Non-steroidal anti-inflammatory drugs (NSAIDs) medicines used to relieve pain.

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Anti-inflammatory is the property of a substance or treatment that reduces inflammation or swelling. Anti-inflammatory drugs also called anti-inflammatories make up about half of analgesics, remedying pain by reducing inflammation as opposed to opioids, which affect the central nervous system to block pain signalling to the brain.

Non-steroidal anti-inflammatory drugs (NSAIDs) are medicines that are widely used to relieve pain, reduce inflammation, and bring down a high temperature. They're often used to relieve symptoms of headaches, painful periods, sprains and strains, colds and flu, arthritis, and other causes of long-term pain. They work by blocking (inhibiting) the effect of chemicals (enzymes) called cyclooxygenase (COX) enzymes. COX enzymes help to make other chemicals called prostaglandins. Some prostaglandins are involved in the production of pain and inflammation at sites of injury or damage.

Non-steroidal anti-inflammatory drugs (NSAIDs) alleviate pain by counteracting the cyclooxygenase (COX) enzyme. On its own, COX enzyme synthesizes prostaglandins, creating inflammation. In whole, the NSAIDs prevent the prostaglandins from ever being synthesized, reducing or eliminating the inflammation and resulting pain. Some common examples of NSAIDs are aspirin, ibuprofen, and naproxen. The newer specific COX-inhibitors are not classified together with the traditional NSAIDs even though they presumably share the same mode of action.

The Immune selective anti-inflammatory derivatives were discovered by scientists evaluating biological properties of the submandibular gland and saliva. Early work in this area demonstrated that the submandibular gland released a host of factors that regulate systemic inflammatory responses and modulate systemic immune and inflammatory reactions. It is now well accepted that the immune, nervous, and endocrine systems communicate and interact to control and modulate inflammation and tissue repair.

One of the neuroendocrine pathways, when activated, results in the release of immune-regulating peptides from the submandibular gland upon neuronal stimulation from sympathetic nerves. This pathway or communication is referred to as the cervical sympathetic trunk-submandibular gland (CST-SMG) axis, a regulatory system that plays a role in the systemic control of inflammation. ImSAIDs are a class of peptides being developed by IMULAN Bio Therapeutics, LLC, which were discovered to have diverse biological properties, including anti-inflammatory properties. ImSAIDs work by altering the activation and migration of inflammatory cells, which are immune cells responsible for amplifying the inflammatory response. The ImSAIDs represent a new category of anti-inflammatory and are unrelated to steroid hormones or non-steroidal anti-inflammatories.

Tramadol is not a nonsteroidal anti-inflammatory drug (NSAID), therefore, it does not have the increased risk of stomach ulcers and internal bleeding that can occur with NSAIDs. Doctors prescribe tramadol to manage moderate to moderately severe pain.

NSAIDs stop a certain kind of enzyme in your body from working. These are called cyclooxygenase enzymes (also called COX enzymes). COX enzymes speed up your body’s production of hormone-like substances called prostaglandins. Prostaglandins irritate your nerve endings and cause you to feel pain. They are also part of the system that helps your body control its temperature.

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