Backgrounder: IL-17A in Psoriasis

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What is IL-17A?

Interleukin-17A (IL-17A) is one of over a dozen proteins in the body that act like "messengers" to **coordinate communication between immune cells,** called cytokines[1-6]. These cytokines usually work by signaling to infection-fighting cells that they need to mount an immune response once a foreign invader has been detected[1-6].

IL-17A has also been identified as playing a **key role in a number of immune-mediated diseases** such as **moderate-to-severe plaque psoriasis,** and is considered an **optimal target for investigational therapies**[7,8-10].

What is the role of IL-17A in psoriasis?

Scientific understanding of psoriasis has transformed since IL-17A was first discovered in 1993[11], shifting from what was previously thought to be a disorder of excess skin cell production to an **inflammatory disease of the immune system**[8-10].

IL-17A is **found in higher concentrations in skin affected by psoriasis,** with levels up to **six times higher** than in non-psoriatic skin[12]. **Increased IL-17A levels in the skin have also been linked to more severe psoriasis symptoms**[13].

Recent research has established that IL-17A is part of a **vicious cycle** in psoriasis, where IL-17A signals to skin cells and the immune system, **ultimately causing symptoms characteristic of the disease**[11,14-16]:

- Increased levels of IL-17A are present in the skin.
- IL-17A signals to the most common type of skin cell (a **keratinocyte**), resulting in the **growth of new skin cells at a faster rate than normal** and the **build-up of cells** on the skin's surface, causing symptoms like **thickened skin** and **plaques** (scaly skin).
- **IL-17A also signals to infection-fighting cells,** triggering symptoms like **itching** and **redness**.
- These **infection-fighting cells also create more IL-17A,** thus continuing the cycle.

IL-17A has therefore been identified as a **target for new medicines**. In addition, research suggests that directly inhibiting IL-17A does not compromise other parts of the immune system, meaning that the body can continue fighting infection[17-19].

How does secukinumab (AIN457) neutralize IL-17A?

Secukinumab is a special type of antibody that is a fully human monoclonal antibody which **selectively binds to and neutralizes IL-17A**[20-22]. It is the first therapy selectively targeting IL-17A to publish phase III results, and is currently being explored **in the treatment of various immune mediated diseases,** including psoriatic arthritis (PsA) and ankylosing spondylitis (AS)[23,24].

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