

PROGRAM

REGIONAL MEETING Bloodworks Research Institute, Puget Sound SEATTLE, WASHINGTON

NOVEMBER 20, 2015



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WELCOME FROM THE REGIONAL MEETING ORGANIZING COMMITTEE

On behalf of the ASFA Regional Meeting Organizing Committee, we warmly welcome you to Seattle for the 3^{rd} ASFA Regional Meeting.

The Organizing Committee has put together a one-day program of didactic and interactive sessions intended to appeal to all apheresis practitioners.

We would like to thank Bloodworks for their generosity for hosting the meeting.

We are very excited about this educational and networking opportunity. We look forward to your participation!

Sincerely,

Yanyun Wu, MD, PhD Michael Linenberger, MD, FACP



WELCOME FROM THE ASFA PRESIDENT

On behalf of the Board of Directors and myself, I warmly welcome you to the 3rd Regional Meeting of the American Society for Apheresis at the Bloodworks Research Institute, Puget Sound in Seattle, Washington. As you can see from the meeting program, you are embarking on an exciting educational and networking opportunity in the world of apheresis, designed to appeal to all apheresis practitioners. The city of Seattle is an exciting urban city surrounded by unmatched natural beauty with a location convenient to a large number of centers in the western United States and Canada. It is the ideal backdrop for a meaningful experience, to exchange ideas, meet other colleagues, and most importantly, increase their knowledge of apheresis.

If you are not already an ASFA member, I urge you to approach the Regional Meeting Organizing Committee, Dr. Wu or Dr. Linenberger, other ASFA members in attendance, or the ASFA Registration Desk to discuss the exciting benefits offered with ASFA membership. ASFA represents a broad range of healthcare professionals from diverse fields, all of which employ apheresis technology in medical practice. Membership in ASFA is a great way to stay involved and contribute to the field.

I also want to extend our thanks to our exhibitors and our hosts at the Bloodworks Research Institute, Puget Sound who helped make this Regional Meeting possible.

I hope that you will enjoy the 3rd ASFA Regional Meeting and look forward to future regional meetings!

Sincerely,

Eileen Galvin Karr, RN, BSN, HP(ASCP) ASFA President



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GENERAL INFORMATION

TARGET AUDIENCE

The target audience for this program is physicians, scientists and allied health professionals working in apheresis, including but not limited to pathology, hematology, immunology, nephrology, pediatrics and rheumatology.

LEARNING OBJECTIVES

After participating in this CME activity, participants should be able to:

- Identify the regulatory standards and best practices for evaluation and management of apheresis donors and organ donation.
- Describe the general practice of apheresis medicine and its role in the treatment of diseases in a variety of organ systems.
- Describe the emerging field of personal cellular therapy and the importance of good manufacturing practices in the manufacturing of these products.
- Assess the limitations, advantages and technical aspects of new apheresis instruments along with best practices on the use of central venous catheters for apheresis procedures in children and adults.

ACCREDITATION AND DESIGNATION OF CREDIT

Please complete the online evaluation and credit request that will be sent to you via email post-conference to obtain your respective credit certificates.

CONTINUING MEDICAL EDUCATION CREDIT

Accreditation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and the American Society for Apheresis. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™

The American College of Surgeons designates this live activity for a maximum of 7.25 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



American College of Surgeons piring Qualit rds. Better Out



AMERICAN COLLEGE OF SURGEONS DIVISION OF EDUCATION

CEU

CEUs have been approved by ASFA along with the California Board of Registered Nursing. A maximum of 7.25 CEUs can be earned through this educational activity (ASFA Provider Number CEP 14122). Completion of the online evaluation survey is required for all conference delegates which, upon completion, will allow you to receive your CEU credits. This survey must be completed within one month after the meeting in order to receive your credits. Electronic CEU certificates will be e-mailed within 6-8 weeks following the meeting.

CMLE

This continuing medical laboratory education activity is recognized by the American Society for Clinical Pathology (ASCP) as meeting the criteria for a maximum number of 7.25 CMLE credits. ASCP CMLE credit hours are acceptable to meet the continuing education requirement for the ASCP Board of Registry Certification Maintenance Program. (ASFA Provider Number 261-12-11). Completion of the online evaluation survey is required for all conference delegates which, upon completion, will allow you to receive your CMLE credits. This survey must be completed within one month after the meeting in order to receive your credits. Electronic CMLE certificates will be e-mailed within 6-8 weeks following the meeting.



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ASFA 2015 REGIONAL MEETING SPEAKERS AND FACILITATORS

SPEAKERS

- James P. AuBuchon, MD, FCAP, FRCP(Edin), Bloodworks Northwest, Seattle, WA
- Yanyun Wu, MD, PhD, Bloodworks Northwest, Seattle, WA
- David G. Maloney, MD, PhD, Fred Hutchinson Cancer Research Center, Seattle, WA
- Michael Linenberger, MD, FACP, Fred Hutchinson Cancer Research Center, Seattle, WA
- Laura Connelly-Smith, *MBBCh,DM*, Seattle Cancer Care Alliance, Seattle, WA
- Paul J. Martin, MD, Fred Hutchinson Cancer Research Center, Seattle, WA
- Keith Quirolo, MD, San Francisco, CA
- Becky Haley, MD, Bloodworks Northwest, Seattle, WA
- Lindsay Palomino, RN, BSN, HP, Seattle Cancer Care Alliance, Seattle, WA
- Paula Loeffler, RN, BSN, OCN, University of California San Francisco Medical Center, San Francisco, CA
- David Ward, *MD*, University of California, San Diego, San Diego, CA Paul Warner, *PhD*, *D*(*ABHI*), Bloodworks Northwest, Seattle, WA
- **Monica B. Pagano,** *MD*, University of Washington Medical Center, Seattle, WA
- Kenneth W. Gow, *MD*, *FACS*, *FAAP*, Seattle Children's Hospital and the University of Washington, Seattle, WA
- Jan C. Hofmann, MD, MPH, MSc, California Pacific Medical Center, San Francisco, CA

FACILITATORS

Elizabeth Valdez, RN, Children's Hospital Colorado, Aurora, CO Meghan Delaney, DO, MPH, Bloodworks Northwest, Seattle, WA Menchie C. Pacis, RN, BSN, City of Hope, Diamond Bar, CA

Elizabeth Barnett, RN, BA, HP(ASCP), Seattle Cancer Care Alliance, Seattle, WA

Isagani Marquez Jr., BSN, UCSD Apheresis Program, San Diego, CA Paula Loeffler, RN, BSN, OCN, University of California San Francisco Medical Center, San Francisco, CA

Jan Hofmann, MD, MPH, MSc, California Pacific Medical Center, San Francisco, CA

David Ward, MD, University of California, San Diego, San Diego, CA

ASFA 2015 REGIONAL MEETING ORGANIZING COMMITTEE

CHAIRS:

 Yanyun Wu, MD, PhD, Bloodworks Northwest, Seattle, WA
 Michael Linenberger, MD, FACP, Fred Hutchinson Cancer Research Center, Seattle, WA

PLANNING MEMBERS:

- Laura Connelly-Smith, *MBBCh*, *DM*, Seattle Cancer Care Alliance, Seattle, WA
- Rasheed Balogun, MD, FCAP, FASN, HP(ASCP), University of Virginia, Charlottesville, VA
- Liz Hopper, RN, MHA, HP(ASCP), Bloodworks Northwest, Seattle, WA
- Walter Linz, MD, MBA, Scott and White, Temple, TX
- Ally Murtaugh, RN, HP(ASCP), Seattle Cancer Care Alliance, Seattle, WA
- **Monica Pagano,** *MD*, University of Washington Medical Center, Seattle, WA
- Lindsay Palomino, RN, BSN, HP, Seattle Cancer Care Alliance, Seattle, WA

Bruce Sachais, MD, PhD, New York Blood Center, New York, NY

DISCLOSURES

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. Therefore, it is mandatory that both the program planning committee and speakers complete disclosure forms. Members of the program committee were required to disclose **all** financial relationships and speakers were required to disclose any financial relationship **as it pertains to the content of the presentations**. The ACCME defines a 'commercial interest' as "any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients". It does not consider providers of clinical service directly to patients to be commercial interests. The ACCME considers "relevant" financial



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relationships as financial transactions (in any amount) that may create a conflict of interest and occur within the 12 months preceding the time that the individual is being asked to assume a role controlling content of the educational activity.

ACS is also required, through our joint providership partners, to manage any reported conflict and eliminate the potential for bias during the activity. All program committee members and speakers were contacted and the conflicts listed below have been managed to our satisfaction. However, if you perceive a bias during a session, please report the circumstances on the session evaluation form.

Please note we have advised the speakers that it is their responsibility to disclose at the start of their presentation if they will be describing the use of a device, product, or drug that is not FDA approved or the off-label use of an approved device, product, or drug or unapproved usage.

The requirement for disclosure is not intended to imply any impropriety of such relationships, but simply to identify such relationships through full disclosure and to allow the audience to form its own judgments regarding the presentation. The following individuals have disclosed that they have no relevant financial relationships with any commercial interests related to the content of this educational activity.

SPEAKERS/MODERATORS/ DISCUSSANTS:

Elizabeth Barnett, *RN, BA, HP(ASCP)* Laura Connelly-Smith, *MBBCh, DM* Meghan Delaney, *DO, MPH* Kenneth W. Gow, *MD, FACS, FAAP* Rebecca Haley, *MD* Michael Linenberger, *MD, FACP* Paula Loeffler, *RN, BSN, OCN* Isagani Marquez Jr., *BSN* Paul J. Martin, *MD* Menchie C. Pacis, *RN, BSN* Monica Pagano, *MD* Lindsay Palomino, *RN, BSN, HP* Elizabeth Valdez, *RN* Paul Warner, *PhD, D(ABHI)*

ORGANIZING COMMITTEE:

Laura Connelly-Smith, *MBBCh, DM* Liz Hopper, *RN, MHA, HP(ASCP)* Michael Linenberger, *MD, FACP* Walter Linz, *MD, MBA* Ally Murtaugh, *RN, HP(ASCP)* Monica Pagano, *MD* Bruce Sachais, *MD, PhD* Yanyun Wu, *MD, PhD*

Faculty Name	Disclosure				
	Company	Role	Received		
SPEAKERS/MODERATORS/DISCUSSANTS:					
Jan C. Hofmann, MD, MPH, MSc	Fresenius Medical Care	Consultant	Consulting fee		
David G. Maloney, MD, PhD	Juno Therapeutics	PI of investigator-initiated trials supported by the research grant	Research Grant Support		
Keith Quirolo, MD	Terumo BCT	Consultant	Consulting and honoraria		
David Ward, <i>мD</i>	Terumo BCT	Consultant and Speaker	\$3000.00 for 2014-2015		
ORGANIZING COMMITTEE:					
Rasheed Balogun, MD, FCAP, FASN, HP(ASCP)	Fresenius	Advisory Board	Consulting		
Lindsay Palomino, <i>rn, bsn, hp</i>	Juno Therapeutics	Consultant	Consulting fee		

The following faculty has reported the listed relevant financial relationships related to the content of this educational activity.

Relevant Financial Relationships: Financial relationships are those relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g. stocks, stock options or other ownership interest, excluding diversified mutual funds), or other financial benefit. Financial benefits are usually associated with roles such as employment, management position, independent contractor (including contracted research), consulting, speaking and teaching, membership on advisory committees or review panels, board membership and other activities from which remuneration is received or expected.



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PROGRAM

MORNING SESSIONS:

Moderator: Michael Linenberger, MD, FCAP

6:00am – 7:00am	Exhibitor Setup			
7:00am – 8:00am	Breakfast and Registration			
8:00am – 8:10am	WELCOME REMARKS FROM BLOODWORKS	James P. AuBuchon, MD, FCAP, FRCP(Edin)		
8:10am – 8:30am	WELCOME REMARKS FROM ASFA	Yanyun Wu, <i>MD, PhD</i>		
8:30am – 9:15am	Anti-CD19 CAR T-cell Therapy of CLL, NHL and ALL Using CAR T-cells From Defined T-cell Subsets	David G. Maloney, <i>MD, PhD</i>		
9:15am – 9:45am	Stem Cell Procurement and Donor Safety	Michael Linenberger, MD, FACP		
9:45am – 10:15am	Break			
10:15am – 11:15pm	PHOTOPHERESIS FOR GVHD			
	The Use of Photopheresis as a Therapeutic Modality for Chronic GVHD	Laura Connelly-Smith, <i>MBBCh, DM</i>		
	Critical Evaluation of Extracorporeal Photopheresis for Treatment of Chronic Graft-versus-host Disease	Paul J. Martin, <i>MD</i>		
11:15am – 12:00pm	ASFA Red Cell Exchange in Sickle Cell Disease Consensus Conference Update	Keith Quirolo, <i>MD</i>		
12:00pm – 12:45pm	Lunch			
	ROUND TABLE DISCUSSIONS			
12:45pm – 1:15pm	Pediatric Apheresis	Elizabeth Valdez, <i>RN</i> and Meghan Delaney, <i>DO, MPH</i>		
	Venous Access	Menchie C. Pacis, <i>RN, BSN</i> and Elizabeth Barnett, <i>RN, BA, HP(ASCP)</i>		
	Transitioning to New Instrumentation	Isagani Marquez Jr., <i>BSN</i> and Paula Loeffler, <i>RN, BSN, OCN</i>		
	HUS/TTP	Jan C. Hofmann, MD, MPH, MSc		
	Drug Removal	David Ward, <i>MD</i>		



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AFTERNOON SESSIONS:

Moderator: Yanyun Wu, MD, PhD

	COLLECTIONS OF WHITE CELLS IN DUAL STAGE MACHINES			
1:15pm – 2:15pm	Validation and Qualification of New Equipment for Clinical Applications and Research	Becky Haley, <i>MD</i>		
	Spectra Optia MNC procedure – AlMing for Change	Lindsay Palomino, RN, BSN, HP		
	MNC collections using Femwal Amicus: A Year of Learning	Paula Loeffler, RN, BSN, OCN		
2:15pm – 3:15pm	Focal Segmental Glomerulosclerosis (FSGS) David Ward, MD			
3:15pm – 3:45pm	Break			
3:45pm – 4:15pm	The New Kidney Allocation System: A Potential Expansion of TA Utilization	Paul Warner, PhD, D(ABHI)		
4:15pm – 4:45pm	The Role of Apheresis in Solid Organ Incompatible Transplantation	Monica B. Pagano, <i>MD</i>		
	VENOUS ACCESS ISSUES			
4:45pm – 5:45pm	Venous Access Issues in Adult Apheresis	Jan C. Hofmann, MD, MPH, MSc		
	Pediatric Apheresis: All About That Flow	Kenneth W. Gow, MD, FACS, FAAP		
5:45pm – 6:00pm	Closing Remarks	Michael Linenberger, MD, FACP		





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SESSION DESCRIPTIONS

Anti-CD19 CAR T-cell Therapy of CLL, NHL and ALL Using CAR T-cells From Defined T-cell Subsets

David G. Maloney, MD, PhD

Modification of autologous CD4 and CD8 T cells with a fusion gene encoding a monoclonal antibody-derived single chain variable fragment (scFv), a transmembrane domain of CD3 combined with activation domains from costimulatory molecules such as CD28 or 4-1BB provides redirection of T cell antigen specific activation and killing to a variety of surfaces expressed antigens. Typically, CAR-T cells are administered to patients following lymphodepleting chemotherapy to provide endogenous homeostatic cytokine signals that also promote T cells survival and expansion. Recent work from several groups using CAR-T cells directed against the B cell antigen CD19 have demonstrated the greatest clinical activity in the treatment of patients with relapsed or refractory B cell ALL, NHL and CLL.

The use of CAR-T cells is demonstrating a powerful new approach with encouraging clinical activity in these hematologic malignancies. There are difficult challenges remaining to be solved to safely utilize this approach, but the hope is that this may ultimately result in the targeted treatment of many cancers.

Stem Cell Procurement and Donor Safety

Michael Linenberger, MD, FACP

Safe and effective management of donors and patients undergoing apheresis for the collection of hematopoietic progenitor cells requires a deep understanding of apheresis indications, donor/patient evaluations, mobilization methodologies, procedural challenges and potential adverse events. The apheresis practitioner should also have insight to pre-procedure donor eligibility and suitability criteria along with post-procedure toxicities and complications; including psychosocial issues that can affect donor retention and outcomes. This session will review key published data on these important aspects of stem cell mobilization and collection; with a focus on the perspective of the apheresis practitioner. Relevant regulatory standards and considerations

for stem cell donors will also be highlighted. The active learner should gain an updated knowledge of experiences and outcomes of donors and patients undergoing stem cell mobilization and collection, along with a deeper appreciation of the psychological and emotional issues that affect donor retention and satisfaction.

PHOTOPHERESIS FOR GVHD

The Use of Photopheresis as a Therapeutic Modality for Chronic GVHD

Laura Connelly-Smith, MBBCh, DM

Extracorporeal photopheresis (ECP) is an apheresis-based immunomodulatory therapy which received FDA approval in the late 1980's for the treatment of cutaneous T-cell lymphoma (CTCL). ECP is also currently utilized for patients with graft vs. host disease (GVHD) and for solid organ transplant rejection. Its use is also expanding into the treatment of select autoimmune diseases.

Chronic GVHD, remains a major complication of allogeneic hematopoietic stem cell transplantation (HSCT) and is due to dysregulated allogeneic or autoreactive T cells, B cells, antigenpresenting cells, and natural killer cells, thus leading to fibrosis, inflammation, sclerosis, and atrophy of affected tissues. In patients refractory to first line corticosteroid therapy, additional or alternate treatment is sought. To date, the FDA has not approved a treatment option for GVHD.

This presentation looks at the proposed mechanisms of action of ECP and its application as a therapeutic modality for patients with steroid refractory chronic GVHD.

Critical Evaluation of Extracorporeal Photopheresis for Treatment of Chronic Graftversus-host Disease

Paul J. Martin, MD

Chronic GVHD was recognized as a complication of allogeneic hematopoietic cell transplantation more than 30 years ago, but progress in clinical management of this complication has been slowed by the limited insight into the pathogenesis of the disease and the mechanisms that lead to its resolution. Although numerous retrospective



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studies and uncontrolled prospective phase II clinical trials have suggested that extracorporeal photopheresis (ECP) can produce clinical improvement in patients with chronic GVHD that has not responded adequately to initial treatment, only one controlled study has evaluated the use of ECP for this indication. A critical review of published reports showed numerous deficiencies in studies of second-line treatment for chronic GVHD. This presentation will discuss the limitations of previous studies and will propose response criteria that could be used to assess the clinical benefit of ECP and other approaches for second-line treatment of chronic GVHD.

ASFA Red Cell Exchange in Sickle Cell Disease Consensus Conference Update

Keith Quirolo, MD

Review of the Consensus Conference on Sickle Cell Disease and Exchange Transfusion held prior to the Annual Meeting in 2015. This one day conference included seven speakers who are experts in sickle cell disease and transfusion medicine. The conference covered acute chest syndrome, cerebral vascular disease, pulmonary hypertension, selection of red cells for transfusion, red cell exchange fundamentals, and technical and nursing aspects. Presentation will review the conference and present the opinion of the presenter.

COLLECTIONS OF WHITE CELLS IN DUAL STAGE MACHINES

Validation and Qualification of New Equipment for Clinical Applications and Research

Becky Haley, MD

Apheresis equipment used for the collection of cellular products from donors and patients was basically unchanged for many years. The devices available were dependable and their performance characteristics were familiar. Over the past several years new and updated equipment has appeared from manufacturers and the older machine versions either have, or soon will be, disappearing from the market. Collection staff have learned the characteristics of the new machines and design validations to assure that the new machine will both be safe for the donors and adequate to the task of collection of specialized products. Designing validations for such complex operations has its challenges. This presentation discusses the regulatory, quality assurance and clinical aspects of planning such a validation and describes the cooperation that is required between laboratory and collection staff. The validation can improve training and performance of the collection unit.

Spectra Optia MNC procedure – AlMing for Change

Lindsay Palomino, RN, BSN, HP

At the end of 2017, COBE Spectra will ride off into the sunset, bidding a fond farewell to its faithful operators. Apheresis centers are now faced with the challenge of transitioning to new instrumentation to replace this work-horse apheresis platform. This presentation shares the experiences of the Seattle Cancer Care Alliance Apheresis Unit adopting the Spectra Optia[®] Apheresis System, specifically discussing its use for mononuclear cell (MNC) collections. In addition to a brief overview of basic instrument operation using the MNC program, this presentation will discuss anticoagulation (including the use of heparin and aspirin), collection targets, fluid balance issues, collection efficiencies, and challenges presented by mobilized and nonmobilized MNC collections. A brief overview of the recently introduced C-MNC software will also be provided.

MNC collections using Fenwal Amicus: A Year of Learning

Paula Loeffler, RN, BSN, OCN

One institution's experience using the Fenwal Amicus Cell Separator for MNC collections in an outpatient hospital based infusion center. Review of staff training, technical support, development of SOPs and best practices for the Amicus instrument. Review of advantages, limitations, and collection efficiencies after one year of experience using the Amicus cell separator for MNC collections.

Focal Segmental Glomerulosclerosis (FSGS)

David Ward, MD

FSGS (Focal Segmental Glomerular Sclerosis) is actually a group of similar-looking diseases that cause proteinuria and progressive decline of kidney function. The subtype that recurs after kidney



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transplantation has been recognized for over 40 years, and TPE (therapeutic plasma exchange) is well-established as an effective treatment in the post-transplant setting. The difficulty in recognizing the different subtypes of FSGS in the native kidney, before it recurs in a transplanted kidney, has limited the use of TPE for pre-transplant disease. Attempts to define the circulating factor(s) in the blood that cause the disease have yielded complex results. While these have thrown light on the mechanisms within the renal glomeruli that determine disease expression, they have not yet led to a reliable test to determine which cases to treat for pre-transplant disease. However, other insights are beginning to elucidate some of these issues, which will be explained for the non-nephrologist and explored in depth in this presentation.

The New Kidney Allocation System: A Potential Expansion of TA Utilization

Paul Warner, PhD, D(ABHI)

ABO-incompatible (ABOi) renal transplantation is becoming a widely-used therapy for end stage renal disease. The use of therapeutic apheresis (TA)/plasma pheresis (PP) is an important component of successful ABOI transplantation, particularly in the case of high recipient antibodies against donor ABO antigens. This presentation will briefly cover the history of ABOi renal transplantation world-wide, different TA/PP protocols in use, the difference between "major" and "minor" ABOi transplants, and the potential for an increase in the use of TA/PP for ABOi transplantation as a result of the new Kidney Allocation System in the United States.

The Role of Apheresis in Solid Organ Incompatible Transplantation

Monica B. Pagano, MD

At the time this abstract was written, there were more than 100,000 patients waiting for a kidney transplantation (October 2015). Blood type and HLA-sensitization are critical determinants for organ allocation and waiting time. Strategies to increase the donor pool, including living donor kidney paired donation, transplantation across ABO and HLA barriers, and a combination of both, have been developed to increase the chances of a patient to receive an organ. Therapeutic plasma exchange (TPE) in combination with immunosuppressive regimens can effectively be used as part of a desensitization program to remove pre formed antibodies allowing for incompatible transplants. The purpose of TPE is to lower the antibodies to a critical level that does not result in rejection. Graft survival of ABO incompatible transplant patients who underwent desensitization compare well with ABO compatible transplants, in contrast, HLA incompatible transplants have a more variable outcome.

VENOUS ACCESS ISSUES

Venous Access Issues in Adult Apheresis

Jan C. Hofmann, MD, MPH, MSc

Given that venous access complications are some of the most common adverse events of therapeutic apheresis (TA) procedures, and the most common reason for aborting TA treatments when using peripheral access, successful venous access is a critical aspect of TA procedures. This presentation will review the practical aspects of temporary and permanent double-lumen central venous catheters (CVCs) for apheresis, trialysis CVCs, and issues regarding adverse events, and insertion, removal, and post-removal care in adult patients. Also discussed will be the pros and cons of peripheral access (and algorithms for obtaining and maintaining peripheral access) given that this is the most common form of venous access in cell therapies, a rapidly growing area of TA procedures. Care of CVCs as an outpatient will be reviewed. Finally, the decision-making process for selecting the most appropriate venous access approach for a given patient will be discussed.

Pediatric Apheresis: All About That Flow

Kenneth W. Gow, MD, FACS, FAAP

Optimal apheresis depends on having excellent inflow and outflow. Nowhere is this more evident than when apheresis is performed on children. Children pose unique challenges including smaller vessels, smaller target for optimal tip position, fewer options for suitable catheters, and psychological issues. This review will focus on these challenges and reviews solutions that have been selected in our institution to provide vascular access for children requiring apheresis.



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ASFA MEMBERSHIP

ASFA membership is available to all professionals who are actively involved in apheresis medicine. As a member of ASFA, you are part of a network of professionals in the field of apheresis. ASFA members are encouraged to actively participate in the leadership of the Society by joining ASFA Committees that are working to advance apheresis-related education, research, and advocacy initiatives.

MEMBERSHIP TYPES:

E-Membership (with Electronic Subscription to the Journal of Clinical Apheresis)

Physician/PhD Membership	\$190 USD/year
Corporate Supplier Employee Membership	\$190 USD/year
Allied Health Professional/Physician in Training Membership	\$130 USD/year

Journal Free Membership (Receive the same great benefits, without the journal subscription)

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Physician/PhD Membership	N/A	N/A
Corporate Supplier Employee Membership	N/A	N/A
Allied Health Professional/Physician in Training Membership	\$80 USD/year	\$80 USD/year

Student Membership

Are you a student studying apheresis or just interested in the field? Join ASFA today and receive a complimentary membership! By joining, you will receive all the membership discounts to the webinars, publications, and meetings! You will also be able to network with other apheresis professionals and expand your network. *Please note: Only full-time students that are not residents or fellows are qualified to register for the complimentary student membership.*

Membership Benefits:

- Electronic Subscription to the Journal of Clinical Apheresis. Members will receive six (6) issues of the journal in electronic format. Members save up to: \$1625
- Free Registration for Educational Webinars. Members save up to \$525
- Reduced Rates for the ASFA Annual Meeting. Members save up to \$220
- Reduced Rates for Educational Resources and Materials. Members save up to 40% on ASFA publications

Total Potential Savings of up to \$2370

Additional Benefits:

- Subscription to the member-only ASFA Newsletter
- Access to the member-only Facility Directory
- Access to the member-only ASFA Discussion Forum
- Subscription to the ASFA Newsflash
- Option to participate in ASFA Committees
- Option to participate in the ASFA Journal Club

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