

An introduction to...

Vitalant Research Institute

(The Institute Formerly Known As BSRI)

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My meandering path to Vitalant Research Institute (VRI)



What is Vitalant Research Institute (VRI)?

Established: 1959 (Scientific Services department - Irwin Memorial Blood Bank)

Number of Employees: 70

Facilities

The Research Institute is housed within Blood Centers of the Pacific in San Francisco, CA. Our Research Institute has state-of-the-art equipment to support research related to blood and blood product safety in the areas of molecular biology, immunology, virology, tissue culture, cell processing and epidemiology. Staff have 9000 sq. ft. of labs (including a biosafety level 3 lab), and a 2200 sq. ft. freezer room with capacity to store more than one million specimens.



What do we do at VRI?

OUR MISSION

The Vitalant Research Institute (VRI) is dedicated to advancing blood safety world-wide through scientific research, education and the promotion of evidence-based policies.

OUR VISION

VRI, an integral part of **Vitalant**, is the premier transfusion medicine research institute in the US focused on scientific and policy advances relevant to transfusion therapy and blood product availability, with particular focus on mechanisms underlying and prevention of infectious and immunological complications of transfusions. VRI contributes to and engages other Vitalant divisions in research, policy development and application of new practices.

OUR ORGANIZATION

Locations

With 127 donation locations from coast to coast, Vitalant is near you.

Click an icon below for more information or zoom in



Key partners and grantors

Collaborations

University of California, San Francisco; **The Clinical & Translational Science Institute (CTSI) at UCSF**; University of California, Davis; UCSF Benioff Children's Hospital, Oakland; US Department of Veterans Affairs; The American Red Cross; Public Health England; Fundação Faculdade de Medicina BRAZIL; Duke University; South African National Blood Service; Emory University; and the University of Georgia

Industry Collaborations

Cerus; Roche; Grifols; Ortho-Clinical Diagnostics, Inc.; Gen-Probe, Inc.; Abbott Laboratories; TerumoBCT; Immunetics; Integral Molecular

Grantors

National Institutes of Health (NIH); US Food and Drug Administration (FDA); US Army Medical Research and Materiel Command (USAMRMC); Blood Systems

Research Areas

- Epidemiology/Donor Behavior
- Molecular Virology
- Molecular Transfusion Medicine
- Immunology
- Repository and Testing Services
- Molecular Diagnostics
- Cell Therapy



Key moments in VRI history



TRANSFUSION-TRANSMITTED HIV

First case of transfusion-transmitted AIDS to a child reported by investigators at BSRI and UCSF.

1983

1959



SCIENTIFIC SERVICES OF IRWIN MEMORIAL ESTABLISHED

In 1959, Irwin Memorial Blood Bank established its research program, laying the foundation for BSRI.



IRWIN MEMORIAL BLOOD BANK FOUNDED

The first non-profit community blood bank in the US was founded in June, 1941

1941

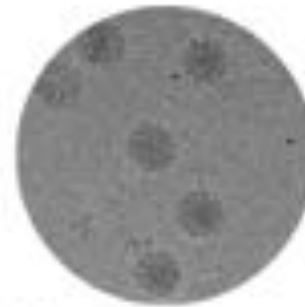
Key moments in VRI history



BLOOD SYSTEMS RESEARCH INSTITUTE CREATED

BSRI formally founded from the Scientific Services of Blood Centers of the Pacific.

2015



SCIENTISTS IDENTIFY EFFECTIVE AND NOVEL MECHANISMS TO BLOCK CHIKUNGUNYA VIRUS

Scientists looking at the antiviral mechanisms of two previously identified human monoclonal antibodies have found they potentially inhibit chikungunya virus (CHIKV) at multiple stages of infection.

2004

1989



NHLBI REDS PROGRAM INITIATED

The Retrovirus Epidemiology Donor Study (REDS) was created to improve transfusion safety.

Key moments in VRI history



AMFAR ESTABLISHES SAN FRANCISCO-BASED INSTITUTE FOR HIV CURE RESEARCH

amfAR, The Foundation for AIDS Research, today announced the establishment of the amfAR Institute for HIV Cure Research, an innovative collaborative enterprise based at the University of California, San Francisco.

2015

PBS NEWSHOUR

US FDA LIFTS LIFETIME BAN ON MSM BLOOD DONATION

BSRI research supports safety of limited deferral period for men who have sex with men (MSM)

2015

Key moments in VRI history



BLOOD SYSTEMS BECOMES VITALANT

On September 24, 2018, BSRI announced our new name: Vitalant Research Institute.



2016



BSRI-DENVER CAMPUS WELCOMES DR. LARRY J. DUMONT AS SENIOR INVESTIGATOR AND ASSOCIATE DIRECTOR

Dr. Larry J. Dumont brings to BSRI-Denver the important program to develop licensable platelet cryopreservation techniques under the sponsorship of the United States Army. This program, currently in Phase 1 clinical trials, is expected to extend the 5-day shelf life of platelets to more than 2 years.



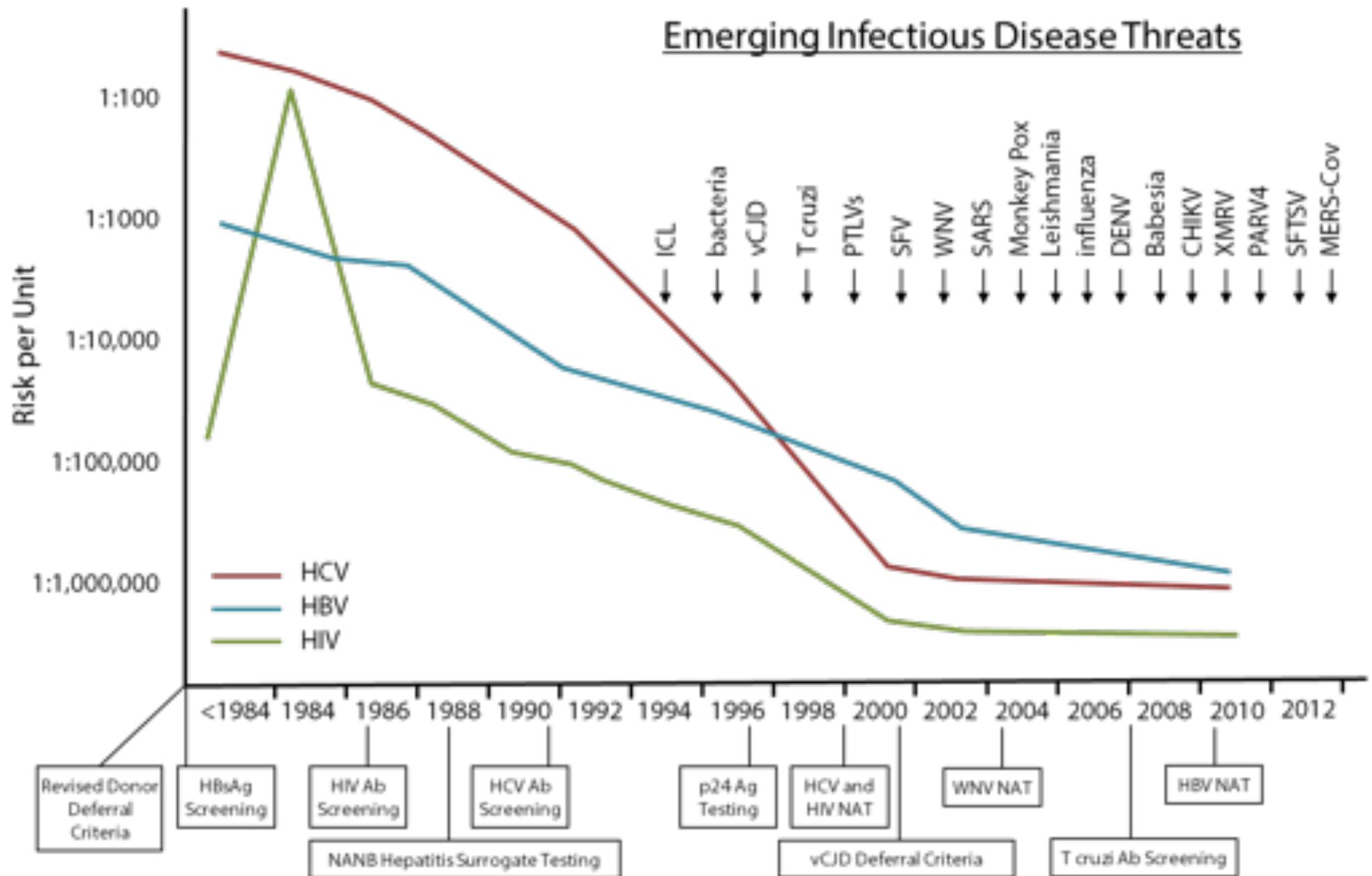
2016



BLOOD PROCESSING METHODS AFFECT MICROPARTICLES AND MTDNA LINKED TO BLOOD TRANSFUSION REACTIONS

Scientists from BloodSystems Research Institute in San Francisco, California, and Canadian Blood Services' Centre for Innovation lab in Edmonton, Alberta, report that specific red blood cell manufacturing methods may be less damaging to cells than others.

The impact of VRI / transfusion medicine research



VRI Investigators



Michael P. Busch, M.D., Ph.D.



Philip J. Norris, MD



Susanne Marschner, Ph.D.



Brian Scott Custer, Ph.D., M.P.H.



Larry J. Dumont, M.B.A., Ph.D.



Rachael P. Jackman, Ph.D.



Tamir Kanias, Ph.D.



Elaine A. Yu, M.P.H., Ph.D.



Edward L. Murphy, Jr.,
M.D., M.P.H



Satish K. Pillai, Ph.D.



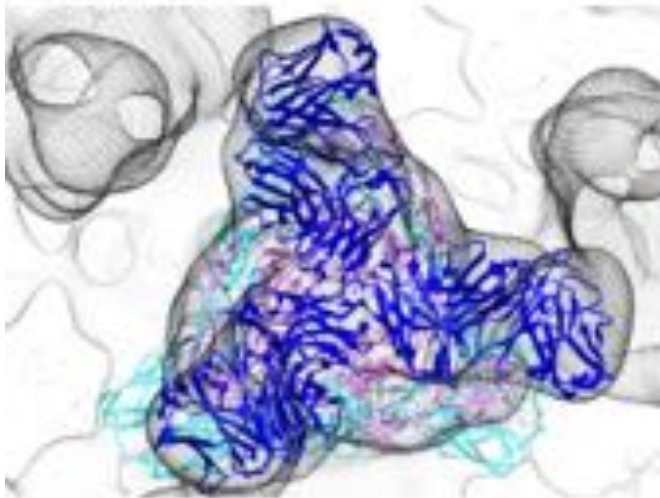
Graham Simmons, Ph.D.

VRI Cores



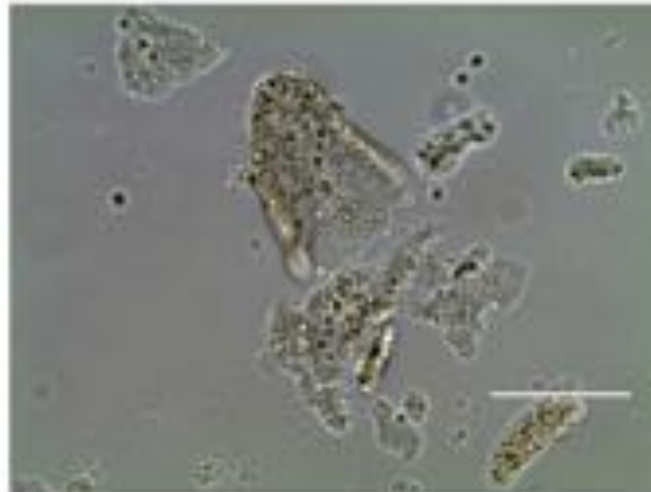
Bioinformatics

Directed by Xugao Deng



Immunology

Directed by Sheila Keating



Cell Therapy

Directed by Marcus Muench



Molecular Transfusion

Directed by Sonia Bakkour



Epidemiology

Directed by Roberta Bruhn and Anne Guittinan



Viral Reference Lab and Repository

Directed by Mars Stone



VRI is playing a *major* role in SARS-CoV-2 serosurveillance



Blood industry collaborates with CDC and NIH on large scale SARS-CoV-2 antibody testing survey

5/28/2020

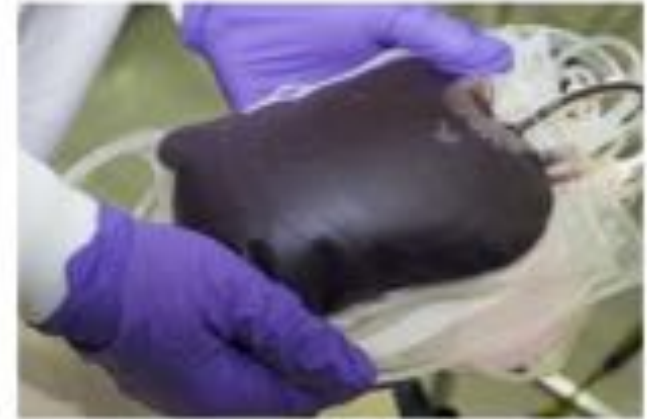
Blood collection organizations, testing laboratories and affiliated research institutes continue to play a critical role in the response to the COVID-19



What antibody tests can teach us about potential coronavirus immunity

4/22/2020

Antibodies are one of the ways the human body fights infection from the coronavirus. Researchers believe testing for covid-19 antibodies can lead to possible treatments for the virus and help indicate when to reopen society.



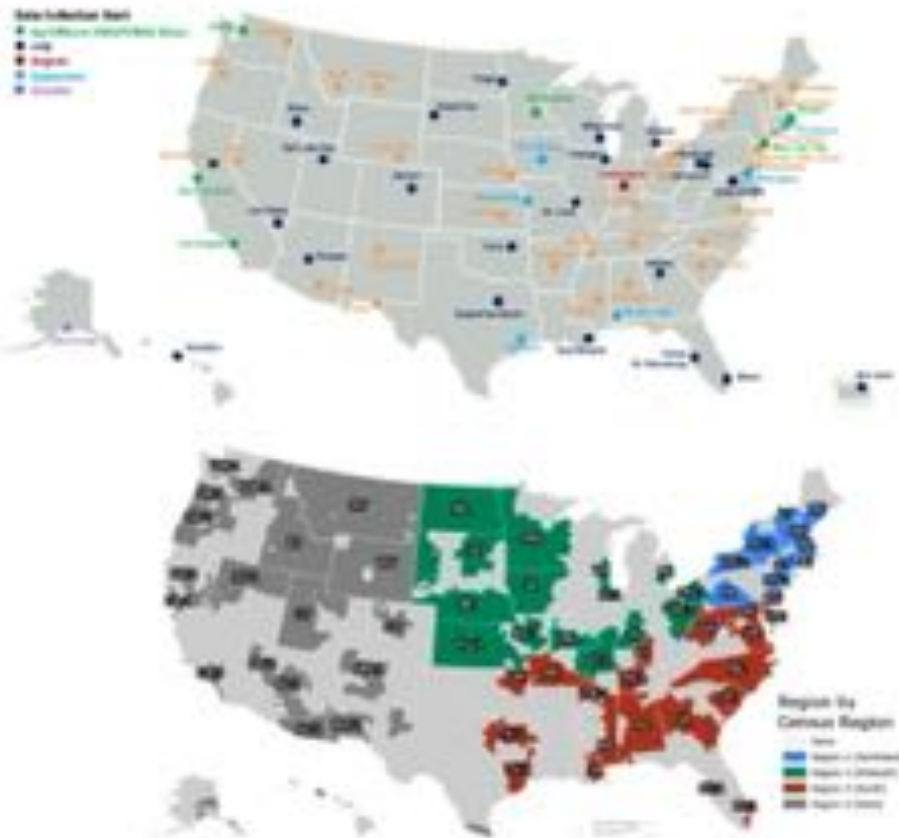
Unprecedented nationwide blood studies seek to track U.S. coronavirus spread

4/7/2020

We still don't know how many people have been infected with the novel coronavirus, SARS-CoV-2. Not only have countries struggled to roll out wide-scale testing for the virus, those efforts inevitably

CDC NATIONWIDE BLOOD DONOR SEROPREVALENCE STUDY

60+ U.S. Metropolitan Areas, all 50 states



Expansion of NHLBI RESPONSE 6 region study by adding 55 more metropolitan areas

- Selection criteria:
 - Broad geographical distribution
 - Mix of high and low COVID-19 case incidence
 - Racial and ethnic diversity
- Identify the percentage of the population that has been infected with SARS-CoV-2 by testing 2,000-6,000 residual blood donation samples for anti-SARS-CoV-2 antibody monthly from each of 62 metropolitan areas from July 2020 through Dec 2021
- Generate "weighted" overall, geographic-, age group-, sex-, and racial/ethnic-specific seroprevalence of SARS-CoV-2 in blood donation populations
- Extended scope and timeline will allow assessment of increasing penetrance of SARS-CoV-2 infection into distinct U.S. communities and determine overall seroprevalence over time
- Correlate cumulative incidence from donor serosurveillance with clinical case and death rates

REDS-IV-P RESPONSE

"REDS Epidemiology, Surveillance and Preparedness of the Novel SARS-CoV-2 Epidemic"

Aim 1: Determine if SARS-CoV-2 RNA is present in contemporary blood donations in key US outbreak regions (Seattle, SF, LA, NYC, Boston and Minneapolis) – 46,000 donations x 6 months tested using Grifols SARS-CoV-2 NAT assay on residual MPs

Aim 2: Perform donor antibody testing in the same areas before/after SARS-CoV-2 community transmission to determine infection dynamics by demographics and evaluate performance of candidate assays

Aim 3: Track rates of potential COVID-19 post donation information (PDI) reports, test donation plasma units for SARS-CoV-2 RNA and recipient lookback of any transfused cellular components to identify potential transfusion transmission cases

Aims 4 & 5: 150 PDI donors and clinical cases with SARS-CoV-2 infection followed for 12 months with longitudinal collection of serum and PMBCs for immune response characterization and establish a sharable repository for pathogenesis/vaccine research

REDS-IV-P VRI CTLS team in collaboration with American Red Cross, New York Blood Center, and Bloodworks Northwest




Estimated US Infection- and Vaccine-Induced SARS-CoV-2 Seroprevalence Based on Blood Donations, July 2020-May 2021

Jefferson M. Jones, MD, MPH; Mars Stone, PhD; Hasan Sulaeman, MS; Rebecca V. Fink, MPH; Honey Dave, MS; Matthew E. Levy, PhD; Clara Di Germanio, PhD; Valerie Green, MS; Edward Notari, MPH; Paula Saa, PhD; Brad J. Biggerstaff, PhD; Donna Strauss, MS; Debra Kessler, MS; Ralph Vassallo, MD; Rita Reik, MS; Susan Rossmann, MD, PhD; Mark Destree, MBA, MS; Kim-Anh Nguyen, MD, PhD; Marilyn Sayers, MBBCh, PhD; Chris Lough, MD; Daniel W. Bougie, PhD; Megan Ritter, MD; Gerardo Latoni, MD; Billy Weales; Stacy Sime, MS; Jed Gorlin, MD, MBA; Nicole E. Brown, PhD; Carolyn V. Gould, MD, MSCR; Kevin Berney, BA; Tina J. Benoit, MPH; Maureen J. Miller, MD, MPH; Dane Freeman, PhD; Deeksha Kartik; Alicia M. Fry, MD, MPH; Eduardo Azziz-Baumgartner, MD; Aron J. Hall, DVM, MSPH; Adam MacNeil, PhD; Adi V. Gundlapalli, MD, PhD; Sridhar V. Basavaraju, MD; Susan I. Gerber, MD; Monica E. Patton, MD; Brian Custer, PhD, MPH; Phillip Williamson, PhD; Graham Simmons, PhD; Natalie J. Thornburg, PhD; Steven Kleinman, MD; Susan L. Stramer, PhD, MS; Jean Opsomer, PhD, MBA; Michael P. Busch, MD, PhD

RESULTS Among 1 443 519 specimens included, 733 052 (50.8%) were from women, 174 842 (12.1%) were from persons aged 16 to 29 years, 292 258 (20.2%) were from persons aged 65 years and older, 36 654 (2.5%) were from non-Hispanic Black persons, and 88 773 (6.1%) were from Hispanic persons. The overall infection-induced SARS-CoV-2 seroprevalence estimate increased from 3.5% (95% CI, 3.2%-3.8%) in July 2020 to 20.2% (95% CI, 19.9%-20.6%) in May 2021; the combined infection- and vaccination-induced seroprevalence estimate in May 2021 was 83.3% (95% CI, 82.9%-83.7%). By May 2021, 2.1 SARS-CoV-2 infections (95% CI, 2.0-2.1) per reported COVID-19 case were estimated to have occurred.

Education and training at VRI

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Recent Resident and Fellow Publications

Clinical Lab Scientist Training

Medical Student Electives

Transfusion Medicine/Blood Banking Fellowship

The Herbert Perkins Transfusion Medicine Fellowship is an ACGME accredited program offered jointly by University of California, San Francisco (UCSF), Blood Centers of the Pacific (BCP), and Blood Systems Research Institute (BSRI). The fellow gains experience in all aspects of blood banking and transfusion medicine by spending 6 months at one of this country's foremost university medical centers and 4 months in one of its premier blood banks. Additional rotations provide training opportunities in therapeutic apheresis.

The UCSF rotation offers the experience of an academic multi-hospital unified transfusion service providing care to a wide variety of pediatric and adult patients and offering a wealth of complex services. UCSF has a very active hematopoietic stem cell transplant program and training in Cellular therapy is also provided during the 6 months fellows spend at UCSF hospitals.

BCP distributes approximately 145,000 RBC, 46,000 platelet, and 45,000 plasma units each year for hospitals in a large segment of northern California and has an AABB accredited immunohematology reference laboratory. Fellows rotate through all blood center departments, assuming increasing responsibility as they learn. Instruction is through tutorials, conferences, department meetings, and assigned reading. Fellows also have a unique opportunity to collaborate with investigators at BSRI, one of the country's foremost research laboratories in transfusion medicine.

For More Information
Fellowship Director
[Morvarid Moayeri, MD, PhD](#)

Associate Program Director
Salma Shaikh, MD

Contacts
[Jessica Bailey](#)
[J.bailey2@bloodsystems.org](#)
Phone: 415-354-1388

Blood Systems Research Institute
270 Masonic Avenue
San Francisco, CA 94118**Requirements**
Applicants must be eligible for California medical licensure.



PHOTO: EDWARD MURPHY

We train South African professionals in transfusion medicine and hematology to be leaders in blood safety and HIV-related blood disease treatment.

TRANSFUSION MEDICINE AND HEMATOLOGY RESEARCH TRAINING

This 5-year training program in HIV-related transfusion medicine and hematology research trains blood bankers and hematologists to perform high-quality HIV research to address relevant research questions in South Africa. Training approaches are tailored to promising candidates at various levels on the research career ladder. The training and research opportunities range from short courses to PhD and postdoctoral fellowships, mini-grants to mentorships.

The HIV-related Transfusion Medicine and Hematology Research training program is open to South African professionals with leadership potential who are already working in transfusion medicine or hematology. Our overarching goal is to develop human research capacity to improve blood safety and the treatment of HIV-related hematologic diseases in South Africa.

Short Courses

Gain an introduction to research in courses given annually in South Africa

The US National Institutes of Health, Fogarty International Center has awarded a training grant to a consortium including the University of California San Francisco (UCSF), Blood Systems Research Institute (BSRI), the University of Cape Town (UCT) and the South African National Blood Service (SANBS) to develop in-country research capacity.

Related Links

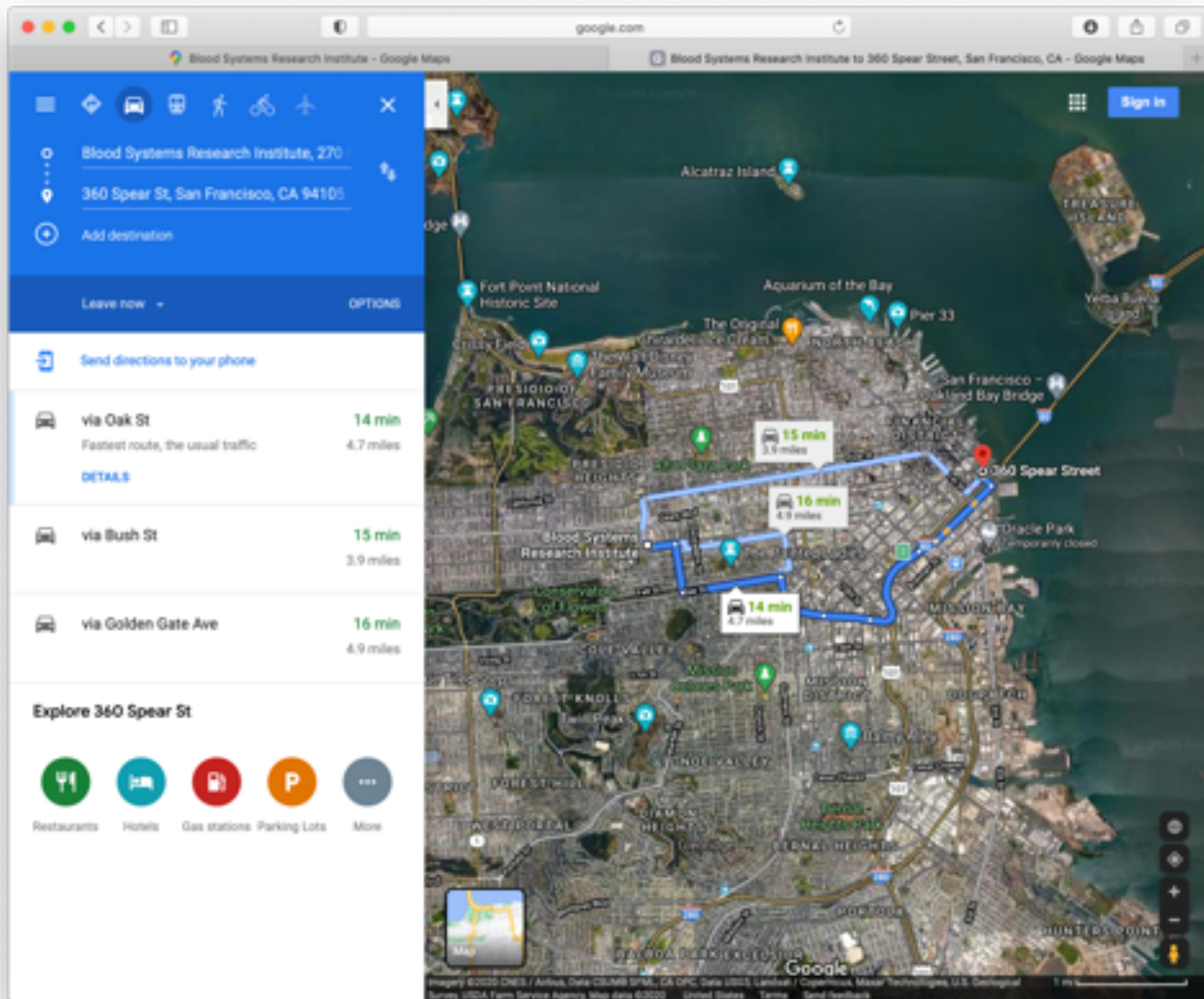
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We're. Finally. Moving.



360 S P E A R

BUILDING REPOSITIONING

Originally constructed as the Navy and Marine Headquarters in 1924, 360 Spear is undergoing a substantial capital improvement plan that will transform the building into **SOMA'S PREMIER MIXED-USE BUILDING** catering to creative office, PDR and biotech tenants.



Join us at our first Spear St. Happy Hour in December!





Thank you