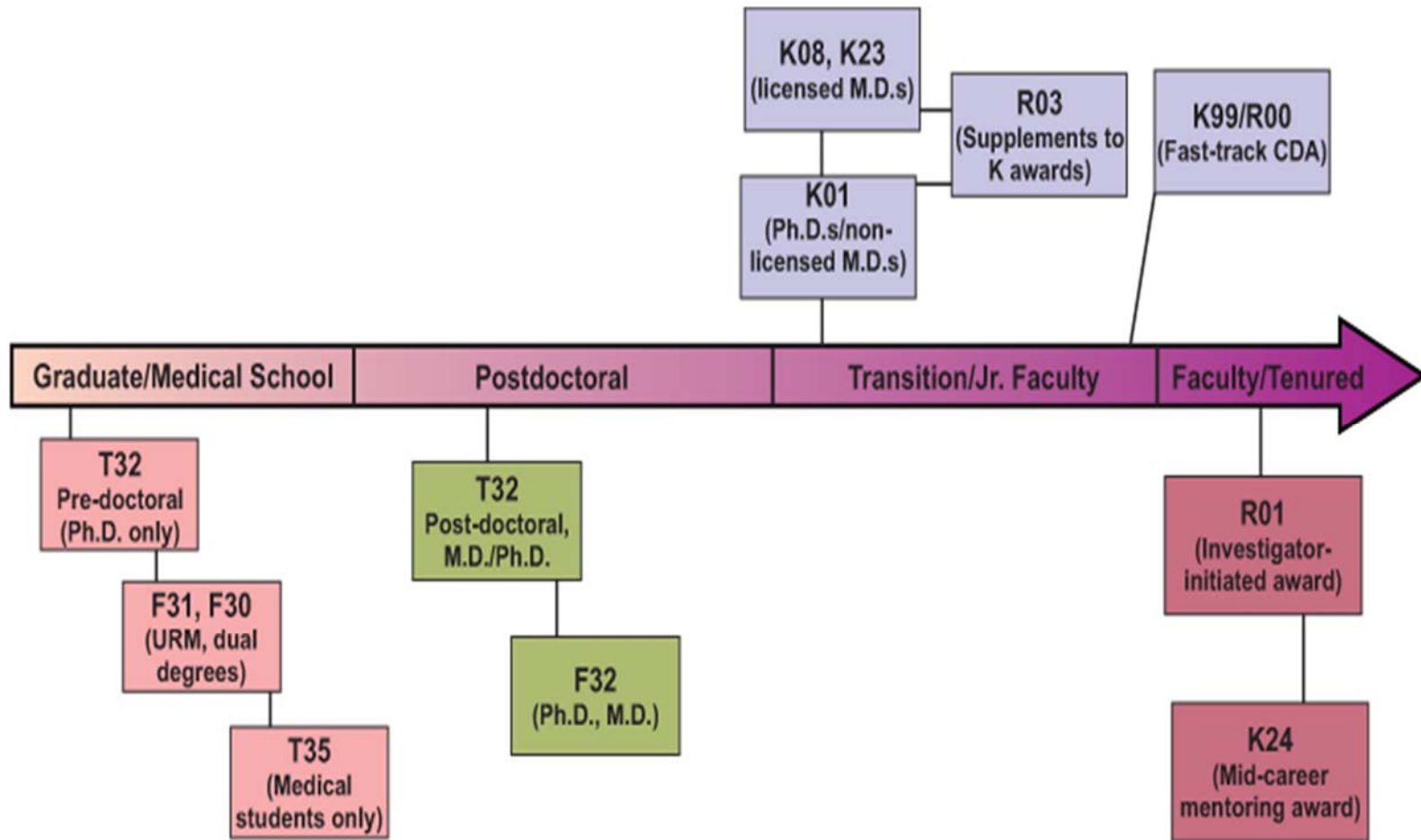
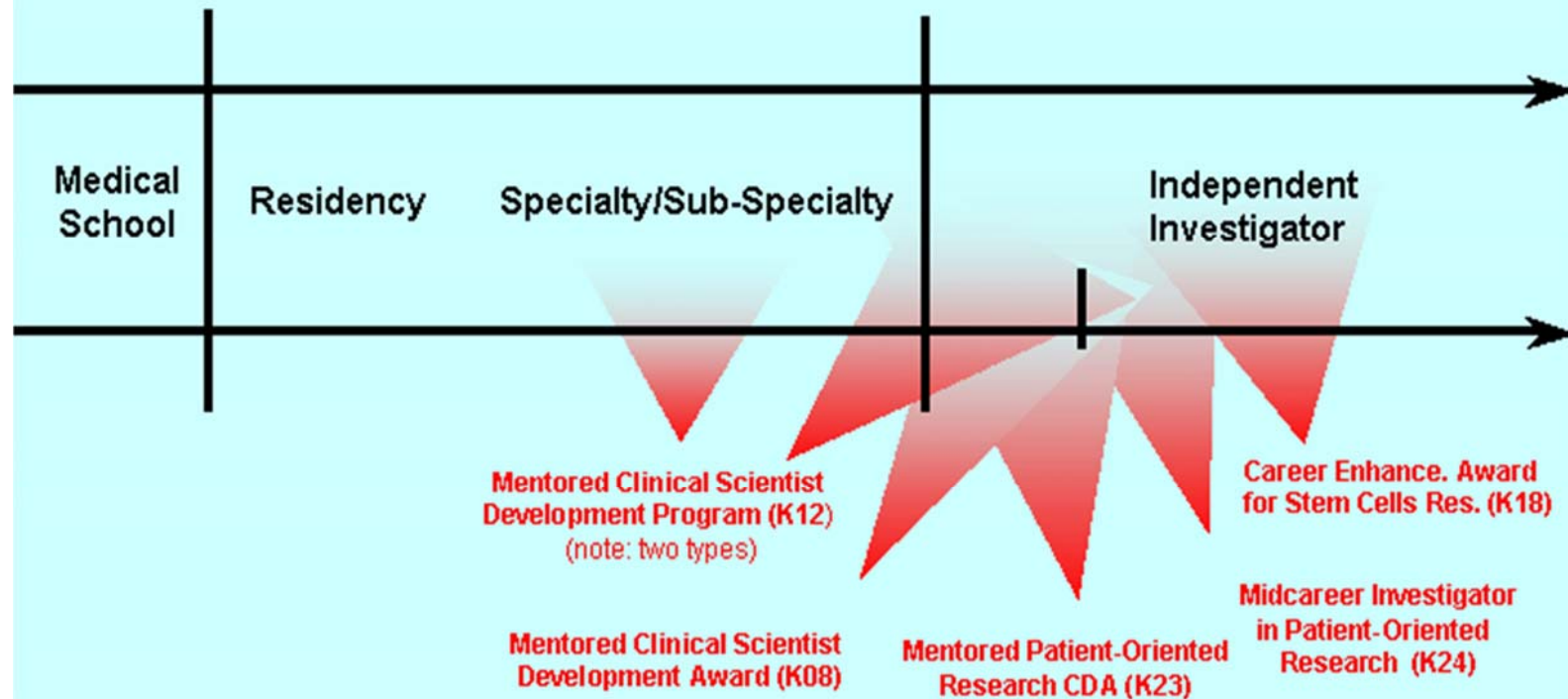


# Types of NIH Funding



## Career Development Awards (K Awards) for Individuals with a Health-Professional Doctorate



**Note:** Individuals with clinical doctorates may also be eligible for awards shown for individuals with research doctorates. The following awards are not shown:

- **Academic Career Award (K07)**
- **Mentored Quantitative Research Career Development Award (K25)**
- **Midcareer Investigator Award in Mouse Pathobiology Research (K26)**

# T32: Pediatric Hematology and Transfusion Medicine Research Training Award Year 6

|         |  |
|---------|--|
| Who     | Fellows interested in academic research focused career   |
| How     | Two year bench or clinically focused research project with courses in CTR or related disciplines   |
| Where   | With R01 funded investigator (CNHS, GWU) or tenured NIH investigator   |
| When    | RFA to be send out in February with submission of Letter of Intent and grant submission with career development plan and Letter of Support to follow |
| What    | Biochemistry and cell biology; Hemostasis and thrombosis; immunobiology and molecular physiology; cellular immunotherapy and transplantation         |
| Contact | nluban@childrensnational.org<br>cbollard@childrensnational.org   |

## **T32 Training Program in Hematology**

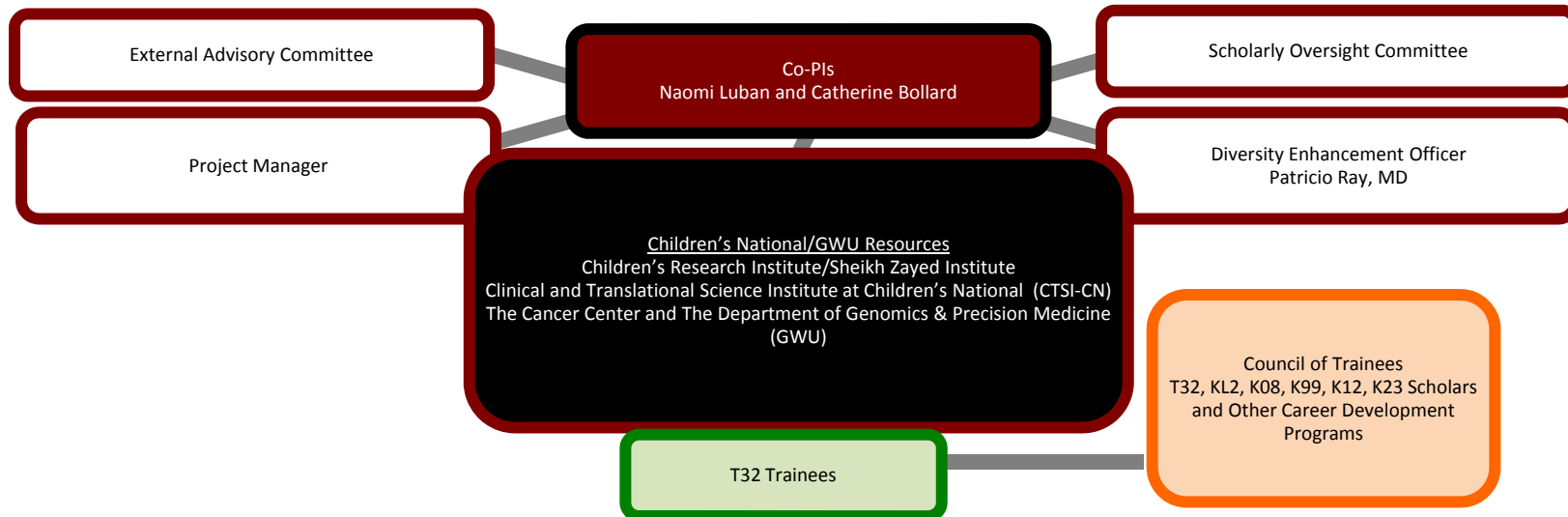
The Training Program in Hematology provides interdisciplinary laboratory training for postdoctoral fellows preparing for full-time careers in hematology, immunology, critical care, cardiology and nephrology and transfusion medicine with a focus on immunology (including cellular therapy), immunobiology and thrombosis research. Trainees work on projects relevant to these focus areas in the **laboratories of leading investigators** at Children's, The George Washington University, our academic partner, Howard University and the intramural laboratories at the National Institute of Health. These research projects, in conjunction with participation in **coursework**, research seminars, journal clubs, laboratory meetings, and attendance at national and international meetings, afford trainees the basic knowledge and required skills to function successfully as independent investigators. Trainees and mentors participate in a **highly interactive research environment**.

The goals of the Training Program in Hematology and Immunobiology are to: (i) educate, train, and prepare MD physician-scientists and PhD scientists in training for future productive academic careers in laboratory research on the **biology of blood disorders, transfusion medicine and immunology/cellular therapy**, (ii) train and motivate these researchers to translate their findings between the laboratory and the clinic; and (iii) further advance the research environment through the application of core facilities and resources within CRI and the CTSI-CN.

The program resides within the Division of Pediatric Hematology -Oncology and CRI's Center for Cancer and Immunology Research. The program spans several disciplines and academic administrative subunits. Close collaborations are held with many outstanding departments, including Genetics, Oncology, Pathology, and adult immunology researchers at GWU's Cancer Center. The program is administered under the leadership of Drs. Naomi Luban and Catherine Bollard.

Postdoctoral fellows receive funding support for stipends, medical insurance, travel, and training-related expenses. The mechanism of support is through an **NIH Ruth L. Kirschstein National Research Service Award Institutional Research Training Grant (T32)**. Additional program information, stipend levels, and service payback obligations may be found at the NIH Ruth L. Kirschstein National Research Service Award [website](#).

# Mentors, 2019



| MENTORS/PRECEPTORS       |                             |
|--------------------------|-----------------------------|
| INTERNAL MENTORS         | EXTERNAL MENTORS            |
| Catherine Bollard, MD    | John Barrett, MD            |
| Randall Burd, MD PhD     | Ron Gress, MD               |
| Kevin Cleary, PhD        | Willy Flegel, MD            |
| Robert Freishtat, MD MPH | Imtiaz Khan, PhD            |
| Lisa Guay-Woodford, MD   | Sergi Nekhai, MD            |
| Richard Jonas, MD        | Ed Seto, PhD                |
| Naomi Luban, MD          | Eduardo Sotomayor, MD       |
| Suvankar Majumdar, MD    | Alexandros Tzatsos, MD, PhD |
| Patricio Ray, MD         | John Tisdale, MD            |
|                          | Susan Wood, PhD, DHPM,      |

# Internal Mentors/Preceptors

| <b>Name</b>                         | <b>Affiliation</b>            | <b>Areas of Investigation</b>   |
|-------------------------------------|-------------------------------|---|
| <b>Catherine Bollard, MD, MBChB</b> | CCIR                          | Cellular therapy, immunotherapy   |
| <b>Randall Burd, MD, PhD</b>        | Trauma and Burn Surgery/ CTR  | Modeling, health outcomes   |
| <b>Kevin Cleary, PhD</b>            | SZIPSI                        | Bioengineering, devices   |
| <b>Robert Freishtat, MD, MPH</b>    | ED/CGM                        | Molecular biology and genetics, exosomes, coagulation and bleeding disorders including sepsis |
| <b>Lisa Guay-Woodford, MD</b>       | CTR/CGM                       | Molecular genetics , rare diseases  |
| <b>Richard Jonas, MD</b>            | Cardiovascular Surgery/SZIPSI | Hypoxia, animal models, of CV disease, CNS dysfunction  |
| <b>Naomi Luban, MD</b>              | Transfusion Medicine/ CTR     | Sickle cell disease, longitudinal study design, transfusion indications and complications     |
| <b>Suvankar Majumdar, MD</b>        | Hematology/CTR                | Sickle cell disease, metabolomics, CV risks , clinical trials design                          |
| <b>Patricio Ray, MD</b>             | CGM/Vascular biology          | Coagulopathy, HIV   |

## External Mentors/Preceptors

| <b>Name</b>                        | <b>Affiliation</b>  | <b>Areas of Investigation</b>  |
|------------------------------------|---|--|
| <b>John Barrett, MD</b>            | GWU Cancer Center   | Immune cell base therapies ,HSCT   |
| <b>Willy Flegel, MD</b>            | NIH- Laboratory Services Section, Division of Transfusion Medicine. | Molecular genetics of blood groups; alloantibody and autoantibody formation            |
| <b>Ron Gress, MD</b>               | NIH-Experimental transplantation and immunology Branch              | T-Cell reconstitution, T-Cell receptor repertoire                                      |
| <b>Imtiaz Khan, PhD</b>            | GWU-Microbiology, Immunology, Tropical Medicine                     | CD 8 and immune response to pathogens  |
| <b>Sergei Nekhai, MD</b>           | Howard University-Proteomics Core Lab Director                      | Iron metabolism, effect of hypoxia on viral replication                                |
| <b>Ed Seto, PhD</b>                | GWU Cancer Center   | Molecular genetics and cell cycle differentiation                                      |
| <b>Eduardo Sotomayor, MD</b>       | GWU Cancer Center   | Immunology and immunotherapy, concentration on chemo-immunotherapy combination therapy |
| <b>John Tisdale, MD</b>            | NIH-NHLBI.Molecular and Clinical Hematology Branch                  | HSCT; gene modification and gene therapy   |
| <b>Alexandros Tzatsos, MD, PhD</b> | GWU- Anatomy and Cell Biology                                       | Epigenetic regulation of HSC, gene discovery   |
| <b>Susan Wood, PhD, DHPM</b>       | GWU-SPH   | Health policy and management   |

# Former T32 Trainees

| Table B. Trainee Publications |   |
|-------------------------------|---|
| Trainee                       | Publications  |
| Megha Kaushal, MD             | <p>Fasano RM, Leong T, Kaushal M, Sagiv E, Luban NL, Meier ER. Effectiveness of red blood cell exchange, partial manual exchange, and simple transfusion concurrently with iron chelation therapy in reducing iron overload in chronically transfused sickle cell anemia patients. <i>Transfusion</i>. 2016;56(7):1707-15. PMID: 26997031</p> <p>Kaushal M, Byrnes C, Khademian Z, Duncan N, Luban NL, Miller JL, Fasano RM, Meier ER. Examination of reticulocytosis among chronically transfused children with sickle cell anemia. <i>PLoS One</i>. 2016; 26;11(4):e0153244. PMID: PMC4845996</p> <p>Krivega I, Byrnes C, de Vasconcellos JF, Lee YT, Kaushal M, Dean A, Miller JL. Inhibition of G9a methyltransferase stimulates fetal hemoglobin production by facilitating LCR/γ-globin looping. <i>Blood</i>. 2015;126(5):665-72. PMID: PMC4520881</p> <p>Lee YT, de Vasconcellos JF, Byrnes C, Kaushal M, Rabel A, Tumburu L, Allwardt JM, Miller JL. Erythroid-specific expression of LIN28A is sufficient for robust gamma-globin gene and protein expression in adult erythroblasts. <i>PLoS One</i>. 2015;10(12):e0144977. PMID: PMC4684222</p> <p>de Vasconcellos JF, Fasano RM, Lee YT, Kaushal M, Byrnes C, Meier ER, Anderson M, Rabel A, Braylan R, Stroncek DF, Miller JL. LIN28A expression reduces sickling of cultured human erythrocytes. <i>PLoS One</i>. 2014;9(9):e106924. PMID: PMC4154803</p> <p>Lee YT, de Vasconcellos JF, Yuan J, Byrnes C, Noh SJ, Meier ER, Kim KS, Rabel A, Kaushal M, Muljo SA, Miller JL. LIN28B-mediated expression of fetal hemoglobin and production of fetal-like erythrocytes from adult human erythroblasts ex vivo. <i>Blood</i>. 2013;122(6):1034-41. PMID: PMC3739030</p> |
| Ekta Kapadia, MD              | <p>Kapadia E, Wong EC, Perez-Albuerna E, Jacobsohn D. Extracorporeal photopheresis performed on the CELLEX® compared with the UVAR-XTS® instrument is more efficient and better tolerated in children with steroid-refractory graft-versus-host disease. <i>Pediatr Blood Cancer</i>. 2015;62(8):1485-8.</p>  |
| Nefthi Sandeep, MD            | <p>Sandeep N, Uchida Y, Ratnayaka K, McCarter R, Hanumanthaiah S, Bangoura A, Zhao Z, Oliver-Danna J, Leatherbury L, Kanter J, Mukoyama YS. Characterizing the angiogenic activity of patients with single ventricle physiology and aortopulmonary collateral vessels. <i>J Thorac Cardiovasc Surg</i>. 2016;151(4):1128-35.e2. PMID: PMC4801745</p> <p>Sandeep N, Slack MC. Percutaneous management of coronary sinus atrial septal defect: two cases representing the spectrum for device closure and a review of the literature. <i>Cardiol Young</i>. 2014;24(5):797-806. PMID: 24666783</p> <p>Qu J, Volpicelli FM, Garcia LI, Sandeep N, Zhang J, Márquez-Rosado L, Lampe PD, Fishman GI. Gap junction remodeling and spironolactone-dependent reverse remodeling in the hypertrophied heart. <i>Circ Res</i>. 2009;104(3):365-71. PMID: PMC2652889</p> <p>Kalcheva N, Qu J, Sandeep N, Garcia L, Zhang J, Wang Z, Lampe PD, Suadicani SO, Spray DC, Fishman GI. Gap junction remodeling and cardiac arrhythmogenesis in a murine model of oculodentodigital dysplasia. <i>Proc Natl Acad Sci U S A</i>. 2007;104(51):20512-6. PMID: PMC2652889</p>   |
| Lydia Pecker, MD              | <p>Pecker LH, Schaefer BA, Luchtman-Jones L, Br J Haematol. Knowledge insufficient: the management of haemoglobin SC disease. 2017 Feb;176(4):515-526. PMID: 27982424</p> <p>Pecker LH, Guerrero MF, Loechelt B, Massaro A, Abraham AA, Fasano RM, Meier ER. Homozygous α-thalassemia: Challenges surrounding early identification, treatment, and cure. <i>Pediatr Blood Cancer</i>. 2017;64(1):151-155. PMID: 27573913</p> <p>Pecker LH, Timsar A, Pary PP, Denomme GA, Criss VR, Luban NLC, Hwang EI, Wong ECC. Unusual serological findings associated with Ceftriaxone-induced immune hemolytic anemia in a child with disseminated low-grade glioma. <i>Pediatr Blood Cancer</i>. 2016;63(10):1852-5. PMID: 27304608</p> <p>Barriteau CM, Thompson AL, Meier ER, Pecker LH. Sickle cell disease related internet activity is three times less frequent than cystic fibrosis related internet activity. <i>Pediatr Blood Cancer</i>.</p>   |



## Current T32 Scholar



Elizabeth Jones Kerris  
Prothrombotic Transformation of Vascular  
Endothelium in Response to Platelet –derived  
exosomes in ECMO

## Mentorship team



Nehal N. Mehta, MD,  
MSCE  
Lasker Clinical  
Research Scholar



Robert Freishtat,  
MD, MPH

# KL2 and CHRCD

| Item/Requirement  | KL2  | CHRCD   |
|---|--|---|
| Candidate degree  | MD, PhD, DDS, DO, PharmD   | MD  |
| Addition specification  | US citizen, green card holder  | Pediatric Residency Trained; US citizen, green card holder  |
| Duration of award   | 2, option for 3rd  | 3 years   |
| Federally funded  | Yes  | Yes   |
| US citizen/green card mandated  | Yes  | Yes   |
| Focus   | Clinical, Translational and Community-based research   | Basic and Translational Science   |
| Career development expectation  | Yes  | Yes   |
| MSCTR, MPH expected   | Yes  | No but encouraged   |
| Process <ul style="list-style-type: none"> <li>LOI</li> <li>Notification to apply</li> <li>Application due</li> <li>Notice of Award</li> <li>Award</li> </ul>   | Key Dates <ul style="list-style-type: none"> <li>1/18</li> <li>1/22</li> <li>3/5</li> <li>6/1- 5/31/20</li> </ul>  | Key Dates <ul style="list-style-type: none"> <li>Applications received and reviewed on rolling basis until positions filled</li> <li>4/1</li> <li>Late May</li> <li>On or around 7/1/19</li> </ul>  |
| Award \$ per year <ul style="list-style-type: none"> <li>Salary</li> <li>Ancillaries</li> </ul>   | Sources of support for the 75% effort include the CTSI-CN funds of up to \$75,000 per year. The department of the scholar must cover the difference, if any, between the available \$75,000 and 75% of the scholar's salary. The CTSI-CN will provide an additional \$25,000 per year for KL2 program related educational and research expenses. | \$75,000 is expected to cover the scholar's salary and benefit expenses, and up to \$25,000 is to cover educational and research costs  |
| % FTE expected  | 75%  | 75%   |
| Other federal funding allowed   | Selected circumstances   | Yes   |
| Contact for application process <ul style="list-style-type: none"> <li>Program Directors</li> <li>Program Lead</li> <li>Budget</li> </ul>   | Contacts: <ul style="list-style-type: none"> <li>Luban/Massaró</li> <li>R.Smilow</li> <li>V. Yankov</li> </ul>   | Contacts: <ul style="list-style-type: none"> <li>Freishtat</li> <li>N/A</li> </ul>  |
| Other expectations for participants once awarded <ul style="list-style-type: none"> <li>K-Sig</li> <li>Grants Enhancement Program</li> <li>ACTS mtg</li> <li>Scholarship Oversight Committee</li> <li>Progress Report</li> <li>Post award progress</li> </ul> | Expectation include an annual IDP plus: <ul style="list-style-type: none"> <li>Quarterly plus retreat</li> <li>Monthly</li> <li>Bi-annually as appropriate</li> <li>Bi-annual</li> <li>Annual</li> <li>5-7 years post award</li> </ul>   | <ul style="list-style-type: none"> <li>CHRCD Scholars are expected to submit an annual progress report, providing an overview of the scholar's research accomplishments and research goals for the coming year. The progress report should include a list of the scholar's abstracts, publications and grants. Additionally, scholars may be required to present their research at appropriate annual conferences to colleagues in pediatric research.</li> </ul> |

# GWUSOM MSHS in Clinical and Translational Science

## **COMPLETE**

Graduate Certificate in  
Clinical Research Practice  
(15 credits total)

### Required (15 credits)

**HSCI 6263: Biostatistics for CTR (3)**  
**HSCI 6264: Epidemiology for CTR (3)**  
**CTS 6246: CTR Capstone Project (3)**  
**CTS 6203: Ethical Legal Issues in CTR (1)**  
**CTS 6202: Research Methods for CTR (2)**  
**CTS 6205: Clinical Trial Investigation (3)**  
(no electives of choice)

## **ADD CLASSES AND EARN**

MS in Clinical & Translational Research  
(36 credits total)

### Required (18 credits):

**CTS 6201: Critical Analysis Clinical Research (3)**  
**CTS 6273: Bioinformatics for Genomics (3)**  
**CTS 6261: Foundations in CTR (3)**  
**CTS 6265: Grants CTR (3) or CTS 6266 Grantwriting Indiv (3)**  
**CTS 6275: Transdisc. Research Proposal (3)**  
**CTS 6285: Collaboration and Team Science (3)**

### Plus Choice of One Elective:

**RAFF 6201: Introduction to Global Regulatory Affairs**  
**RAFF 6202: Regulatory Strategy in the Drugs and Biologics**  
**RAFF 6203: Regulatory Strategy in the Devices and Diagnostics**  
**RAFF 6204: Clinical Research for Regulatory Affairs**  
**RAFF 6205: Regulatory Compliance**  
**CRA 6202: Medicines Development**  
**CRA 6203: Partnerships with Human Subjects**  
**CRA 6204: The Clinical Research Industry**  
**CRA 6209: Quality and Risk Management**  
**INFR 6101: Princ Biomedical Informatics**



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### Welcome

The NIH Clinical Center's Introduction to the Principles and Practice of Clinical Research (IPPCR) course trains registrants on how to effectively and safely conduct clinical research. The course focuses on the spectrum of clinical research and the research process by highlighting biostatistical and epidemiologic methods, study design, protocol preparation, patient monitoring, quality assurance, ethical and legal issues, and much more.

### Course Objectives

- Provide an overview of basic biostatistical and epidemiologic methods involved in conducting clinical research.
- Describe the principles involved in the ethical, legal, and regulatory issues in clinical human subjects research, including the role of Institutional Review Boards (IRBs).
- Describe principles and issues involved in monitoring patient-oriented research.
- Describe the infrastructure required in performing clinical research and the steps involved in developing and funding research studies.

### Intended Audience

# Questions?

- T32 addressed to Drs. Bollard and Luban
- KL2 addressed to Drs. Luban and Massaro
- CHRCO addressed to Drs. Freishtat and Teach
- MSHS, Certificate in CTR, MPH: must have instructor status as a fellow
- IPPCR: look for emails in Aug. for Sept. start date