

# Secukinumab (Cosentyx)

Secukinumab is a biologic response modifier that has revolutionized the treatment of various inflammatory diseases, particularly in dermatology and rheumatology. It was first approved by the U.S. Food and Drug Administration in January 2015 for the treatment of moderate to severe plaque psoriasis, and its indications have since expanded to include other conditions such as ankylosing spondylitis, psoriatic arthritis, and hidradenitis suppurativa.

## Mechanism of Action

Secukinumab is a human monoclonal antibody that specifically targets and inhibits interleukin-17A (IL-17A), a cytokine crucial to the inflammatory process in several immune-mediated diseases, including plaque psoriasis. IL-17A plays a pivotal role in the Th17 immune pathway, which is dysregulated in conditions like psoriasis. Elevated levels of IL-17A in the skin and other affected tissues contribute to the recruitment of inflammatory cells and the subsequent release of pro-inflammatory mediators, leading to tissue damage and disease progression.

By binding to and neutralizing IL-17A, secukinumab prevents the downstream inflammatory cascade, thereby reducing the clinical manifestations of these diseases, including erythema, scaling, and infiltration associated with plaque psoriasis. Importantly, secukinumab's specificity for IL-17A ensures that other components of the Th17 pathway and the broader IL-17 family are not disrupted, minimizing the potential for unintended immunosuppressive effects.

## Indications

Secukinumab is primarily indicated for moderate to severe plaque psoriasis in adults who are candidates for systemic therapy or phototherapy. It is also FDA-approved for the treatment of other autoimmune diseases, including:

- **Ankylosing Spondylitis (AS):**  
Secukinumab is indicated for adults with active ankylosing spondylitis, a chronic inflammatory disease affecting the spine and sacroiliac joints, often leading to stiffness and pain.
- **Psoriatic Arthritis (PsA):**  
It is used in adults with active psoriatic arthritis, a form of arthritis associated with psoriasis, that leads to joint pain, swelling, and stiffness.
- **Hidradenitis Suppurativa (HS):**  
It is used in adults with moderate to severe hidradenitis suppurativa, a chronic

inflammatory condition of the skin that causes abscesses to form in the skin folds, such as the armpits and groin.

In clinical trials, secukinumab has demonstrated significant efficacy in reducing symptoms and improving quality of life for patients with these conditions, often leading to remission or significant disease control.

### **Safety Profile and Side Effects**

As with all biologic agents, secukinumab has an associated risk of immune-related adverse effects, primarily due to its immunosuppressive activity. Infection is the most common concern, as biologics may increase susceptibility to infections by impairing the immune system's ability to fight pathogens.

### **Common Adverse Effects**

In clinical trials, secukinumab has been well tolerated, but several side effects have been reported. The most common side effects in patients with plaque psoriasis (based on a 12-week trial) include:

- Nasopharyngitis (inflammation of the nose and throat)
- Upper respiratory infections (e.g., colds)
- Diarrhea
- Rhinitis (inflammation of the nasal mucous membranes)
- Oral herpes
- Pharyngitis (inflammation of the throat)
- Urticaria (hives)
- Rhinorrhea (runny nose)

Other less frequent side effects include headache, dizziness, and neutropenia (a decrease in neutrophils, a type of white blood cell, which can predispose patients to infections). These effects are generally mild and transient, but they require monitoring, especially during the early phases of treatment.

### **Precautions**

Due to the immunosuppressive nature of secukinumab, caution is advised in patients with pre-existing infections or those who have a history of chronic inflammatory diseases. The risk of infections is heightened, and clinicians must carefully evaluate the benefit-risk profile before initiating therapy, particularly in patients with a history of chronic conditions like tuberculosis (TB). Secukinumab is contraindicated in patients with active TB due to the potential for exacerbation of the disease.

Additionally, patients should be screened for fungal infections prior to initiating therapy, as IL-17A plays a role in fungal defense, and blocking its function could increase susceptibility to fungal infections.

## Conclusion

Secukinumab represents a highly effective treatment option for individuals with moderate to severe psoriasis and other inflammatory diseases such as ankylosing spondylitis and psoriatic arthritis. By selectively inhibiting IL-17A, secukinumab helps reduce the inflammatory process associated with these conditions, leading to significant clinical improvement. However, its use must be carefully monitored, particularly in patients with a history of infections or immunosuppressive conditions, to avoid adverse outcomes. With ongoing advancements in biologic therapies, secukinumab continues to be a cornerstone in the management of immune-mediated diseases.

## References

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