

Rheumatoid Factors

Rheumatism – when the body fights itself

Rheumatoid arthritis is a chronic inflammatory systemic disease characterized by painful joint swelling, joint tenderness, mobility restriction and joint destruction. Worldwide, rheumatoid arthritis is the most common inflammatory joint disease; it is a disease of older age, with women being affected about 3 times more often.

Rheumatoid arthritis often affects the small joints of the hands and feet, but it can also affect the large joints such as the shoulder, hip and knees. In the beginning of the disease, only one joint or a few joints may be involved.

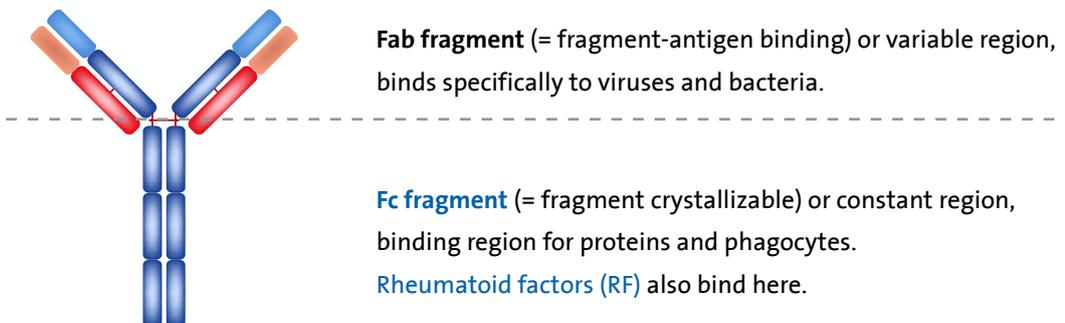
Due to the presence of **rheumatoid factors (RF)** and anticitrullinated proteins, which can precede clinical manifestation by many years, rheumatoid arthritis is considered an autoimmune disease.



RF – Biomarker for rheumatoid arthritis

RF are autoantibodies directed against the Fc fragment (= constant region) of the IgG class immunoglobulins. IgGs are the most common immunoglobulins in serum; they are part of the acquired immune system and act mainly against viruses and bacteria.

By enzymatic cleavage, the IgG can be broken down into Fab and Fc fragments



Diagnostic scheme^{1,2,3}

For the diagnosis of rheumatoid arthritis, the ACR/EULAR* classification can be used, which considers the following criteria:

- > Number of small and large joints affected
- > Serum concentration of rheumatoid factors (RF) and/or anticitrullinated proteins
- > Presence of inflammatory markers such as C-reactive protein and erythrocyte sedimentation rate
- > Duration of symptoms

The early diagnosis of rheumatoid arthritis is crucial so that irreversible joint destruction can be avoided through adequate therapy.

*American College of Rheumatology/European League Against Rheumatism

Rheumatoid Factors

Is a positive RF finding indicative for rheumatoid arthritis?

Frequency of RF-positive findings in descending order⁴

- > Rheumatoid arthritis
- > Sjögren's syndrome
- > Systemic lupus erythematosus
- > Mixed connective tissue disease
- > Scleroderma
- > Polymyositis
- > Juvenile chronic arthritis
- > Cryoglobulinemia type II
- > Endocarditis lenta
- > Chronic hepatitis
- > Bacterial, parasitic or viral infections
- > Tumors
- > Healthy > 60 years
- > Healthy < 60 years

High concentrations of RF are seen in different rheumatoid and non-rheumatoid diseases with variable frequency.

Healthy people with high RF concentrations (≥ 50 IU/ml) have a significantly higher risk of developing rheumatoid arthritis compared to RF-negative people.

RF reference ranges

Age group	Conventional unit	SI unit
Adults	≤ 20 IU/ml	≤ 20 kIU/l

Ordering information

HUMANS reagent kits for the quantitative determination of RF in serum.

REF	Name	Type	Unit/Size
11261PA	RHEUMATOID FACTORS multipurpose reagent		2 x 50 ml
11261300	RHEUMATOID FACTORS system reagents		1 x 100 tests
11261600			1 x 210 tests
11361	RF Standard		2 x 3 ml
13010	TURBIDOS Control, 2-levels		2 x 2 x 3 ml

For information on further assays for monitoring inflammation and organ impairment in the context of rheumatic arthritis use the following links: >> [Clinical Chemistry - Reagents](#) >> [Hematology - ESR Systems](#)

For more assays for the diagnosis of rheumatic and autoimmune diseases use the following link: >> [Autoimmune Diagnostics](#)

1. Aletaha, D. et al. Rheumatoid arthritis classification criteria: An American College of Rheumatology/ European League against Rheumatism collaborative initiative. *Arthritis Rheum* 2010; 62:2569–2581.
2. Hofmann, W. et al. *Klinikhandbuch Labordiagnostische Pfade*, 2012, e-ISBN 978-3-11-022873-1
3. Leitlinien der Deutschen Gesellschaft für Rheumatologie e.V., 2020
4. IMD, Diagnostikinformation Nr. 224

Human

Diagnostics Worldwide

