

Association for Molecular Pathology

Training & Education Committee

Frequently Asked Questions

The Training & Education Committee of the Association for Molecular Pathology considers providing education and information regarding molecular diagnostics to those outside the profession a core part of its mission. The FAQs in this document were submitted to the Committee for review and are intended for the general public, patients, and non-molecular diagnostics professionals. If you have any questions regarding molecular diagnostics that you would like to see included, please contact Mary Steele Williams, AMP Director of Scientific Programs at mwilliams@asip.org.

Q: What is DNA?

A: DNA is the material inside the nucleus of cells that carries genetic information that is passed from parent to child. The scientific name for DNA is deoxyribonucleic acid.

Q: What is RNA?

A: RNA is a similar molecule to DNA but with a slightly different structure. RNA assists in converting the information contained in DNA into proteins. RNA carries the genetic information from DNA to those parts of the cell where proteins are made. The scientific name for RNA is ribonucleic acid.

Q: How does a laboratory choose a particular test methodology?

A: There are usually a variety of technologies and test methods available to test for any particular disease. The laboratory will choose test methods based on many criteria other than cost, including intended use, accuracy, and technical capabilities.

Q: What is False Negative result (FN)?

A: A test result that indicates a person does not have a condition when in fact he or she does.

Q: What is a False Positive result (FP)?

A: A test result that indicates a person has a condition when in fact he or she does not.

Q: What is Sensitivity?

A: Sensitivity = $TP/(TP+FN)$: the probability of testing positive when you really are positive.

Q: What is Specificity?

A: Specificity = $TN/(FP+TN)$: the probability of testing negative when you really are negative.

Q: What are a Positive and Negative Predictive Values?

A: Positive Predictive Value (PPV) = $TP/(TP+FP)$: the probability of actually being positive when you test positive.

Negative Predictive Value (NPV) = $TN/(FN+TN)$: the probability of actually being negative when you test negative.

Positive and Negative Predictive Values are functions of the prevalence rate of the disease in the subpopulations being tested. Testing positive for a disease using a test that has a high PPV indicates that you are very likely to actually have the disease when you test positive, whereas testing positive with a test that has a low PPV would indicate the need for confirmatory testing.