CYSTIC FIBROSIS Western Australia

CF Fact
cystic fibrosis fact sheet

CFTR Modulator Therapies

How Modulator Therapies Work

Conventional medications for CF focus on treating the symptoms of CF. Cystic fibrosis transmembrane conductance regulator (CFTR) modulators differ from other treatments because they aim to improve or restore the function of the defective CFTR protein made by the CFTR gene.

CFTR proteins are found in the cells in many parts of the body, such as the lungs, sweat glands, intestine and pancreas. The CFTR protein acts like a channel that opens and closes to control the flow of water and chloride in and out of cells. If the CFTR protein is absent, or defective, this results in thick, sticky mucus in the lungs, damage to the pancreas and problems in many other parts of the body.

Who Can Take Modulators?

Different modulator therapies are suited to different people depending on their CF gene mutation and their individual medical needs. Current modulator therapies may not work for everyone, even those with the specific gene mutation. This may be due to the inability to tolerate the medication or due to side effects experienced.

CFTR modulators are now available for approximately 90% of those who carry the most common mutations, however, people with rare and ultra-rare CF-causing mutations are still without any efficient, corrective therapy.

Clinical trials continue so that effective treatments become available for all people living with CF. For more information on clinical trials click here.

CFTR Modulators

Kalydeco® (Ivacaftor)
Kalydeco® binds to the defective CFTR protein, helping to open the channel so that more chloride and water can move in and out of the cells, thinning the mucus in the lungs and other organs. Only 5% of people with CF respond to this modulator.

Orkambi® (Lumacaftor/Ivacaftor)
Lumacaftor helps the CFTR protein to become the right shape, move to the cell surface and remain there longer. Used with Ivacaftor, this combination therapy reduces the symptoms of CF in people with 2 copies of the most common CF mutation, F508del.

Symdeko® (Tezacaftor/Ivacaftor and Ivacaftor)

Tezacaftor increases the amount of mature CFTR protein delivered to the cell surface. Combined with Ivacaftor to open the chloride channel, this medication is approved for individuals with two copies of F508del, as well as for individuals who have a single copy of one of 26 specified mutations.

Trikafta® (Elexacaftor/Ivacaftor/Tezacaftor)

Trikafta® is the first triple combination therapy and has recently been added to the PBS in Australia. Elexacaftor and Tezacaftor work together to help more CFTR proteins reach the cell surface, with Ivacaftor working to open the channels for longer. Trikafta® is indicated for people aged 6 years and older who have at least one F508del mutation in the CFTR gene; approximately 90% of the CF population.

Do I Still Need To Do My Other CF Treatments?

Many people have found that when they are taking their modulator therapies, a lot of their CF symptoms reduce. Modulator therapies can be very effective but there may be established lung disease or residual CFTR protein defects that make you more vulnerable to infection and other CF complications.

Although it may be tempting to reduce or stop your other treatments because you feel so well, it is important to discuss any changes with your CF team. Together you will be able to alter your treatments to ensure you stay as healthy as possible. There are a number of clinical trials looking at the outcome of withdrawal of treatments in people on modulator medications. The results of these will help guide clinicians as to the best approach.

Mental Health and Wellbeing

Modulator therapies can impact both your physical and mental health. You might find additional mental health challenges arise as a side-effect of your new medication or as a result of the psychological effect of taking a potentially life-altering drug. The CFWA psychosocial team are available to help, or you can talk to your hospital team.

For more information about eligibility for modulator medications, or if you are interested in being involved in a trial, please talk to your CF team.

Useful Resources

- Drug Pipeline (CFA)
- Community Trikafta Stories (CFWA)
- Community Trikafta Stories (CF Foundation)

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