

This is the lay version of a HIPPOCRATES publication. HIPPOCRATES is an international consortium to conduct studies benefitting people with psoriasis and psoriatic arthritis. The original publication can be downloaded from the HIPPOCRATES website: www.hippocrates-imi.eu/publications

Gurke, R.; Bendes, A.; Bowes, J.; Koehm, M.; Twyman, R.M.; Barton, A.; Elewaut, D.; Goodyear, C.; Hahnefeld, L.; Hillenbrand, R.; et al. Omics and Multi-Omics Analysis for the Early Identification and Improved Outcome of Patients with Psoriatic Arthritis. *Biomedicines* 2022, 10, 2387. <https://doi.org/10.3390/biomedicines10102387>

Finding Better Ways to Predict and Prevent Psoriatic Arthritis

Research Background

Psoriatic arthritis (PsA) is an inflammatory joint disease that affects about one in three people with psoriasis. Right now, it is difficult to diagnose early because its symptoms look similar to other conditions, and clear signs often appear only when the joints are already damaged. The researchers wanted to understand whether tiny signs in blood, skin, and tissue – called biomarkers – could help us spot PsA much earlier. To do this, experts across Europe came together in the HIPPOCRATES project and focused on advanced scientific tools known as ‘omics’, which allow us to study thousands of molecules at once. Think of it like a powerful magnifying glass that helps us learn how living things grow, stay healthy, or get sick.

Key Findings

The researchers discovered that no single biomarker can diagnose PsA on its own. But when we combine information from different layers – genes, proteins, fats, and other small molecules – we begin to see clear molecular patterns that may reveal early stages of the disease. The review found:

- DNA clues that can tell us who might develop PsA;
- Changes in the mechanisms that regulate gene activity;
- Proteins acting differently, which point to tissue damage or inflammation;
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This review highlights **three key findings**:

1. Diagnosis of PsA will rely on combinations of biomarkers.
2. Multi-omics technologies can reveal hidden patterns linked to PsA.
3. Potential for earlier diagnosis, better treatment choices, and improved patient outcomes.

Research Impact

These findings could greatly improve how PsA is diagnosed and treated. Earlier detection means patients could receive treatment before lasting joint damage occurs. People with psoriasis might one day be monitored using biomarker profiles, allowing doctors to intervene before PsA even starts manifesting. This research also opens the door to more personalised treatments, choosing therapies based on a patient’s unique molecular signature.

Relevance to HIPPOCRATES

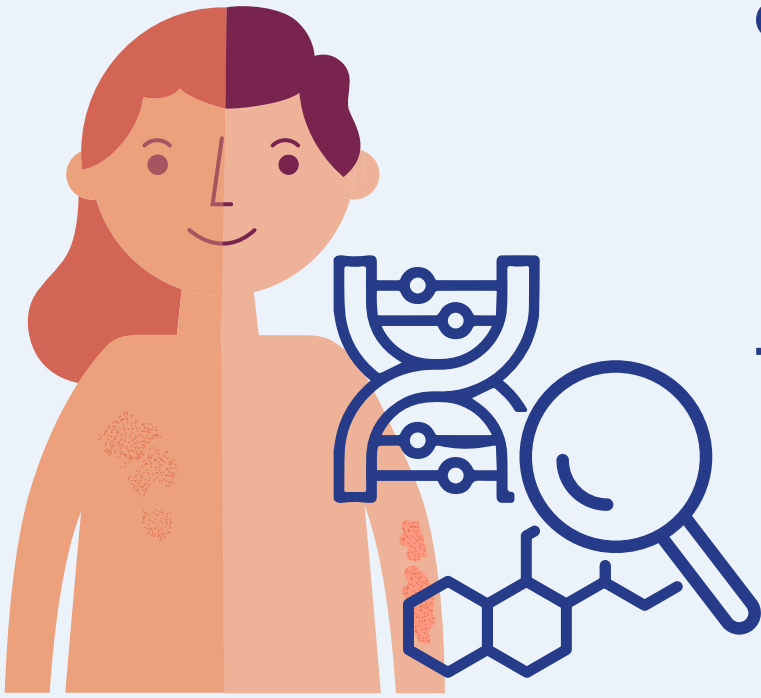
The review provides the scientific groundwork for creating new biomarker-based tools and prediction models and therefore directly supports the goals of HIPPOCRATES, which aims to understand who is at risk of developing PsA and how to diagnose it early.

View the graphical abstract for an accessible overview!



RESEARCH BACKGROUND

aiming to detect psoriatic arthritis earlier using biomarkers.



Can biomarkers indicate PsA risk?

i Biomarkers are tiny signs that can be found in our blood, skin, and tissue.

To study this we relied on 'omics' technologies.

i Think of it like a powerful magnifying glass that helps us study thousands of molecules at once.

THREE KEY FINDINGS:



Diagnosis of PsA will rely on **combinations of biomarkers**.



Multi-omics technologies can reveal hidden patterns linked to PsA.



Potential for **earlier diagnosis**, better treatment choices, and improved patient outcomes.

RESEARCH IMPACT

personalised treatments based on molecular profiles

receive treatment **before lasting joint damage** occurs

monitored via biomarkers to **enable early intervention** before PsA onset



RELEVANCE TO HIPPOCRATES

The review supports HIPPOCRATES by enabling early PsA risk assessment and diagnosis through biomarkers.



Related publication:

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