



## Developing Specific Rheumatoid Factors as Diagnostic and Therapeutic Tools

[View U.S. Patent Application Publication No. US-2023-0212316 in PDF format.](#)

**WARF: P220084US02**

Inventors: Miriam Shelef

**The Wisconsin Alumni Research Foundation is seeking commercial partners interested in developing peptides that bind to rheumatoid factors involved in rheumatoid arthritis and COVID-19 as diagnostic and therapeutic tools. The peptides can be used to identify patients at risk of developing rheumatoid arthritis and to develop treatments for COVID-19.**

### Overview

Rheumatoid factors (RFs) are antibodies that commonly develop in patients with rheumatoid arthritis (RA), an incurable autoimmune disease that affects ~1% of the population. RFs bind to IgG and other antibodies and amplify the immune response. In the case of RA, this leads to chronic inflammation and damage to bones and joints. To avoid permanent destruction of joints, therapeutic interventions must begin during early stages of disease progression. Currently, no diagnostic tests that can identify patients at risk of developing RA exist, making early intervention difficult.

RFs also rise in patients with other inflammatory conditions such as COVID-19. High levels of RFs were shown to improve outcomes of COVID-19 patients who received convalescent plasma treatment.

### The Invention

A UW-Madison researcher has identified IgG peptide sequences that bind RFs involved in RA and COVID-19. These peptides can potentially be used as diagnostic markers to identify patients at risk of developing RA, allowing for earlier diagnosis of RA. Preventative treatments could be implemented before severe disease progression.

The IgG peptides could also be used to develop COVID-19 therapeutics. RFs could be isolated from COVID-19 patients and used in convalescent plasma treatments to improve outcomes. Additionally, RFs could be created and used for treatment of COVID-19.

### Applications

- Differentiate RFs involved in RA and other diseases
- Identify patients at risk of developing RA
- Improve outcomes of COVID-19 patients

### Key Benefits

- Potential diagnostic tool that would allow for early recognition of RA with enough time for preventative treatment
- Prospective treatment option for COVID-19, which currently lacks sufficient therapeutics

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

Stage of Development

OK



**WARF**  
Wisconsin Alumni Research Foundation

| [info@warf.org](mailto:info@warf.org) | 608.960.9850

The researcher has identified peptides that bind RFs associated with RA and COVID-19. She has demonstrated potential of these peptides as a diagnostic tool for detecting likelihood of developing RA, as well potential for treating COVID-19.

## Additional Information

### For More Information About the Inventors

- [Miriam Shelef](#)

### Publications

- Mergaert et al. Rheumatoid Factor and Anti-Modified Protein Antibody Reactivities Converge on IgG Epitopes. Arthritis Rheumatol. 2022 Jun;74(6):984-991. doi: 10.1002/art.42064. Epub 2022 Apr 10. PMID: 35001558; PMCID: PMC9156533.

### Tech Fields

- [Diagnostics & Biomarkers : Biomarkers](#)
- [Drug Discovery & Development : Drug production & design](#)

For current licensing status, please contact Rafael Diaz at [rdiaz@warf.org](mailto:rdiaz@warf.org) or 608-960-9847

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

OK



**WARF**  
Wisconsin Alumni Research Foundation

| [info@warf.org](mailto:info@warf.org) | 608.960.9850