Biologics for Psoriasis and Psoriatic Arthritis

What are biologics?

Most medications are created by combining chemicals. In contrast, 'biologic drugs' are made from living human or animal proteins. The medications made from these proteins are designed to act in certain ways on specific parts of the body, to correct something that leads to disease.

Biologics, as a type of medicine are not new, they have been in use for more than 100 years. Vaccines and insulin, for example, are considered biologics because they are derived from living sources. Since the mid-2000's, biologics that are specifically targeted towards inflammatory conditions such as psoriasis, psoriatic arthritis, rheumatoid arthritis, and inflammatory bowel disease have been launched and further developed.

How are biologics different to other treatments for psoriasis and psoriatic arthritis?

Psoriasis and psoriatic arthritis begin in the immune system when certain immune system cells (T cells) are triggered and become overactive. These overactive cells set off a series of events in the body, signalling for inflammation to occur, which eventually causes psoriasis to develop on the skin and arthritis symptoms to develop in the joints.

Biologics work for psoriasis and psoriatic arthritis by blocking the actions of the certain immune cells or responses that play a role in the development of psoriasis or psoriatic arthritis. In some cases, biologics reduce the number of these cells in the skin and blood. In other cases, they block the activation of the immune cells or block the psoriasis causing chemicals released by them.

Other treatments for psoriasis and psoriatic arthritis act on the immune system in some way. This is especially true of systemic medications (usually tablets) such as methotrexate and ciclosporin. The difference is that these treatments suppress the immune system as a whole, whereas biologics selectively target the chemicals that are involved in the condition being treated. The first biologic approved to treat psoriasis and psoriatic arthritis was Etanercept, which has been available to be prescribed in the UK since 2006.

The Psoriasis Association, Dick Coles House, Queensbridge, Northampton, NN4 7BF
T: 01604 251620 **W:** www.psoriasis-association.org.uk **E:** mail@psoriasis-association.org.uk
Registered Charity Nos. 1180666 and SC049563

Through the registries (British Association of Dermatologists Biologics and Immunomodulators Register; BADBIR and the British Society for Rheumatology Psoriatic Arthritis Register; BSR-PsA) there has been ongoing monitoring of real-world safety data. Real world data is important as it is how treatments are used and experienced outside a clinical trial, and so represents real life observations. Long-term, real-world safety data is now available for the earliest biologics thanks to registries such as BADBIR. Data is still being compiled for many biologics which helps improve the understanding as to how these treatments work and any side effects to expect. The data has already enhanced the understanding as to which biologics may be more suitable for individual patients.

How do biologics work in psoriasis and psoriatic arthritis?

Biologics are designed to treat psoriasis and psoriatic arthritis by targeting overactive cells in the body. Some biologics target a type of immune cell called T cells while others target the chemical messengers released by activated T cells, such as TNF-alpha or certain Interleukins. T cells normally recognise bacteria and viruses and coordinate the immune response to fight them. In psoriasis, certain T cells are activated by mistake and move to the skin. Once in the skin they begin to act as if they are fighting an infection or healing a wound and this triggers a chain of events that leads to the rapid growth of skin cells. In psoriasis skin cells grow much faster than normal and this over production causes cells to pile up at the skin's surface. Some biologic medications treat psoriasis by preventing the activation and/or movement of T cells, or by reducing the number of T cells in the body, or both.

TNF-alpha (tumour necrosis factor alpha) is a chemical that also helps fight infections and communicates messages between cells. Too much TNF-alpha is produced in people with psoriasis and psoriatic arthritis because of activated T cells. The messages communicated by TNF-alpha lead to the rapid growth of skin cells found in psoriasis or to the joint damage associated with psoriatic arthritis.

A number of biologic medications were developed to treat rheumatoid arthritis and other conditions by binding to TNF-alpha and stopping it from communicating with other cells. It was found that these TNF-alpha medications are also effective to different degrees in treating psoriatic arthritis and psoriasis. As well as medications that target TNF-alpha, there are biologic agents that target Interleukin-12 (IL-12), Interleukin-23 (IL-23), and Interleukin-17, all of which are also involved in helping the immune system to fight off infections. Levels of IL-12, IL-23 and IL-17 have been found to be higher than expected in some people with psoriasis and psoriatic arthritis, and so biologics that block their activity may be useful for some people. Biologics that target other areas of the immune system are also being tested and developed and may be available in the future.

When might a biologic be offered?

Many of the biologic medications currently available for psoriasis or psoriatic arthritis have been appraised by the National Institute for Health and Care Evidence (NICE) for England and Wales, and the Scottish Medicines Consortium (SMC), which have issued guidelines on when they can be prescribed. The relevant regulatory body (NICE, SMC) recommends that in most cases, a biologic may be offered to people with moderate to severe psoriasis or psoriatic arthritis that has not responded to other systemic treatments such as PUVA, methotrexate, ciclosporin and acitretin. This may include other Disease Modifying Anti-Rheumatic Drugs (DMARDs), in the case of psoriatic arthritis.

Biologics may also be prescribed if the mentioned systemics cannot be prescribed for other health reasons. If the psoriasis or psoriatic arthritis does not show an acceptable response after 10-24 weeks (depending on the specific biologic treatment) it is recommended that the treatment is discontinued.

Key features of biologic treatments

- Taken by injection or infusion (either at a Dermatology or Rheumatology Department or at home depending on the specific medication)
- Treatment schedule and frequency vary depending on the specific medication
- As with all medications, side effects are possible. More information on this can be found on our information specific to each biologic medication. However, due to the way that biologics act on the immune systems, infections are common. People taking these medications are advised to have an annual flu jab
- Regular monitoring will be carried out via blood tests to check for infections and liver and kidney function, for the entire time a person is taking a biologic
- Long-term safety data is still being compiled
- Women are advised not to become pregnant on biologics unless discussed with and under the care of a Dermatologist/ Rheumatologist and Obstetrician. Do discuss with your consultant any intentions you may have regarding pregnancy as this may guide the choice of biologic available for you. Certolizumab Pegol and Adalimumab can be used throughout pregnancy.
- If someone is moved from one type of biologic to another, due to side effects or a lack of response, there may be a 'washout' period between the two, where no biologic is taken. If you are switching from an originator biologic to a biosimilar, a washout is usually unnecessary.
- Biologics are usually taken continuously to maintain improvement

The Psoriasis Association, Dick Coles House, Queensbridge, Northampton, NN4 7BF
T: 01604 251620 **W:** www.psoriasis-association.org.uk **E:** mail@psoriasis-association.org.uk
Registered Charity Nos. 1180666 and SC049563

Biosimilars

When a pharmaceutical company brings a biologic treatment to the market, they usually have a 10-year exclusivity patent, after which, other companies can manufacture and market an almost identical product.

Biologics are very complex molecules and so replicating them completely identically is not possible. The similar products are referred to as 'biosimilars', with the first product known as the 'originator' or 'reference medicine'. A biosimilar is a biological medicine which has been shown not to have any clinically meaningful differences from the originator medicine in terms of quality, safety and efficacy. Where NICE or the SMC has already recommended the originator biological medicine, the same guidance will normally apply to a biosimilar of that originator.

BADBIR

If you are prescribed a biologic, you should be asked to join the British Association of Dermatologists' Biologics Interventions Register (BADBIR) or the British Society for Rheumatology Psoriatic Arthritis Register (BSR-PsA); observational studies of people with psoriasis or psoriatic arthritis who are using a biologic treatment. Biologics are still relatively new medications, meaning that long-term data on safety and side effects is still being collected.

Currently, over 160 hospitals in the UK and Ireland are taking part and recruiting people with psoriasis, with an aim of collecting information from up to 18 000 people with psoriasis with more than 110,000 follow-ups entered.

A person with psoriasis is followed by the study via their Dermatologist for at least five years, unless the person with psoriasis decides to opt out at any point. Those running the study carefully assess both clinical data, and the person with psoriasis own recordings in a treatment diary. Together, this data will help us to learn more about the safety, and effectiveness, of biologic therapies. NICE recommends that all people with psoriasis receiving biologic therapy, who provide their consent, are entered onto the registries.

For more information on BADBIR, please see the website: www.badbir.org

For more information on BSR-PsA, please see the website:
https://www.rheumatology.org.uk/improving-care/registers/psoriatic-arthritis

Which Biologics are available?

The knowledge and understanding of psoriasis and psoriatic arthritis is growing, and with this increased knowledge comes the ability to develop new treatments or use the existing treatments more effectively. The following treatments have been approved by regulatory bodies for use in treating moderate to severe psoriasis and/or psoriatic arthritis:

Generic Name (Biologic Brand Name)	Mode of Action	For Psoriasis?	For Psoriatic Arthritis?
Adalimumab - (Humira - originator) (Biosimilars - Amgevita, Hyrimoz, Idacio, Imraldi, Yuflyma)	TNF	In England, Wales and Scotland	In England, Wales and Scotland
Bimekizumab (Bimzelx)	IL-17A and IL-17F	In England, Wales and Scotland	In England and Wales and Scotland
Brodalumab - (Kyntheum)	IL-17	In England, Wales and Scotland	No
Certolizumab pegol (Cimzia)	TNF	In England, Wales and Scotland	In England, Wales and Scotland
Etanercept (Enbrel – originator) (Biosimilars - Benepali, Erelzi)	TNF	In England, Wales and Scotland	In England, Wales and Scotland
Golimumab - (Simponi)	TNF	No	In England, Wales and Scotland
Guselkumab - (Tremfya)	IL-23	In England, Wales and Scotland	In England, Wales and Scotland
Infliximab - (Remicade - originator) (Biosimilars - Flixabi, Remsima, Zessly, Inflectra)	TNF	In England, Wales and Scotland	In England, Wales and Scotland
Ixekizumab – (Taltz)	IL-17	In England, Wales and Scotland	In England, Wales and Scotland
Risankizumab - (Skyrizi)	IL-23	In England, Wales and Scotland	In England, Wales and Scotland
Secukinumab (Cosentyx)	IL-17	In England, Wales and Scotland	In England, Wales and Scotland

The Psoriasis Association, Dick Coles House, Queensbridge, Northampton, NN4 7BF
T: 01604 251620 **W:** www.psoriasis-association.org.uk **E:** mail@psoriasis-association.org.uk
Registered Charity Nos. 1180666 and SC049563

Tildrakizumab – (Ilumetri)	IL-23	In England, Wales and Scotland	No
Ustekinumab – (Stelara – originator) (Biosimilars - Uzpruvo, Wezenla, Pyzchiva)	IL12 and IL-23	In England, Wales and Scotland	In England, Wales and Scotland

The information in this resource is not intended to replace that of a healthcare professional: If you have any concerns or questions about your treatment, do discuss this with your doctor and **always read the patient information leaflet** to make sure you are using it correctly.

For more information, or for a list of resources used in producing this information sheet, please contact the Psoriasis Association

September 2024 (Review Date: 09/25)

The Psoriasis Association, Dick Coles House, Queensbridge, Northampton, NN4 7BF
T: 01604 251620 **W:** www.psoriasis-association.org.uk **E:** mail@psoriasis-association.org.uk
Registered Charity Nos. 1180666 and SC049563