# FRAT® – Folate Receptor Autoantibody Test

Advancing Genetic Insights. Empowering Better Health.

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# FRAT® – Folate Receptor Autoantibody Test

Your body needs folate (Vitamin B9) for healthy brain development, cell growth, and energy. Sometimes, the immune system makes antibodies that block folate from entering the brain. This condition is called Cerebral Folate Deficiency (CFD) and can cause developmental, neurological, or fertility issues.

## Why Take This Test?

Doctors may recommend FRAT® if you or your child have: - Developmental delay, learning difficulties, or autism-like features - Seizures or movement disorders without a clear cause - Low folate levels that don’t improve with diet or supplements - Recurrent miscarriages or unexplained fertility issues

## What the Test Can Show

FRAT® checks for two types of antibodies: - Blocking antibodies – stop folate from binding to its receptor - Binding antibodies – attach to the receptor and interfere with folate uptake

## What Happens if Antibodies are Found?

If folate transport is blocked, doctors may recommend high-dose folinic acid (leucovorin). This form of folate can bypass the blockage and restore brain and body function. Many patients see improvements with the right treatment.

■ In short: FRAT® can reveal hidden causes of health problems and guide treatment to improve outcomes for children, adults, and families.

# FRAT® – Folate Receptor Autoantibody Test (Clinician Guide)

The Folate Receptor Autoantibody Test (FRAT®) detects autoantibodies to Folate Receptor Alpha (FRα), which impair folate transport across the blood-brain barrier and into systemic tissues.

## Test Methodology

- Sample: Serum - Assay: ELISA-based antibody detection - Measured antibodies: • Blocking autoantibodies – prevent folate binding to FRα • Binding autoantibodies – interfere with folate uptake and receptor function

## Clinical Relevance

The presence of FRα autoantibodies is associated with: - Cerebral Folate Deficiency (CFD) - Autism Spectrum Disorders (ASD) - Neurological disorders – epilepsy, movement disorders, psychiatric presentations - Reproductive issues – infertility, recurrent pregnancy loss, neural tube defects

## Indications for Testing

FRAT® is indicated in patients with: - Unexplained developmental delay, regression, or ASD-like symptoms - Refractory seizures or unexplained neurological syndromes - Recurrent miscarriages or unexplained infertility - Persistently low folate despite dietary/supplemental sufficiency

## Management Implications

- High-dose folinic acid (leucovorin) therapy bypasses FRα blockade and has shown benefit. - Monitoring antibody titers can guide therapy adjustments. - Early detection allows targeted interventions, potentially preventing irreversible damage.

■ Summary: FRAT® is a valuable diagnostic tool to identify folate transport autoimmunity. It provides actionable insights for personalized treatment, especially in neurodevelopmental and reproductive medicine.