Letter to the Editor

IL-37 Levels in Psoriatic Patients and their Role in Disease Severity

Dear Editor,

Psoriasis is an autoimmune condition that causes the rapid buildup of skin cells on the surface of the skin, leading to scaling.[1] A recently recognized IL-1 family cytokine, IL-37 comes in five distinct isoforms. IL-37 is an immunosuppressive in shock, autoimmune illnesses, ischemia-reperfusion damage, and cardiovascular diseases are the topics of discussion. IL-37 may exhibit anti-cancer properties, and the IL-37 and its receptors have the potential to be utilized for the purpose of studying, diagnosing, and treating disorders that are related to the immune system, such as malignancies. Furthermore, IL-37 is a highly effective suppressor of natural defense mechanisms since it significantly alters the balance of cytokines, reducing the occurrence of extreme inflammation.[2]

Between November 2023 and March 2024, a group of 60 individuals with psoriasis from the outpatient dermatology clinic of Murjan Teaching Hospital in Babylon, Iraq were recruited. None of the patients included in the study had received any form of medication, whether systemic or topical, for a minimum duration of 4 months. The psoriasis area and severity index, a tool used to measure the extent and severity of psoriasis, was employed to assess the severity of the condition in patients after a clinical diagnosis was made.[3] The study included an additional sixty healthy participants as a control group. Blood samples were collected from the study subjects. The amount of IL-37 in serum was identified using the enzyme-linked immunosorbent assay, using a kit from (Bio Assay Technology, China). The result from Figure 1 showed a significant elevation distinction in the level of IL-37 in the control group compared to the patient at (P value ≤ 0.01), (281.55 vs. 165.5) pg/mL respectively.

The results from Table 1 and Figure 2 revealed IL-37 cutoff level of 136.898 for diagnosing the disease in healthy individuals [sensitivity 60%, specificity 30.50%; AUC 0.313 (CI: 0.216–0.410)] for the prediction of the disease in psoriasis patients. Additionally, IL-37 cutoff value of ≤0.0001 can be used to differentiate patients from healthy individuals.

The precise mechanism behind the anti-inflammatory action of IL-37 remains uncertain, but there are two theories: Either pro-inflammatory cytokines or their receptors are inhibited by the secretion of IL-37 into the extracellular space or IL-37 moves to the nucleus and interacts with Smad3 to prevent the transcription of genes that produce pro-inflammatory cytokines.[4] This suggests that in cases of acute psoriasis, pro-inflammatory cytokines or other unidentified variables may activate IL-37.[5] The study's findings demonstrated that psoriasis patients' levels of IL-37 were lower than those of controls. This is similar to the early studies by,[6,7] according to earlier studies, cytokines may contribute to the pathogenic process of psoriasis by either producing or exacerbating symptoms.

The diagnostic value of IL-37 by receiver operating characteristic curve analysis, IL-37 cutoff level of 136.898

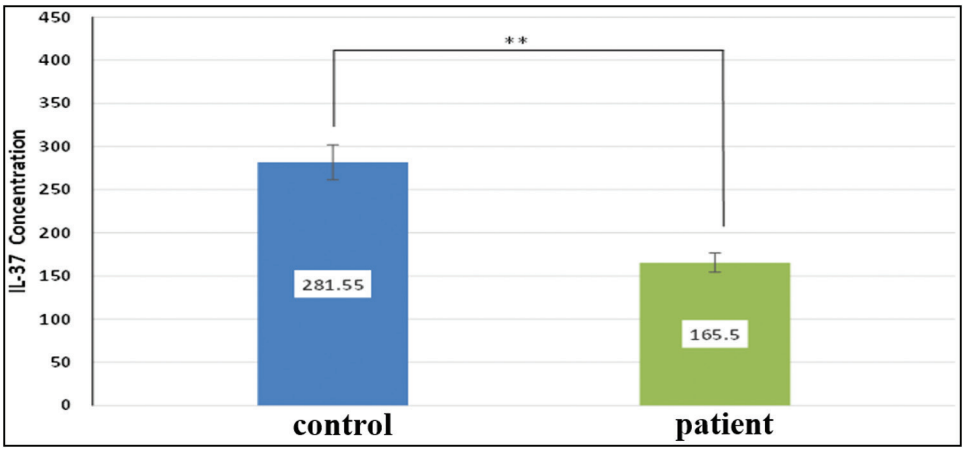

Figure 1: Seram level of IL-37 between control and psoriasis patients

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Table 1: The best cutoff, sensitivity, and specificity for the prediction of disease activity by IL-37

Parameter	Sensitivity	Specificity	AUC	Cutoff	95% confidence	*P* value
IL-37	0.600	0.350	0.313	136.898	0.216–0.410	≤0.0001

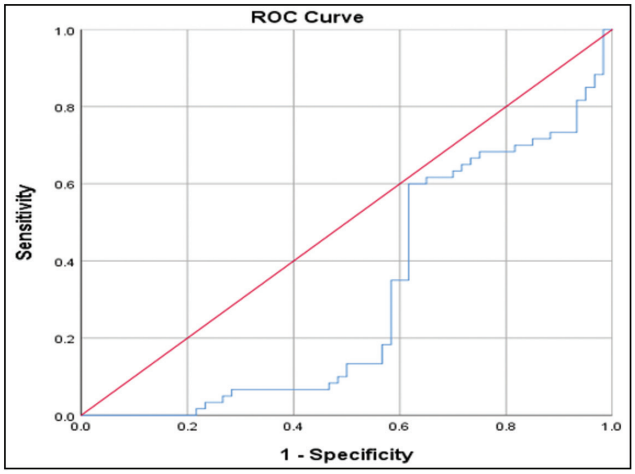

Figure 2: Receiver operating characteristic curve of IL37 in psoriasis patients

for diagnosing disease from healthy [sensitivity 60% specificity 30.50%; AUC 0.313 (CI: 0.216–0.410) for the prediction of disease in psoriasis patients, also found IL-37 cutoff value of ≤0.0001 for the differentiation of patients from healthy.

The effectiveness of IL-37 as a diagnostic biomarker for psoriasis is mentioned, and the findings of the current study higher differ from,[8] which showed that IL-37 had diagnostic accuracy with AUC for IL-37 as 0.609, a sensitivity of 42.6%, and specificity of 85.1% in distinguishing psoriasis from healthy controls.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Submission: 24-Oct-2024 **Accepted:** 07-Jun-2025 **Published:** 23-Jul-2025

References

1. Dutta S, Chawla S, Kumar S. Psoriasis: A review of existing therapies and recent advances in treatment. Differentiation 2018;4:12-23.
2. Al-Hafidh AH. A cross-sectional study of psoriatic arthritis in one center in Baghdad. Med J Babylon 2023;20:797-802.
3. Papp KA, Lebwohl MG, Kircik LH, Pariser DM, Strober B, Krueger GG, *et al*. The proposed PASI-HD provides more precise assessment of plaque psoriasis severity in anatomical regions with a low area score. Dermatol Ther (Heidelb) 2021;11:1079-83.
4. Al-Saba AH, Shemran KA, Al-Hattab MK. Study of serum chitinase-3-like-1 protein (CHI3L1) and C-reactive protein (CRP) in patients suffering from chronic plaque psoriasis. Med J Babylon 2022;19:729-35.
5. Mountford S, Effenberger M, Noll-Puchta H, Griessmair L, Ringleb A, Haas S, *et al*. Modulation of liver inflammation and fibrosis by interleukin-37. Front Immunol 2021;12:603649.
6. Pan Y, Wen X, Hao D, Wang Y, Wang L, He G, *et al*. The role of IL-37 in skin and connective tissue diseases. Biomed Pharmacother 2020;122:109705.
7. Bai J, Li Y, Li M, Tan S, Wu D. IL-37 as a potential biotherapeutics of inflammatory diseases. Curr Drug Targets 2020;21:855-63.
8. Sehat M, Talaei R, Dadgostar E, Nikoueinejad H, Akbari H. Evaluating serum levels of IL-33, IL-36, IL-37 and gene expression of IL-37 in patients with psoriasis vulgaris. Iran J Allergy Asthma Immunol 2018;17:179-87.

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Website: https://journals.lww.com/mjby

DOI: 10.4103/MJBL.MJBL_988_24

How to cite this article: Mahmood NS, Rhadhi RO, Abdulla AA. IL-37 levels in psoriatic patients and their role in disease severity. Med J Babylon 2025;22:S198-9.