

University of California, San Francisco
CURRICULUM VITAE

Name: Jonathan H Esensten, MD, PhD

Position: Assistant Adjunct Professor, Step 4
Laboratory Medicine
School of Medicine

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EDUCATION

2000 - 2004	Harvard University	AB	magna cum laude, biochemical sciences	
2004 - 2012	University of California, San Francisco	MD		
2004 - 2010	University of California, San Francisco	PhD	immunology	Dr. Jeffrey Bluestone
2012 - 2016	University of California, San Francisco	residency	Clinical Pathology	
2014 - 2015	University of California, San Francisco	clinical fellowship	Blood Banking and Transfusion Medicine	
2015 - 2019	University of California, San Francisco	postdoctoral fellowship		Dr. Wendell Lim

LICENSES, CERTIFICATION

2014	Medical licensure, California (A128404)
2016	Diplomate, American Board of Pathology (Clinical Pathology)
2017	Diplomate, American Board of Pathology (Blood Banking / Transfusion Medicine)

PRINCIPAL POSITIONS HELD

2017 - 2021	University of California, San Francisco	Adjunct Assistant Professor	Department of Laboratory Medicine
2021 - 2022	University of California, San Francisco	Assistant Professor of Clinical Laboratory Medicine	Department of Laboratory Medicine
2022 - present	University of California, San Francisco	Adjunct Assistant Professor (part time)	Department of Laboratory Medicine

OTHER POSITIONS HELD CONCURRENTLY

2016 - present	University of California, San Francisco	Medical Director, UCSF HICTF and GMP Facility	Diabetes Center
2017 - present	University of California, San Francisco	Co-director, Regulatory T Cell Therapy Group	Diabetes Center
2018 - present	Zuckerberg San Francisco General Hospital	Medical Director, Blood Bank and Transfusion Service	Clinical Laboratory
2018 - present	University of California, San Francisco	cGMP Medical Director	Alpha Stem Cell Clinic
2019 - present	University of California, San Francisco	PI, Cellular Therapy Development Lab	Laboratory Medicine
2020 - present	University of California, San Francisco	Associate Fellowship Director, UCSF Cellular Therapy / Transfusion Medicine Fellowship	Laboratory Medicine
2022 - present	Sheba Medical Center, Tel Hashomer, Israel	Director, Advanced Biotherapy Center	Sheba Research Authority

HONORS AND AWARDS

2012	Alpha Omega Alpha Honor Society	University of California, San Francisco
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2013 Krevans Award in Laboratory Medicine San Francisco General Hospital
2016 Leukemia & Lymphoma Society Fellow Leukemia & Lymphoma Society

KEYWORDS/AREAS OF INTEREST

transfusion medicine, T cell engineering, cellular therapy, synthetic biology

CLINICAL ACTIVITIES

CLINICAL ACTIVITIES SUMMARY

1) I serve as Associate Medical Director for the UCSF HICTF and GMP Facility. This laboratory manufactures cell therapy products for first in human clinical trials.

- I am involved in every aspect of cell therapy process development.
- I manage relationships with internal and external cell therapy development and manufacturing groups, including pharma and biotech
- I provide consultation for clinicians whose patients are receiving products from the facility
- In 2017-2018, I oversaw a \$2.7M renovation of the facility to prepare for a major collaborative project with a multinational pharmaceutical company.

2) I served as the medical director of the blood bank and transfusion service at Zuckerberg San Francisco General Hospital from 2018-2022. I continue to serve as a part-time attending physician in the clinical laboratory from May 2022.

- Assisted/consulted in preparation for a new EMR (Epic) that rolled out in 2019
- Improved the massive transfusion protocol and served as a Co-PI on a COVID-19 convalescent plasma randomized controlled trial

3) I served as chair of the transfusion committee at Zuckerberg San Francisco General Hospital from 2018-2022.

4) In 2020 and 2021, I attended approximately 1.5 weeks per month on the transfusion service at Benioff Children's Hospital Oakland, a 200 bed children's hospital which is part of UCSF Health. It is a level 1 pediatric trauma center and has a well-developed stem cell transplant program. I am primarily responsible for interactions with the hospital blood supplier (Vitalant).

CLINICAL SERVICES

2016 - 2022	Medical Director, HICTF and GMP Facility	Full time
2022 - present	Associate Medicine Director, HICTF and GMP Facility	Part time
2018 - present	Attending physician, ZSFG Clinical Laboratory	Part time
2019 - 2021	Attending physician, Benioff Children's Hospital Oakland Blood Bank and Transfusion Service	1.5 weeks per month

PROFESSIONAL ACTIVITIES

MEMBERSHIPS

2019 - present AABB, member

2017 - present International Society for Cell Therapy, member

INVITED PRESENTATIONS - INTERNATIONAL

2021	Mexican Society for Immunology, XXIV Congreso Nacional de Inmologia	speaker
2021	Ella Lemelbaum Institute for Immuno-Oncology, Sheba Medical Center, Tel Hashomer, Israel	invited lecture

INVITED PRESENTATIONS - NATIONAL

2009	National Institute on Aging (NIA), Baltimore, MD. Host: Dr. Mark Mattson, Senior Investigator and Chief, Laboratory of Neurosciences; Chief, Cellular and Molecular Neurosciences Section, NIA	speaker
2018	Treg Summit 2018: Treg directed therapy for autoimmune disorder	speaker
2019	Cellular Therapeutics in Trauma and Critical Care	speaker

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

2007	UCSF / UC Berkeley Immunology Program Retreat	speaker
2014	59th Annual Meeting of the California Blood Bank Society	speaker
2015	Bio-Rad Sponsored Continuing Education Symposium for laboratory professionals	speaker
2017	Rinat (Pfizer), allogeneic T cell group	speaker
2018	Northern California Society of Toxicology	speaker

UNIVERSITY AND PUBLIC SERVICE

SERVICE ACTIVITIES SUMMARY

I am the chair of the Transfusion Committee at Zuckerberg San Francisco General Hospital.

UNIVERSITY SERVICE

UC SYSTEM AND MULTI-CAMPUS SERVICE

2222 - present	Pioneering models for affordable CRISPR genomic therapies - Taskforce organized by UC Berkeley / Innovative Genomics Institute	subgroup leader (manufacturing)
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UCSF CAMPUSWIDE

2018 - present	Transfusion Committee, Zuckerberg San Francisco General Hospital	chair
2020 - present	UCSF Cellular Therapy Product Development Task Force	Co-chair

SCHOOL OF MEDICINE

2012 - 2012 Ad-hoc Disciplinary Committee member

DEPARTMENTAL SERVICE

2013 - 2014 Resident and Fellow Quality Improvement Incentive Program leader
(Dept. of Laboratory Medicine)

COMMUNITY AND PUBLIC SERVICE

2011 - 2013 Adath Israel Congregation (San Francisco) member of the board of trustees

2011 - 2021 Adath Israel Congregation (San Francisco) fundraiser (gabbai)

2017 - 2018 Oakland Hebrew Day School member of the board of trustees

CONTRIBUTIONS TO DIVERSITY

CONTRIBUTIONS TO DIVERSITY Contributions to Diversity, Equity & Inclusion Guidance

Members of historically underrepresented or economically disadvantaged groups have to overcome many difficult barriers to build careers in medicine and science. I fully support the goal of training future generations of leaders in medicine and science who reflect the diversity of the US. Building a diverse workforce in medicine and science is one method to fight against entrenched economic inequality and systematic racism.

My specific past contributions to diversity and equity include:

- 1) Mentoring several individuals in medicine or science who are first generation Americans and/or are the first in their family to go to college. In each of these cases, these individuals have continued on to a successful next step of their careers.
- 2) Encouraging those who I supervise to take full advantage of available childbearing leave and to take whatever time off they need to care for their family members.
- 3) I have given raises to retain employees of limited economic means who have significant family commitments to allow these employees to continue their academic careers. Their only alternative would be to switch to a more lucrative position in private industry.
- 4) Advocating for applicants to the Herbert Perkins Cellular Therapy and Transfusion Medicine Fellowship who come from underrepresented or economically disadvantaged groups to improve the diversity of the fellowship.
- 5) Advocating for Transfusion Service policies at ZSFG that promote health equity, such as routine genotyping of patients with suspected having RhD variants. These variants are most commonly found in patients of African ancestry.

For the future, I plan to participate in Diversity, Equity, and Inclusion Champion Training offered by UCSF. I also plan to continue to engage in the activities described above. Since a truly equitable society can only be built through large-scale political change, I plan to get more involved with progressive politics as my time and resources permit.

TEACHING AND MENTORING

TEACHING SUMMARY

When I am on service, I teach laboratory medicine and transfusion medicine to medical students, laboratory medicine residents, and clinical fellows at Zuckerberg San Francisco General Hospital (ZSFG). I participate in the weekly call conference (teaching conference). When appropriate, I teach about evidence-based transfusion practice, present clinical vignettes, and teach residents about transfusion in the setting of trauma, obstetric hemorrhage, and other clinical situations commonly encountered at ZSFG. I sign out all transfusion cases, so I have regular email and phone contact with residents when I am not on site.

I am Associate Fellowship Director for the UCSF Cellular Therapy / Transfusion Medicine Fellowship. In this role, I meet regularly with the fellow to mentor a specific cellular therapy project.

FORMAL TEACHING

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2018 - present	Cellular Therapy and cGMP Manufacturing Elective ZSFGH/UCSF	course head	Medicine	1
	2020 - present	UCSF Cellular Therapy / Transfusion Medicine Fellowship	Associate Fellowship Director	Medicine	1

INFORMAL TEACHING

2013 - 2017 I tutored students and residents for medical licensing examinations on a private basis.

MENTORING SUMMARY

- I mentored a UC Berkeley undergraduate student during my time in graduate school. He went on to be accepted at the Medical Scientist Training Program at Yale University. I mentored a graduate student in the laboratory of Dr. Wendell Lim (Joseph Choe), a college student who has worked with me for 2 summers (Hannah Brodskaya), and a Staff Research Associate II (Emma Moulton) who joined the Lim lab in 2018. I mentored a student in the UCSF Medical Scientist Training Program (MD/PhD program) who is interested in laboratory medicine and cellular therapy (Theo Roth). I am also mentoring Dr. Brian Shy, Dr. Joanna Balcerek, and Dr. Gisela Marrero while they were the Herbert Perkins Cellular Therapy and Transfusion Medicine Fellows.

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Mentor Type	Role	Current Position
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Dates	Name	Program or School	Mentor Type	Role	Current Position
2007 - 2010	Dimitri de Kouchkovsky	Bluestone Laboratory, UCSF	Research/Scholarly Mentor	undergraduate researcher	Medical Scientists Training Program, Yale University
2015 - 2019	Joseph Choe	Tetrad graduate program	Research/Scholarly Mentor	graduate student	graduate student
2017 - 2018	Hannah Brodskaya	Wendell Lim Lab summer internship	Research/Scholarly Mentor	intern	undergraduate at Yeshiva University
2018 - 2019	Theo Roth	UCSF, Medical Scientist Training Program	Research/Scholarly Mentor, Career Mentor	preceptor for Medicine 160.04	student, Medical Scientist Training Program
2018 - 2020	Emma Moulton	Staff Research Associate, Wendell Lim Lab, UCSF	Research/Scholarly Mentor	Staff Research Associate, UCSF	MSTP Student, UCLA

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2017 - present	Dr. Brian Shy	Herbert Perkins Cellular Therapy and Transfusion Medicine Fellow, UCSF Department of Laboratory Medicine	Project Mentor, Co-Mentor/Clinical Mentor	faculty mentor	faculty, UCSF Department of Laboratory Medicine

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2020 - present	Dr. Joanna Balcerek	Herbert Perkins Cellular Therapy and Transfusion Medicine Fellow, UCSF Department of Laboratory Medicine	Research/Scholarly Mentor, Project Mentor, Career Mentor	faculty mentor	resident, UCSF Department of Laboratory Medicine
2021 - present	Dr. Gisela Marrero	Herbert Perkins Cellular Therapy and Transfusion Medicine Fellow, UCSF Department of Laboratory Medicine	Research/Scholarly Mentor	faculty mentor	Herbert Perkins Cellular Therapy and Transfusion Medicine Fellow, UCSF Department of Laboratory Medicine

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH PROGRAM (SEPARATE SUMMARY)

I completed a postdoctoral fellowship in the laboratory of Dr. Wendell Lim. I have a manuscript in preparation on the development of synthetic biology control modules for anti-cancer T cells based on chimeric antigen receptor technology. As part of this work with Dr. Lim, I published review article on cell therapy and synthetic biology in 2017:

Esensten JH, Bluestone JA, Lim WA. Engineering Therapeutic T Cells: From Synthetic Biology to Clinical Trials. *Annu Rev Pathol.* 2016 Dec 05. PMID: 27959633

As co-Director of the clinical Regulatory T Cell program, I provided scientific and technical leadership for clinical trials involving regulatory T cell therapy. In that role, I was involved in process development research for new and existing cell therapy products. One example of my recent contributions involved designing experiments and analyzing data for the recent publication of which I am a co-author:

Roth TL et al. Reprogramming human T cell function and specificity with non-viral genome targeting. *Nature.* 2018 Jul 11. PMID: 29995861

Based on the advances in the above publication, my group is working in collaboration with Dr. Alex Marson and the Innovative Genomics Institute to develop a gene edited Treg product for patients with IPEX-like syndrome, a rare autoimmune disease. We are planning to submit a pre-IND to the FDA in 2020. The IGI has committed \$750,000 to this project which is shared

between my lab and Alex Marson's lab. Additional \$500,000 in funding was provided by the UCSF Living Therapeutics Initiative.

I am led a cellular therapy process development effort sponsored by the Parker Institute for Cancer Immunotherapy. This project goal is to develop a T cell based therapy for a rare form of brain cancer. The project is in collaboration with Dr. Hideho Okada from UCSF and Dr. Lisa Butterfield from Parker Institute. The IND for this project was accepted by FDA in 2022.

I am working on another cellular therapy development project to develop a SynNotch-CAR T cell therapy for glioblastoma. The project funded by the California Institute for Regenerative Medicine and private donations. This project is done in collaboration with Dr. Hideho Okada and Dr. Wendell Lim. My group is directing development of the manufacturing process.

I am also directing process development for another cellular therapy development project involving a CD72-targetted CAR T cell therapy which was funded by the California Institute for Regenerative Medicine and the DoD. This project is done in collaboration with Dr. Arun Wiita.

Finally, I worked on 2 COVID-19 related projects. I am a co-investigator on a randomized controlled trial of COVID-19 convalescent plasma at UCSF/ZSFG. I led an effort in April and May 2020 to recruit and refer COVID19 convalescent plasma donors to Vitalant. A manuscript describing this work was accepted to the American Journal of Clinical Pathology. The plasma units collected from this effort are used to support the trial. I also led process development and manufacturing efforts for an allogeneic polyclonal regulatory T cell product that will be used in phase I/II trial to treat ARDS associated with COVID19. This work resulted in a successful IND submission in early 2021. This trial is now closing in mid-2022. The other UCSF faculty leading this project are Dr. Jeff Bluestone and Dr. Qizhi Tang.

RESEARCH AWARDS - CURRENT

1. N/A	PI	10 % effort	Esensten (PI)
UCSF Living Therapeutics Initiative		11/1/2021	11/1/2022
Gene-corrected regulatory T cell therapy (gcTreg) for treatment of IL2RA deficiency		\$ 500,000 direct/yr 1	\$ 500,000 total

In partnership with clinicians and researchers at UCSF, the Gladstone-UCSF Institute of Genomic Immunology (GUIGI), Yale University, and the Innovative Genomics Institute (IGI), we are developing an autologous gene-corrected regulatory T cell (gcTreg) therapy for a patient with a severe monogenic immune disorder caused by loss-of-function mutations in the IL2RA gene.

I lead the group doing process development and manufacturing for this single-patient clinical trial.

2. NA	co-PI	10 % effort	Eyquem (PI)
UCSF Living Therapeutics Initiative		11/1/2021	10/30/2023
Clinical manufacturing of TRAC targeted BCMA-CAR T cells for Multiple Myeloma		\$ 250,000 direct/yr 1	\$ 250,000 total

To conduct IND-enabling studies for a TRAC-BCMA CAR T cell therapy for patients with relapsed/refractory multiple myeloma (RRMM) and establish a gene-edited T cell clinical manufacturing platform at UCSF

I am leading the process development team which develops the manufacturing approach, analytic assays, and CMC section of the IND. I will also be leading tech transfer of the manufacturing process to Thermo Fisher (CDMO).

3. N/A	co-PI	10 % effort	Tang (PI)
UCSF Living Therapeutics Initiative			
		11/1/2021	10/30/2023
Anti-BCMA CAR T cell therapy for alloantibody desensitization in kidney transplantation			
To conduct IND-enabling studies for the development of anti-BCMA CAR T cell therapy for alloantibody desensitization in patients awaiting kidney transplantation.			
I am leading the process development team which develops the manufacturing approach, analytic assays, and CMC section of the IND.			
4. A136829	PI	10 % effort	Esensten (PI)
Multiply Labs, Inc			
		03/01/2021	09/30/2022
Robotics in Cell Therapy Manufacturing Consortium			
Project		\$ 900,000 direct/yr	\$ 900,000 total
		1	
The overall goal of this project is to design, build, and validate the proof-of-concept of a cGMP- compliant robotic manufacturing system that is able to produce gene modified polyclonal regulatory T cell (Treg) therapies with minimal involvement of a manual operator.			
I am leading the UCSF team for this project.			
5. 138454A	PI	10% % effort	Esensten (PI)
ArsenalBio			
		01/01/2022	01/31/2022
Serves supporting cGMP manufacturing activities			
		\$ 1.43M direct/yr 1	\$ 1.43M total
Support for process development and manufacturing of a novel cell therapy product.			
Oversight of all activities in HICTF and GMP Facility.			
6. 138703B	Co-PI	10% % effort	Wiita (PI)
California Institute for Regenerative Medicine			
		02/01/2022	01/31/2024
CD72 NanoCARs for the Treatment of Refractory Pediatric B-cell Acute Lymphoblastic Leukemia			
		\$ unk direct/yr 1	\$ 1.04M total
The goal of this project is to perform preclinical optimization, evaluation, and process engineering of the CD72-targeting nanobody-based CAR-T cell product published in our recent Cancer Discovery paper (Nix et al, 2021) for the treatment of relapsed/refractory pediatric B-cell malignancies.			
Leading process development/CMC efforts for this novel cellular therapy.			
7. TRAN1-12905	Co-PI	10 % effort	Okada (PI)
California Institute for Regenerative Medicine			
		01/01/2022	
Development of novel synNotch CART cell therapy in patients with recurrent EGFRvIII+ glioblastoma			
		\$ unk direct/yr 1	\$ 4.55M total
The objective of this project is to carry out the work necessary to have a successful pre-IND meeting in which the FDA agrees to the planned pivotal GLP safety studies to be done prior to IND filing for the product: EGFRvIII-synNotch primed EphA2/IL-13R α 2 CART cells (these are human T cells transduced with a lentiviral vector to express EGFRvIII-synNotch that, when bound to EGFRvIII, stimulates expression of anti-EphA2/IL-13R α 2 CAR).			

Leading process development/CMC efforts for this novel cellular therapy.

RESEARCH AWARDS - PAST

1. CA-0088759	PI	100 % effort	Esensten (PI)
Leukemia and Lymphoma Society		07/01/2016	06/30/2019
Local delivery of therapeutic cytokines via engineered T cells in immunocompetent mouse models of cancer		\$ 55000 direct/yr 1	\$ 165000 total

2. PICI CA-0132138	PI	10 % effort	Esensten (PI)
Parker Institute for Cancer Immunotherapy		12/17/2019	12/16/2020
Developing a process to manufacture a transgenic T cell product expressing the H3.3K27M T cell receptor		\$ 420,000 direct/yr 1	\$ 420,000 total

PI

3. N/A	Co-PI	10 % effort	Marson (PI)
Innovative Genomics Institute		07/01/2020	06/30/2021
Clinical development of gene-corrected regulatory T cells		\$ 750,000 direct/yr 1	\$ 750,000 total

Regulatory T cells are a subset of T cells that prevent inflammation. In a small number of patients, mutation of the IL2RA gene interferes with the function of these cells, leading to autoimmune disease. A multidisciplinary group at UCSF-UCB with extensive experience in the clinical manufacturing of regulatory T cells is developing methods to manufacture IL2RA gene-corrected regulatory T cells using CRISPR/Cas9 technology. These cells will then be infused into a patient to treat her autoimmune disease.

I am leading the team doing process development and cGMP manufacturing for a CRISPR/Cas9 based therapy for a patient with a rare Mendelian autoimmune syndrome.

PEER REVIEWED PUBLICATIONS

1. Esensten JH, Tsytzykova AV, Lopez-Rodriguez C, Ligeiro FA, Rao A, Goldfeld AE. NFAT5 binds to the TNF promoter distinctly from NFATp, c, 3 and 4, and activates TNF transcription during hypertonic stress alone. *Nucleic Acids Res.* 2005; 33(12):3845-54. PMID: 16027109.
2. Esensten JH, Lee MR, Glimcher LH, Bluestone JA. T-bet-deficient NOD mice are protected from diabetes due to defects in both T cell and innate immune system function. *J Immunol.* 2009 Jul 1; 183(1):75-82. PMID: 19535634.
3. Esensten JH, Wofsy D, Bluestone JA. Regulatory T cells as therapeutic targets in rheumatoid arthritis. *Nat Rev Rheumatol.* 2009 Oct; 5(10):560-5. PMID: 19798031.
4. McClymont SA, Putnam AL, Lee MR, Esensten JH, Liu W, Hulme MA, Hoffmüller U, Baron U, Olek S, Bluestone JA, Brusko TM. Plasticity of human regulatory T cells in healthy subjects and patients with type 1 diabetes. *J Immunol.* 2011 Apr 1; 186(7):3918-26. PMID: 21368230.

5. Bour-Jordan H, Esensten JH, Martinez-Llordella M, Penaranda C, Stumpf M, Bluestone JA. Intrinsic and extrinsic control of peripheral T-cell tolerance by costimulatory molecules of the CD28/B7 family. *Immunol Rev.* 2011 May; 241(1):180-205. PMID: 21488898.
6. de Kouchkovsky D, Esensten JH, Rosenthal WL, Morar MM, Bluestone JA, Jeker LT. microRNA-17-92 regulates IL-10 production by regulatory T cells and control of experimental autoimmune encephalomyelitis. *J Immunol.* 2013 Aug 15; 191(4):1594-605. PMID: 23858035.
7. Martínez-Llordella M, Esensten JH, Bailey-Bucktrout SL, Lipsky RH, Marini A, Chen J, Mughal M, Mattson MP, Taub DD, Bluestone JA. CD28-inducible transcription factor DEC1 is required for efficient autoreactive CD4+ T cell response. *J Exp Med.* 2013 Jul 29; 210(8):1603-19. PMID: 23878307.
8. Wiita AP, Hsu GW, Lu CM, Esensten JH, Wells JA. Circulating proteolytic signatures of chemotherapy-induced cell death in humans discovered by N-terminal labeling. *Proc Natl Acad Sci U S A.* 2014 May 27; 111(21):7594-9. PMID: 24821784.
9. McClelland ML, Soukup TM, Liu SD, Esensten JH, de Sousa E Melo F, Yaylaoglu M, Warming S, Roose-Girma M, Firestein R. Cdk8 deletion in the Apc(Min) murine tumour model represses EZH2 activity and accelerates tumourigenesis. *J Pathol.* 2015 Dec; 237(4):508-19. PMID: 26235356
10. Esensten JH, Helou YA, Chopra G, Weiss A, Bluestone JA. CD28 Costimulation: From Mechanism to Therapy. *Immunity.* 2016 May 17; 44(5):973-88. PMID: 27192564.
11. Esensten JH, Bluestone JA, Lim WA. Engineering Therapeutic T Cells: From Synthetic Biology to Clinical Trials. *Annu Rev Pathol.* 2016 Dec 05. PMID: 27959633
12. Roth TL, Puig-Saus C, Yu R, Shifrut E, Carnevale J, Li PJ, Hiatt J, Saco J, Krystofinski P, Li H, Tobin V, Nguyen DN, Lee MR, Putnam AL, Ferris AL, Chen JW, Schickel JN, Pellerin L, Carmody D, Alkorta-Aranburu G, Del Gaudio D, Matsumoto H, Morell M, Mao Y, Cho M, Quadros RM, Gurusurthy CB, Smith B, Haugwitz M, Hughes SH, Weissman JS, Schumann K, Esensten JH, May AP, Ashworth A, Kupfer GM, Greeley SAW, Bacchetta R, Meffre E, Roncarolo MG, Romberg N, Herold KC, Ribas A, Leonetti MD, Marson A. Reprogramming human T cell function and specificity with non-viral genome targeting. *Nature.* 2018 Jul 11. PMID: 29995861
13. Esensten JH, Muller YD, Bluestone JA, Tang Q. Regulatory T cell therapy for autoimmune and autoinflammatory diseases: the next frontier. *J Allergy Clin Immunol.* 2018 Oct 24. PMID: 30367909
14. Balcerek J, Trejo E, Levine K; Couey P, Kornberg Z, Rogine C, Young C, Li, PJ, Shy BR, Taylor JE, Bakhtary S, Friedlander T, Lynch K, Bern C, Esensten JH. Hospital-Based Donor Recruitment and Pre-Donation Serologic Testing for COVID-19 Convalescent Plasma. *Am J Clin Pathol.* 2021 Jan 5:aqaa268. doi: 10.1093/ajcp/aqaa268. Online ahead of print. PMID: 33399201
15. Lynch KL, Whitman JD, Lacanienta NP, Beckerdite EW, Kastner SA, Shy BR, Goldgof GM, Levine AG, Bapat SP, Stramer SL, Esensten JH, Hightower AW, Bern C, Wu AHB. Magnitude and kinetics of anti-SARS-CoV-2 antibody responses and their relationship to disease severity. *Clin Infect Dis.* 2020 Jul 14. PMID: 32663256

16. Lindgren C, Leinbach A, Annis J, Tanna J, Zhang N, Esensten JH, Hanley PJ. Processing laboratory considerations for multi-center cellular therapy clinical trials: a report from the Consortium for Pediatric Cellular Immunotherapy. *Cytotherapy*. 2021 02; 23(2):157-164. PMID: 33189573. PMCID: PMC7855775
17. Lynch KL, Whitman JD, Lacanienta NP, Beckerdite EW, Kastner SA, Shy BR, Goldgof GM, Levine AG, Bapat SP, Stramer SL, Esensten JH, Hightower AW, Bern C, Wu AHB. Magnitude and Kinetics of Anti-Severe Acute Respiratory Syndrome Coronavirus 2 Antibody Responses and Their Relationship to Disease Severity. *Clin Infect Dis*. 2021 01 27; 72(2):301-308. PMID: 33501951. PMCID: PMC7454426
18. Matthay ZA, Hellmann ZJ, Callcut RA, Matthay EC, Nunez-Garcia B, Duong W, Nahmias J, LaRiccia AK, Spalding MC, Dalavayi SS, Reynolds JK, Lesch H, Wong YM, Chipman AM, Kozar RA, Penaloza L, Mukherjee K, Taghlabi K, Guidry CA, Seng SS, Ratnasekera A, Motameni A, Udekwu P, Madden K, Moore SA, Kirsch J, Goddard J, Haan J, Lightwine K, Ontengco JB, Cullinane DC, Spitzer SA, Kubasiak JC, Gish J, Hazelton JP, Byskosh AZ, Posluszny JA, Ross EE, Park JJ, Robinson B, Abel MK, Fields AT, Esensten JH, Nambiar A, Moore J, Hardman C, Terse P, Luo-Owen X, Stiles A, Pearce B, Tann K, Abdul Jawad K, Ruiz G, Kornblith LZ. Outcomes after ultramassive transfusion in the modern era: An Eastern Association for the Surgery of Trauma multicenter study. *J Trauma Acute Care Surg*. 2021 07 01; 91(1):24-33. PMID: 34144557. PMCID: PMC8243874
19. Bainbridge ED, Hsue PY, Esensten JH, Lynch KL, Hendrickson CM, Doernberg SB, Fung M, Chin-Hong P, Di Germanio C, Norris PJ, Simmons G, Glidden DV, Luetkemeyer AF. Characteristics of High-Titer Convalescent Plasma and Antibody Dynamics After Administration in Patients With Severe Coronavirus Disease 2019. *Open Forum Infect Dis*. 2021 Aug; 8(8):ofab385. PMID: 34405093. PMCID: PMC8344822
20. Dong S, Hiam-Galvez KJ, Mowery CT, Herold KC, Gitelman SE, Esensten JH, Liu W, Lares AP, Leinbach AS, Lee M, Nguyen V, Tamaki SJ, Tamaki W, Tamaki CM, Mehdizadeh M, Putnam AL, Spitzer MH, Ye CJ, Tang Q, Bluestone JA. The effect of low-dose IL-2 and Treg adoptive cell therapy in patients with type 1 diabetes. *JCI Insight*. 2021 Sep 22; 6(18). PMID: 34324441. PMCID: PMC8492314
21. Balcerek J, Shy BR, Putnam AL, Masiello LM, Lares A, Dekovic F, Acevedo L, Lee MR, Nguyen V, Liu W, Paruthiyil S, Xu J, Leinbach AS, Bluestone JA, Tang Q, Esensten JH. Polyclonal Regulatory T Cell Manufacturing Under cGMP: A Decade of Experience. *Front Immunol*. 2021; 12:744763. PMID: 34867967. PMCID: PMC8636860

REVIEW ARTICLES

1. St. Lezin EM and Esensten JH. To Irradiate or Not to Irradiate: What is the Role of the Transfusion Service in Preventing TA-GVHD? *California Blood Bank Society Today*. Fall 2013, Vol. 31, No. 2. <http://goo.gl/jkRqFb>

BOOKS AND CHAPTERS

1. I wrote the following chapters for PATHPrimer (Elsevier online pathology education project):
 - Enterobacteraciae
 - Serologic Principles of DAT Testing and Adsorption/Elution/> Causes of Positive DAT/> Evidence of In Vivo Hemolysis
 - Types of Immune Hemolytic Anemia
 - Benefits of Transfusing Packed Red Blood Cells With Plasma and Platelets in Traumatic

Hemorrhage
Effect of Storage on Red Blood Cells

SIGNIFICANT PUBLICATIONS

1. Esensten JH, Lee MR, Glimcher LH, Bluestone JA. T-bet-deficient NOD mice are protected from diabetes due to defects in both T cell and innate immune system function. *J Immunol.* 2009 Jul 1; 183(1):75-82. PMID: 19535634.

This was a first author publication from my graduate school work.

2. Martínez-Llordella M, Esensten JH, Bailey-Bucktrout SL, Lipsky RH, Marini A, Chen J, Mughal M, Mattson MP, Taub DD, Bluestone JA. CD28-inducible transcription factor DEC1 is required for efficient autoreactive CD4⁺ T cell response. *J Exp Med.* 2013 Jul 29; 210(8):1603-19. PMID: 23878307.

This was a co-first author publication from my graduate school work.

3. Esensten JH, Bluestone JA, Lim WA. Engineering Therapeutic T Cells: From Synthetic Biology to Clinical Trials. *Annu Rev Pathol.* 2016 Dec 05. PMID: 27959633

This was a first author review article from my postdoctoral fellowship in my area of clinical and research focus.

PATENTS ISSUED OR PENDING

1. WO2021183850A1 Compositions and methods for modifying a target nucleic acid