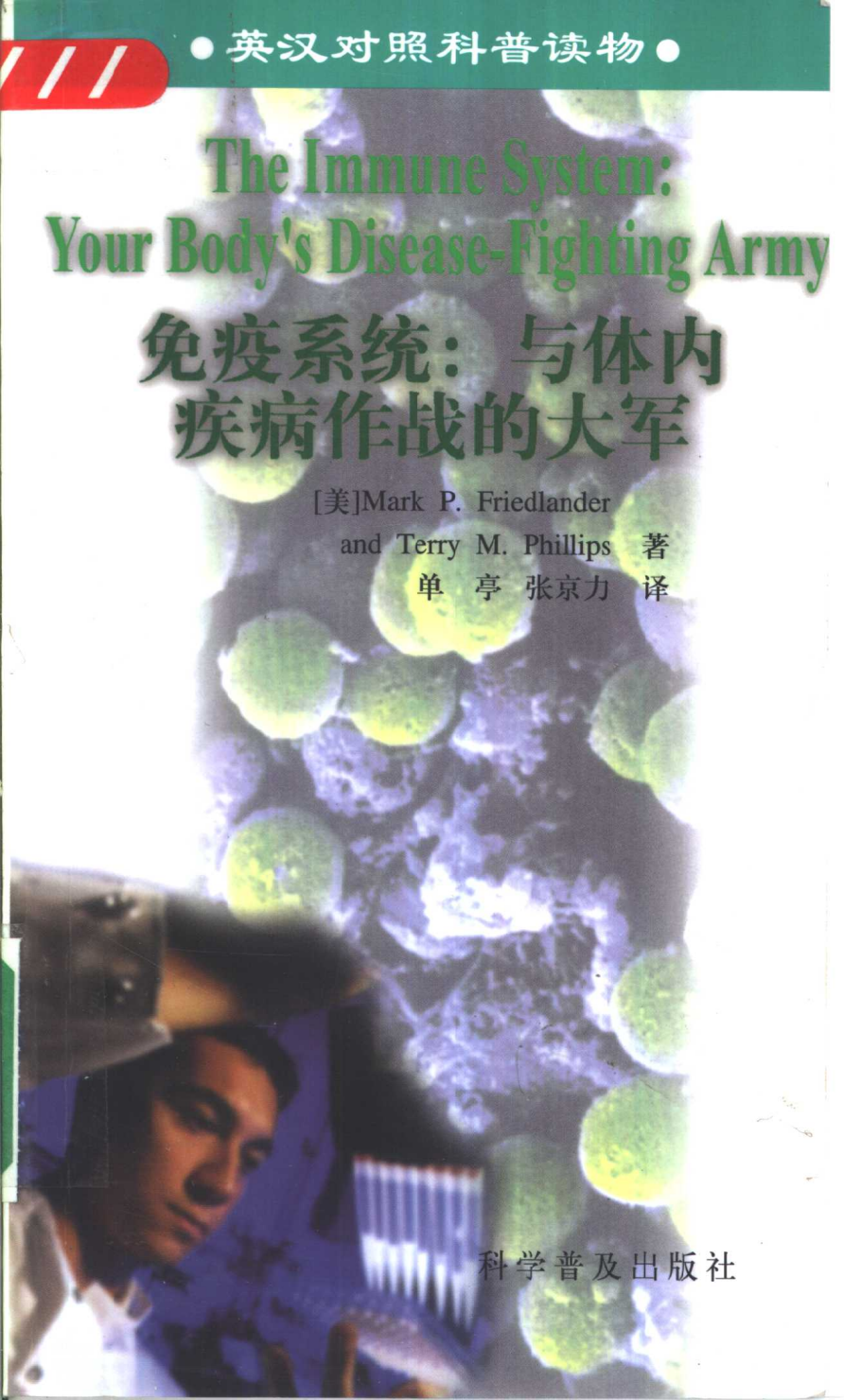
英汉对照科普读物

The Immune System: Your Body's Disease-Fighting Army

免疫系统：与体内疾病作战的大军

[美]Mark P. Friedlander
and Terry M. Phillips 著
单 亭 张京力 译



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作者 [美]Mark P. Friedlander
and Terry M. Phillips
译者 单 亭 张京力

策划编辑 肖 叶
责任编辑 肖 叶
责任校对 张琳娜
封面设计 李士红
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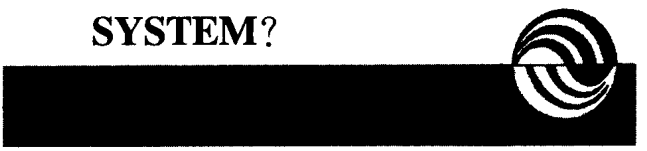

"I don't want that needle!"

"I'm sorry, but it's for your own good."

Have you ever had a conversation like that? You can probably remember being at your doctor's office and seeing a tray with various instruments lined up neatly on a clean white paper cloth. But the only thing you really noticed was that needle. You knew you were going to get a shot, or maybe two shots. And you knew the shots were going to hurt. If you had a choice, you probably would be happy to do without the shot!

The brief pain you suffered from the needle prick was well worth it, however. The shot was a **vaccination.** Vaccinations protect you from a wide range of diseases, from mumps and measles

1. 什么是免疫系统？

“我不想打这种针了！”

“对不起，这针对你是有好处的。”

你曾经听到过这样的谈话吗？很可能你还记得在医生的诊室里，看见过一个盘子，盘子里洁白的纱布上面整齐地排放着许多注射器具。但是引起你注意的很可能只是针头。你想到了将要挨上一针，也许两针。打针是有些疼的，如果让你选择的话，很可能就不挨这一针了。

然而，打这一针，疼痛是短暂的，也是值得的，这一针就是**疫苗接种**。接种疫苗可保护你免受多种疾病的侵扰，如流行性腮腺炎、麻疹、白喉症

to diphtheria and polio. Some vaccinations provide life – time protection. Some vaccinations, such as the one for tetanus, require booster shots—more shots every few years or more. Others, such as a flu shot, only last for a year.

The vaccination you received helps your own natural defense mechanisms protect you better. When you understand how your **immune system** works, you'll appreciate the vaccination—and be glad that you got one.

THE IMMUNE ARMY

Your immune system is an organized army of millions and millions of white blood cells working with millions and millions of smaller **protein** molecules called **antibodies**. The units of this army are so small they can only be seen through a microscope. They travel throughout your body in the rivers and streams formed by your blood vessels, through the creeks formed by your lymph system, and then out of the river beds and stream beds. They move between all

和小儿麻痹症。一些疫苗接种可预防一生，而另一些疫苗的接种，如破伤风疫苗接种是需要增强注射的，要每隔若干年加强一次。其他疫苗接种，例如流感疫苗，每年需注射一次。

接种疫苗会帮助你增强自然的抵抗力，加倍地保护你。你一旦明白了免疫系统是如何工作的，你将会喜欢疫苗接种，并心甘情愿地接受它。

免疫大军

你的免疫系统是一支有组织的部队，有亿万个白细胞和亿万个叫做**抗体**的微小**蛋白质**分子在一起工作。这支部队的成员是非常小的，只能通过显微镜才能观察到它们。这些成员在以血管形成的江河和溪流中运行，通过由淋巴系统构成的小溪，流出河床。它们在你的所有器官细胞(例如：心、

the cells of your organs—such as your heart, lungs, liver, and brain—and the cells of your skin. All these units are highly organized, with commanders and a complex communication system.

How Do They Help?

Every day of your life, you are awash in a sea of invisible creatures—invisible except under a microscope. These creatures are **microbes—viruses**, **bacteria**, **parasites**, and **fungi**. There are more than 250 million different types of microbes, and many of them are looking for ways to get inside your body and set up a home. These microorganisms may cause you to get sick or get a disease. Your immune system is designed to fight against these invaders.

Your own immune army can also make you sick. When it gets confused, the immune system begins to attack some of your own body parts. This results in what are known as

肺、肝和大脑）和皮肤细胞之间运动。所有这些成员都具有高度的组织性，并拥有指挥官和复杂的联络系统。

它们如何相助?

在你生活中的每一天，你都会被包围在看不见的生物海洋里（除了在显微镜下）。这些生物体是**微生物——病毒、细菌、寄生虫和真菌**。有 2.5 亿种以上不同类型的微生物，其中的许多都在寻找各种方式进入你的身体，并想在此安家落户。这些微生物可以引起各种疾病。你的免疫系统就是被设计用于与这些入侵者做斗争的。

你自己的免疫系统也可能使你得病。一旦免疫系统紊乱，它就开始攻击自己身体的某一部分，其结果就会导致**自身免疫性疾病**。例如：多发性

autoimmune diseases. Multiple sclerosis and rheumatic fever, for example, are autoimmune diseases. Your immune army may also overreact to pollens, dust, certain chemicals, or some foods, causing an allergic or **hypersensitive reaction**—an itchy rash, sneezing, a stuffed—up nose, or shortness of breath.

THE THREE KEYS

Three key facts about your immune system make it special. These keys make it work.

1. *It distinguishes.* Your immune system can tell one invader from another—it distinguishes each germ from every other. For example, if a mumps virus enters your body, your white blood cells recognize it; they don't mistake it for, say, a flu virus.

2. *It remembers.* After your body has been infected with a disease—causing microbe, such as a mumps virus, your immune army will remember what it is and how to fight it. If the mumps virus shows up again, your white blood

硬化症和风湿热就是自身免疫性疾病。你的免疫系统还可能对花粉、尘土、某种化学物或一些食品过度反应，引起过敏，我们叫它**变态反应**——你会出现皮肤瘙痒、打喷嚏、鼻子阻塞或呼吸短促等症状。

三种主要功能

你身体内免疫系统有三个奇特的主要功能。这些功能是什么呢?

1. 识别功能。你的免疫系统可以识别不同的入侵者，也就是说它可以辨别每一种细菌。例如，当腮腺炎的病毒进入你的身体，你的白细胞就可以识别它们。它们不会被错认为是流感病毒。

2. 记忆功能。当你的身体感染过一种病原微生物后，如腮腺炎病毒，你的免疫部队将会记住这个病毒的样

cells will strike it down quickly. The fact that your immune system has memory is the secret to vaccinations.

3. *It knows itself.* As the units of the immune system flow through your body looking for invaders, they recognize your own parts, so they will not harm them. That is why organ transplants cause problems. The immune system sees the new, transplanted organ and says, "Hey, that wasn't here before. It is not part of this body, so let's attack it."

CELLULAR AND HUMORAL IMMUNITY

The vast and complex army of the immune system is divided into two different forces. The white blood cells that travel throughout the body and attack foreign invaders wherever they are form what is called **cellular immunity.** Some of these roving units destroy any invader that does not belong in your body. Other cells attack only specific enemies. These forces make up the first line of defense.

子，并与其战斗。当腮腺炎病毒再次出现时，你的白细胞会迅速将它消灭。你的免疫系统有记忆力，这一事实是疫苗的奥秘。

3. 认识自己的功能。当免疫系统组织在体内流动寻找入侵者时，它们可以识别自己的器官，并不伤害这些器官。这就是为什么器官移植会引起麻烦。免疫系统看见新的、移植来的器官，说："嘿，以前它不在这儿，它不是身体的一部分，我们攻击它"。

细胞和体液免疫

庞大而复杂的免疫系统大军可分为两支不同的队伍。在全身流动着的，并且攻击任何外来入侵者的白细胞形成了**细胞免疫**。这些游动的部队中的一些细胞摧毁一切不属于自己体内的入侵者，而其他细胞则攻击特定的敌人。这些力量组成了第一道防线。

The second, more sophisticated force is made up of antibodies. Millions of antibodies can be manufactured to fight specific invaders. Antibodies and the cells that manufacture them make up **humoral immunity**. Both forces, working together, provide the power of the immune system.

But let's not get ahead of ourselves. There's a lot to learn about the immune system. You can also discover how to make your immune system work better for you. This book will explore all this and more.