UCSF Center for Research in Transfusion Medicine & Cell Therapies

CTMCT Pulse

Center for Research in Transfusion Medicine and Cell Therapies
Highlights from the CTMCT Community – Sharing Research and Innovation

Top News

Pilot Awardees
CTMCT Seminars
2026 Retreat
CTTACC update
Notable Member News and Publications

Dear CTMCT Members

Our inaugural Fall newsletter and the road ahead

Dear CTMCT Member,
We are delighted to share the inaugural Fall issue of our newsletter. Moving forward, we will publish the newsletter seasonally to highlight CTMCT news, faculty spotlights, new projects, pilot award updates, and progress across our community. The newsletter is designed to connect members, share exciting research, and showcase achievements.

We also welcome new members—please encourage interested faculty or staff to reach out to Jonathan Ho at Jonathan.Ho@ucsf.edu. We hope you have been enjoying our monthly seminar series highlighting the talent within CTMCT. Mark your calendars for the upcoming talks!

In this issue, we announce the second round of CTMCT Pilot Awards: five multidisciplinary teams, each receiving $50,000, thanks to support from the Department of Laboratory Medicine. To date, CTMCT has awarded $500,000 in seed funding. These pilot awards are intended to foster multidisciplinary collaborations, aiming to generate data that drives future grants, publications, and lasting research partnerships.

Looking ahead, please mark your calendars for the CTMCT Retreat at the Gladstone Conference Center on Friday, January 23, 2026. Both last year's and this year's pilot awardees will present their projects.
More details will follow.

We are also excited to announce the formation of a Board of Advisors to connect members with collaborators, funding opportunities, and regulatory guidance for novel products. Dr. Kenneth Bertram, MD, PhD (Col. Ret., US Army) will serve as Board of Advisors. We aim to assemble advisors from venture capital, FDA, DoD, and industry to help guide our research.

Finally, for collaborative grants, we encourage CTMCT members to submit collaborative grants through CTMCT and the Department of Laboratory Medicine. We now offer a streamlined process with administrative help, graphic design, and grant writing support. Several groups have already submitted proposals, including a successful DoD award (see details below). Please reach out to Dr. Shibani Pati or Dr. Cliff Lowell for more information.

Thank you for your support! We look forward to another exciting and productive year ahead!

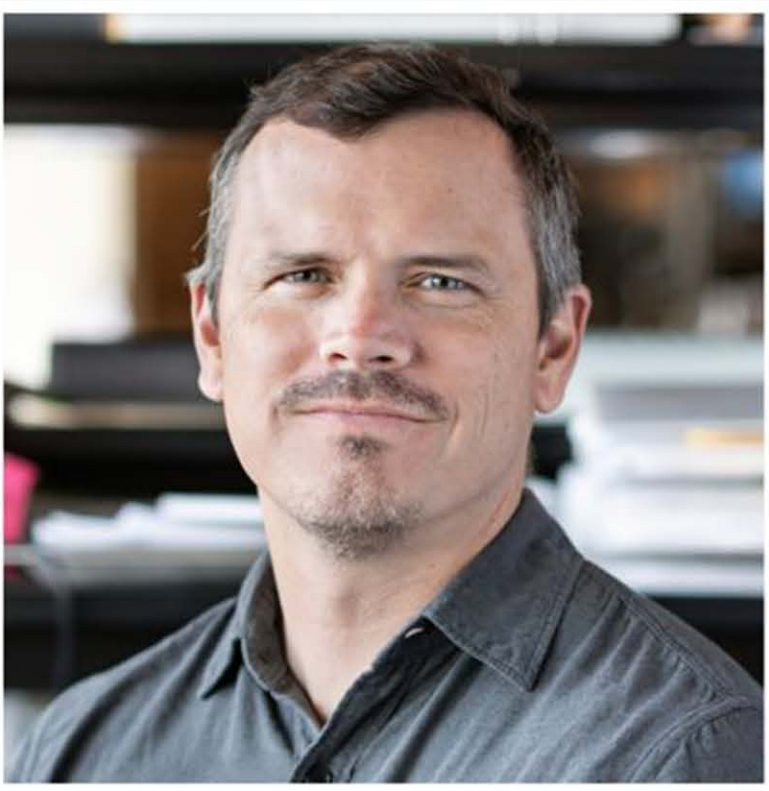
My very best wishes,
Shibani Pati MD PhD
Director Center for Research in Transfusion Medicine and Cellular Therapies

CTMCT Pilot Awards #1

“Toward Universal Blood: CRISPR Screens to Enable Scalable RBC Manufacturing.”

We are delighted to announce that Drs. Kyle Cromer and Brian Shy have been selected to receive one of the CTMCT pilot awards for their research project focused on using genome-wide CRISPR screens to enable and advance scalable RBC manufacturing.

To address ongoing blood shortages and limitations in donor-dependent transfusions, their project applies genome-wide CRISPR screens directly in human hematopoietic stem cells, representing a major technical advance. Their goal is to identify genetic regulators that control two key bottlenecks in ex vivo red blood cell production: inefficient enucleation and the inability to grow cells at the high densities seen in bone marrow. Insights from these screens will drive genome engineering strategies that overcome current manufacturing barriers in an effort to make large-scale, affordable production of therapeutic red blood cells a reality.



CTMCT Pilot Awards #2

"To Test the Mechanisms and the Efficacy of Allogeneic Bone Marrow Derived MSCs in a Mouse Model Hypo-Inflammatory ARDS."

We are happy to announce that a multidisciplinary team of investigators, including Drs. Ruriko Watanabe, Anna Krasnodembskaya, Huimin Geng, Mazharul Maishan, Michael Matthay has been selected to receive one of the CTMCT pilot awards for their research project focused on advancing mesenchymal stromal cell (MSC) therapies for acute respiratory distress syndrome (ARDS).

Their preclinical data indicates that allogeneic human Mesenchymal Stromal Cells (MSCs) reduces the severity of acute lung injury in a mouse model of acute bacterial pneumonia that resembles the clinical syndrome, ARDS. The team is currently working on the mechanisms that explain the beneficial effects of the MSCs using flow cytometry, metabolomics, and spatial transcriptomics.

CTMCT Pilot Awards #3

“Designer Adipose Tissue: A Novel Stem Cell Therapy Strategy for Osteoarthritis.”

We are delighted to announce that the multidisciplinary team of investigators Drs. Kelsey Collins, Edward Hsiao, and Kyle Cromer have been selected to receive one of the CTMCT pilot awards for their research project focused on developing a novel adipose cell therapy to address osteoarthritis.

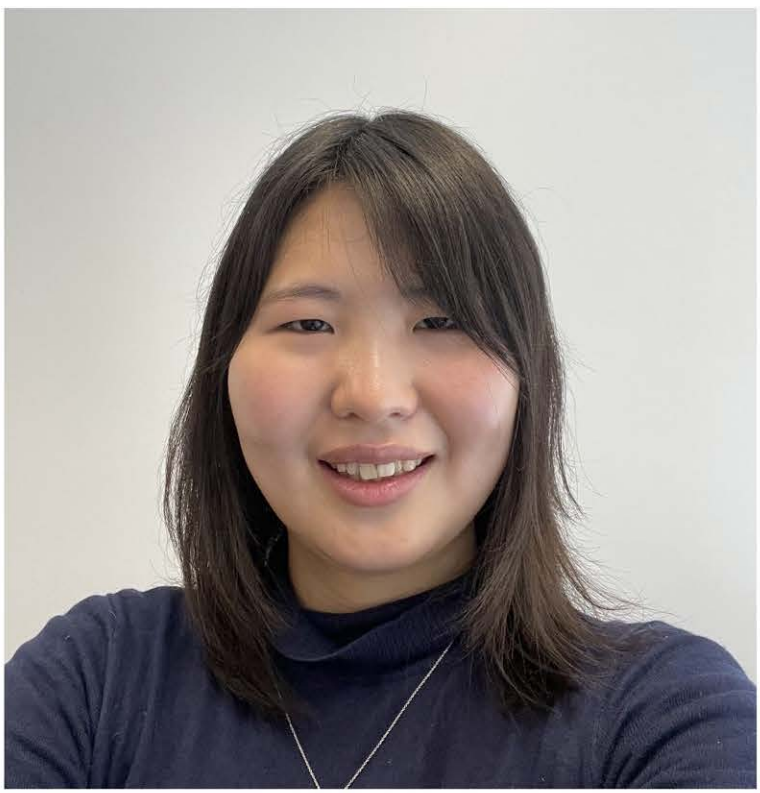
Osteoarthritis is a chronic and increasingly prevalent disease characterized by cartilage loss, pain, and metabolic disturbances such as obesity. Building on findings from the Collins Lab that pathological adipose signaling can drive osteoarthritis and pain in mice, the team is engineering "designer adipose" tissue from human induced pluripotent stem cells in collaboration with the Hsiao Lab and Stahl Lab (UC Berkeley), and using CRISPR-Cas9 genome editing guided by the Cromer Lab. The therapy will be tested in humanized mouse models and microphysiological systems, with potential applications beyond osteoarthritis, including Type II Diabetes, Alzheimer’s disease, and craniofacial reconstruction in cancer patients.

CTMCT Pilot Awards #4

“Spatial Transcriptomic and Proteomic Profiling to Identify Biomarkers of Lung Injury and MSC Therapy Responses in Hypo- and Hyper-inflammatory ARDS.”

We are delighted to announce that the multidisciplinary team of investigators Drs. Huimin Geng and Ruriko Watanabe has been selected to receive one of the CTMCT pilot awards for their research project focused on advancing mesenchymal stem cell (MSC) therapies for acute respiratory distress syndrome (ARDS).

The project aims to develop spatial transcriptomic and proteomic analysis pipelines to investigate how MSCs mitigate Streptococcus pneumoniae–induced ARDS in a preclinical mouse model developed by the Matthay Lab. The study will explore how different inflammatory subtypes (hypo- or hyper-inflammatory) respond to MSC treatment by identifying transcriptomic and proteomic changes in lung tissues. Spatial profiling using GeoMx DSP and IO Proteome Atlas (IPA) will help uncover MSC-responsive biomarkers across lung compartments, followed by single-cell spatial mapping with the Xenium platform. The findings will deepen our understanding of MSC mechanisms and support biomarker-driven therapeutic strategies for ARDS, with broad relevance to CTMCT-supported research.

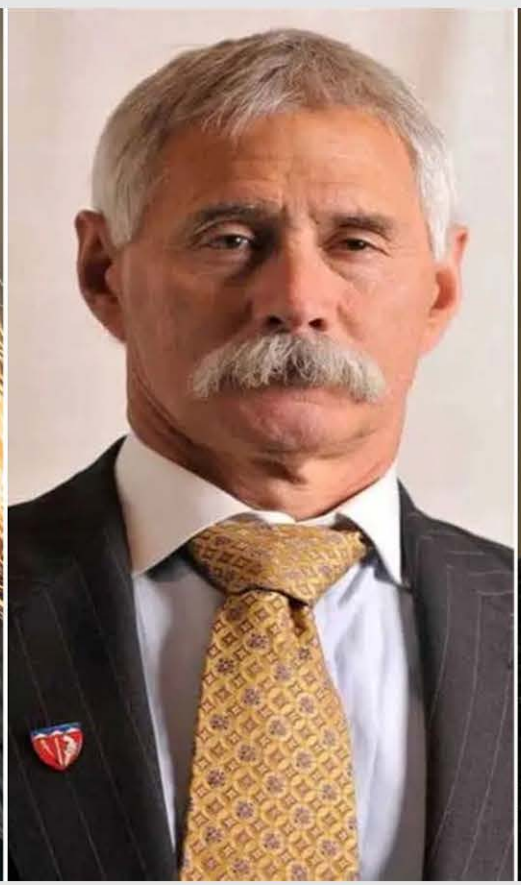


CTMCT Pilot Awards #5

“The Interaction Between Endothelium and the Blood Components in Transfusion Responsible for Hemostasis.”

We are delighted to announce that Drs. Alison Nair, Dr. Ernest "Gene" Moore, and Scientist Mr. Dallas Vanderheyden have been selected to receive a CTMCT Pilot Award for their research on modeling endothelial dysfunction after trauma.

Their team is developing an endothelial-based microfluidic system to study how blood vessel injury impacts clotting biology. This model will allow them to analyze interactions between the endothelium and key blood components (platelets, red cells, fibrinogen, plasma clotting factors), investigate how dysfunction alters clot formation, and identify tissue-specific responses across organs such as the brain, lung, liver, kidney, small bowel, and colon. Their work will provide new insights into post-trauma hemostasis and help guide future therapeutic strategies. This project is a cross-institutional collaboration. Dr. Nair is an Associate Professor in the UCSF Department of Pediatrics, and Dr. Moore is a Distinguished Professor of Surgery at the University of Colorado Anschutz and the Ernest E. Moore Shock Trauma Center at Denver Health. Mr. Dallas Vanderheyden, the lead scientist in Dr. Moore’s lab, is spearheading this collaboration.



CTMCT GRANTS

We are thrilled to announce that UCSF Lab Medicine faculty, Drs. Shibani Pati, MD, PhD, Lucy Kornblith, MD, and Joseph Cuschieri, MD have been awarded a major grant from the United States Department of Defense (DoD) through the Medical Technology Enterprise Consortium (MTEC) and the Armed Forces Institute of Regenerative Medicine (AFIRM).

This $10 million award will fund a multicenter clinical trial investigating the therapeutic potential of adipose-derived mesenchymal stromal/stem cells (MSCs) for the treatment of Stage 2 acute kidney injury (AKI) caused by trauma and burns. The trial, entitled AURORA (Adipose Derived Stem Cells for Urinary Recovery and Organ Repair in AKI), will enroll patients at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG).UCSF is one of three participating sites, with Drs. Pati and Cuschieri serving as site Principal Investigators with Dr. Charles Cox, MD, UT Houston, as PI.

UCSF Lab Medicine CTMCT Awarded DoD Grant to Advance Trauma and Burn Care with Cellular Therapies

Annual Retreat for CTMCT- January 23rd 2026

We are planning the 2026 CTMCT Annual Retreat at the Gladstone Conference Center, scheduled for Friday, January 23, 2026. The retreat will be a full day retreat with feature presentations from some of our 2024 and 2025 pilot awardee groups, highlighting their progress and future directions. Industry partners will also be included to foster cross-collaboration and expand the impact of our projects.

Please share any recommendations for potential industry partners to invite. This retreat will be an opportunity to showcase our multidisciplinary strengths to our new advisory board, industry partners and colleagues. Please let Jonathan Ho know if you are interested in speaking at the retreat.

CTMCT Seminars

Our 2025 and 2026 CTMCT Seminars will feature inspiring talks from experts across UCSF and beyond. Each session offers a chance to learn about the latest advances in transfusion medicine, cell therapies, and cutting-edge biomedical research.

Date	Time	Location	Speaker
September 17, 2025	1pm – 2pm	HSE720, Parnassus	Dr. Mark Looney
October 15, 2025	1pm – 2pm	HSE720, Parnassus	Dr. Carolyn Calfee
November 19, 2025	1pm – 2pm	HSE720, Parnassus	Dr. Joe Cuschieri
December 17, 2025	1pm – 2pm	HSE720, Parnassus	Dr. Scott Kogan
January 21, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Kyle Cromer
February 18, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Alison Nair
March 18, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Elena Nedelcu
April 15, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Gabriela Fragiadakis
May 20, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Alexis Combes
September 16, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Shibani Pati
October 21, 2026	1pm – 2pm	HSE720, Parnassus	Dr. Ari Molofsky
November 18, 2026	1pm – 2pm	HSE720, Parnassus	TBD
December 16, 2026	1pm – 2pm	HSE720, Parnassus	TBD

CTMCT - CTTACC Conference

May 2–5, 2025 Scottsdale, AZ

https://cttacc.org/

CTMCT and the UCSF Department of Laboratory Medicine hosted CTTACC 2025 (Cellular Therapies and Transfusion Medicine in Trauma and Critical Care, cttacc.org in Scottsdale, AZ. Chaired by Dr. Shibani Pati for the past 12 years, the conference convened scientists, clinicians, industry leaders, and stakeholders across cell therapies, transfusion medicine, regenerative medicine, and critical care.

Many CTMCT members and Lab Medicine faculty spoke, including Drs. Clifford Lowell, Brian Shy, Arun Wiita, Kyle Cromer, Joseph Cuschieri, Lucy Kornblith, Aijun Wang, Philip Norris, Michael Busch, Emin Maltepe, Shibani Pati, and Larry Corash. Special thanks to Drs. Elena Nedelcu and Alpa Mahuvakar for organizing the poster session.

Highlights included talks from Dr. Stephen Ferrara (Acting Assistant Secretary for Defense for Health – ASDHA), General Lester Martinez-Lopez (former ASDHA), and Dr. Michael Koeris (DARPA BTO) on battlefield medicine and future technologies. The Military Health session addressed TBI, organ failure, and hemorrhage management in critically injured patients.

Congratulations to Drs. Diana Farmer, Jason Sperry, and Anthony Atala, recipients of the 2025 Lifetime Achievement Awards, and to keynote speaker Dr. Frank Butler (CAPT USN, Ret), who shared the origins of the lifesaving Tactical Combat Casualty Care (TCCC) guidelines.

A standout feature was the Dried Plasma Focus Group, which tackled scientific, regulatory, and manufacturing hurdles for U.S. product approval. Mark your calendars: the next CTTACC will be May 2–5, 2027, in Scottsdale, AZ, again sponsored by the DoD Office of the Assistant Secretary of Defense for Health. CTTACC is a great place to make connections which in the past have led to multiple grants, projects and collaborations!

Mark your calendars:

The next CTTACC will be May 2–5, 2027

Newly formed Board of Advisors for CTMCT

We are pleased to announce the formation of a new Board of Advisors for CTMCT to provide faculty with strategic guidance, connections to industry and academia, regulatory insight, and support for grant opportunities. We anticipate a board with representation from academia, venture funding groups, industry and retired FDA who are deeply knowledgeable in the area of regulatory challenges in CT and TM. We are honored to welcome Dr. Kenneth Bertram, MD, PhD (Col. Ret., US Army) as Chair of our board.

Dr. Bertram, recently appointed Adjunct Faculty in the UCSF Department of Laboratory Medicine, brings a distinguished career in patient care, translational and regenerative medicine, military medical research, and medical product development. A Hematologist/Oncologist, trained at the University of Minnesota and Madigan Army Medical Center (MAMC), he retired from the US Army as a Colonel after serving in senior leadership roles to include Chief, Hematology/Oncology Service, MAMC; Director, Congressionally Directed Medical Research Programs (CDMRP); and Commander, Walter Reed Army Institute of Research (WRAIR). In addition, he served as a member of the Senior Executive Service at the US Army Medical Research and Development Command. He is currently a Program Director at the Wake Forest Institute for Regenerative Medicine (WFIRM).

Dr. Kenneth Bertram, MD, PhD

His expertise in Hematology/Oncology, trauma, and regenerative medicine aligns with UCSF's mission to advance translational research and improve patient outcomes.

Dr. Bertram is leading the assembly of the CTMCT board now. More to come soon.

Notable Member News

Congratulations to Dr. Shy: Leading the Future of Pediatric CRISPR Cures

We're very excited to announce that CTMCT Member Dr. Brian Shy is a key member of the newly formed Center for Pediatric CRISPR Cures!

This new center is a collaboration between UC Berkeley and UCSF, as well as the Chan Zuckerberg Initiative (CZI), and the Innovative Genomics Institute (IGI). Led by Dr. Fyodor Urnov at UC Berkeley, the project will be supported by a $20 million grant from CZI and aims to advance personalized CRISPR cures for children with rare genetic diseases, combining CRISPR cure design and testing at UC Berkeley with clinical treatment at UCSF.

Dr. Shy brings his expertise in genome engineering and cell therapy manufacturing to distinguished team of investigators including Drs. Irene Chang, Jennifer Doudna, Chris Dvorak, and Jennifer Puck in this groundbreaking initiative. Congratulations to Dr. Shy and the entire Center for Pediatric CRISPR Cures!

For more details, please see the official press release!

Link: https://lnkd.in/eY7Pgvs8

Member News, Awards & Publications

Cromer Lab Article

Congratulations to Dr. Kyle Cromer and his lab members!
The Cromer Lab recently published a STAR Protocols article describing a step-by step method for highly efficient CRISPR genome editing of human primary hematopoietic stem cells. Their work advances potential treatments for sickle cell disease and thalassemia and provides a foundation for curative therapies.
Read more: https://star-protocols.cell.com/protocols/4394

New Funded Award for Dr. Phillip Norris and Team at Vitalant

Dr. Philip Norris (Dept. of Lab Med/Vitalant) recently published findings showing that mitochondrial DNA (mtDNA) levels are stable in blood donors' RBC samples and associated with polymorphisms in the ANKLE1 gene. His team followed up with an R21 grant to study the link between mtDNA and lung injury in transfusion recipients, using samples and outcomes from the NIH BioLINCC repository.

The grant, "Defining drivers of mtDNA levels in blood components and their impact on transfusion-related lung injury," was awarded funding in September.
Read more: https://pubmed.ncbi.nlm.nih.gov/40493412/

Collaborative Project: Drs. Phillip Norris and Tamir Kanias (VRI Denver)

A team led by Drs. Tamir Kanias and Philip Norris published a method validating biotin labeling of RBCs up to 48 hours prior to transfusion. This technique enables shipment of labeled RBCs to multicenter sites across the U.S., supporting in vivo tracking of transfused RBCs.
Read more: https://pubmed.ncbi.nlm.nih.gov/40390385/

New DoD Funding for ARDS Clinical Trial

Dr. Michael Matthay and Dr. Carolyn Calfee (Dept. of Lab Med/UCSF) have received a Department of Defense award to lead a Phase 2 clinical trial for ARDS using real-time phenotyping. UCSF is one of 10 U.S. sites enrolling 300 patients over 4 years, with UCSF conducting the biology for the trial.

Congratulations to Dr. Matthay, Dr. Calfee, and their team on this exciting award!

Member News, Awards & Publications (Continued)

New Commentary and Grant Award for Dr. Alexis Combes

Dr. Alexis Combes (Dept. of Lab Med/UCSF) co-authored a commentary in Cancer Cell outlining a new strategy to advance cancer therapy by leveraging immune states within tumors.

This work previews the team's planned research in trauma, as part of a DARPA/ARPA project. In addition, Dr. Combes and colleagues recently received a Cancer Research Institute grant to apply this immune-state approach to kidney cancer.
Read more.: https://pubmed.ncbi.nlm.nih.gov/40939589/;
https://www.cancerresearch.org/cri-funded-scientists/alexis-combes-phd

2024 Boryung "Humans in Space Challenge Winner: Dr. Charles Chiu

Biotia, a biotechnology company pioneering the development of novel infectious disease diagnostics, announced Dr. Charles Chiu as an awardee in the 2024 Humans in Space (HIS) Challenge, a global innovation program led by South Korea–based Boryung Corporation.

Dr. Chiu is currently working on a project in conjunction with partners Biotia, Boryung, and Colombia University; focusing "on adapting a clinically validated metagenomic sequencing-based platform to create highly portable, autonomous infectious disease diagnostics that can function reliably in orbit".
Read more, https://innovation.ucsf.edu/news/biotia-partners-leading-korean-pharmaceutical-company-advance-infectious-disease-diagnostics

New R35 Award for Dr. Carolyn Calfee and Team

Dr. Carolyn Calfee (Dept. of Lab Med/UCSF) and colleagues were recently awarded an R35 grant from the NIH, providing $8M over 7 years for the project "Advancing Precision Medicine in ARDS and Sepsis." This prestigious award will support research into identifying precision-based approaches to improve outcomes in patients with ARDS and sepsis.

Congratulations to Dr. Calfee and her team on this major achievement!

Member News, Awards & Publications (Continued)

New NIH K08 Award for Dr. Andrew Levine

Congratulations to Dr. Andrew Levine (Dept. of Lab Med/UCSF) on receiving a prestigious NIH/NHLBI K08 award (2025–2030). His project, "Control of multilineage hematopoiesis by 5′ cap-proximal modification," will advance understanding of hematopoietic regulation.

Recent Publications by CTMCT Members

- Evaluating the generalisability of formulas used to set tidal volumes in mechanically ventilated patients: an observational, multicohort, retrospective study
Aartik Sarma, Kathryn M Sullivan, Aaron D Baugh, Nirav R Bhakta, Carolyn S Calfee, et al.
Lancet Respir Med. 2025 Jul.
https://pubmed.ncbi.nlm.nih.gov/40680763/

- Attenuated interferon-γ following injury is associated with chronic critical illness
Joseph Cuschieri, Lucy Z Kornblith, Shibani Pati, et al.
J Trauma Acute Care Surg. 2025 Jun.
https://pubmed.ncbi.nlm.nih.gov/40459558/

- Pathogen reduction diminishes the protective effects of platelets on endothelial barrier permeability in vitro
Alison Nair, Byron Miyazawa, Alpa Trivedi, Lucy Z Kornblith, Joseph Cuschieri, Shibani Pati, et al.
Blood Vessel Thromb Hemost. 2025 Feb.
https://pubmed.ncbi.nlm.nih.gov/40918743/

- Treatment with Allogenic Mesenchymal Stromal Cells for Moderate to Severe ARDS: Phase 2b Clinical Trial (STAT)
Michael Matthay, Lucy Z Kornblith, Carolyn Calfee, Shibani Pati, et al.
Am J Respir Crit Care Med. 2025 Jul.
https://pubmed.ncbi.nlm.nih.gov/40728562/

Recent Publications by CTMCT Members (continued)

- Decoding functional hematopoietic progenitor cells in the adult human lung

Catharina Conrad, Mélia Magnen, Jessica Tsui, Alexis J. Combes, Mark R. Looney, et al.
Blood. 2025 May.
Read here: https://ashpublications.org/blood/article/145/18/1975/535786/Decoding-functional-hematopoietic-progenitor-cells

- Platelet flux in trauma-associated venous thromboembolism: A secondary analysis of the CLOTT studies

Elizabeth Andrasksa, Alexander Fields, Brenda Nunez-Garcia, Lucy Kornblith, et al.
J Trauma Acute Care Surg. 2025 Jun.
https://pubmed.ncbi.nlm.nih.gov/40107968/

- Goal-directed transfusion algorithm for trauma patients with severe hemorrhage using TEG 6S: Delphi consensus survey and expert panel recommendations

Babak Sarani, Jeannie Callum, Matthew D Neal, Lucy Kornblith, et al.
J Trauma Acute Care Surg. 2025 Jun.
https://pubmed.ncbi.nlm.nih.gov/40170216/

- Handling Hemolytic Blood Samples from High-Risk Clinical Areas: A Call to Action

Alan H B Wu, Jerrold H Levy, W Franklin Peacock, Ramzy Rimawi, Manuel Sanchez Luna, et al.
J Appl Lab Med. 2025 Sept.
https://doi.org/10.1093/jalm/jfaf082

- Treatment with Allogenic Mesenchymal Stromal Cells for Moderate to Severe Acute Respiratory Distress Syndrome: A Double-Blind, Placebo-controlled, Multi-Center, Phase 2b Clinical Trial (STAT)

Michael A Matthay, Hanjing Zhou, Aartik Sarma, Narges Alipanah-Lechner, Carolyn Hendrickson, Lucy Z Kornblith, Shibani Pati, Carolyn S Calfee, et al.
Am J Respir Crit Care Med. 2025 Jul.
https://pubmed.ncbi.nlm.nih.gov/40728562/

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