Course Description

The 8th Annual UC San Diego Essentials and Advances in Apheresis will build on the great success of the first seven conferences. This 2½-day multidisciplinary program is designed to appeal to first time attendees and to returning participants. Expert reviews of the essentials will be augmented with selected new topics and discussions of advances and innovations.

- Nationally and internationally recognized leaders will present didactic sessions and conduct interactive discussions
- Fundamentals will include in-depth reviews of basic principles, procedures, prescribing, clinical management and care of special populations
- Updates on selected disease indications will be supplemented by case studies and new clinical science
- Symposia will review plasma exchange, cell apheresis modalities, technology innovations, billing practices and program management
- The popular concurrent sessions on Frontiers in Apheresis Science and Expertise in Apheresis Practice will continue with updated topics
- Breakfast with the Experts will be offered again. Each session will focus on a different area of interest and will provide opportunities for interactive discussions
- Participants will be offered interactive small group sessions led by experienced practitioners focused on various techniques and machines used in therapeutic apheresis
- Conference attendees will have the opportunity to submit challenging cases for discussion during a daily expert panel session

Target Audience

The target audience for this initiative includes physicians and allied health professionals interested in therapeutic apheresis, including both established practitioners and those embarking on a new apheresis service. The content is aimed at nephrologists, hematologists, clinical pathologists, blood bankers and nurses.

Overall Program Objectives

After completing the didactic sessions, participants should be able to:

- Review current clinical indications for therapeutic plasmapheresis, photopheresis and other cytapheresis procedures, per ASFA guidelines
- Discuss options for vascular access, anticoagulation, and prescription for the various apheresis techniques, and their associated complications
- Recognize important pharmacologic issues that arise with apheresis procedures, including timing of administration, drug removal, as well as impact on anticoagulation
- Identify apheresis techniques in specialized populations such as pediatrics, RBC exchange procedures, and Car-T cell therapies
- Discuss apheresis program management issues, including reimbursement
- Recognize recent developments in clinical trials and the future of apheresis medicine

Small Group Sessions Learning Objectives

For each small group session completed, participant should be able to:

- Distinguish the apheresis modalities that can be performed by different types of apheresis equipment, such as centrifugal machines, membrane separators, secondary plasma purification and cell processing systems
- Describe the blood pathway configuration of each machine studied, and the operator-controlled adjustments that are typically needed
- Discuss the typical blood flow rate, anticoagulation and fluid replacement requirements of each machine studied
- Identify various vascular access options available for apheresis, including tips for successful peripheral IV placement as well as various port options
**Needs Assessment**

Apheresis is the process where whole blood is removed from a patient and dispensed into an instrument that is able to separate blood components. The goal behind this particular therapy is to remove the components of the blood associated with disease while retaining the remaining components back to the patient. This may or may not include replacing the removed component (Sanford & Balogun, 2011; Shelat, 2010). Conventional apheresis procedures utilize centrifugation and membrane filtration. Plasmapheresis is considered a manual method and is still used in pediatrics but not otherwise; currently, therapeutic plasmapheresis and therapeutic plasma exchange (TPE) are fully performed using machines. If replacement factor is utilized, fresh frozen plasma (FFP), 5% albumin or colloidal solution, or one’s own plasma following purification are the factors of choice (Ward, 2011).

Patients who are critically ill with autoimmune diseases are often selected for therapeutic apheresis. According to Shelat (2010), the American Society for Apheresis has categorized the indications for therapeutic apheresis into 4 categories according to illness and its supposed risk: benefit ratio. The benefits of apheresis include the “ability to rapidly, safely and isovolemically reduce the concentration of a pathologic factor or a component of blood” (Shelat, 2010, p. 778), while the risk of adverse events occurring from apheresis are less than 5%. According to Mokrzycki and Balogun (2011), there are four specific factors that can impact the occurrence of adverse events: anticoagulation type, replacement fluid type and volume, vascular access type, and the underlying disease state. Replacement factors may adversely affect certain patients, especially if FFP is used; thus, while TPE can be highly effective in reducing disease-causing factor in the plasma (Mokrzycki & Balogun, 2011), it is imperative that clinicians utilizing this type of therapy be highly trained and educated on possible side effects and when best to utilize this procedure. Although apheresis therapies are now an established and important part of treatment for many serious illnesses, utilization of apheresis is often delayed or not offered to many patients who would benefit. Thus, providing continued medical education in the form of an activity such as this will be useful for practicing clinicians to ensure they understand when to incorporate apheresis into treatment programs and how to manage any potential adverse effects.

**References**


Accreditation Statement

The University of California San Diego School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

AMA: The University of California San Diego School of Medicine designates this live activity for a maximum of 19.0 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Please note the maximum number of credits available for participation in the following session(s):

- General Session (Thursday, Friday, Saturday): A maximum of 18.25 AMA PRA Category 1 Credits™ available.
- Breakfast with the Experts (Friday) and General Session (Thursday, Friday, Saturday): A maximum of 19.0 AMA PRA Category 1 Credits™ available.

AAPA: AAPA accepts certificates of participation for educational activities certified for AMA PRA Category 1 Credit™ from organizations accredited by ACCME or a recognized state medical society. Physician assistants may receive a maximum of 19.0 hours of Category 1 credit for completing this program.

Nurses: For the purpose of recertification, the American Nurses Credentialing Center accepts AMA PRA Category 1 Credits™ issued by organizations accredited by the ACCME. For the purpose of relicensure, the California Board of Registered Nursing accepts AMA PRA Category 1 Credits™ (report up to 19.0 hours of credit and list CME Category 1" as the provider number).

ABIM MOC: Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 18.25 Medical Knowledge MOC points in the American Board of Internal Medicine’s (ABIM) Maintenance of Certification (MOC) program. It is the CME activity provider’s responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

Cultural and Linguistic Competency: This activity is in compliance with California Assembly Bill 1195 which requires continuing medical education activities with patient care components to include curriculum in the subjects of cultural and linguistic competency. Cultural competency is defined as a set of integrated attitudes, knowledge, and skills that enables health care professionals or organizations to care effectively for patients from diverse cultures, groups, and communities. Linguistic competency is defined as the ability of a physician or surgeon to provide patients who do not speak English or who have limited ability to speak English, direct communication in the patient’s primary language. Cultural and linguistic competency was incorporated into the planning of this activity. Additional resources can be found on the UC San Diego CME website.
8th Annual UC San Diego Essentials & Advances in Apheresis Therapies
March 5-7, 2020

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Rona Wiggins, MSW
Patient

Yun Yang, RN, QIA*
Apheresis Nurse

*These individuals will be leading the workshops and/or Breakfast with the Expert session and will not be presenting during the general didactic sessions.
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<td>Keith Berman</td>
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<td>Consultant</td>
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<td>Immutrex Therapeutics</td>
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<td>Zbigniew Szczepiorkowski</td>
<td>Grifols Inc.</td>
<td>Research Grant / Scientific Advisory Board / Consultant / Honorarium</td>
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<td>Rona Wiggins</td>
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</tbody>
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Jill Adamski  
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## Thursday, March 5, 2020

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>7:00 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>8:00</td>
<td>Welcome and Introduction – Amber P. Sanchez, MD</td>
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<tr>
<td>8:10</td>
<td>Therapeutic Plasma Exchange: Principles, Prescription, and Performing a Smooth Procedure – Amber P. Sanchez, MD</td>
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<tr>
<td>8:50</td>
<td>Understanding Apheresis Machines, Circuits, and Anticoagulation – David M. Ward, MD, FRCP, HP (ASCP)</td>
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<tr>
<td>9:20</td>
<td>Apheresis Math for Nurses and Physicians – Jay S. Raval, MD</td>
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<tr>
<td>9:50</td>
<td>Q&amp;A</td>
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<td>Refreshment Break</td>
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### ESSENTIALS OF APHERESIS PROCEDURES

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<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
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<tbody>
<tr>
<td>10:30</td>
<td>Therapeutic Plasma Exchange for Alzheimer's Disease: Results From the AMBAR Study – Zbigniew M. Szczepiorkowski, MD, PhD, FCAP</td>
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<tr>
<td>11:05</td>
<td>Updates in Antineutrophil Cytoplasmic Antibodies (ANCA) Associated Vasculitis and the PEXIVAS Trial – Rasheed A. Balogun MBBS, FACP, FASN, HP (ASCP)</td>
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<tr>
<td>11:30</td>
<td>Pharmacokinetic Considerations in Apheresis – Linda Awdishu, PharmD, MAS</td>
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<tr>
<td>12:00 pm</td>
<td>Q&amp;A</td>
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<td>12:10</td>
<td>Lunch (hosted by conference)</td>
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### ADVANCES IN THERAPEUTIC APHERESIS

<table>
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<tr>
<th>Time</th>
<th>Session Title</th>
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<tbody>
<tr>
<td>1:15</td>
<td>Apheresis in Pediatrics: Overview of Common Indications and Prescription – Nadine M. Benador, MD</td>
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<tr>
<td>1:45</td>
<td>Nursing Considerations in a Pediatric Apheresis Service – Kristin Gray, MSN, RN</td>
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<tr>
<td>2:10</td>
<td>Shedding Light on Extracorporeal Photopheresis: Current Indications, Proposed Mechanisms, and Future Directions – Jennifer Schneiderman MD, MS</td>
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<tr>
<td>2:45</td>
<td>Q&amp;A</td>
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<td>2:55</td>
<td>Refreshment Break</td>
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</tbody>
</table>
Rotating Small Group Sessions 3:20 pm – 5:20 pm

FOCUS ON MACHINES AND TECHNIQUES
These small group sessions will offer attendees a unique interactive opportunity to study various techniques and machines used in therapeutic apheresis and learn about modalities that can be performed by different types of apheresis equipment, such as centrifugal machines, membrane separators, selective plasma processing methods, and photopheresis systems. All attendees will rotate through four 30-minute sessions and will be provided with opportunities to address specific questions and practicalities.

Small Group Session Topics:
- **Centrifugal Plasma Exchange and Cell Apheresis** – David M. Ward, MD, FRCP, HP (ASCP); Yun Yang, RN, QIA; Richard Bandejas, BSN, RN
- **Selective Plasma Processing and Photopheresis (ECP)** – Amber P. Sanchez, MD; Jerel Malong RN, QIA; Andrew Gayap, RN
- **Membrane Plasma Separation** – Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP); Donna Braun, RN, BSN, CNN
- **Vascular Access Options** – Jill Adamski, MD, PhD; Laura Connelly-Smith, MBBCh, DM; Alicia Garcia, RN, HP (ASCP)™; Yeon Su Han, BSN, RN, QIA

5:20 pm Adjourn for the Day

5:20 – 5:50 pm **Apheresis Equipment Open Session (Non-Accredited)**

Friday, March 6, 2020

7:00 am Continental Breakfast

7:00 - 7:45 am **BREAKFAST WITH THE EXPERTS** Optional Session [0.75 credits will be awarded for this session]
Select ONE during the registration process. Cost: $20. Space is limited.
Note: ABIM MOC points not offered for this session.
- **Pediatric Apheresis: Special Insights and Techniques** – Nadine M. Benador, MD; Kristin Gray, MSN, RN; Kim Somera-Gavina, MSN, RN
- **Cellular Therapies: Optimizing Immune Effector Cell and Stem Cell Collections and Protocols** – Nicole A. Aqui, MD; Robyn Cunard, MD; Laura Connelly-Smith, MBBCh, DM
- **ECP and LDL Apheresis: State-of-the-Art and Emerging Applications** – Jennifer Schneiderman, MD, MS and David M. Ward, MD, FRCP, HP (ASCP)
- **RBC Exchange and Blood Bank Issues in Apheresis** – Alicia Garcia, RN, HP (ASCP)™; Amber P. Sanchez, MD; Patricia M. Kopko, MD
- **TPE: New Developments and New Indications** – Jan C. Hofmann, MD, MPH, MSc and Jill Adamski, MD, PhD
- **Opportunities Beyond the Apheresis Unit: ASFA, Research Registries, Industry and Advancing Apheresis with Other Specialist Societies** – Jay S. Raval, MD and Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP)™

Plenary Session 8:00 am – 12:10 pm

8:00 Announcements

IN DEPTH FOCUS ON RBC EXCHANGE

8:05 **Indications and Rationale for Acute and Chronic Red Blood Cell Exchange** – Srila Gopal, MBBS

8:35 **Red Blood Cell Exchange Basics: Prescription, Goals, and Monitoring** – Amber P. Sanchez, MD

9:05 **Blood Banking Essentials for Apheresis Practitioner: Focus on Red Blood Cell Exchange** – Patricia M. Kopko, MD
### Concurrent Sessions 1:15 pm – 2:55 pm

<table>
<thead>
<tr>
<th>1:15</th>
<th>FRONTIERS IN APHERESIS SCIENCE</th>
<th>EXPERTISE IN APHERESIS PRACTICE</th>
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<tbody>
<tr>
<td>Updates and Advances in Car-T Cell Generation – Nicole A. Aqui, MD</td>
<td>How Registered Nurses Can Lead Change in the Apheresis Unit – Kristin Gray, MSN, RN</td>
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</tr>
<tr>
<td>Extracorporeal Photopheresis (ECP) in Transplant – Jennifer Schneiderman, MD, MS</td>
<td>Chronic Red Cell Exchange: Tools for Long Term Success – Alicia Garcia, RN, HP (ASCP)™</td>
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<tr>
<td>Past, Present, and Future of Apheresis Research: Activities of the American Society for Apheresis (ASFA) Research Committee – Jay S. Raval, MD</td>
<td>Troubleshooting with the Experts: Panel Discussion of Difficult Cases – Alicia Garcia, RN, HP (ASCP)™, Kristin Gray, MSN, RN, Daniel Patiag, BSN, CNN, Donna Braun, RN, BSN, CNN</td>
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| 2:45 | Q&A |
| 2:55 | Refreshment Break |

### Plenary Session 3:20 pm – 5:20 pm

### EVOLVING APHERESIS CHALLENGES

| 3:20 | A Year of Emerging Immune Effector Cell Therapies: Managing Protocols and Managing Staff – Laura Connelly-Smith, MBBCh, DM |
| 3:40 | Overview of Thrombotic Thrombocytopenic Purpura (TTP) and What Role Does the Anti-von Willebrand Factor Nanobody Play in Real Life Practice? – Jay S. Raval, MD |
| 4:00 | CAR-T Cell Therapy Basics: Are the High Hopes Being Realized? – Nicole A. Aqui, MD |
| 4:20 | Q&A |
| 4:30 | Cases for the Experts: Panel Discussion – Jill Adamski, MD, PhD; David M. Ward, MD, FRCP, HP (ASCP); Patricia Kopko, MD; Jan C. Hofmann, MD, MPH, MSc; Alicia Garcia, RN, HP (ASCP)™; Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP); Laura Connelly-Smith, MBBCh, DM; Jay S. Raval, MD and Nicole A. Aqui, MD |

<p>| 5:20 pm | Adjourn for the Day |</p>
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<tr>
<td>8:00</td>
<td><strong>Announcements</strong></td>
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<tr>
<td>8:05</td>
<td><strong>CLINICAL PEARLS IN APHERESIS MEDICINE</strong></td>
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<tr>
<td>8:05</td>
<td><strong>Literature Review: The Year in Apheresis</strong> – Jan C. Hofmann, MD, MPH, MSc</td>
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<tr>
<td>8:35</td>
<td><strong>Summary of Best Practices in Apheresis: The American Society for Apheresis (ASFA) Guidelines and the Choosing Wisely Campaign</strong> – Laura Connelly-Smith, MBBCh, DM</td>
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<tr>
<td>9:05</td>
<td><strong>Managing Uncertain Indications in Apheresis</strong> – Jill Adamski, MD, PhD</td>
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<tr>
<td>9:35</td>
<td><strong>Q&amp;A</strong></td>
</tr>
<tr>
<td>9:45</td>
<td><strong>Refreshment Break</strong></td>
</tr>
<tr>
<td>10:05</td>
<td><strong>UPDATES AND ADVANCES IN THERAPEUTIC APHERESIS</strong></td>
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<tr>
<td>10:05</td>
<td><strong>Cytapheresis: Indications and Techniques</strong> – Nicole A. Aqui, MD</td>
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<tr>
<td>10:40</td>
<td><strong>Lessons from Veterinary Apheresis</strong> – Larry D. Cowgill, DVM</td>
</tr>
<tr>
<td>11:15</td>
<td><strong>Current and Emerging Neurologic Indications for Plasma Exchange</strong> – Robyn Cunard, MD</td>
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<tr>
<td>11:50</td>
<td><strong>Q&amp;A</strong></td>
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<tr>
<td>12:05 pm</td>
<td><strong>Closing Remarks</strong></td>
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<tr>
<td>12:10</td>
<td><strong>Final Adjournment</strong></td>
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