

CGRP antibodies for migraine

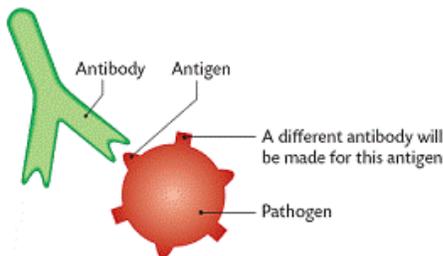
Frequently Asked Questions: Answers by Migraine Canada

■ What is CGRP?

- CGRP (calcitonin gene related peptide) is a small molecule that is naturally present in our brains and bodies. CGRP exerts its physiologic action when it binds to its specific receptor. One of the key actions of CGRP is dilation of blood vessels; it also plays a role in pain transmission.

■ How is CGRP related to migraine?

- There is strong scientific evidence supporting a role for CGRP in migraine. Intravenous CGRP can trigger migraine. During a migraine, blood levels of CGRP are increased. Blocking CGRP with a pill can stop a migraine attack. Therefore it seemed like an interesting approach to target CGRP for migraine prevention.



■ What are monoclonal antibodies?

- Antibodies are big molecules produced by our bodies to play a role in the immune system. They can bind different antigens or targets and activate an immune cascade leading to the destruction of the target.

Monoclonal antibodies have been designed with biological engineering to bind to specific targets in the body and modulate our physiology (the way our body functions). This is a new way to treat diseases. MABs are currently used for conditions like rheumatoid arthritis and Crohn's disease.

■ What are CGRP antibodies?

- CGRP antibodies are designed to bind to CGRP or its receptor and stop CGRP's function. Four CGRP MABs have been studied so far. They are called erenumab (Aimovig), galcanezumab, fremanezumab, and eptinezumab (sorry for the long names). The first 3 are injected under the skin (subcutaneous), and eptinezumab is administered as an IV infusion (it is not expected to come to Canada).

■ Are CGRP MABs effective for migraine prevention?

- YES. Multiple randomized studies have shown efficacy for the prevention of episodic and chronic migraine. But not all patients do respond to those treatments. Approximately 50% of patients trying CGRP MABs have a 50% or more response to them. About 25% of patients are «super responders» and improved by 75%.

It is the first time that a preventive for migraine is designed based on our actual understanding of the disease. Previous preventives were used to treat other diseases like depression, epilepsy and hypertension.

■ What are the main side effects?

- One of the advantages of CGRP MABs is the low risk of side effects (good tolerability). Side effects are mostly linked to the pain at the injection site. This will be good news for people who have tried oral migraine preventives with common side effects like weight gain, somnolence or cognitive difficulties, which are not reported with CGRP MABs.



A chronic migraine story

"I have had migraines since I was a teenager, and over the last 20 years I have tried everything, pills and injections. I have modified my lifestyle. But I am still disabled by frequent migraines. Is there anything new that could help me?"

– Caroline, 45, a tired migraine sufferer.



What are the expected benefits?

- Benefits from CGRP MABs will vary a lot from one person to the other. It is probable that migraine involves many different mechanisms and that for some people, blocking CGRP will make a big difference, but not for others.

Benefits will be influenced by many factors including the baseline number of headache days per month and previous drug failures that may indicate a more severe disease.

In episodic migraine, patients taking CGRP MABs had a **mean decrease of 4 days per month** (compared to 1.7 for placebo).

In chronic migraine, from a baseline of 20 days per month, the mean decrease was **5-6 days per month** (compared to 1-2 for placebo).

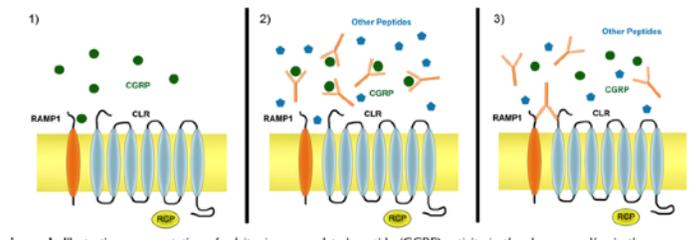
Studies show that the effects of CGRP MABs can be observed over the first few weeks after the first injection.

* *The USA ICER report on CGRP MABs with extensive data is available online.*

* *CGRP MABs may be contra-indicated with some medical conditions. You must discuss this with a physician.*

Will the CGRP MABs be covered by my insurance? How much will they cost?

- Antibodies in general are costly products and may cost up to \$50 000 per year. CGRP MABs are expected to cost between 5 and 10 thousands dollars per year. The cost in the USA for Aimovig is 6900 USD per year. At this time, the reimbursement rules have not been determined. Public and private insurers will likely set up clear criteria for reimbursement and physicians will need to fill forms. There may be a Patient Support Program organized by the pharmaceutical companies but all this is still to be determined.



The antibody can bind CGRP itself or its receptor.

When will we have access to these drugs in Canada?

- We expect the first antibody, erenumab (Aimovig) to be available by the end of 2018. Other products will likely follow. Stay tuned on our social media to get more information.

There is a lot of hope on the horizon for migraine sufferers!