For those who suffer with migraines (such as yours truly), relief can be elusive.

Though I sometimes have two to three migraines per week, I am one of the lucky ones because my migraines are rather easily treated with either a triptan (a type of anti-migraine drug, such as sumatriptan) or an opioid like hydrocodone (Vicodin). Popping a pill and laying down with an ice pack on my forehead for 30 minutes is usually adequate to stop the migraine before it spirals out of control.
Other people aren't so lucky. My dad's migraines last three days and aren't susceptible to treatment. Laying down makes them worse, so he has a hard time sleeping. For patients like him, there is yet hope. Scientists are now turning to immunotherapy for the treatment of migraines.

**Pathophysiology of Migraines**

The biological cause of migraines is not completely understood. We humans have 12 pairs of cranial nerves, nerves that connect directly into the brain. One of these pairs, depicted in the diagram, is known as the trigeminal nerve. Among several other things, its primary functions include detecting sensations in the head and face and controlling the muscles involved in chewing.

One of the neurotransmitters (i.e., molecules that communicate messages in the nervous system) released by the trigeminal nerve is called CGRP (calcitonin gene-related peptide). Its typical function is to dilate blood vessels, which is necessary for blood pressure regulation and wound healing. However, it also appears to play a role in migraines. In fact, injecting a migraine patient with CGRP \[2\] can trigger a migraine.

![Diagram of the trigeminal nerve and its functions](image)


It is thought that, during a migraine, sensory trigeminal nerve fibers release CGRP. This causes...
blood vessel dilation and inflammation, which likely results in the pain associated with a migraine. Immunotherapies for migraine, therefore, involve antibodies that target either CGRP or its receptors, blocking the sequence of events that cause pain.

**Immunotherapy for Migraines**

Several different companies are working to produce such antibodies. According to Medscape [4], there are three on the market now: erenumab (Aimovig) by Amgen and Novartis; fremanezumab (Ajovy) by Teva, and galcanezumab (Emgality) by Eli Lilly. A fourth drug called eptinezumab, produced by Alder Biopharmaceuticals, just cleared Phase III clinical trials. The antibodies are injected monthly or every few months.

This is welcome news to the 8% of men and 13% of women [3] who suffer from migraines. We certainly can use another weapon in the anti-migraine arsenal.

---

**Source URL:** https://www.acsh.org/news/2019/08/08/immunotherapy-migraines-attack-antibodies-14212

**Links**
[1] https://en.wikipedia.org/wiki/Migraine#/media/File:Cruikshank_-_The_Head_Ache.png