NMO SPECTRUM DISORDERS
IMPORTANCE OF SENSITIVE AND SPECIFIC ASSAYS

HISTORY
A 63-year-old female presents with nausea and vomiting followed by an episode of transverse myelitis. An AQP4-IgG ELISA test conducted by a different laboratory is negative, which results in an uncertain diagnosis. The patient is then referred to Mayo Clinic, where our laboratory conducts an AQP4-IgG cell-based assay. The test result is positive, which confirms a diagnosis of AQP4-IgG seropositive neuromyelitis optica spectrum disorder (NMOSD).

TEACHING POINTS
- AQP4-IgG testing by a cell-based assay/FACS is best because it is:
  - More sensitive: identifies more positives
  - More specific: reduces number of false positives
- Cell-binding method is recommended by Wingerchuk 2015 NMO criteria due to lower sensitivity and specificity of ELISA method.

CLINICAL REFERENCES
- Fryer and McKeon, et al. Neurol Neuroimmunol Neuroinflamm 2014
- Barcellos and Pittock, et al. JAMA Neurol 2014
- Neurology® 2015;85:177-189

FACS LIVE CELL-BINDING ASSAY
ELISA
INDIRECT IMMUNOFLUORESCENCE

| SENSITIVITY¹ | >80% | 60–65% | 50–55% |
| SPECIFICITY | >99% | 99% | >99% |

5x / THE LIKELIHOOD OF HAVING A FALSE-POSITIVE RESULT WITH ELISA METHODOLOGY IS AT LEAST 5X GREATER WHEN COMPARED WITH THE MAYO CLINIC CELL-BINDING ASSAY.