

Dupilumab factsheet

Dupilumab, also known as Dupixent[®], is a treatment for moderate to severe atopic eczema (also known as atopic dermatitis) in adults and children aged 12 years and older. It's also used to treat severe atopic eczema in children aged 6 months to 11 years. Dupilumab is a type of biologic drug called a monoclonal antibody. These target specific proteins or receptors in the body, to regulate the immune response or interfere with disease processes. Dupilumab was the first monoclonal antibody approved for treating eczema in the UK, in 2018.

Dupilumab is given as an injection under the skin (subcutaneously). It's supplied either as a pre-filled syringe with needle, or in pre-filled injector pens. Children aged 6 months to 11 years of age are usually given treatment with a syringe rather than the injector pen.

How does it work?

Dupilumab works by targeting and blocking two specific proteins in the immune system called interleukin-4 (IL-4) and interleukin-13 (IL-13). IL-4 and IL-13 both play a role in the development and progression of eczema. IL-4 is involved in the initial stages of the immune response in eczema. It tells the immune system to make specific antibodies (IgE) and activates immune cells that cause inflammation. IL-13 comes into play later, causing inflammation, itch and skin barrier damage. The immune system of people with inflammatory conditions like atopic eczema overreacts to certain triggers and allergens (for example, dust, mould and pollen), and produces too much IL-13.

Dupilumab works by blocking IL-4 and IL-13 from binding to their cell surface receptors (protein molecules that receive chemical signals from outside a cell). This process is similar to a lock and key. If you think of an interleukin as the key and a cell receptor as the lock, dupilumab works by blocking the keyhole so that the key (IL-4 or IL-13) is unable to get into the lock (the cell receptor). In this way, dupilumab interrupts the signalling pathways that promote inflammation and contribute to other symptoms of atopic eczema. Dupilumab also helps restore the production and function of proteins necessary for maintaining a healthy skin barrier.

Immunosuppressive drugs for eczema (azathioprine, ciclosporin, methotrexate and mycophenolate mofetil) work by suppressing the whole immune system. Biologic drugs have a narrower mechanism of action, specifically targeting the parts of the immune system causing eczema. Drugs that are more targeted, like dupilumab, have fewer potential side effects than conventional immunosuppressive drugs.

What has the research shown?

Clinical trials of dupilumab in adults and children have shown that it significantly reduces eczema severity compared with placebo (a dummy drug) as well as a rapid reduction in itch and an improvement in sleep and quality of life. The trial data results showed that many patients taking dupilumab no longer needed to use as much topical steroid while taking the drug.

Is it available on the NHS?

Yes. Dupilumab is approved for routine use by the NHS in England, Wales, Scotland and Northern Ireland. Initially approved for treating eligible adults with moderate to severe atopic eczema, dupilumab is now also available on NHS prescription to treat children aged 12 years and older with moderate to severe eczema, and children aged 6 months to 11 years with severe eczema. Only a dermatologist can start you on this treatment, so you would need to be referred to a dermatologist if needed.

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Who is it for?

Dupilumab is licensed for the treatment of adults and children aged 12-17 with moderate to severe atopic eczema and children with severe atopic eczema aged between 6 months and 11 years, who would otherwise be possible candidates for systemic immunosuppressive drugs. The more severe the eczema, the more likely you are to be considered for a newer therapy such as dupilumab. To be eligible for dupilumab, you will usually need to have tried at least one systemic immunosuppressive medication (azathioprine, ciclosporin, methotrexate or mycophenolate mofetil) and found that it was not effective for you. You may also be eligible for dupilumab if you are unable to tolerate the immunosuppressive medications listed above, or if they are not suitable for you.

How do I go about getting it?

If you think you might be eligible for dupilumab, speak to your dermatologist about the possibility of trying it. It will not be offered by your GP; you will need to be referred to see a specialist dermatologist in a hospital.

How is it taken?

Dupilumab is given by injection under the skin once every two weeks in adults and children aged 12 years and older, and once every four weeks in children aged 6 months to 11 years. Adults usually start with a 600 mg dose (given as two 300 mg injections), followed by 300 mg every two weeks. The recommended dose for children and young people depends on their weight. Patients who have asthma as well as eczema might have different dosing regimens.

Patients or caregivers can administer dupilumab themselves at home after having received appropriate training from a healthcare professional. It's recommended that children aged 12 years and older are given dupilumab by or under the supervision of an adult. In children under 12 years, dupilumab should be given by a caregiver.

Patients or caregivers are advised to inject into the thigh or abdomen (except for the 5cm around the navel). If a healthcare professional or caregiver is administering the

injection, rather than the patient themselves, the upper arm can be used as an alternative injection site. The injection site needs to be rotated with each dose, and patients must avoid injecting into tender, damaged or scarred skin.

Dupilumab must be stored in the fridge (2-8°C). If taking a 300 mg dose, wait for at least 45 minutes after removing dupilumab from the fridge before injecting it, so it's at room temperature when you inject it. If taking 200 mg, wait for at least 30 minutes. If necessary, the pens and syringes may be kept at room temperature (maximum 25°C) for up to 14 days. They cannot be refrigerated again once they have reached room temperature. Don't shake the pen or syringe.

If you miss a dose at the right time, talk to your doctor or nurse. The best time to take the next dose will depend on how long ago your last dose was taken.

If you take too much or the dose has been given too early, talk to your doctor or nurse.

How long do you take it for?

Dupilumab is an ongoing treatment rather than a treatment that is used for a fixed amount of time. Patients are reviewed after 16 weeks of starting treatment to see how effectively dupilumab is working for them. If a patient's eczema has not responded adequately to dupilumab after 16 weeks, the treatment may be stopped.

Can people taking dupilumab still use emollients and topical steroids?

Yes, patients taking dupilumab will be expected to use emollients and topical steroids to manage their eczema alongside dupilumab.

Can I take it while pregnant or breastfeeding?

Due to limited research data, dupilumab is not recommended if you're pregnant or breastfeeding. It's important to speak to your dermatologist about your specific situation. Dupilumab has no effect on male or female fertility.

What are the risks of dupilumab?

Common side effects of dupilumab include conjunctivitis (inflammation of the eye or eyelid, also known as red or pink eye) and allergic conjunctivitis. This is more likely if you experienced conjunctivitis before starting dupilumab treatment. Patients taking dupilumab who develop conjunctivitis that doesn't resolve after standard treatment should be examined by an ophthalmologist. Other eye problems, such as eye infections, blepharitis and dry eye, are also possible side effects of dupilumab.

Other common side effects of dupilumab include cold sores, injection site reactions, joint pain and an increase in the number of eosinophils (a type of white blood cell) in the blood.

Let your doctor or nurse know if you experience any side effects. Talk to your doctor or nurse as soon as possible if you have any new or worsening eye problems. These might include watering, itching, redness and swelling, eye dryness, a feeling of gritty eyes or a sensation of a foreign body in the eye. Don't try to treat eye-related symptoms yourself.

Seek urgent medical advice if you experience eye pain or changes in vision, or signs of an allergic reaction (such as breathing problems, swelling of the face, lips, mouth, throat or tongue, fainting, dizziness, feeling lightheaded, fever, swollen lymph nodes, hives).

Can I have vaccinations while on dupilumab?

It's best to discuss vaccinations, including any vaccines you may need if you're planning to travel abroad, with your dermatology team. If possible, have any vaccines you may need for travelling abroad, or that you're due to have, before starting dupilumab.

It's recommended that people on dupilumab avoid live vaccines. These include measles, mumps and rubella (MMR), tuberculosis (BCG), yellow fever and shingles. Patients taking dupilumab can have inactivated or non-live vaccines.

Further information

Electronic Medicines Compendium: Dupixent®

www.medicines.org.uk/emc/search?q=dupixent

British Association of Dermatologists' patient information leaflet on dupilumab

<https://www.bad.org.uk/pils/dupilumab/>

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