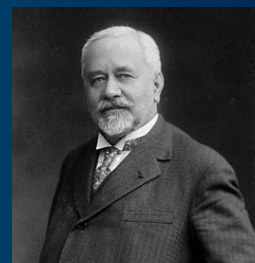
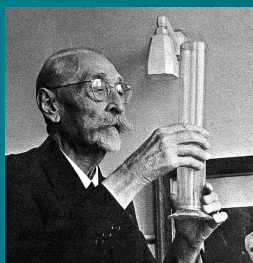


Albert and Camille's Little Lille Adventure

An educational computer game from VALIDATE



Player Guide

Play as scientists Albert Calmette and Camille Guérin, explore occupied Lille in 1917, and work with its citizens to find what you need to create the life-saving BCG vaccine.

As you collect each item, you will learn about the methods used to create BCG and how vaccines work...



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Celebrating 100 years of the
Bacillus Calmette–Guérin Vaccine

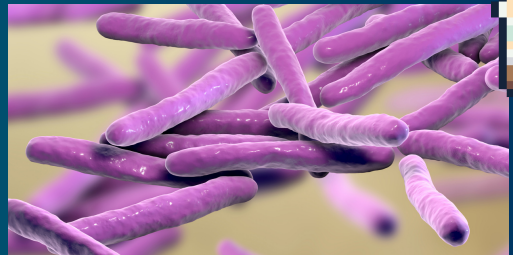
www.validate-network.org/BCG-Adventures

About this guide

Albert and Camille's Little Lille Adventure is an exploration video game and a fun way to learn about vaccines. It is entertaining and educational for all ages, but has been designed for students aged 11 to 14. This guide has all the information you need on how to play the game as well as some information about the history and science you will learn as you advance.

About Tuberculosis

Bacteria are tiny microscopic organisms and there are thousands of different species. Most are harmless and some are even helpful to humans. However, some can cause harm like ***Mycobacterium tuberculosis (M.tb)*** which causes **Tuberculosis (TB)** in humans. TB usually affects the lungs making people cough, giving them a high temperature, causing tiredness and sometimes death. It can also affect other parts of the body such as the spine and brain. Our heroes Albert and Camille grew up in 19th Century Europe where TB killed as many as 1 in 4 people. Even today, TB kills 1.4 million people around the world and is especially common where there is poverty.



About BCG

In the game you will help Albert Calmette and Camille Guérin create the **Bacille Calmette-Guérin (BCG)** vaccine. Vaccines are medicines that are given to a patient to train their body to fight against infections. BCG is actually ***Mycobacterium bovis (M.bovis)***, a species of bacteria closely related to *Mt.B*, but usually found in cows. *M.bovis* and *M.tb* are so closely related in fact, that if the body can learn to fight against one, it learns to fight against the other as well.



However, *M.bovis* is still harmful to humans, so Albert and Camille needed to weaken or “**attenuate**” the bacteria. They did this by growing *M.bovis* in test tubes containing a mixture of **ox bile**, **glycerol** and **potato**. Every two weeks or so, the bacteria were moved to a fresh mixture. As Albert and Camille repeated this, the bacteria became less and less harmful, eventually becoming safe enough to be used on humans. Albert and Camille repeated the process **230 times** and the experiment took 12 years.

More than 100 years ago, on **18 July 1921**, a baby girl in Paris became the first person to receive the BCG vaccine. Her mother had died of TB and she was to be raised by her grandmother who also had the disease. With help from the BCG vaccine, the child never became ill. BCG is still the only TB vaccine used for humans today and is given to **100 million people a year**.

Lille in 1917

Lille is a city in North-East France right next to Belgium and the home of the **Institut de Pasteur Lille**, where Albert and Camille did most of their research on BCG. In World War I, Lille was captured by the German army who set up their own newspaper, money and post office. Despite the occupation, Albert and Camille were determined to continue their work and would often need to hide their supplies from the soldiers. Potatoes were especially tricky as the hungry soldiers would often steal them from locals.



The Germans were especially suspicious of Albert Calmette, and his wife Emilie was taken to Germany! The city was finally liberated in October 1918 and Albert and Camille were able to continue their experiments resulting in success in July 1921.

The real Camille



Name: Jean-Marie Camille Guérin
Born: 22 December 1872, Poitiers
Nationality: French
Went by: Camille
Died: 9 June 1961, Paris
Job: Vet and immunologist

Camille in the Game



Name: Camille
(Pronounced "Cam eel")
Job: Vet and Immunologist
Special Skills: Knows the farmers and butcher. Spectacle & moustache combo

The real Albert



Name: Léon Charles Albert Calmette
Born: 12 July 1863, Nice
Nationality: French
Went by: Albert
Died: 29 October 1933, Paris
Job: Doctor and immunologist

Albert in the Game



Name: Albert
(pronounced "Al Bear")
Job: Doctor and Immunologist
Special Skills: Knows the pharmacist and glassblower. Awesome beard!

The people of Little Lille



Name: Sam
Job: Farmer
Skills: Keeps supplies of potatoes and has cow



Name: Blakeley
Job: Glassblower
Skills: Makes glass things like test tubes



Name: Claris
Job: Butcher
Skills: Butchering & has animal products



Name: Helene
Job: Pharmacist
Skills: Sells medicines & chemicals



Name: Bessie
Job: Cow
Skills: Being a cow



Name: Soldiers
Job: Soldiers
Skills: Chasing scientists

Little Lille

Albert and Camille live in **Little Lille**, a town with everything you need to make a vaccine. The residents are friendly and will help you if they can, but the city is under occupation, so act with caution. A & C are based in the **Institut Pasteur**. Little Lille also has a market, an abattoir, a farm on the outskirts, a glassmakers and a beautiful fountain where people make wishes with coins. The soldiers are based in the Citadel in the northwest, so you should only go there if it is absolutely necessary!



Items for collection

Help Albert and Camille complete their research by collecting items hidden around Little Lille. Listen to our heroes as they will tell you what you need, where you might find supplies and why these items are needed. You should try speaking to some of Lille's citizens, as they can help!



Glycerol



Test Tube



Ox Bile



Potato

How to play the game

The Little Lille Adventure is free and can be played on PC or Mac using most web browsers. It can also be downloaded and played offline. You only need a computer, a mouse, and a keyboard.

Play and download the game from VALIDATE by scanning the QR code or visiting the BCG Adventures page - www.validate-network.org/little-lille



Controls

Up	Down	Left	Right	Shopping List	Pick Up/Speak
W ↑	S ↓	A ←	D →	Q	E



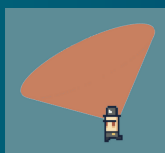
A few tips

Listen to Albert and Camille: Our two heroes will talk to you and the citizens of Little Lille to explain what they are doing and why they need the items they are searching for. Read everything and pay special attention to the dialogue highlighted in blue.

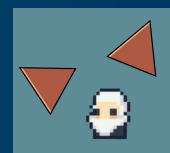


And I am Camille Geurin. Like Albert I am an immunologist and also a veterinarian. For years we have been developing a vaccine for tuberculosis.

Avoid the soldiers: Stay out of the soldiers' field of vision because if you are caught, you will be sent back to the Institut!



Follow the Arrows: Arrows will point you towards your objectives and help you find people and items you need.



The final quiz

Once you have completed the game, you will be asked to take a short quiz about what you have learned from the game. You will find all of the answers in the game, so pay attention!

As well as being an immunologist, what was Albert Calmette's job?

Glossary of tricky words

Tuberculosis (TB): A dangerous disease that usually affects the lungs causing coughing, fever, tiredness and possibly death. It can also affect other parts of the body like the brain and spine.

Mycobacterium tuberculosis (M.tb): A species of bacteria that causes tuberculosis.

Mycobacterium bovis (M.bovis): A species of bacteria related to M.tb usually found in cows.

Culture: A scientific word for "grow". Albert and Camille "cultured" *M.bovis* to create BCG.

Attenuate: A scientific word for "weaken". Bacteria can be "attenuated" to make vaccines.

BCG: Bacille Calmette-Guérin is an attenuated strain of *M.bovis* used as a vaccine against TB.

Glycerol: A chemical with many uses (e.g. in skin care products, and explosives) that can be used as a source of carbon for growing bacteria).

Ox bile: An acidic substance found in cows that can stop bacteria clumping in test tubes.





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VALIDATE is an international network of researchers working to accelerate vaccine development for four diseases linked to poverty: tuberculosis (TB), leishmaniasis, melioidosis and leprosy. These cause significant death and harm across the globe. By working together, we will advance research more quickly and effectively.

Find out More

www.validate-network.org



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