

# *14-3-3eta for Rheumatoid Arthritis*

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Inform precise and timely clinical decisions  
in rheumatoid arthritis management at every stage of care.

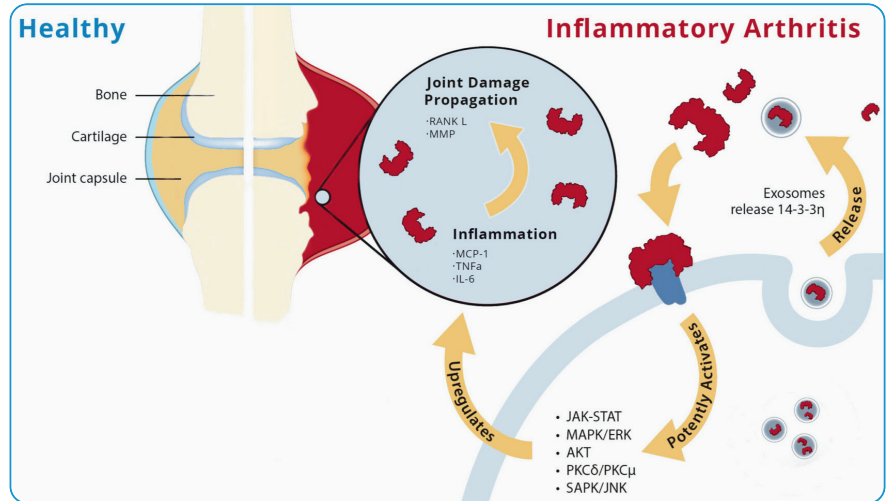


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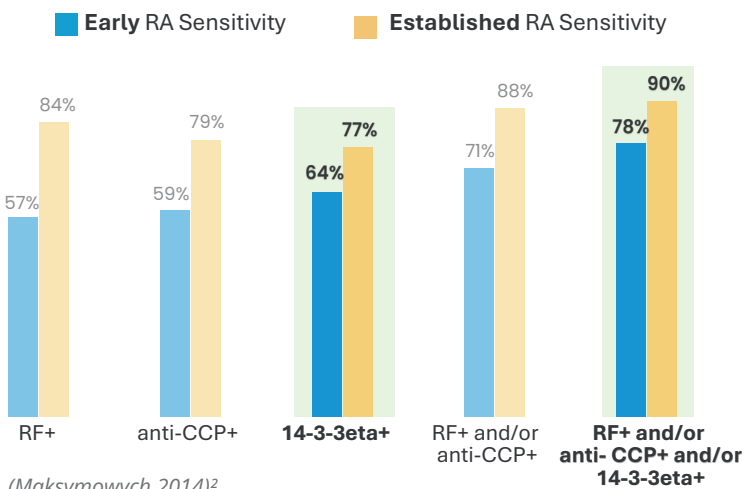
# 14-3-3eta is a joint-specific RA biomarker

The 14-3-3η (eta) protein is a joint-derived, proinflammatory mediator that is implicated in the joint erosion process and pathogenesis of rheumatoid arthritis (RA):<sup>1</sup>

- ⊗ **Function:** 14-3-3eta is an intracellular chaperone and signal transduction protein.
- ⊗ **Propagation of RA pathology:** During joint inflammation, 14-3-3eta is released into synovial fluid and serum, acting as a pro-inflammatory ligand and driving joint damage.
- ⊗ **Specificity:** Elevated levels of 14-3-3eta in serum and synovial fluid are highly specific to RA, distinguishing it from other inflammatory arthritides and healthy individuals.
- ⊗ **Joint inflammation:** The presence of 14-3-3eta in serum indicates ongoing joint inflammation and damage risk.



## 14-3-3eta complements RF and anti-CCP, enabling earlier and more accurate diagnosis of RA



**Pooled sensitivity**



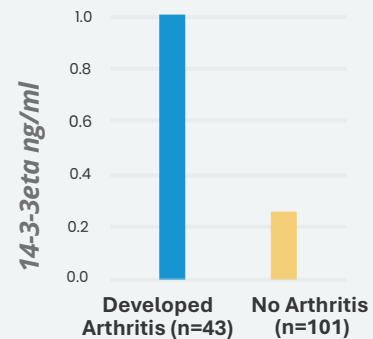
**Pooled specificity**



Based on a 16-report meta-analysis (Abdelhafiz, 2021)<sup>4</sup>

- ⊗ **High Sensitivity and Specificity:** 14-3-3eta is highly sensitive and specific for diagnosing early and established RA.
- ⊗ **Seronegative RA:** 14-3-3eta is valuable in detecting RA in RF/anti-CCP seronegative patients.
- ⊗ **Complements existing markers:** When combined with RF and anti-CCP, 14-3-3eta improves diagnostic accuracy.
- ⊗ **Predictive Value:** Elevated 14-3-3eta levels are associated with higher disease activity and flare risk.

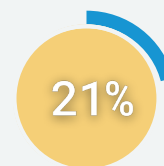
### Identify at-risk patients, years before clinical onset



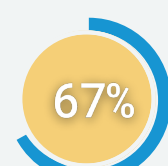
- ⊗ 14-3-3eta is detectable prior to onset of arthritis in patients who are positive for anti-CCP and/or RF.
- ⊗ Arthralgia patients that develop clinical arthritis have 3.4x higher levels of 14-3-3eta up to 5 years before onset.

(van Beers-Tas 2016)<sup>3</sup>

### 14-3-3eta identifies patients that are RF and anti-CCP seronegative:



of patients who have **early RA**



of patients who have **established RA**

(Naides 2015)<sup>5</sup>

# Monitor response to therapy and disease severity

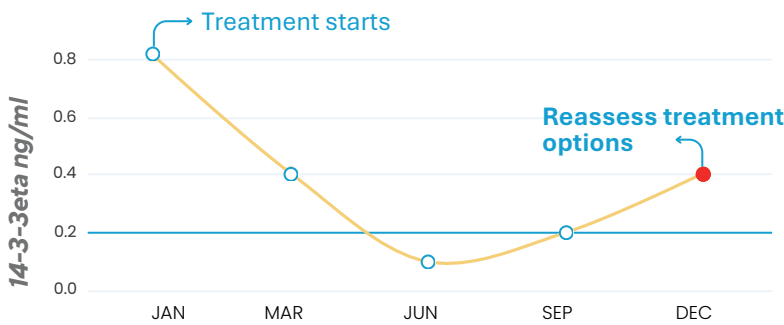


14-3-3eta is modifiable and an independent predictor of radiographic progression. Closely monitor your patient's response to therapy by serial testing of 14-3-3eta:

Combining the modifiable 14-3-3eta and CRP markers results in better prediction of joint damage than either marker alone, and assists with tight-control RA treatment strategies.

- Decreases in 14-3-3eta levels in response to therapy are associated with better clinical outcomes.<sup>6,8</sup>
- Increases or sustained 14-3-3eta levels are associated with a worse prognosis.<sup>7,9,10</sup>
- Levels of 14-3-3eta  $\geq 0.50$  ng/mL indicate significant joint damage risk.<sup>9,10</sup>

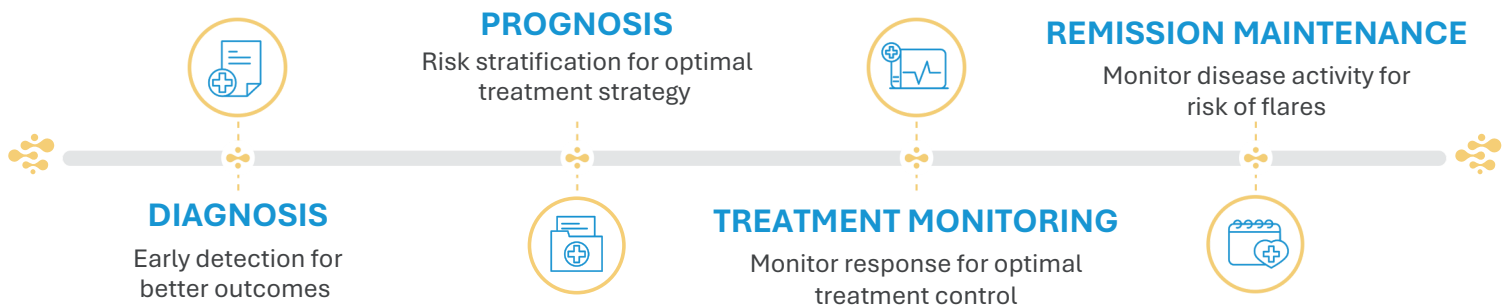
- 14-3-3eta and CRP do not correlate and represent independent predictors of joint damage progression.<sup>9,10</sup>
- High CRP ( $>8.0$  mg/L) and 14-3-3eta protein ( $\geq 0.50$  ng/mL) represent an adverse prognostic signature.<sup>9,10</sup>



## Uncouple joint damage and inflammation

Combine 14-3-3eta and CRP testing (every 3-6 months) to monitor disease activity and assist with tight treatment control strategies in RA.

## 14-3-3eta is a mechanistic and modifiable biomarker, providing clinical utility from early diagnosis to remission



Decreasing levels



Better outcomes<sup>6,8</sup>



Persistently high ( $\geq 0.5$  ng/ml)



Increased risk of joint damage and flares<sup>9,10</sup>



Increasing levels



Worsening disease activity<sup>7,9,10</sup>



Combined with CRP



Enhanced treatment decisions<sup>9,10</sup>

## Confidently maintain patients in remission

### Guidance for Remission Maintenance

Monitoring 14-3-3eta and CRP can help identify patients at higher risk of radiographic progression, aiding in more informed decisions on dose tapering and remission maintenance.<sup>9,10</sup>

### Predictive Value for Flare Risk

Higher 14-3-3eta levels at baseline, especially when combined with low CRP, are strong predictors of flare risk in patients discontinuing biologic therapy.<sup>11</sup>

## 14-3-3eta ASRs are available as an LDT at the following labs:

| Quest Diagnostics |           |
|-------------------|-----------|
| Test Name         | Test Code |
| 14-3-3eta Protein | 91455     |

| Labcorp                                |           |
|--|-----------|
| Test Name                              | Test Code |
| 14-3-3eta Protein                      | 504550    |
| RheumAssure® (14-3-3eta, RF, anti-CCP) | 504509    |

| ARUP Laboratories   |           |
|---|-----------|
| Test Name   | Test Code |
| 14-3-3eta Protein   | 3017890   |
| Early and Established Rheumatoid Arthritis (RA) Panel (14-3-3eta, RF, anti-CCP) | 3017891   |

## COMING SOON

| Sonic Healthcare USA            |                   |
|---------------------------------|-------------------|
| Divisions                       | Test Code         |
| Clinical Pathology Laboratories | Available Q2 2025 |
| Sunrise Medical Laboratories    | Available Q2 2025 |
| East Side Clinical Laboratory   | Available Q2 2025 |
| Sonic Reference Laboratory      | Available Q2 2025 |
| American Esoteric Laboratories  | Available Q2 2025 |
| Pathology Laboratories          | Available Q2 2025 |
| Clinical Labs of Hawaii         | Available Q2 2025 |

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