

## Dupilumab factsheet

Dupilumab, also known as Dupixent<sup>®</sup>, is a treatment for severe atopic eczema. Dupilumab is a biologic drug and works in a different way to the other drug treatments that are currently available for eczema. Biologic drugs are produced by genetically-modified organisms such as bacteria or cells cultured in a laboratory. These types of drug have been used to treat severe psoriasis, asthma and arthritis for several years. They are taken in different ways – subcutaneously (just below the skin), intravenously (in the vein) and sometimes orally. Dupilumab is the first biologic treatment for atopic eczema and is taken subcutaneously. It is supplied either as a ready-to-use syringe and needle or a pre-filled injector pen. There are other biologic treatments for atopic eczema that are currently being developed.

### How does it work?

The human body uses chemical messengers called interleukins (ILs). ILs allow the different parts of our immune system to communicate and help fight off harmful viruses and bacteria. The immune system of people with inflammatory conditions like atopic eczema overreacts to allergens (e.g. dust, mould, pollen). This triggers the production of certain ILs, which cause greater inflammation. It is this chronic inflammation that leads to symptoms of eczema such as itchy, dry patches on the skin that are red or darker than a person's normal skin colour, depending on skin tone.

Biologics work by blocking ILs from binding to their cell receptors (protein molecules that receive chemical signals from outside a cell); this stops the immune system from overreacting. Dupilumab works on two specific ILs thought to contribute to atopic conditions: IL-4 and IL-13. By blocking IL-4 and IL-13 from binding to their cell receptors, dupilumab limits the overreaction of the immune system, dampening down the chronic inflammatory response and lessening the symptoms of atopic eczema.

If you think of a chemical messenger such as IL-4 as a key, and a cell receptor as a lock, a biologic drug works in a similar way to fixing a coin over the keyhole so that the key (IL-4) is unable to get into the lock (the cell receptor).

Immunosuppressive drugs for eczema (i.e. azathioprine, ciclosporin, methotrexate and mycophenolate mofetil) suppress many different chemical messengers that control inflammation, whereas biologic drugs suppress just one or two of these chemical messengers. Drugs that only block one or two chemical messengers have fewer potential side effects than conventional immunosuppressive drugs.

### What has the research shown?

Clinical trials of dupilumab have shown that it produces a meaningful reduction in the severity of eczema, as well as a reduction in the body surface affected by eczema in the majority of patients receiving it. Many patients receiving dupilumab also experienced a reduction in itching and an improvement in sleep and quality of life. The trial data results showed that many patients taking dupilumab no longer needed to apply as much topical steroid while taking the drug.

### Is it available on the NHS?

Dupilumab has been approved by the National Institute for Health and Care Excellence (NICE) for routine use by the NHS in England and Wales, and by the Scottish Medicines Consortium (SMC) for NHS use in Scotland. The healthcare system in Northern Ireland usually implements NICE guidance. Initially approved for treating eligible adults with moderate to severe atopic eczema, dupilumab is now also available on NHS prescription to treat children with more severe atopic eczema aged 6 years and above.

### Who is it for?

Dupilumab is licensed for the treatment of adults and children aged 12-17 with moderate to severe eczema and children with severe eczema aged 6-11, who are possible candidates for systemic therapy. It is unlikely that anyone whose eczema is not at the severe end of the spectrum will be considered for dupilumab. To be eligible for dupilumab you will usually need to have tried at least one immunosuppressive drug (i.e. azathioprine, ciclosporin, methotrexate or mycophenolate mofetil) and the drug needs to have not worked effectively for you. You may also be eligible for dupilumab if you have been found to be ineligible for immunosuppressive drugs; for example, if it is known that your body will not tolerate them. Dupilumab is significantly more expensive than other drugs currently available for eczema, which might make it more difficult to access.

### 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 administered?

Dupilumab is given by injection under the skin once every two weeks in patients 12 years and above using a pre-filled syringe or pen, and once every four weeks in children aged 6-11 years using a pre-filled syringe.

A single syringe and needle, or pre-filled pen, delivers one dose. Unlike other drug treatments for eczema, patients or caregivers are able to administer dupilumab themselves after having received appropriate training from a healthcare professional. 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 and patients must avoid injecting into skin that is tender, damaged or scarred. Dupilumab must be stored in the fridge (2-8°C). If necessary, the pre-filled syringes may be kept at room temperature (maximum 25°C) for a maximum of 14 days. They cannot be refrigerated again once they have reached room temperature.

### 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 to see how effectively the treatment is working for them. If a patient's eczema has not responded adequately to dupilumab after 16 weeks, the treatment may be stopped. Patients would be expected to show a significant reduction in eczema symptoms and an improvement in quality of life after having taken dupilumab for 16 weeks.

### Can people taking dupilumab still use topical steroids and emollients?

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

### Could I take it while breastfeeding or pregnant?

It is best to avoid taking dupilumab while breastfeeding. There is currently only limited research data on the use of dupilumab by pregnant women. Dupilumab should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. It is important to speak to your dermatologist about your specific situation.

### What are the risks of dupilumab?

Common side effects of dupilumab include eye inflammation (especially conjunctivitis), headaches and cold sores. People who have asthma as well as eczema could experience a worsening of their asthma symptoms if they stop taking dupilumab. Very rare side effects include serum sickness-like reactions: fever, rash and joint pain and/or swelling. The safety profile of dupilumab is superior to that of immunosuppressive drugs.

### Further information

**Electronic Medicines Compendium: Dupixent**

[www.medicines.org.uk/emc/search?q=dupixent](http://www.medicines.org.uk/emc/search?q=dupixent)

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