# PROGRAM BOOK

## AMP 2025 MOLECULAR GENETIC PATHOLOGY

VIRTUAL REVIEW COURSE

May 12-16, 2025

AMP Association for Molecular Pathology

# MEET THE 2025 FACULTY

Valentina Nardi, MD
*Massachusetts General Hospital*
*Chair: MGP Review Course*

Pinar Bayrak-Toydemir, MD, PhD, FACMG
*University of Utah/ARUP*

Adrian M. Dubuc, PhD, FACMG
*Roswell Park Comprehensive Cancer Center*

Diana Mandelker, MD, PhD
*Memorial Sloan Kettering Cancer Center*

Matija Snuderl, MD
*NYU Langone Health*

Alanna Church, MD
*Boston Children's Hospital*

Kevin Fisher, MD, PhD
*Baylor College of Medicine*

Ann Moyer, MD, PhD
*Mayo Clinic*

Laura J. Tafe, MD
*Dartmouth Health System*

Jesse Cox, MD, PhD
*University of Nebraska Medical Center*

Erin H. Graf, PhD, D(ABMM)
*Mayo Clinic Arizona*

Ryan Peña, MD, PhD, D(ABHI)
*Tufts Medical Center*

Eric Vail, MD
*Cedars-Sinai Medical Center*

Yi Ding, MD, PhD
*Geisinger Health*

Annette S. Kim, MD, PhD
*University of Michigan/ Michigan Medicine*

Jason N. Rosenbaum, MD
*Kaiser Permanente, Northern California*

Rena Xian, MD
*Johns Hopkins University School of Medicine*

# LEARNER NOTIFICATION

DISCLOSURE SUMMARY REPORT

Association for Molecular Pathology
2025 Molecular Genetic Pathology Review Course

## Disclosure of Conflict of Interest

The following table of disclosure information is provided to learners and contains all financial relationships that each individual in a position to control the content disclosed to ASCP. All of these relationships were treated as a conflict of interest, and have been mitigated.

All individuals in a position to control the content of CE are listed below.

| First Name | Last Name | Ineligible Company : Relationship |
|---|---|---|
| Eriko | Clements | NA |
| Christal | Ralph | Regeneron Pharmaceuticals: Stockholder |
| Pinar | Bayrak-Toydemir | NA |
| Alanna | Church | Bayer: Consultant |
| Jesse | Cox | NA |
| Yi | Ding | Bayer HealthCare Pharmaceuticals Inc: Advisor<br>Life Technologies/ThermoFisher scientifics: Speaker<br>Springer: Royalties Recipient |
| Adrian | Dubuc | NA |
| Kevin | Fisher | NA |
| Erin | Graf | NA |
| Annette | Kim | NaviDx: Consultant<br>New England Biosciences: Speaker |
| Diana | Mandelker | AstraZeneca: Consultant |
| Ann | Moyer | NA |
| Valentina | Nardi | NA |
| Ryan | Peña | NA |
| Jason | Rosenbaum | NA |
| Matija | Snuderl | NA |
| Laura | Tafe | NA |
| Eric | Vail | Bayer: Consultant, Speaker<br>Eli Lilly: Consultant, Speaker<br>Janssen: Consultant, Speaker<br>AstraZeneca: Consultant, Speaker<br>Sanofi: Consultant, Speaker<br>Pfizer: Consultant, Speaker<br>Amgen: Consultant, Speaker<br>Illumina: Consultant, Speaker<br>Thermo Fisher: Consultant, Speaker<br>Pieriandx: Consultant, Speaker<br>LunglifeAI : Consultant, Speaker<br>Tempus: Consultant, Speaker<br>Caris: Consultant, Speaker |
| Rena | Xian | Invivoscribe: Honorarium Recipient<br>nRich Dx: Research Support Recipient<br>Roche: Advisory Board Member |

## Contact Information

If you have questions regarding the educational material in this activity, please contact AMP at ampeducation@amp.org.

# MONDAY, MAY 12, 2025

All times are in Eastern Time Zone

9:00-9:10 AM

**Welcome and Agenda Overview**

Valentina Nardi, MD | *Massachusetts General Hospital*

9:10-9:55 AM

**Technology: Nucleic Acids Extraction, Pre-Analytic Considerations**

Yi Ding, MD, PhD | *Geisinger Health*

**Learning Objectives:**

- Understand the key steps in nucleic acid isolation and quantification.
- Compare different methodologies in nucleic acid isolation.
- Evaluate preanalytical and environmental factors that affect accurate molecular diagnostic testing and quality metrics.

***CME/CMLE: 0.75***

9:55-10:05 AM

BREAK

10:05-10:50 AM

**Technology: Sanger Sequencing with Clinical Examples**

Kevin Fisher, MD, PhD | *Baylor College of Medicine*

**Learning Objectives:**

- Describe Sanger methodology.
- Compare the utility of Sanger with other sequencing modalities.
- Recognize common Sanger artifacts.
- Analyze Sanger tracings of common variants.

***CME/CMLE: 0.75***

10:50-11:00 AM

BREAK

11:00 AM-12:00 PM

**Identity Testing with Case Studies**

Jesse Cox, MD, PhD, A(ACHI) | *University of Nebraska Medical Center*

**Learning Objectives:**

- Assess the biology underlying historical and current approaches toward identifying an individual.
- Compare categories of molecular markers and their application toward differing situations, including remains identification, criminal justice, and medical engraftment monitoring.
- Interpret and evaluate data from differing testing modalities to draw conclusions regarding inclusionary/exclusionary potential outcomes.

***CME/CMLE: 1.00***

12:00 -12:40 PM

LUNCH

# MONDAY, MAY 12, 2025 (cont)

All times are in Eastern Time Zone

12:40-1:25 PM

**Technology: Nucleic Acid Amplification Techniques with Clinical Examples**
Eric Vail, MD | Cedars-Sinai Medical Center

**Learning Objectives:**
• Identify the components of PCR.
• Differentiate PCR from dPCR.
• Distinguish PCR from other amplification techniques.
***CME/CMLE: 0.75***

1:25-1:35 PM
BREAK

**1:35 - 2:50 PM**
**NGS I**
Jason N. Rosenbaum, MD | *Kaiser Permanente, Northern California*

**Learning Objectives:**
• Arrange the components of a "typical" NGS assay.
• Evaluate the strengths and limitations of NGS and each of its components.
• Choose appropriate NGS assay components to achieve specific goals.
• Balance external constraints on assay design.
***CME/CMLE: 1.25***

2:50 - 3:00 PM
BREAK

3:00-4:15 PM
**NGS II**
Jason N. Rosenbaum, MD | *Kaiser Permanente, Northern California*

**Learning Objectives:**
• Diagram a basic bioinformatic pipeline.
• Distinguish the contents and purposes of different NGS output files.
• Interpret "typical" NGS assay output types.
• Assess the strengths and weaknesses of pipelines and their components.
***CME/CMLE: 1.25***

4:15-4:25 PM
BREAK

4:25-4:55 PM
**Meet the Faculty (live course only)**
Ask the Monday faculty anything.
***CME/CMLE: 0.5***

# TUESDAY, MAY 13, 2025

All times are in Eastern Time Zone

9:00-9:02 AM

Welcome

Valentina Nardi, MD | *Massachusetts General Hospital*

9:02-9:50 AM

**Genome-wide DNA Methylation Profiling with Clinical Examples**

Matija Snuderl, MD | *NYU Langone Health*

**Learning Objectives:**

- Describe the role of epigenetic modifications and DNA methylation specifically in cancer and synergies with mutational and expression testing.
- Compare preanalytical and analytical advantages of DNA methylation for tumor classification.
- Assess the appropriateness of different DNA methylation technologies for different sample types in clinical practice.
- Interpret results of DNA methylation classifiers and recognize the most common diagnostic pitfalls.
- Implement DNA methylation testing guidelines in clinical practice.

***CME/CMLE: 0.75***

9:50-10:00 AM

BREAK

10:00-11:15 AM

**Pharmacogenomics with Clinical Examples**

Ann Moyer, MD, PhD | *Mayo Clinic*

**Learning Objectives:**

- Explain benefits and limitations of the use of pharmacogenomics to predict drug response.
- Describe pharmacogenomic test results, including nomenclature, activity score, and genotype to phenotype translation.
- Select appropriate genes and variants to include on a clinical pharmacogenomic panel test.
- Recognize barriers to widespread implementation of pharmacogenomics.

***CME/CMLE: 1.25***

11:15-11:25 AM

BREAK

11:25 AM-12:40 PM

**NGS III**

Jason N. Rosenbaum, MD | *Kaiser Permanente, Northern California*

**Learning Objectives:**

- Differentiate validation of NGS assays from that of other laboratory assays.
- Contextualize the process of variant review/interpretation.
- Justify the essential components of a “typical” NGS report.
- Evaluate potentially misleading or discrepant results.

***CME/CMLE: 1.25***

12:40-1:20 PM

LUNCH

# TUESDAY, MAY 13, 2025 (cont)

All times are in Eastern Time Zone

1:20-2:20 PM

**Cytogenetics I: Chromosome Banding Analysis and FISH with Clinical Examples**
Adrian M. Dubuc, PhD, FACMG | *Roswell Park Comprehensive Cancer Center*

**Learning Objectives:**
- Understand the strengths and limitations of chromosome banding analysis.
- Describe the types of FISH probes and their specific patterns and utilities.
- Recognize the importance of hallmark cytogenetic (chromosome banding and FISH) aberrations.
- Formulate possible causes of discrepant chromosome banding versus FISH results.

***CME/CMLE: 1.00***

2:20-2:30 PM

BREAK

2:30-3:45 PM

**Cytogenetics II: "Molecular" Cytogenetic Approaches (Chromosomal Microarray, Optical Genome Mapping, etc.) with Clinical Examples**
Adrian M. Dubuc, PhD, FACMG | *Roswell Park Comprehensive Cancer Center*

**Learning Objectives:**
- Understand core components of copy number analysis.
- Interpret basic patterns and profiles of SNP chromosomal microarray.
- Describe the contributions of Optical Genome Mapping to cytogenetic analyses.
- Understand the potential of novel 'omics' approach to support traditional cytogenetic analyses.

***CME/CMLE: 1.25***

3:45-3:55 PM

BREAK

3:55-4:25 PM

**Meet the Faculty (live course only)**
Ask the Tuesday faculty anything.

***CME/CMLE: 0.50***

# WEDNESDAY, MAY 14, 2025

All times are in Eastern Time Zone

9:00-9:02 AM

**Welcome and Updates**
Valentina Nardi, MD | *Massachusetts General Hospital*

9:02-10:30 AM

**Germline and Somatic Variant Interpretation with Clinical Examples**
Alanna Church, MD | *Boston Children's Hospital*

**Learning Objectives:**
- Discuss the goals of clinical interpretation in molecular genetic pathology.
- Describe the interpretation framework for germline variants.
- Describe the interpretation framework for somatic variants.
- Discuss the advantages and disadvantages of reporting on variants of potential germline etiology in tumor-only sequencing.

***CME/CMLE: 1.50***

10:30-10:40 AM

BREAK

10:40-11:25 AM

**Inherited Conditions I with Clinical Examples**
Pinar Bayrak-Toydemir, MD, PhD, FACMG | *University of Utah/ARUP Laboratories*

**Learning Objectives:**
- Understand the mechanisms and detection methods for the most common inherited disorders.
- Learn different screening methods and disease for genetic disorders.

***CME/CMLE: 0.75***

11:25-11:35 AM

BREAK

11:35 AM-12:20 PM

**Inherited Conditions II with Clinical Examples**
Pinar Bayrak-Toydemir, MD, PhD, FACMG | *University of Utah/ARUP Laboratories*

**Learning Objectives:**
- Employ the most used detection methods for triplet repeat disorders.
- Apply interpretation rules to classify variants identified by sequencing for inherited genetic disorders.

***CME/CMLE: 0.75***

12:20 - 1:00 PM

LUNCH

# WEDNESDAY, MAY 14, 2025 (cont)

All times are in Eastern Time Zone

1:00-2:45 PM

**Math 101: Applications of Bayesian Analysis in Molecular Testing**
Annette S. Kim, MD, PhD | *University of Michigan/Michigan Medicine*

**Learning Objectives:**
• Construct a Bayesian table from an appropriate family pedigree chart.
• Calculate PPV and NPV from sensitivity and specificity with appropriate assay information.
• Evaluate patient comfort level with genetic testing and caveats thereof.
***CME/CMLE: 1.75***

2:45-2:55 PM

BREAK

2:55-3:55 PM

**Germline Cancer Syndromes**
Diana Mandelker, MD, PhD | *Memorial Sloan Kettering Cancer Center*

**Learning Objectives:**
• Describe the features of some of the most common hereditary cancer predisposition syndromes such as hereditary breast and ovarian cancer and Lynch Syndrome.
• Determine when a patient's clinical and family history should raise suspicion for a cancer predisposition syndrome.
***CME/CMLE: 1.00***

3:55-4:05 PM

BREAK

4:05-4:35 PM

**Meet the Faculty (live course only)**
Ask the Wednesday faculty anything.
***CME/CMLE: 0.50***

# THURSDAY, MAY 15, 2025

All times are in Eastern Time Zone

**9:00-9:02 AM**

**Welcome and Updates**

Valentina Nardi, MD | *Massachusetts General Hospital*

9:02-10:15 AM

**Molecular Oncology I with Clinical Examples**

Laura J. Tafe, MD | *Dartmouth Health System*

**Learning Objectives for all 3 Molecular Oncology Sessions:**

- Identify key gene alterations across multiple tumor types.
- Give examples of the roles of DNA repair pathways in oncology.
- Describe approaches for identifying gene fusions.
- Explain the role of mismatch repair and MSI testing in the work up of colorectal and endometrial cancers.
- Describe mechanisms of resistance to targeted therapies (lung adenocarcinoma as an example).
- Discuss tumor type agnostic molecular biomarkers.
- Demonstrate the ability to interpret molecular test results.

***CME/CMLE: 1.25***

10:15-10:25 AM

**BREAK**

10:25-11:40 AM

**Molecular Oncology II with Clinical Examples**

Laura J. Tafe, MD | *Dartmouth Health System*

***CME/CMLE: 1.25***

11:40-11:50 AM

**BREAK**

11:50AM-1:05 PM

**Molecular Oncology III with Clinical Examples**

Laura J. Tafe, MD | *Dartmouth Health System*

***CME/CMLE: 1.25***

1:05-1:45 PM

**LUNCH**

# THURSDAY, MAY 15, 2025 (cont)

All times are in Eastern Time Zone

**1:45-2:45 PM**

**Infectious Diseases I: Overview of an Appropriate Infectious Diseases Molecular Menu and How It Should be Used with Clinical Examples**

Erin H. Graf, PhD, D(ABMM) | *Mayo Clinic Arizona*

**Learning Objectives:**

- Identify which molecular tests should be on your laboratory menu based on the patient populations you serve.
- Describe the role of an antimicrobial stewardship program related to molecular infectious diseases testing.
- Compare the advantages and disadvantages of various molecular infectious diseases testing approaches and platforms.
- Illustrate the complexities of viral load monitoring assays.

***CME/CMLE: 1.00***

**2:45-2:55 PM**

**BREAK**

**2:55-3:50 PM**

**Infectious Diseases II: Important Limitations and Stewardship Approaches to Infectious Disease Molecular Testing with Clinical Examples**

Erin H. Graf, PhD, D(ABMM) | *Mayo Clinic Arizona*

**Learning Objectives:**

- Contrast situations in which molecular testing can be either too sensitive or not sensitive enough compared to conventional methods.
- Describe the use of sequence-based assays for epidemiologic investigation.
- Discuss the technical complexity of metagenomic sequencing.

***CME/CMLE: 1.00***

3:50-4:00 PM

**BREAK**

4:00-4:30 PM

**Meet the Faculty (live course only)**

Ask the Thursday faculty anything.

***CME/CMLE: 0.50***

# FRIDAY, MAY 16, 2025

All times are in Eastern Time Zone

9:00-9:02 AM

**Welcome and Updates Overview**

Valentina Nardi, MD | *Massachusetts General Hospital*

9:02-10:45 AM

**Pattern Recognition in Myeloid Neoplasms with Clinical Examples**

Annette S. Kim, MD, PhD | *University of Michigan/Michigan Medicine*

**Learning Objectives:**

- Define clonal hematopoiesis and its relationship to other myeloid neoplasms through a rubric of myeloid mutational patterns.
- Apply principles of serial testing as they apply to measurable residual disease testing (example CML), resistance testing, and clonal evolution.
- Categorize AML by risk using molecular markers.
- Identify critically actionable kinase fusion in myeloid/lymphoid neoplasms with eosinophilia.

***CME/CMLE: 1.75***

10:45-10:55 AM

BREAK

10:55-12:40 PM

**Molecular Pathology Pearls in Lymphoid Malignancies**

Rena Xian, MD | *Johns Hopkins University School of Medicine*

**Learning Objectives:**

- Apply core molecular diagnostics concepts to lymphoid malignancies.
- Compare and contrast technologies used for lymphoid malignancies.
- Examine ancillary testing algorithms used in the evaluation of lymphoid malignancies.

***CME/CMLE: 1.75***

12:40-1:20 PM

LUNCH

# FRIDAY, MAY 16, 2025 (cont)

All times are in Eastern Time Zone

1:20-2:20 PM

**HLA with Clinical Examples**

Ryan Peña, MD, PhD, D(ABHI) | *Tufts Medical Center*

**Learning Objectives:**

- Describe HLA structure/function, nomenclature, and role of immunogenetics in medicine.
- Describe methodologies used for HLA typing.
- Explain HLA typing-specific concepts.
  - Level of resolution
  - Ambiguity; G and P groups
  - Matching and Permissiveness, Vector of Mismatch
- Correlate HLA molecular typing results and clinical applications - HLA immunogenetics cases.

***CME/CMLE: 1.00***

2:20-2:30 PM

BREAK

2:30-3:20 PM

**Key Molecular Laboratory Management Concepts that Impact Patient Care**

Erin H. Graf, PhD, D(ABMM) | *Mayo Clinic Arizona*

**Learning Objectives:**

- Interpret regulatory requirements for molecular testing.
- Assemble an individualized quality control plan for molecular testing.
- Recognize ethical issues related to molecular testing.
- Estimate the patient care impacts of diagnostic stewardship approach to a molecular test.

***CME/CMLE: 0.75***

3:20-3:30 PM

BREAK

3:30-4:30 PM

**Laboratory Finances: Reimbursement, Laboratory Budgets and Implications for your Routine Practice**

Erin H. Graf, PhD, D(ABMM) | *Mayo Clinic Arizona*

**Learning Objectives:**

- Identify best practices for managing and maintaining the various components of a laboratory budget.
- Describe the fundamentals of, and recent changes in, molecular test reimbursement.
- Compare the unique issues with cost-containment in the inpatient vs. outpatient settings.

***CME/CMLE: 1.00***

4:30-5:00 PM

**Meet the Faculty (live course only)**

Ask the Friday faculty anything.

***CME/CMLE: 0.50***

# AMP MOLECULAR GENETIC PATHOLOGY: RECOMMENDED REVIEW BOOKS

Updated: March 2025

The following books are suggested for those preparing for the Molecular Genetic Pathology board exam administered by the American Board of Medical Genetics and the American Board of Pathology. This list represents the recommendations of the MGP Review Course faculty and the AMP Training and Education Committee; endorsement by the ABMG or the ABP is not implied.

## GENERAL MOLECULAR PATHOLOGY

*Thompson & Thompson Genetics in Medicine*, 9th edition, Nussbaum RL *et al.*, eds. Elsevier, 2023.

*Molecular Pathology: The Molecular Basis of Human Diseases,* 2nd edition, Coleman WB and Tsongalis GJ, eds. Elsevier, 2018. (3rd edition relase date: November 2025)

*Diagnostic Molecular Pathology: A Guide to Applied Molecular Testing,* Coleman WB and Tsongalis GJ, eds. Elsevier, 2023.

*Molecular Basis of Human Cancer*, 2nd edition, Coleman WB and Tsongalis GJ, eds. Elsevier, 2017.

*Molecular Diagnostics: Fundamentals, Methods, and Clinical Applications,* 3rd edition, Buckingham L. ASCP, 2019.

*Genomic Medicine: A Practical Guide,* Tafe LJ and Arcila ME, eds. Springer, 2020.

## CYTOGENETICS

*Thompson & Thompson Genetics in Medicine*, 9th edition, Nussbaum RL *et al.*, eds. Elsevier, 2023.

*Gardner and Sutherland's Chromosome Abnormalities and Genetic Counseling*, 5th edition, McKinlay Gardner RJ, Amor DJ. Oxford University Press, 2018.

*The Principles of Clinical Cytogenetics*, 3rd edition, Gersen SL and Keagle MB, eds. Human Press, 2013.

*Human Chromosomes*, 4th edition, Miller OJ and Therman E, eds. Springer Press, 2000.

Vance GH, Khan WA. Utility of Fluorescence *In Situ* Hybridization in Clinical and Research Applications. *Advances in Molecular Pathology* 2020; 3:65-75.

*ISCN 2024 An international System for Human Cytogenomic Nomenclature* (2024), Ros J Hastings *et al*. S. Karger 2024

## FORENSICS / HLA TYPING

*Fundamentals of Forensic DNA Typing*, Butler JM. Elsevier Academic Press, 2010.

*Advanced Topics in Forensic DNA Typing: Methodology*, Butler JM. Elsevier Academic Press, 2012.

*Advanced Topics in Forensic DNA Typing: Interpretation*, Butler JM. Elsevier Academic Press, 2015.

*Transplantation Immunology: Methods and Protocols*, Zachary AA and Leffell MS, Eds. Humana Press 2013.

HLA Disease Associations. The Autoimmune Diseases Site

*Histocompatibility & Immunogenetics*, Kallon D. eBook

*Human Leukocyte Antigen (HLA) Testing in Pharmacogenomics*, Moyer AM, Gandhi MJ. Methods Mol Biol. 2022;2547:21-45. doi: 10.1007/978-1-0716-2573-6_2. PMID: 36068459.

# BOOK LIST CONTINUED...

Updated: March 2025

## LABORATORY MANAGEMENT

*Molecular Pathology in Clinical Practice*, 2nd edition, Leonard DGB, ed. Springer, 2016.

*Henry's Clinical Diagnosis and Management by Laboratory Methods*, 24th edition, McPherson RA and Pincus R, eds. WB Saunders Company, 2021.

*Clinical Laboratory Management*, 2nd edition, Garcia LS, ASM Books, 2014.

Clinical and Laboratory Standards Institute (CLSI). *Quality Management for Molecular Genetic Testing: Approved Guideline*. CLSI Document MM20-A (ISBN 1-56238-859-2 [Print]; ISBN 1-56238-860-6 [Electronic]. Clinical and Laboratory Standards Institute, 950 West Valley Road, Suite 2500, Wayne Pennsylvania 19087 USA, 2012.

*Laboratory Administration for Pathologists*, 2nd edition, College of American Pathologists, January 1, 2019

## MEDICAL GENETICS

*Thompson & Thompson Genetics and Genomics in Medicine (Thompson and Thompson Genetics in Medicine),* 9th Edition,by Ronald Cohn (Editor), Stephen Scherer (Editor), Ada Hamosh (Editor). Elsevier, 2023.

*Atlas of Genetic Diagnosis and Counseling*, 3rd edition, Chen H. Springer, 2017.

*Smith's Recognizable Patterns of Human Malformation*, 8th edition, Jones, K, Jones MC, del Campo MWB. Elsevier, 2021.

*Emery and Rimoin's Principles and Practice of Medical Genetics and Genomics: Developmental Disorders,* 7th Edition, by Reed E. Pyeritz (Editor), Bruce R. Korf (Editor), Wayne W. Grody (Editor). Academic Press, 2024.

ABMGG Molecular Genetic Pathology RBM Publisher
The ABMGG Molecular Genetic Pathology study guide contains over 200 new practice questions, along with a comprehensive review of the material through test questions and explanations to assist you in preparing for the ABMGG Molecular Genetic Pathology exam.

## METABOLIC GENETICS

*Atlas of Inherited Metabolic Diseases*, 4th edition, Nyhan WL and Hoffmann GF. CRC Press, 2020.

## MOLECULAR GENETICS / BIOLOGY

*Human Molecular Genetics*, 5th edition, Strachan TS and Read AP. CRC Press, 2019.

*Color Atlas of Genetics*, 5th edition, Passarge E. Thieme, 2017.

# BOOK LIST CONTINUED...

Updated: March 2025

## MOLECULAR HEMATOLOGY, HEMATOPATHOLOGY, AND ONCOLOGY

*WHO-Tumours of Haematopoietic and Lymphoid Tissues*, 5th edition, 2022.

*Robbins and Cotran Pathologic Basis of Disease*, 10th edition, Kumar V, Abbas AK, Aster JC. Elsevier, 2020.

*Diagnostic Pathology: Molecular Oncology*, 3rd edition, Vasef MA and Auerbach A. Elsevier, 2024.

https://tumourclassification.iarc.who.int/welcome/

**Virchows Archives, Volume 482, issue 1, January 1**. Annual Review Issue: Advances in the classification of myeloid and lymphoid neoplasms as revealed in the International Consensus Classification. Issue editors Daniel A Arber, Elias Campo, Elaine S. Jaffe https://link.springer.com/journal/428/volumes-and-issues/482-1

*Genomic Medicine: A Practical Guide,* 1st ed. 2020 Edition, by Laura J. Tafe (Editor), Maria E. Arcila (Editor)

*Diagnostic Molecular Pathology: A Guide to Applied Molecular Testing,* 2nd Edition, 2023, by William B. Coleman (Editor), Gregory J. Tsongalis PhD HCLD CC FNACB (Editor)

*Molecular Pathology, An Issue of the Clinics in Laboratory Medicine*, 1st Edition, https://www.us.elsevierhealth.com/molecular-pathology-an-issue-of-the-clinics-in-laboratory-medicine-9780443295683.html

Genomic profiling for clinical decision making in myeloid neoplasms and acute leukemia, Duncavage EJ, Bagg A, Hasserjian RP, DiNardo CD, Godley LA, Iacobucci I, Jaiswal S, Malcovati L, Vannucchi AM, Patel KP, Arber DA, Arcila ME, Bejar R, Berliner N, Borowitz MJ, Branford S, Brown AL, Cargo CA, Döhner H, Falini B, Garcia-Manero G, Haferlach T, Hellström-Lindberg E, Kim AS, Klco JM, Komrokji R, Lee-Cheun Loh M, Loghavi S, Mullighan CG, Ogawa S, Orazi A, Papaemmanuil E, Reiter A, Ross DM, Savona M, Shimamura A, Skoda RC, Solé F, Stone RM, Tefferi A, Walter MJ, Wu D, Ebert BL, Cazzola M, Blood. 2022 Nov 24;140(21):2228-2247. doi: 10.1182/blood.2022015853.

Genomic profiling for clinical decision making in lymphoid neoplasms, de Leval L, Alizadeh AA, Bergsagel PL, Campo E, Davies A, Dogan A, Fitzgibbon J, Horwitz SM, Melnick AM, Morice WG, Morin RD, Nadel B, Pileri SA, Rosenquist R, Rossi D, Salaverria I, Steidl C, Treon SP, Zelenetz AD, Advani RH, Allen CE, Ansell SM, Chan WC, Cook JR, Cook LB, d'Amore F, Dirnhofer S, Dreyling M, Dunleavy K, Feldman AL, Fend F, Gaulard P, Ghia P, Gribben JG, Hermine O, Hodson DJ, Hsi ED, Inghirami G, Jaffe ES, Karube K, Kataoka K, Klapper W, Kim WS, King RL, Ko YH, LaCasce AS, Lenz G, Martin-Subero JI, Piris MA, Pittaluga S, Pasqualucci L, Quintanilla-Martinez L, Rodig SJ, Rosenwald A, Salles GA, San-Miguel J, Savage KJ, Sehn LH, Semenzato G, Staudt LM, Swerdlow SH, Tam CS, Trotman J, Vose JM, Weigert O, Wilson WH, Winter JN, Wu CJ, Zinzani PL, Zucca E, Bagg A, Scott DW, Blood. 2022 Nov 24;140(21):2193-2227. doi: 10.1182/blood.2022015854. PMID: 36001803

## MOLECULAR MICROBIOLOGY

*Manual of Clinical Microbiology*, 12th edition (2 volumes), Jorgenson JH and Pfaller MA, eds. ASM Press, 2019.

*Molecular Diagnostics*, 3rd edition, Patrinos GP and Ansorge WJ. Academic Press (Elsevier), 2016.

*Molecular Microbiology: Diagnostic Principles and Practice*, 3rd edition, Persing DH, *et al.*, eds. ASM Press, 2016.

*Clinical Microbiology Procedures Handbook*, 3 Volume Set, 4th edition, Leber, AL ed. ASM Press, 2016.

*Advanced Techniques in Diagnostic Microbiology,* Tang, Y-W and Stratton, CW eds. Springer, 2013.

*Jawetz, Melnick & Adelbergs Medical Microbiology*, 28th edition, Riedel S., Morse SA, Mietzner T, Miller S, McGraw Hill. 2019.

# BOOK LIST CONTINUED...

Updated: March 2025

## PHARMACOGENETICS

*Tietz Textbook of Clinical Chemistry and Molecular Diagnostics*, 6th edition, Rifai N, Horvath AR, Wittwer CT, eds. Elsevier, 2018.

*Pharmacogenomics in Drug Discovery and Development*, 3rd edition. Methods in Molecular Biology Series, Qing Yan, ed. Springer, 2022 ISSN 1940-6029, ISBN 978-1-0716-2573-6 (eBook).

*Principles of Pharmacogenetics and Pharmacogenomics*, Altman RB, Flockhart D, Goldstein DB. Cambridge University Press, 2012.

*Molecular Pathology in Clinical Practice*, 2nd edition, Leonard DGB, ed. Springer, 2016.

Clinical Pharmacogenetics Implementation Consortium (CPIC®) https://cpicpgx.org/.

PharmGKB https://www.pharmgkb.org/.

PharmVar *https://www.pharmvar.org/genes*.

## RISK ASSESSMENT AND GENETIC COUNSELING

*Thompson & Thompson Genetics and Genomics in Medicine (Thompson and Thompson Genetics in Medicine),* 9th Edition, by Ronald Cohn (Editor), Stephen Scherer (Editor), Ada Hamosh (Editor). Elsevier, 2023.

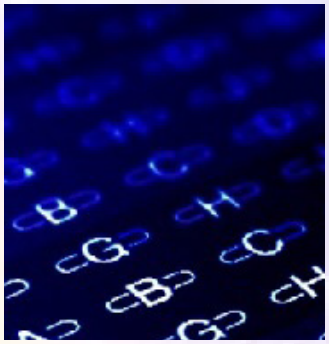
*Atlas of Genetic Diagnosis and Counseling*, 3rd edition, Chen H. Springer, 2017.

*Chromosome Abnormalities and Genetic Counseling*, 4th edition, Gardner RJ, Sutherland GR, McKinlay RJ. Oxford University Press, 2012.

*Practical Genetic Counseling for the Laboratory*, Goodenberger ML Thomas BC, Kruisselbrink T eds. Oxford University Press, 2017.

# RESOURCES

*Click on the titles for links:*



## THE FELLOWSHIP IN-SERVICE EXAM (FISE) QUESTION BANK

These exam questions were written by MGP program directors from many MGP-Fellowship programs and cover a range of topics.

For each examination, questions populate from a large question bank. At the end of the exam, participants see how well they performed in each category and see explanations of the correct choice, and references for further information. https://bit.ly/MGPFISE

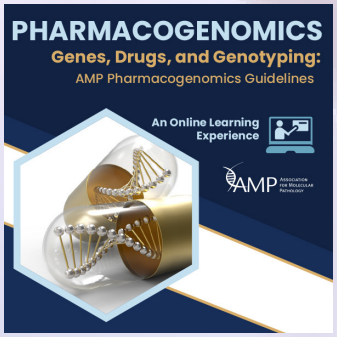
## MOLECULAR IN MY POCKET™

Molecular in My Pocket™ reference card series is for anyone looking to quickly reference molecular diagnostics information in a convenient format.

There are now more than 20 of the popular Molecular in My Pocket cards, available at no cost by downloading from the AMP website.

Cards were assembled, and are reviewed annually, by subject matter experts on the AMP Training and Education Committee. https://bit.ly/3RtNBlJ

## Pharmacogenomics: Genes, Drugs, and Genotyping: AMP Pharmacogenomics Guidelines

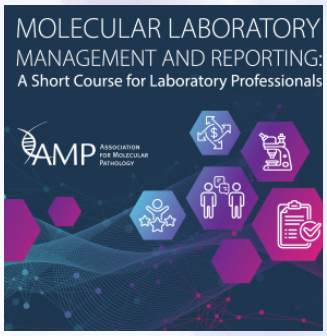



This course is an AMP Certificate Program on the introduction to pharmacogenomics and a review of AMP's expert consensus recommendations for standardization of alleles for clinical pharmacogenomic genotyping assays.

Participants can earn a certificate after passing an examination on the content.

This course is free for AMP members. https://bit.ly/3D5vn6f

## MOLECULAR LABORATORY MANAGEMENT SHORT COURSE




An AMP Certificate Program to provide training in laboratory management and soft skills required for operating clinical molecular laboratories.
It includes approximately 10 hours of lecture content from an expert faculty as well as templates, exercises, and reference materials.

Participants can earn a certificate after passing an examination on the content.
This course is offered free for everyone. https://bit.ly/AMPLabMgt

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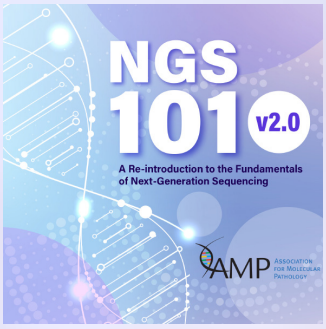



## NGS101 v2.0 SHORT COURSE

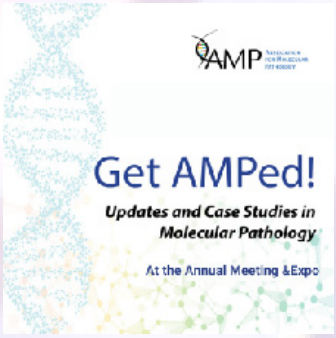
This course is an AMP Certificate Program on the fundamentals of Next-Generation Sequencing.
It provides a comprehensive overview on implementing and running NGS in your laboratory.
Participants can earn a certificate after passing an examination on the content.

This course is free for AMP members. https://bit.ly/AMPNGSv2

## REVIEW FLASHCARDS

Use these flashcards for quick review. We are continuouly adding more flashcards so check back often.

The flashcards are free for AMP members. https://bit.ly/AMPFlash




## GetAMPed Course

This yearly course is held live the day before the AMP Annual Meeting & Expo.

The course features presentations and case studies designed to update learners on the most current technologies and molecular pathology principles.

Sign up to be notified when registration opens:
https://www.surveymonkey.com/r/NSGM9ZM