

News & Comments

Do You Know How Your Body Processes Medicine?

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How does aspirin know to reach your head and relieve pain when you take it for a headache? The answer is it doesn't know on its own, how to reach the target, scientists can chemically modify the molecules of the drug, to ensure their strong bond with the area we want and weak bond elsewhere.

A drug, as we know it, contains an active ingredient (that directly affects the body) and an inactive ingredient, where the latter enhances stability, absorption, and flavour, and imparts other qualities that are needed to get the job done.

Tom Anchordoquy, Professor of Pharmaceutical Sciences, who has been studying drug delivery for the past 30 years, explains in a blog post at the Conversation, how drugs know where to go in the body?

The drug molecules enter the blood, degrade with time, and leave the body via urine (mostly). For instance, vitamin-B2-rich multivitamin consumption can turn your urine bright yellow, as it leaves the body. Some drugs however are removed via faeces.

To maintain a high enough level of drug in the blood to sustain its effects, some medications, like those for high blood pressure or allergies, are repeated to replace lost drug molecules.

Injections into veins are more efficient than pills and tablets for delivering drugs to the bloodstream. This prevents degradation in the stomach and circulates all the drugs throughout the body.

Using eye drops for allergies or rubbing an ointment on a skin rash is an effective way to get a high concentration of a drug in the right place. Although some drug molecules may reach the bloodstream, their amount will be diluted to a very small degree so that side effects are unlikely to occur. Inhalers deliver drugs directly to the lungs and do not affect other parts of the body.

Anchordoquy emphasized Patient compliance by saying, "It is often the patient's responsibility to make a marketed drug effective, despite all the science that goes into understanding a disease well enough to develop it."

KEYWORDS

Drug delivery; Pharmaceuticals; Pharmacology; Drug development; Drugs; Biologics; Medications

