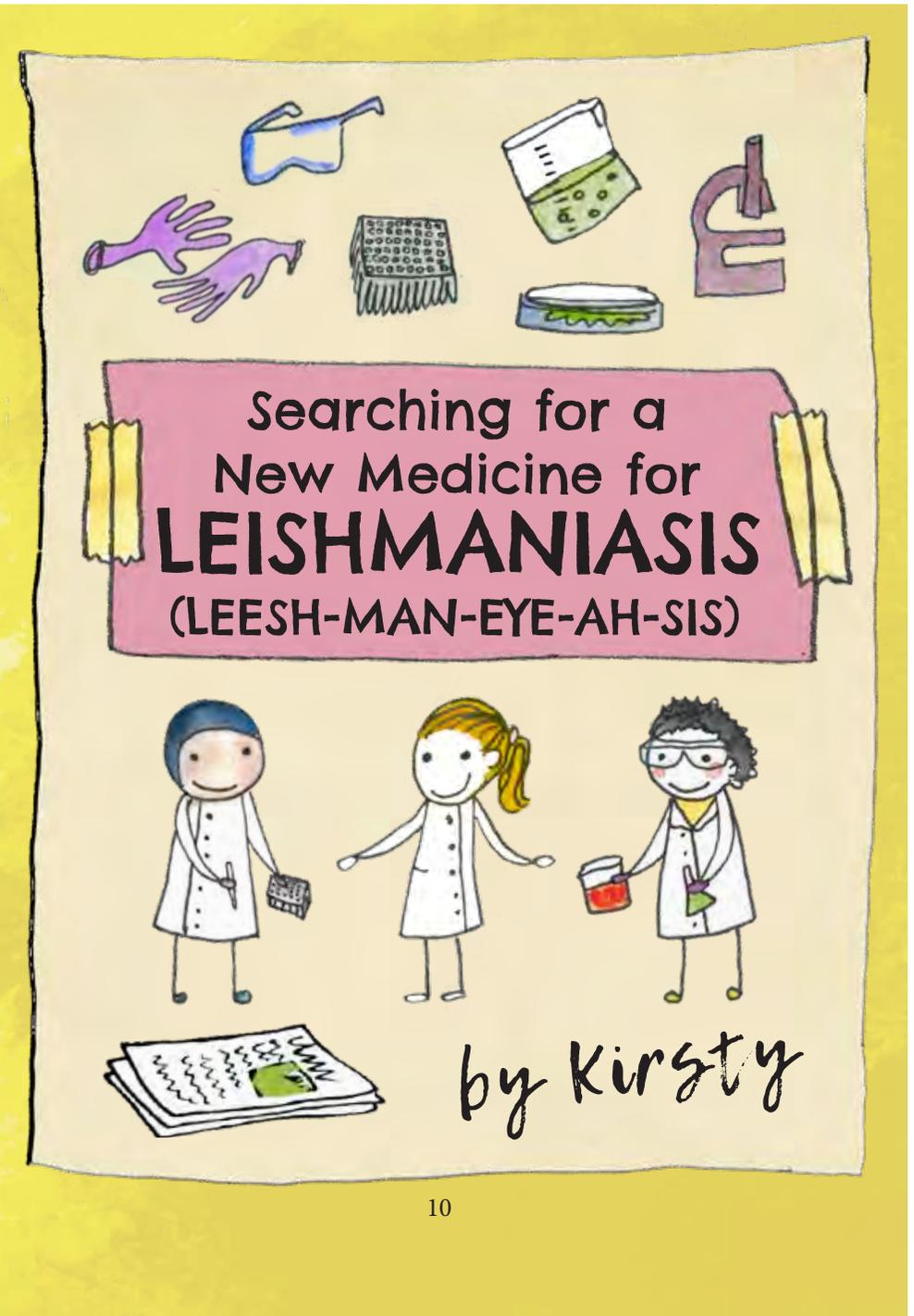
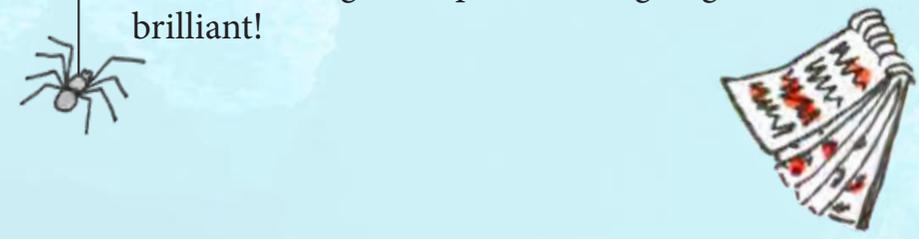
On Friday night Kirsty could hardly sleep. She was so excited about visiting the laboratories and meeting real scientists. She had so many questions that she wanted to ask them.



At the open day, Kirsty and her dad went on a tour of the building. There was a room so large that you could fit a house in it and a machine that acted like a mechanical liver. There were even robots that did thousands and thousands of experiments every day. The scientists use these tools to carry out their research and make new and exciting discoveries.

After the tour, she chatted with a professor and some scientists who were trying to make new medicines to treat tropical diseases caused by parasites.

By the end of the visit, Kirsty couldn't wait to start writing her report. It was going to be brilliant!



WHAT IS LEISHMANIASIS?

LEISHMANIA



Leishmaniasis is a tropical disease caused by tiny parasites called leishmania.

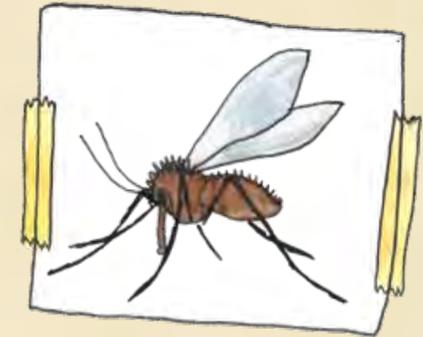
WHERE DOES LEISHMANIASIS OCCUR?



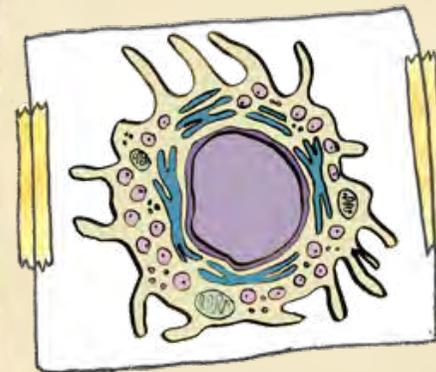
It is most commonly found in Brazil, East Africa and India.

HOW DO YOU GET LEISHMANIASIS?

People get sick with leishmaniasis after they are bitten by a sandfly infected with leishmania parasites.

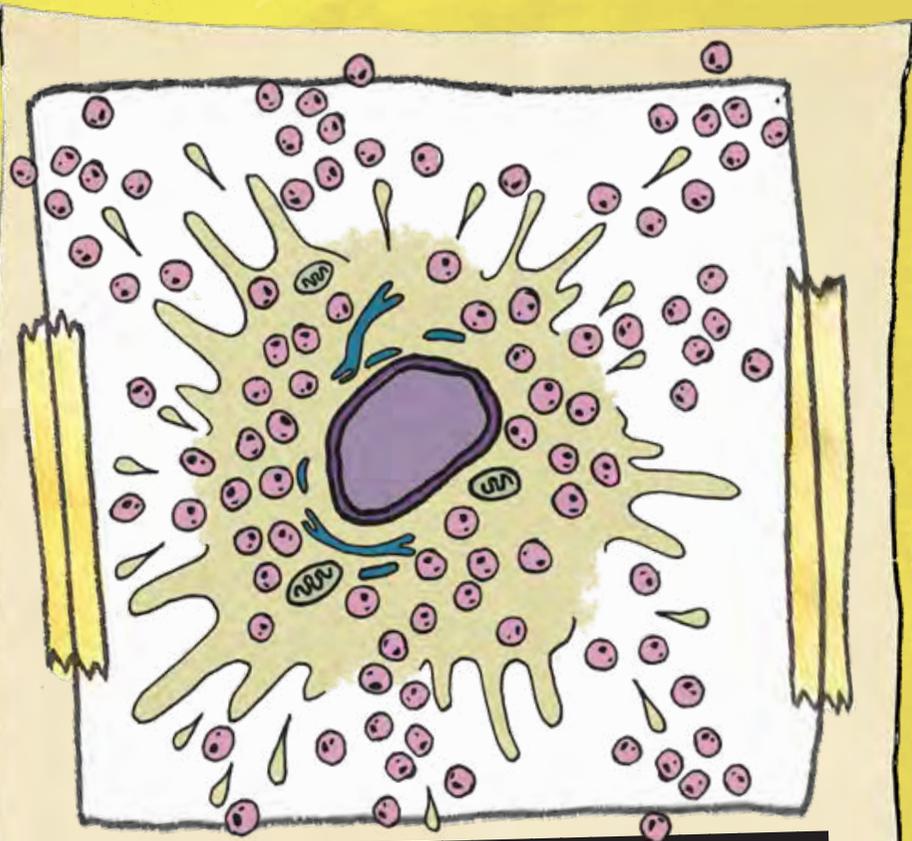


SANDFLY



MACROPHAGE

The leishmania parasites enter the blood and hide inside human cells called macrophages.



BURSTING MACROPHAGE CELL

The leishmania parasites make more and more copies of themselves until the cells explode. This is how the disease spreads through the body.

WHAT HAPPENS TO PEOPLE WHO GET LEISHMANIASIS?

People who have visceral leishmaniasis get a fever, lose weight, feel exhausted and their liver and spleen swell.



Leishmaniasis kills 20,000-40,000 people every year.

We need new medicines because the ones we have are either difficult to use or not good enough.



WHO DISCOVERS NEW MEDICINES?



It takes a large team of different kinds of scientists to discover a new medicine.

The CHEMISTS make new compounds by reacting chemicals together.

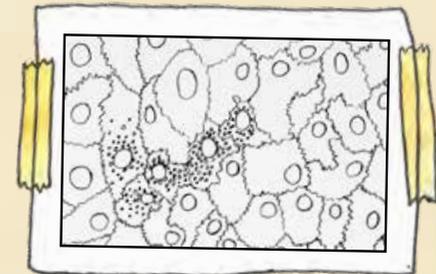
chemical A + chemical B = new compound



COMPOUND

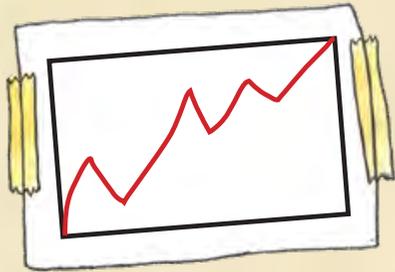


The BIOLOGISTS test the compounds to see if they kill the parasites.



INFECTED CELLS

The PHARMACOLOGISTS figure out how the body responds to the compounds.



Scientists at the Drug Discovery Unit at the University of Dundee have teamed up with a healthcare company called GSK. They have discovered a compound that may be able to treat visceral leishmaniasis.



WHAT HAPPENS NEXT?

The next step is to test the compound to see if it is good enough to become a medicine for leishmaniasis. Searching for new medicines is hard and takes many years.



by Kirsty

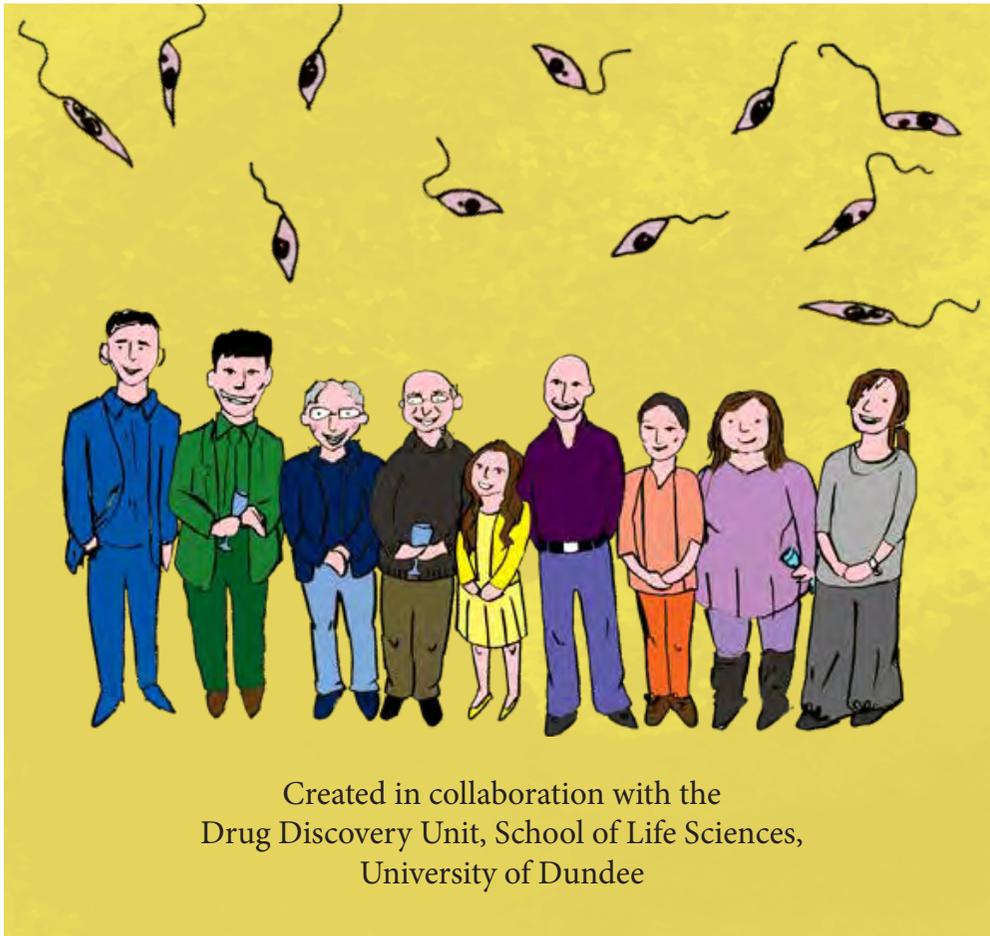
When Kirsty presented her report to the class her friends had lots of questions. She couldn't answer them all, but she knew from talking to the scientists that it was okay not to have all the answers.

“Mr O'Brien, can we go back to the library tomorrow?”



The End





Created in collaboration with the
Drug Discovery Unit, School of Life Sciences,
University of Dundee



University
of Dundee

