

# Trending Topics in Precision Medicine Bonus Content: Individualizing Care for Your Patient Online Course

## Activity Description

For this online learning course, we are presenting impactful and important presentations and discussions from Mayo Clinic's 2024 Individualizing Medicine Conferences. This course is dedicated to unraveling the intricacies of population omics, digital omics, functional omics, and rare disease omics, and their vital role in patient care.

## Target Audience

The online modules offer the opportunity for clinicians, researchers and healthcare professionals interested in genetics and genomics to remain current with advances in individualized medicine.

## Learning Objectives

Upon conclusion of this activity, participants should be able to:

- Recognize the potential impact of digital omics to enhance personalized healthcare strategies.
- Identify applications of functional omics in optimizing treatment discovery.
- Recognize innovative approaches to rare disease diagnostic research.
- Identify innovative approaches to rare disease therapeutic interventions.
- Identify challenges associated with the use of large-scale population omics data.

Attendance at this Mayo Clinic course does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course.

## Accreditation Statement



In support of improving patient care, Mayo Clinic College of Medicine and Science is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

## Credit Statement(s)

### AMA

Mayo Clinic College of Medicine and Science designates this enduring material for a maximum of 9.25 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### ANCC

Mayo Clinic College of Medicine and Science designates this enduring material for a maximum of 9.25 ANCC contact hours. Nurses should claim only the credit commensurate with the extent of their participation in the activity.

### ACHE

By attending the Trending Topics in Precision Medicine: Individualizing Care for Your Patient Online Course offered by Mayo Clinic College of Medicine and Science participants may earn up to ACHE Qualifying Education Hours toward initial certification or recertification of the Fellow of the American College of Healthcare Executives (FACHE) designation.

## Other Healthcare Professionals

A record of attendance will be provided to all registrants for requesting credits in accordance with state nursing boards, specialty societies or other professional associations.

## Disclosure Summary

As a provider accredited by Joint Accreditation for Interprofessional Continuing Education, Mayo Clinic College of Medicine and Science must ensure balance, independence, objectivity and scientific rigor in its educational activities. All who are in a position to control the content are required to disclose all financial relationships with any ineligible company. Faculty will also identify any off-label and/or investigational use of pharmaceuticals or instruments discussed in their content for FDA compliance.

**Listed below are individuals with control of the content of this program who have disclosed...**

### **Relevant financial relationship(s) with ineligible companies:**

<b>Name</b>	<b>Nature of Relationship</b>	<b>Company</b>
Eva Carmona Porquera, M.D., Ph.D.	Honoraria	Boehringer Ingelheim Pharmaceuticals, Inc.
Eva Carmona Porquera, M.D., Ph.D.	Consultant – Advisory Board	SEPAR (sponsor by BOEHRINGER INGELHEIM)
Eva Carmona Porquera, M.D., Ph.D.	Consultant	Boehringer Ingelheim
Bradley Erickson, M.D., Ph.D.	Intellectual Property	Regulus Therapeutics, Inc. eReference Technology; FujiFilm (fka TeraMedica, Inc.); FlowSIGMA Corporation
Bradley Erickson, M.D., Ph.D.	Stock Equity	FlowSIGMA, Inc.; YUNU, Inc.
Bradley Erickson, M.D., Ph.D.	Board of Directors	Yunu, Inc; FlowSigma
Mira Keddis, M.D.	Honoraria	Evimed; FirstThought, LLC (new)
Mira Keddis, M.D.	Consultant	Nephrology Course LATAM EviMed; Techspert (new)
Iftikhar Kullo, M.D.	Intellectual Property	Cardio Diagnostics Holding, Inc (fka Cardio Diagnostics, Inc.)
Iftikhar Kullo, M.D.	Honoraria	Precision BioSciences, MultipleAI
Iftikhar Kullo, M.D.	Consultant	Advisory Board: InformedDNA General Consulting: Ayma Therapeutics Opinion Leaders Forum: Fukuda Presentation CME: Kaneka
Marina Walther-Antonio, Ph.D.	Intellectual Property	Pink Diagnostics, Inc.
Stephen Boppart, MD, PhD	Co-Founder and Chief Medical Officer	LiveBx, LLC
Razell Kurzrock, MD, FACP	Consultant/Grant or Research Support	Boehringer Ingelheim, Debiopharm, Foundation Medicine, Genentech, Grifols, Guardant, Incyte, Medimmune, Merck Serono, Pfizer, Takeda, Omniseq, Sequenom, TopAlliance, Actuate Therapeutics, AstraZeneca, Bicara Therapeutics, Inc., Biological Dynamics, Caris, Datar Cancer Genetics, Daiichi, Eisai, EOM Pharmaceuticals, LabCorp, Lanuaria, Merck, NeoGenomics, Precirix, Prosperdtx, Regeneron, Roche, TD2/Volastra, Turning Point Therapeutics, X-Biotech
Razell Kurzrock, MD, FACP	Owner	CureMatch Inc.
Jeroen de Ridder, Ph.D.	Owner, Stock Shareholder, and Full/Part-Time Employee.	Cyclomics BV

William Palmer, M.D.	Honoraria	Insights Driven Research; City Therapeutics, Inc
----------------------	-----------	--

***All relevant financial relationships listed for these individuals have been mitigated.***

***No relevant financial relationship(s) with ineligible companies:***

Name	
Laura Lambert, Ph.D.	Alison Motsinger-Reif, PhD
Cherisse Marcou, Ph.D.	Tania Simoncelli
Stephen Murphy, Ph.D.	Che Ngufor, Ph.D.
R John (Richard) Presutti, D.O.	Kara Mangold
Camerron Crowder, PhD	Nichole Nicholas
Melissa Davis, PhD	Corinne Irish
Denise Dupras, M.D., Ph.D.	Michelle Cooper
Philip Landrigan, MD, MSc	

***References to off-label and/or investigational usage(s) of pharmaceuticals or instruments in their presentation:***

Name	Manufacturer/Provider	Product/Device/Medication
Jeroen de Ridder, Ph.D.	Oxford Nanopore Technology	MiniON and PromethION

For disclosure information regarding Mayo Clinic School of Continuous Professional Development accreditation review committee member(s) please visit: <https://ce.mayo.edu/content/disclosures>.

## Disclaimer

Participation in this Mayo Clinic educational activity does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course. You should be aware that substantive developments in the medical field covered by this recording may have occurred since the date of original release.

## Prerequisites for Participation

There are no prerequisites needed prior to participating in this education activity.

## Method of Participation

Participation in this activity consists of reviewing the educational material, completing the learner assessment and evaluation.

## How to Obtain Credit

To obtain credit, complete the assessment, evaluation and submit.

## Release and Expiration Dates

Release Date: July 29, 2025  
Renewal Date: (If applicable)  
Expiration Date: October 31, 2026

## Acknowledgement of Commercial Support

No commercial support was received in the production of this activity.

## Faculty and Course Director Listing and Credentials

**Course Director(s)**

William C. Palmer, M.D.  
Mira T. Keddis, M.D.  
Denise Dupras, M.D.

**Mayo Faculty**

Bradley Erickson, MD, PhD  
Che Ngufor, PhD  
Cherisse Marcou, PhD  
Eva Carmona Porquera, MD, PhD  
Iftikhar Kullo, MD  
Laura Lambert, PhD  
Marina Walther-Antonio, PhD  
R. John Presutti, DO  
Stephen Murphy, PhD

**Guest Faculty**

Alison Motsinger-Reif, PhD  
Camerron Crowder, PhD  
Jeroen de Ridder, PhD  
Melissa Davis, PhD  
Philip Landrigan, MD  
Razelle Kurzrock, MD  
Stephen Boppart, MD, PhD  
Tania Simoncelli, MS

**Bibliographic Resources**

Moon, I., LoPiccolo, J., Baca, S.C. et al. Machine learning for genetics-based classification and treatment response prediction in cancer of unknown primary. *Nat Med* 29, 2057–2067 (2023).  
<https://doi.org/10.1038/s41591-023-02482-6>

Koprulu, M., Carrasco-Zanini, J., Wheeler, E. et al. Proteogenomic links to human metabolic diseases. *Nat Metab* 5, 516–528 (2023). <https://doi.org/10.1038/s42255-023-00753-7>

Tesi B, Boileau C, Boycott KM, Canaud G, Caulfield M, Choukair D, Hill S, Spielmann M, Wedell A, Wirta V, Nordgren A, Lindstrand A. Precision medicine in rare diseases: What is next? *J Intern Med*. 2023 Oct;294(4):397-412. doi: 10.1111/joim.13655. Epub 2023 Jun 1. PMID: 37211972.

Lamichhane, Pratik MBBS; Agrawal, Anushka MBBS. Precision medicine and implications in medical education. *Annals of Medicine & Surgery* 85(4):p 1342-1345, April 2023. | DOI: 10.1097/MS9.0000000000000298.

Connolly JJ, Berner ES, Smith M, Levy S, Terek S, Harr M, Karavite D, Suckiel S, Holm IA, Dufendach K, Nelson C, Khan A, Chisholm RL, Allworth A, Wei WQ, Bland HT, Clayton EW, Soper ER, Linder JE, Limdi NA, Miller A, Nigbur S, Bangash H, Hamed M, Sherafati A, Lewis ACF, Perez E, Orlando LA, Rakhra-Burris TK, Al-Dulaimi M, Cifric S, Scherr CL, Wynn J, Hakonarson H, Sabatello M. Education and electronic medical records and genomics network, challenges, and lessons learned from a large-scale clinic

Monica M Bertagnolli, Advancing health through artificial intelligence/machine learning: The critical importance of multidisciplinary collaboration, *PNAS Nexus*, Volume 2, Issue 12, December 2023, pgad356, <https://doi.org/10.1093/pnasnexus/pgad356>

**Copyright**

Mayo Foundation for Medical Education and Research. All rights reserved. Copyright 2025