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# Integrating Pharmacogenomics into Clinical Practice: Certificate Program

## Activity Description

Pharmacogenomics (PGx), the study of how one's genes may affect an individual's response to medication, is an emerging field within patient care. This course aims to prepare today's multi-disciplinary health care team with the fundamentals of pharmacogenomics. This certificate course includes practical education and guidance to prepare you to interpret and apply pharmacogenomics results. Leaders in the implementation of pharmacogenomics, Mayo Clinic staff use case studies and lectures on a range of topics to provide 16 hours of engaging content.

## Target Audience

This activity has been designed for pharmacists, physicians, nurse practitioners, physician assistants, nurses, students, and other members of the health care team.

## Learning Objectives\*

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

- Review foundational pharmacogenomics principles.
- Describe what to consider when implementing pharmacogenomics in clinical practice.
- Apply pharmacogenomics test results to make recommendations for an individualized medication management plan.
- Identify barriers and challenges of considering pharmacogenomics in patient care.

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 16.00 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



### ACPE

Mayo Clinic College of Medicine and Science designates this educational activity for a maximum of 16.00 Knowledge-based contact hours. Participants should claim only the credit commensurate with the extent of their participation in the activity.

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### ANCC

Mayo Clinic College of Medicine and Science designates this enduring material for a maximum of 16.00 *ANCC* contact hours. Nurses should claim only the credit commensurate with the extent of their participation in the activity.

### **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.

For disclosure information regarding Mayo Clinic School of Continuous Professional Development accreditation review committee member(s) and staff, please go here to review disclosures.

### **Available Credit**

16.00 AMA PRA Category 1 Credit™

16.00 ACPE

16.00 ANCC

16.00 Attendance

### **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>   |
|------------------------|-------------------------------|--|
| Nabila Bennani, MD     | Consultant                    | Curio Sciences LLC   |
| John Black, MD         | Intellectual Property         | Comprehensive Pharmacogenomics Algorithms (Know-How and Patent)<br><br>Pharmacogenomic Screening for Selection of Psychotropic Medication                        |
| John Black, MD         | Stock Shareholder             | Oneome   |
| Darryl Chutka, MD      | Stock Shareholder             | Exact Sciences Corp  |
| Timothy Curry, MD, PhD | Intellectual Property         | Advanced Hemodynamic Monitoring Database   |
| Robert Diasio, MD      | Consultant                    | Calgent Biotechnology Co., Ltd.<br><br>Sagitrax LLC  |
| Matthew Ferber, PhD    | Intellectual Property         | Know-How Related to Improving Clinical Reports Delivering Whole Genome Sequencing Data<br><br>Clinical Consultant Desktop for Next Generation Sequencing Testing |
| Christopher Grilli,    | Intellectual Property         | PGx Companion  |
| Matthew Goetz, MD      | Intellectual Property         | Know-How for SimBioSys   |
| Matthew Goetz, MD      | Consultant                    | Curio Science LLC  |
| Mira Keddis, MD        | Consultant                    | Allena Pharmaceuticals   |

|                                       |                                     |  |
|---------------------------------------|-------------------------------------|--|
| Teresa Kruisselbrink, M.S., CGC, LCGC | Intellectual Property               | Know-How Related to Improving Clinical Reports Delivering Whole Genome Sequencing Data   |
| Edward Loftus, Jr., MD                | Consultant                          | Allergan; Amgen, Inc.; Arena Pharmaceuticals; Boehringer Ingelheim Pharmaceuticals, Inc.; Iterative Scopes, Inc.; Lilly USA, LLC; Morphic Therapeutics, Inc.; Ono Pharmaceutical Co. Ltd.; Protagonist Therapeutics, Inc.; Scipher Medicine Corporation; Sun Pharma Global FZE; Surrozen, Inc.; AbbVie Inc.; Janssen Research & Development, LLC; Takeda Pharmaceuticals, Inc. |
| Edward Loftus, Jr., MD                | Grant or Research Support           | Takeda; Pfizer; Janssen; UCB; Gilead; Theravance; Genentech/Roche; Gossamer Bio; AbbVie; Celgene/Receptors; Bristol-Myers-Squibb   |
| Lance Oyen, Pharm.D., R.Ph.           | Consultant                          | Leiters  |
| Michael Schuh, Pharm.D., R.Ph.        | New Business Venture (Outside Mayo) | Medlyticsai, LLC – advisory board member   |
| Michael Schuh, Pharm.D., R.Ph.        | Full/Part-time Employee             | Medication and Health Experts, LLC   |
| Liewei Wang, MD, PhD                  | Intellectual Property               | Prostate Cancer Medically Optimized Genome Enhances Therapy (PROMOTE)<br><br>Comprehensive Pharmacogenomic Algorithms (Know-How)<br><br>Genetic Polymorphisms in the Human Cytochrome P450, Family 19, Subfamily A, Polypeptide 1 (CYP19A1) gene in Caucasian, African American, Han Chinese and Mexican American Populations  |
| Richard Weinshilboum, MD              | Stock Shareholder                   | OneOme LLC   |
| Richard Weinshilboum, MD              | Intellectual Property               | (Please see attached disclosure form for list of Intellectual Properties)  |
| John Zeuli, Pharm.D., R.Ph.           | Consultant                          | Theratechnologies<br><br>ViiV Healthcare   |

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

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

| Name               |                  |
|--------------------|------------------|
| Imad Absah         | Tammy McAllister |
| Jan Anderson       | Karen Meagher    |
| Christopher Arendt | Ann Moyer        |
| Matthew Bernard    | Ane Muskaj       |

|                    |                  |
|--------------------|------------------|
| Jennifer Bold      | Nichole Nicholas |
| Sheena Crosby      | Wayne Nicholson  |
| Denise Dupras      | Heather Randles  |
| Razan El Melik     | Garrett Schramm  |
| Caren Hughes       | Paul Takahashi   |
| Stacy Johnson      | Carolyn Vitek    |
| Adrijana Kekic     | Jessica Wright   |
| Christopher Kohler | Eric Yancey      |
| Jyothsna Kumpf     | Jeremy Zacher    |
| Eric Matey         | Sharon Zehe      |
| Sady Lanza         | Carrie Bartsh    |
| Julie Cunningham   |                  |

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

None

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: 11/01/2022

Expiration Date: 10/31/2025

**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)**

Bold, Jennifer A APRN, C.N.P., D.N.P.

Dupras, Denise M M.D., Ph.D.

Grilli, Christopher B Pharm.D., BCACP, R.Ph., MBA

Nicholson, Wayne T M.D., Pharm.D.

## **Faculty**

Nabila Bennani, MD  
John Black, MD  
Darryl Chutka, MD  
Timothy Curry, MD, PhD  
Robert Diasio, MD  
Matthew Ferber, PhD  
Christopher Grilli, Pharm.D., BCACP, R.Ph., MBA  
Matthew Goetz, MD  
Mira Keddis, MD  
Teresa Kruisselbrink, M.S., CGC, LCGC  
Edward Loftus, Jr., MD  
Lance Oyen, Pharm.D., R.Ph.  
Michael Schuh, Pharm.D., R.Ph.  
Liewei Wang, MD, PhD  
Richard Weinshilboum, MD  
John Zeuli, Pharm.D., R.Ph.  
Imad Absah, MD  
Jan Anderson, Pharm.D., R.Ph.  
Christopher Arendt, Pharm.D., R.Ph.  
Matthew Bernard, MD  
Jennifer Bold, APRN, CNP, DNP  
Sheena Crosby, Pharm.D., R.Ph.  
Denise Dupras, MD, PhD  
Razan El Melik, Pharm.D., R.Ph.  
Caren Hughes, Pharm.D., R.Ph.  
Stacy Johnson, MA  
Adrijana Kekic, Pharm.D., R.Ph.  
Christopher Kohler, M.A.N., R.N., N.E.-B.C.  
Jyothsna Kumpf, MD  
Eric Matey, Pharm.D., R.Ph.  
Tammy McAllister, MA  
Karen Meagher, PhD  
Ann Moyer, MD, PhD  
Ane Muskaj  
Nichole Nicholas, MA  
Wayne Nicholson, MD, Pharm.D.  
Heather Randles, Pharm.D., R.Ph.  
Paul Takahashi, MD  
Carolyn Vitek, Ed.D., MS  
Jessica Wright, Pharm.D., R.Ph.  
Eric Yancey, Pharm.D., R.Ph.  
Sharon Zehe, JD

## **Planning Committee**

Nichole Nicholas, MA  
Christopher Scott, MA  
Jeremy Zacher, M.Ed.  
El Melik, Razan M Pharm.D., R.Ph.  
Cunningham, Julie L Pharm.D.

## Bibliographic Resources\*

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