When you take an aspirin, a decongestant, or a muscle relaxant, the drug you’re taking was probably made by a chemist combining a specific mixture of chemicals.

**Microscopic Fungi And Bacteria**

Antibiotics, on the other hand, are chemicals produced by microscopic fungi or bacteria as part of their normal biological processes.

Pharmaceutical companies grow the microorganisms, collect the chemicals they produce, and sell the chemicals as antibiotics.

To see how antibiotics work in nature, it may help to look at the discovery of the first antibiotic.

**History Of Antibiotics**

In 1928, Sir Alexander Fleming was studying Staphylococcus bacteria when one of the bacterial cultures became infected with a fungus called “penicillium.”

[Penicillium is a fairly common fungus](http://indianapublicmedia.org/amomentofscience/do-frogs-have-weapon-fight-superbug/) and is one of the fungi responsible for moldy bread.

Fleming noticed that the penicillium prevented the Staphylococcus bacteria from growing and reasoned that the fungus must be releasing a chemical that was toxic to the bacteria.

**Modern Medicine**

Since that time, scientists have found that numerous species of fungi produce chemicals to destroy bacteria and that bacteria even produce chemicals that destroy other bacteria.

Antibiotics are relatively new in modern medicine, but the earliest medical records from China, Egypt, and Mesopotamia show that people have used moldy and fermented substances to treat wounds for over three thousand years.

The ability to produce these chemical toxins may have evolved in bacteria as a survival tactic. Today we use those same chemicals in our own struggle against bacteria.

当您服用阿司匹林，减充血剂或肌肉松弛剂时，您服用的药物可能是由化学家将特定的化学物质混合物制成的。

### 微观真菌和细菌

另一方面，抗生素是由微观真菌或细菌产生的化学物质，作为其正常生物过程的一部分。

制药公司种植微生物，收集它们产生的化学物质，并将这些化学物质作为抗生素出售。

要了解抗生素在自然界中的作用，可能有助于了解第一种抗生素的发现。

### 抗生素的历史

1928年，亚历山大·弗莱明爵士正在研究葡萄球菌，当其中一种细菌培养物被一种名为“青霉菌”的真菌感染时。

[青霉菌是一种相当常见的真菌](http://indianapublicmedia.org/amomentofscience/do-frogs-have-weapon-fight-superbug/)，是造成发霉面包的真菌之一。

弗莱明注意到青霉菌阻止了葡萄球菌的生长，并推断真菌必须释放出对细菌有毒的化学物质。

### 现代药物

从那时起，科学家们发现许多种类的真菌会产生化学物质来摧毁细菌，细菌甚至会产生破坏其他细菌的化学物质。

抗生素在现代医学中相对较新，但中国，埃及和美索不达米亚最早的医学记录显示，人们使用发霉和发酵物质治疗伤口超过三千年。

产生这些化学毒素的能力可能已经在细菌中进化为一种生存策略。今天，我们在与细菌的斗争中使用相同的化学物质。