

# Case Study 4

**28 year old Female**  
**Chief Complaint: arthralgia, myalgia and fatigue**  
**Dr. CJ Alappatt, Springboro, OH**



A 28 year old female was referred to Dr. CJ Alappatt with a clinical presentation of arthralgia, myalgia and fatigue for over 5 years. The patient had been seen by two other rheumatologists in the past and was diagnosed with fibromyalgia. The patient tried several NSAIDs, however had experienced no symptom relief and was now experiencing gradual weight gain. The patient was then prescribed Milnacipran, however experienced adverse events. The patient’s symptoms had gradually progressed, which led to an inability to work and the onset of depression.

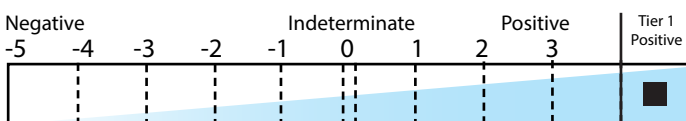
A review of clinical symptoms found the patient had a history of migraine headaches and Raynaud’s, but was negative for a malar rash, photo-sensitivity, serositis, dry eye/mouth, dyspnea, miscarriage and deep vein thrombosis.

Upon clinical examination, no signs of joint synovitis were found, however the patient was positive for faint livedo reticularis and multiple tender points. Based on initial clinical assessments a possible APS and SLE overlap diagnosis was considered.

To help assess the patient’s symptoms, Dr. Alappatt ordered the AVISE CTD test as well as the following labs:

- CBC, ESR, LFTs, TSH - all test results were normal
- ANA - test result positive by ELISA

### AVISE CTD Test Result: Tier 1 Positive



Key Assays	Results	Reference Range
<b>ANA by IIF</b>	1:160 (Centromere)	Negative <1:80 Positive ≥1:80
<b>ANA by ELISA</b>	119 Units	<20 Negative 20-59 Positive ≥60 Strong Positive
<b>CB-CAPs - EC4d</b>	88 Net MFI	<15-Negative 15-75 Positive >75 Strong Positive
<b>CB-CAPs - BC4d</b>	81 Net MFI	<61-Negative 61-200 Positive >200 Strong Positive
<b>Anti-CENP IgG</b>	30 U/mL	<7 Negative 7-10 Equivocal >10 Positive
<b>Anti-Cardiolipin IgM</b>	278 CU	<20 Negative ≥20 Positive
<b>Anti-β2 Glycoprotein 1 IgM</b>	230 CU	<21 Negative ≥21 Positive
<b>Other assays of interest:</b>		
<ul style="list-style-type: none"> <li>• Anti-dsDNA- Negative</li> <li>• Anti-Smith - Negative</li> <li>• RA &amp; Thyroid panel - Negative</li> </ul>		

Based on clinical assessment, additional labs and the AVISE CTD test results, the patient was diagnosed with SLE with secondary fibromyalgia and antiphospholipid syndrome.

The positivity of CB-CAPs (EC4d & BC4d ) indicated that the classical complement pathway had been activated, helping to confirm clinical suspicion of SLE. The patient was started on hydroxychloroquine/cyclobenzaprine, with some improvement in symptoms. Eventually the patient was placed on Benlysta, which provided remarkable symptom improvement and the patient was eventually able to return to work.