Team Information

* Team Name: **Estonia\_TUIT**
* Translator’s Name (Optional): **\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Language: **Estonian**
* Your Choice of Font: Times New Roman **.**

\*A brief description of your team in both **English & your language** (Max 50 words) will be featured on **page III** together with your team logo.\*

This kids book was translated by the Estonia\_TUIT team.

Our team consists of Science & Technology students studying at University of Tartu Institute of Technology. We are united by a passion for science and synthetic biology.

In this season, we are developing a solution that will help you keep your teeth clean from bacteria.  
See lasteraamat on tõlgitud Estonia\_TUIT meeskonna poolt.  
Meie meeskond koosneb Loodusteadused ja Tehnoloogia õppekava tudengitest, kes õpivad Tartu Ülikooli tehnoloogiainstituudis. Meid ühendab kirg teaduse ja sünteetilise bioloogia vastu.  
Sel hooajal me töötame välja lahenduse, mis aitab hoida hambaid bakteritest puhtana.

**Instruction**

*Thank you so much for agreeing on helping CCU\_Taiwan promote this book internationally,*

* Please fill in the **highlighted** parts.
* Please use the “**present tense**” translation if that’s available in your language.
* On the ***Character Introduction,*** you can either be *creative*, come up with new names for the character, or just use the original ones! (your choice!)
* Please do indicate/highlight if you encounter any translation difficulties.
* Please kindly send us **a PDF version of your team logo**.
* Lastly, please **notify us** once you finish translating. CCU\_Taiwan will then proceed and send you a finalized PDF copy of your language for your reference.

*Let us know if you have any questions, we look forward to hearing from you!*

書名 Title

# 抗菌大作戰 The War on Germs Pealkiri

# Sõda Bakterite Vastu

故事大綱 Story Outline

弘中在一次做菜的過程中，不慎被熱湯燙傷了手。細菌也藉機悄悄的在傷口上建立自己的家園。儘管故白和素帕曼奮力抵抗，仍舊無法抵禦細菌的入侵。無助的他們，只能眼睜睜看著細菌大軍變將傷口上的一切吞噬殆盡……  
  
Ryan accidentally burns himself while cooking. Bacteria quietly expand their territories on Ryan’s burn wound. Even with help from Luke & Antonio, the bacterial invasion cannot be defeated. Helpless, they can only watch from the sidelines as the bacterial troop swallows everything…  
  
Rein kõrvetab end kokkamise ajal kogemata. Bakterid laiendavad vaikselt oma territooriumi Reinu põletushaavale. Isegi Lukase & Antsu abiga ei saa bakterite sissetungi peatada. Nad saavad ainult abituna kõrvalt vaadata, kuidas bakterite vägi neelab kõik alla ...

前言 Preface  
Eessõna

\*Created by Loonud

\*Translated by Tõlkinud

***P. I***

您好！我們是國立中正大學iGEM團隊 CCU\_Taiwan！

Greetings! We are the National Chung Cheng University iGEM team, CCU\_Taiwan!  
Tere! Me oleme Chung Chengi riikliku ülikooli iGEM meeskond CCU\_Taiwan!

**什麼是iGEM競賽？**

What is the iGEM Competition?  
Mis on iGEM võistlus?

iGEM 為「國際遺傳工程機械設計競賽」的簡稱。由美國麻省理工學院發起，每年舉辦的國際學術性競賽。競賽主軸為以「合成生物學」設計產品，解決生活中的問題。iGEM競賽需同時結合人文探索，以在地社會為基石，將合成生物學推廣到國際舞台。

The International Genetically Engineered Machine (iGEM) Competition is an annual worldwide synthetic biology competition. iGEM began in 2003 as an independent study course at the Massachusetts Institute of Technology (MIT). The competition allows students to push the boundaries of synthetic biology by tackling everyday issues facing the world.   
iGEM tähendab rahvusvahelist Geneetiliselt Muundatud Masinat (international Genetically Engineered Machine). See on iga-aastane ülemaailmne sünteetilise bioloogia võistlus. iGEM sai alguse 2003. aastal õppekursusena Massachusettsi Tehnoloogiainstituudis (MIT). Võistlus võimaldab tudengitel ületada sünteetilise bioloogia piire, lahendades igapäevaseid maailma probleeme.

CCU\_Taiwan 於2017年成立，2021年由五個學院、七個學系的26位學生組成。藉由不同知識背景的學生們共同討論，激發出創意的火花。2021年，我們將以「抗菌敷料」為題參加iGEM競賽。

CCU\_Taiwan had its first team in 2017. The 2021 team is multidisciplinary, consisting of 26 students from 7 departments in 5 colleges. The dynamic collaboration between students from diverse backgrounds generates creativity, innovation, and solutions. This year, our project is to develop an antimicrobial dressing to tackle the issue of ‘superbugs’, multiple antibiotic-resistant bacteria.

CCU\_Taiwan osales esimest korda aastal 2017. 2021. aasta meeskond on multidistsiplinaarne — see koosneb 26 üliõpilasest 5 kolledži 7 osakonnast. Dünaamiline koostöö erineva taustaga õpilaste vahel loob loovust, innovatsiooni ja lahendusi. Sel aastal on meie projekti eesmärk välja töötada antimikroobne mähis, et lahendada multiresistentsete superbakterite probleem.

# P. II

**大士爺歷史與CCU\_Taiwan的連結**

The connection between Da Shi Ye and CCU\_Taiwan  
Seos Da Shi Ye ja CCU\_Taiwan vahel

國立中正大學位於嘉義縣民雄鄉。在民雄，大士爺是在地的重要宗教信仰。相傳孤魂野鬼會在農曆七月竄出鬼門關，形成瘟疫，擾亂世間秩序，所以觀世音菩薩化身為鬼王大士爺，以鎮壓瘟鬼，平息瘟疫。我們秉持著大士爺的精神，想解決現代的瘟疫-超級細菌。抗生素用來對抗細菌感染，但抗生素的濫用產出了擁有多重抗藥性的超級細菌，使病患感染失控，然後死亡。CCU\_Taiwan 決定使用含有「抗菌肽」的抗菌敷料，清除超級細菌。我們將本書正派角色—抗菌肽以大士爺的形象呈現，以傳承大士爺的精神「慈悲為懷，驅邪消災」！

Da Shi Ye (大士爺) is one of the local deities in Minhsiung, Chiayi, Taiwan, where National Chung Cheng University (CCU) is located.

Legend has it, around July of the Chinese Lunar calendar, ghosts were wailing around Minhsiung, causing plagues and scaring the people. When Da Shi Ye appeared with a blue face, sharp fangs, and mouth spouting fire, the ghosts immediately stopped disturbing the residents. Da Shi Ye’s legend not only marks our ancestors’ struggle with harsh environments but also embodies the friendliness of the Taiwanese towards these ‘good brothers’ (slang for ghosts).

CCU iGEM combines the image and spirit of Da Shi Ye as our main character in this book.

Da Shi Ye (大士爺) on üks kohalikke jumaluseid Minhsiungis, Chiayis, Taiwanis, kus asub Chung Chengi riiklik ülikool.

Legendi järgi hulkusid Hiina kuukalendri juuli paiku Minhsiungi ümbruses vaimud, põhjustades katku ja hirmutades inimesi. Kui Da Shi Ye ilmus sinise näo, teravate kihvade ja tuld purskava suuga, lakkasid kummitused kohe elanikke häirimast. Da Shi Ye legend mitte ainult ei tähista meie esivanemate võitlust karmi keskkonnaga, vaid kehastab ka taiwanlaste sõbralikkust nende „heade vendade” (släng kummituste kohta) suhtes.

**抗菌敷料中的主角—抗菌肽**

The MVP in Our Product - Antimicrobial Peptides (AMPs)

Meie minimaalne töötav toode - antimikroobsed peptiidid (AMPd)

書中的抗菌肽擁有Q版大士爺的形象，可愛的他是對抗超級細菌的功臣。抗菌肽具備物理性殺死細菌的能力，因此細菌無法對抗菌肽產生抗藥性。搭配遵守醫囑，不濫用抗生素，不購買抗生素，不擅自停用抗生素，我們可以與大士爺-抗菌肽一起保護我們的身體。

想知道抗菌肽是多厲害的角色嗎？想知道抗菌肽如何對抗超級細菌嗎？立刻來閱讀精彩的繪本吧！

With the problem of increasing antibiotic resistance and shortage of new antibiotics, the need for novel and effective substitutes is essential. Antimicrobial Peptides (AMPs) can kill bacteria, making them a good alternative for antibiotics, and decreasing the likelihood of drug resistance. Reducing the use of antibiotics can also bring a positive effect to the medical industry.

To catch a glimpse of Da Shi Ye’s cultural background and how AMPs work, let’s dive right into our book!

Kasvava antibiootikumiresistentsuse ja uute antibiootikumide nappuse taustal on hädavajalik vajadus uute ja tõhusate asendajate järele. Antimikroobsed peptiidid (AMPd) suudavad hävitada baktereid, seepärast on nad heaks alternatiiviks antibiootikumidele, vähendades ka ravimiresistentsuse tõenäosust. Antibiootikumide kasutamise vähendamine võib tuua ka positiivse mõju meditsiinitööstusele.

Da Shi Ye kultuurile ja AMP-dele pilgu heitmiseks sukeldugem otse meie raamatusse.

角色介紹 Character Introduction…

Tegelaskujude tutvustus

***P. IV***

* 弘中：  
  弘中！弘中！  
  媽媽最貼心的小寶貝，  
  最大的夢想就是把媽媽的  
  味道傳承下去。  
    
  **Ryan**  
  Mom’s darling son. A talented boy who enjoys cooking.   
  Dreams of becoming a cook when he grows up.  
  **Rein**  
  Ema kallis pojake. Andekas poiss, kellele meeldib kokata.  
  Unistab kokaks saada, kui ta suureks saab.
* 弘中媽媽：  
  喜歡嘗試不一樣的料理，  
  是街訪鄰居公認的神廚，  
  希望有一天可以把廚藝  
  都傳給弘中。  
    
  **Mom**An amazing chef.  
  She loves trying out different recipes.  
  **Ema**Suurepärane kokk.  
  Ta armastab proovida erinevaid retsepte.

***P. V***

* 菌男：  
  他是一種普通細菌，  
  有點像是不太友好的鄰居，  
  稍稍不注意的話，  
  他可能會給你造成  
  大麻煩喔！  
    
  **Bac Boy**Just an average bacterium.  
  Nonetheless, it can cause problems if you do not pay attention.  
  **Bak poiss**Lihtsalt keskmine bakter.  
  Sellegi poolest võib ta probleeme tekitada, kui inimene ei pööra tähelepanu.
* 菌愷：  
  他是一種抗藥型細菌。  
  正在成長的他，  
  雖然還沒到很危險，  
  但是絕對要小心喔！  
  不然他會變很可怕喔！  
    
  **DR. Backy**A drug-resistant bacterium.  
  Misuse of antibiotics can make him stronger.  
  They are very nasty and hard to deal with.  
  Dr. Bakts  
  Resistentne bakter.  
  Antibiootikumide kuritarvitamine võib muuta ta tugevamaks.   
  Väga vastikud ja nendest on raske jagu saada.
* ｉ菌：  
  他是超級細菌。  
  細菌發展到這個階段，  
  代表真的出事了！  
  他已經太太太危險啦！  
  還不趕快阻止他！  
    
  **Superbug**A type of superbug that is very, very dangerous.  
  Be careful! Barely any drugs can defeat him.  
  **Superbakter**Superbakterite tüüp, mis on väga väga ohtlik.  
  Ole ettevaatlik! Peaaegu ükski ravim ei saa teda võita.

***P. VI***

* 故白：  
  他是一種白血球。  
  雖然看起來不太可靠，  
  但是我們身體  
  遇到問題的時候，  
  都是先靠他解決的喔！  
    
  **Luke**A leukocyte is also called a white blood cell.  
  A warrior on the frontline to keep our body from getting sick.  
  **Lukas**Leukotsüüti nimetatakse ka valgeks verelibleks.  
  Sõdur rindejoonel, kes hoiab meie tervist.
* 素帕曼：  
  他是一種抗生素。  
  當你覺得傷口復原  
  太慢的話，  
  這時候抗生素  
  就會是你抗菌的好夥伴！  
    
  **Antonio**  
  A type of antibiotic.  
  A good helper to make your wound heal faster.  
  **Ants**Antibiootikumide tüüp.  
  Tore abiline haava kiiremaks paranemiseks.

* 肽厲害：  
  他來了！他來了！  
  他是抗菌肽！  
  他就像每個英雄一樣，  
  是大家堅實的後盾，  
  是明天的守護者！  
    
  **Germ-Basher**The Antimicrobial Peptide (AMP).  
  The hero, the guardian of human health.  
  Bashes and destroys all the germs.  
  **Pisikute-Klobija**  
  Antimikroobne peptiid (AMP).  
  Kangelane, inimese tervise kaitsja.  
  Klobib ja hävitab kõik baktereid.

關係圖 Relationship Chart  
Suhete Skeem

***P. VII***

* 進化  
  evolve

areneb

* 可以打敗  
  defeat  
  alistab
* 徹底消滅  
  entirely destroy  
  hävitab täielikult

內文 Content

# P. 1 - P. 2

* 「弘中你回來啦！趕快去洗手，洗完手之後要不要來幫忙媽媽煮菜啊？」  
  “Ryan, you’re back! Go wash your hands and help me fix dinner,” says Mom.  
  ”Rein, oled tagasi! Mine käsi pesema ja aita mul õhtusööki valmistada,” ütleb ema.  
    
  「好啊！馬上來！」  
   “Sure. Right away!” Ryan replies.  
  ”Muidugi. Kohe!” vastab Rein.

# P. 3 - P. 4

* 弘中和媽媽兩個人做起菜來就像最佳拍檔，彷彿一個眼神就能夠交流。  
  Ryan and Mom have a great time cooking together.  
  Rein ja ema veedavad lõbusasti aega, tehes koos süüa.

# P. 5 - P. 6

* 然而在媽媽沒有注意到的時候，弘中想看湯煮得如何，可是卻發生了意外。However, when Ryan is checking the soup, he accidentally spills the steaming hot liquid.  
  Kui aga Rein suppi kontrollib, pillab ta kogemata auravat kuuma vedelikku enda peale.  
    
  「啊啊啊！好燙啊！」  
  “OUCH! It hurts!!!” cries Ryan.  
  “Ai! Valus on!!!” hüüab Rein.

# P. 7 - P. 8

* 「弘中你還好嗎？快快快，先沖水。」  
  “Ryan are you alright? Where did you get burned?” asks Mom. “Quick! Put it under cold water!”  
  ”Rein, kas kõik on korras? Kust sa kõrvetasid end?” küsib Ema. “Ruttu! Pane see külma vee alla!”

媽媽馬上幫弘中做了沖、脫、泡、蓋、送。  
Mom immediately takes care of Ryan’s burn with simple treatments.  
Ema koheselt hoolitseb Reinu põletuse eest lihtsate ravimeetoditega.

# P. 9 - P. 10

* 但是細菌還是悄悄地附著在傷口之上並開始擴張起來。  
  Even so, bacteria have quietly started to grow on Ryan’s burn wound …  
  Sellest hoolimata on Ryani põletushaavale hakanud vaikselt levima bakterid

# P. 11 - P. 12

* 「哈哈哈！我可以建立新的家園了。」菌男們開心的歡呼著。「這裡蓋個超市，那邊蓋個咖啡廳……」  
  “We can build new homes here,” Bac Boy cheers, “let’s build a supermarket here, a cafe there …”  
  “Me saame siia uusi maju ehitada,“ Bak Poiss naerab, “ehitame siia supermarketi, sinna kohviku ..."”   
    
  「招募軍隊，請盡速報到。」  
  “Get more recruits!” commands Bac Boy.  
  ”Hankige rohkem abilisi!" käsib Bak Poiss.  
    
  菌男們正積極地建立屬於自己的王國。  
  Bacteria actively begin building their own kingdom.  
  Bakterid hakkavad tegusalt oma kuningriiki ehitama.

# P. 13 - P. 14

* 故白一察覺到細菌的出現，就立刻組織軍隊阻止菌男入侵。  
  When Luke detects the intruders, he instantly rallies his troops to stop the invasion of bacteria.  
  Kui Lukas märkab sissetungijad, koondab ta koheselt oma väed, et peatada bakterite sissetungi.  
    
  歷經一番攻防之後，仍無法打敗細菌。  
  After several battles, Luke still cannot defeat Bac Boy.  
  Pärast mitmeid lahinguid ei suuda Lukas Bak Poissi alistada.

# P. 15 - P. 16

* 「真的打不贏，快逃啊！」  
  “Retreat! We’re losing!” cries Luke.  
  ”Taanduge! Me kaotame!” hüüab Lukas

# P. 17 - P. 18

* 此時，來了一台載滿素帕曼的直升機。  
  At that moment a helicopter filled with antibiotics arrives.  
  Tol hetkel saabub antibiootikume täis helikopter.  
    
  「看起來這邊有菌男太多的麻煩，交給我們就對了！」  
  “Looks like we have a problem with bacteria overload,” says Antonio. “We’re on it!”  
  ”Paistab, et meil on probleem bakterite rohkusega,“ räägib Ants. “Me tegeleme sellega!”

# P. 19 - P. 20

* 雖然傷口多了素帕曼的幫助，可是卻沒能夠將所有的菌男都打敗。  
  Even with the help from Antonio and his troop, not all the bacteria give in.  
  Isegi Antsu ja tema sõjaväe abiga ei anna kõik bakterid alla.

# P. 21 - P. 22

* 「好討厭的感覺啊！素帕曼，我們一定會再回來的！」  
  “Antonio,” calls DR. Backy, “we will definitely be back!”  
  ”Ants,” kutsub DR. Bakts, “me naaseme kindlasti!”

# P. 23 - P. 24

* 少部分的菌男活了下來，進化成菌愷，變得更加強大。  
  Not only do the drug-resistant bacteria survive, but evolve and thrive.  
  Mitte ainult ei jää ravimitele allumatud bakterid ellu, aga nad ka arenevad ja vohavad.  
    
  「我要一個打十個！」  
  “I’ll beat ten antibiotics at once!” cries DR. Backy.  
  ”Ma võidan kümme antibiootikumi korraga!” hüüab DR. Bakts.  
    
  素帕曼節節敗退，同時菌愷又再次進行，變得比以往都更加強大……  
  The antibiotics are losing ground.   
  Drug-resistant bacteria are getting stronger than ever.  
  Antibiootikumid kaotavad oma eelise.

Resistentsed bakterid muutuvad tugevamaks kui kunagi varem.

# P. 25 - P. 26

* 眼見細菌變得越來越強大，傷口的狀況也逐漸惡化。  
  Soon, the bacteria become more powerful.  
  Ryan’s wound is getting worse.  
  Varsti said bakterid tugevamaks.  
  Reinu haav muutub hullemaks.   
    
  「哇哈哈哈！現在再也沒有任何事物可以阻止我們i菌的腳步了！」  
  “We are undefeatable!” shouts Superbug.  
  ”Me oleme võitmatud!” hüüab Superbakter.

# P. 27 - P. 28

* 情勢正逐漸惡化之時，突然間伴隨著神奇的光芒出現了新的救星—肽厲害肽  
  Just as the situation worsens, Germ-Basher—the hero—suddenly appears, radiating with mystical light.  
  Just kui olukord muutub, ilmub äkki Pisikute-Klobija, kangelane, kes kiirgab müstilist valgust.

# P. 29 - P. 30

* 英雄或許會遲到，但是他永遠不缺席。肽厲害的出現，瞬間轉變了戰場上的情勢。  
  “Help delayed is NOT help denied,” claims Germ-Basher.   
  Immediately Germ-Basher turns the tables on the battlefield.  
  ”Hilja saabuv abi POLE üles öeldud abi” väidab Pisikute-Klobija.  
  Koheselt pöörab Pisikute-Klobija lahingu kulgu.  
    
  「他是誰！他是誰！他到底是誰，怎麼那麼強大！」  
  “Who are they?” cries Superbug, “They’re too strong!”   
  "Kes nad on?" hüüab Superbakter: "Nad on liiga tugevad!"

# P. 31 - P. 32

* 在肽厲害面前，細菌逐漸豎起了白旗  
  Superbugs surrender to the Germ-Basher.  
  Superbakterid alistuvad Pisikute-Klobijale.   
    
  「我們輸了！但是要永遠記得，如果你們再疏忽細菌處理的話，我們會再次出現並且變得更加強大。」  
  “We concede! ” cries the Superbug. “But remember, we will be back if you don’t pay attention!”  
  ”Me anname alla!” hüüab Superbakter. “Aga pidage meeles, me tuleme tagasi, kui te ei pööra tähelpanu!”  
    
  i菌留下這句費解的話，便消散了......  
  Superbugs disappear after speaking their final words.  
  Superbakterid kaovad, olles öelnud oma viimased sõnad.

# P. 33 - P. 34

* 肽厲害又再一次守護了明天，而弘中的傷口也逐漸復原。  
  Ryan’s burn wound is recovering.   
  Germ-Basher has protected the homeland once more.  
  Reinu haav paraneb.  
  Pisikute-Klobija on veel kord oma kodumaad kaitsnud.

# The End.

# Lõpp

# 