

# Asthma biologics

## Desktop helper



### Authorship

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The development of this publication has been supported by an unrestricted educational grant from GSK plc. GSK plc has had no input into the content of this material.

Over the past 20 years, there has been an increased focus on the use of newer biologic medication in people with severe asthma that is not controlled with usual asthma medication<sup>1</sup>.

Although there are currently six biologics (January 2025) licensed for use in severe asthma<sup>2</sup>, estimates suggest that of the 60,000 people potentially eligible for biologics in England, only 8,000-10,000 are on these treatments.<sup>3</sup> The figures will likely be the same in the rest of the United Kingdom.<sup>4</sup>


This resource provides a concise guide to asthma biologics. It complements the Primary Care Respiratory Society (PCRS) Pragmatic Guide to Caring for Patients with asthma receiving Biologic Therapy, which contains more detailed advice on identifying and referring children, young people and adults with severe asthma.

### Which biologics are used in asthma?


The biologics used in asthma are monoclonal antibodies. These bind to specific proteins in the body, with their actions determined by their target.

The biologic used is determined by assessing the relevant biomarker and the patient's age. Only omalizumab, mepolizumab and dupilumab are licensed for children aged 6-11 years. Details on specific biologic medications and their biomarkers can be found in Table 1.

**Table 1: Asthma biologics, their targets and relevant biomarkers<sup>5</sup>**



NAME	BIOLOGICAL TARGET	ROUTE & FREQUENCY	INDICATION	BIOMARKER CRITERIA
Omalizumab (Xolair)	IgE – prevents mast cell degranulation.	S/C**, 2 or 4 weekly	≥4 courses OCS in 12 months or mOCS****	IgE level > 30 with specific IgE or skin prick positive to the relevant allergen
Mepolizumab (Nucala)	IL-5* – eosinophil cytokine.	S/C, 4 weekly	≥4 courses OCS in 12 months or mOCS	Blood eosinophil count >0.30 cells per microlitre [If >0.40 then can be used at ≥3 courses OCS]
Benralizumab (Fasenra)	IL-5	S/C, 8 weekly	≥4 courses OCS in 12 months or mOCS	Blood eosinophil count >0.30 cells per microlitre [If >0.40 then can be used at ≥3 courses OCS]
Reslizumab (Cinqaero)	IL-5	IV***, 4 weekly	≥3 courses OCS in 12 months	Blood eosinophil count >0.40 cells per microlitre
Dupilumab (Dupixent)	IL-4 & IL-13 – key effector proteins in asthma.	S/C 2 weekly	≥4 courses OCS in 12 months	Failed treatment with an anti-IL-5, blood eosinophil count >0.15 and FeNO >25
Tezepelumab (Tezespire)	Thymic Stromal Lymphopoietin (TSLP).	S/C 4 weekly	≥3 courses OCS in 12 months or mOCS	No biomarkers required



\*IL – interleukin, \*\*S/C – subcutaneous injection, \*\*\*IV – Intravenous injection,

\*\*\*\*mOCS – maintenance oral corticosteroids defined as 5mg of steroid per day for the previous 6 months



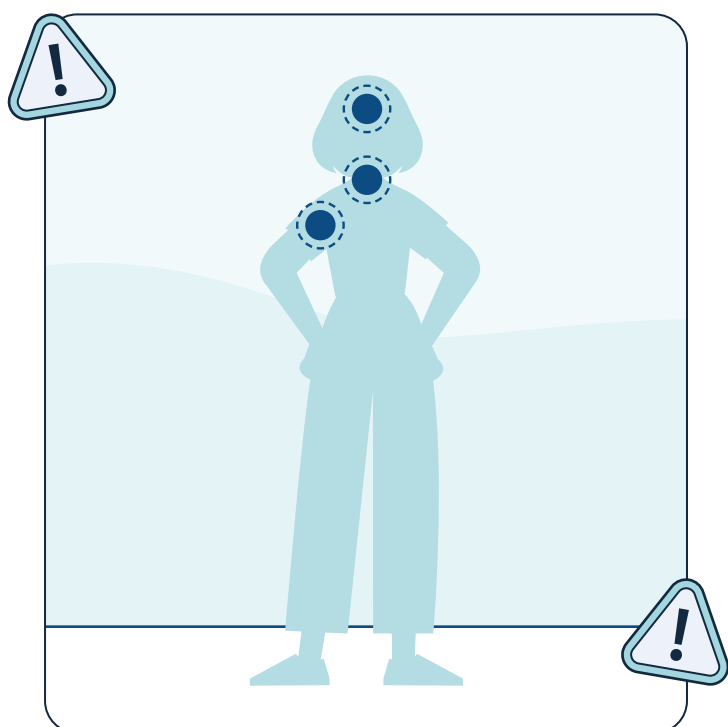


### What are the proven benefits of biologics, and do they really make a difference to patients?

There is high-quality evidence from clinical trials that biologics can reduce asthma flare-ups and the need for oral steroids, as well as improve quality of life<sup>2,6</sup>. Some biologics will also improve lung function. In the authors' experience, these medications can be life-changing for many patients.

### Should my patient continue to use their inhaled medications when they are on a biologic?

All the biologic treatments are studied and licensed for patients on inhaled steroid medications, usually at high doses for their asthma. Patients should remain on all their regular asthma treatments, including inhalers, whilst they are on biologic medication unless a member of their asthma team has given specific advice on reduction in or cessation of medications.<sup>7 8</sup>



### What are the side effects for people who are started on biologics for asthma?

Common side effects (affecting 1:10 people) include headache, sinus pain, sore throat and soreness at the injection site. There are sometimes rare (1:1000) severe allergic reactions (anaphylaxis) hence patients often are expected to remain in the clinic after their first two injections to make sure there is no significant reaction, or to have the first two doses observed at home.

### What about susceptibility to cancers?

There is evidence that biologics used for other diseases, such as inflammatory bowel disease may increase the risk of some cancer<sup>9</sup>. However, there is no evidence of increased rates of cancer in individuals treated with biologics for asthma<sup>10</sup>.

### Is it safe to have vaccinations and immunisations?

Advice from local specialist teams should be sought. A degree of caution is advised if using live attenuated vaccines, though inactivated vaccines appear appropriate to offer for people with asthma on biologics.<sup>10</sup>

### When should biologics be stopped? What about in pregnancy and breastfeeding?

Available evidence suggests that asthma biologics can be continued if the patient has a fever, or pneumonia, and is started on antibiotics<sup>10</sup>. Caution is highlighted in parasitic infection.<sup>10</sup>

The biologics appear safe before and after surgery. There is a lack of evidence on the safety of these medications in pregnancy and breastfeeding and practice is likely to vary, centre by centre. Specific advice from your local team should be sought in these circumstances.



## Conclusion

### Personalised plans, empowered patients

Biologics have changed the face of clinical care for severe asthma patients, reducing their use of oral corticosteroids, exacerbation rates, hospital admissions and improving quality of life. They are generally well tolerated, and the balance of benefits appears strong in most people. It is often not necessary to stop treatment with respiratory infections, or pre- and post-surgery and there is increasing evidence for safety during pregnancy. Patients should be encouraged to maintain their regular inhaled medication even if on biological therapy.

## References



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