



Agnieszka Czechowicz

Assistant Professor of Pediatrics (Stem Cell Transplantation)

Pediatrics - Stem Cell Transplantation

 Curriculum Vitae available Online

CLINICAL OFFICES

- **Division of Stem Cell Transplantation and Regenerative Medicine**

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ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

Beatrice Ochoa - Administrative Assistant

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Bio

BIO

Prof. Agnieszka Czechowicz is one of our newest and youngest faculty member within the Department of Pediatrics, Division of Stem Cell Transplantation and Regenerative Medicine. Although a recent recruit, she previously spent a decade on the Farm as a Stanford undergraduate, medical student and graduate student and completed her PhD work with Prof. Irv Weissman one of the great leaders in stem cell biology. As a physician-scientist, Dr. Czechowicz subsequently did clinical training in Boston, completing her residency in Pediatrics at the prestigious Boston Children's Hospital and pursued subspecialty training in Pediatric Hematology/Oncology at the Dana Farber Cancer Institute while simultaneously conducting postdoctoral research with Prof. Derrick Rossi and Prof. David Scadden. Her primary clinical interest is in bone marrow failure and aplastic anemia, and in other diseases commonly necessitating stem cell transplantation.

Dr. Czechowicz is a strong physician-scientist and advocate of translational research. She has done pioneering work showing that hematopoietic stem cell depletion is a critical component to donor hematopoietic stem cell engraftment, and multiple pre-clinical and clinical therapies are in development based upon her studies. She is passionate about mentoring and training future generations of physicians and scientists, and is very supportive of helping diverse trainees on various traditional and non-traditional career paths. Dr. Czechowicz can best be reached through her administrative assistant Beatrice Ochoa (beatrice.ochoa@stanford.edu).

Recent press releases on her efforts can be found here:

<https://med.stanford.edu/news/all-news/2019/02/antibody-drug-combo-may-obviate-need-for-tissue-matching.html>

<http://med.stanford.edu/news/all-news/2019/02/antibody-could-increase-cure-rate-for-blood-immune-disorders.html>

CLINICAL FOCUS

- Pediatric Hematology-Oncology
- Hematopoietic Stem Cell Transplantation
- Bone Marrow Transplantation
- Bone Marrow Failure
- Inherited Genetic Diseases
- Fanconi Anemia
- Aplastic Anemia
- Bone Marrow Metastasis
- Bone Marrow Harvesting
- Organ Tolerance
- Pediatrics
- Clinical Trials
- Gene Therapy / Gene-Editing

ACADEMIC APPOINTMENTS

- Assistant Professor, Pediatrics - Stem Cell Transplantation
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Member, Stanford Institute for Stem Cell Biology and Regenerative Medicine, (2018- present)
- Member, Stanford Diabetes Research Center, (2018- present)

HONORS AND AWARDS

- Lorry I. Lokey Faculty Scholar, Stanford University School of Medicine ((2019-2024))

PROFESSIONAL EDUCATION

- Fellowship: Stanford University Pediatric Hematology Oncology Fellowship (2017) CA
- Clinical Fellowship III, Stanford University , Pediatric Hematology/Oncology/Transplant (2017)
- Clinical Fellowship I-II, Dana Farber Cancer Institute , Pediatric Hematology/Oncology/Transplant (2016)
- Fellowship: Boston Children's Hospital Training Verifications (2017) MA
- Clinical Residency, Boston Children's Hospital , Pediatrics (2014)
- Residency: Boston Children's Hospital Training Verifications (2014) MA
- Medical Education: Stanford University School of Medicine Registrar (2012) CA

PATENTS

- Irving L. Weissman, Agnieszka Czechowicz, Deepta Bhattacharya, Daniel Kraft. "United States Patent Application US12447634 Selective immunodepletion of endogenous stem cell niche for engraftment", Leland Stanford Junior University
- Alexandra Glucksmann, Deborah Palestrant, Louis Anthony Tartaglia, Jordi Mata-Fink, Agnieszka Czechowicz, Alexis Borisy. "United States Patent Application US14536319 CRISPR-RELATED METHODS AND COMPOSITIONS WITH GOVERNING gRNAS", EDITAS MEDICINE Inc, University of Iowa Research Foundation (UIRF), Massachusetts Institute of Technology, Broad Institute Inc
- David T. Scadden, Rahul Palchaudhuri, Derrick J. Rossi, Agnieszka Czechowicz. "United States Patent Application US15148837 Compositions and methods for non-myeloablative conditioning", President And Fellows Of Harvard College, The General Hospital Corporation, The Children's Medical Center Corporation
- Albert Edge, Michael Venuti, Agnieszka Czechowicz. ""United States Patent Application US62288958 Expansion and differentiation of inner ear supporting cells and methods of use thereof"", Massachusetts Eye and Ear Infirmary, Decibel Therapeutics

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Czechowicz's research is aimed primarily at understanding how hematopoietic stem cells interact with their microenvironment in order to subsequently modulate these interactions to ultimately improve bone marrow transplantation and unlock biological secrets that further enable regenerative medicine broadly. She is interested

in increasing our basic science understanding of these interactions and also developing new novel therapies that stem from this work to expand treatment options for a wide variety of pediatric and adult diseases. Her group is primarily focused on studying the cell surface receptors on hematopoietic stem/progenitor cells and bone marrow stromal cells, and is actively learning how manipulating these can alter cell state and cell fate. Her group is using cells and serum from both mice and primary specimens from healthy and diseased patients for these studies and using a variety of exciting new tools and methods to unlock future discoveries. There are many exciting opportunities that stem from her work across a variety of disease states ranging from rare genetic diseases, autoimmune diseases, solid organ transplantation, microbiome and cancer. While her group is primarily focused on blood and immune diseases, the expanded potential of this work is much broader and can be applied to other organ systems as well and she is very eager to develop collaborations across disease areas.

Dr. Czechowicz has also been part of the initial founding team of several companies including Global Blood Therapeutics, Editas Medicine, Decibel Therapeutics and Magenta Therapeutics and advises multiple other transformative companies. As a true physician scientist, she has done pioneering work showing that hematopoietic stem cell depletion is a critical component to donor hematopoietic stem cell engraftment, and multiple pre-clinical and clinical therapies are in development based upon her studies. Currently Stanford has one open clinical trial derived from Dr. Czechowicz's research for patients with severe combined immunodeficiency, and she is in the process of opening up additional clinical studies. <https://clinicaltrials.gov/ct2/show/NCT02963064>

Research Interests: Hematopoietic Stem Cells (HSC), Hematopoietic Stem Cell Transplantation (HSCT), Monoclonal Antibodies, Immunotoxins, Cell Cycle, Cell Fate, Cell Membrane, Cell Surface Antigens, Microenvironment, Stem Cell Niche, Cell Proliferation, Stem Cell Quiescence, DNA Damage, DNA Repair, Rare Genetic Diseases, Bone Marrow Failure, Aplastic Anemia, Genomics, Fanconi Anemia (FA), Immunodeficiency (SCID), Gastrointestinal Stromal Tumors (GIST), Rhabdomyosarcoma, Neuroblastoma, Myelodysplastic Syndrome (MDS), Acute Myeloid Leukemia (AML), Graft vs Host Disease (GVHD), Immune Tolerance, Histocompatibility Testing, Immunologic Deficiency Syndromes, Hemoglobinopathies, Transplantation Conditioning, Immune Tolerance, Gene Therapy, Gene-Editing, Base-Editing, Cytokines, Cytokine Receptors, Serum, Clinical Trials, Autoimmune diseases, Multiple Sclerosis, Microbiome, Cancer, Cell Therapy, Allogenic Bone Marrow Transplantation (BMT), Metabolic Diseases, Hurler Syndrome

For more information, please visit our lab webpage: <http://med.stanford.edu/czechowiczlab.html>

CLINICAL TRIALS

- A Clinical Trial to Evaluate the Safety of RP-L102 in Pediatric Subjects With Fanconi Anemia Subtype A, Not Recruiting

Teaching

COURSES

2019-20

- Biology and Disease of Hematopoiesis: IMMUNOL 223 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Carla Dib, Pui Yan Ho, Supawat Thongthip

Publications

PUBLICATIONS

- **Anti-CD117 antibody depletes normal and myelodysplastic syndrome human hematopoietic stem cells in xenografted mice.** *Blood*
Pang, W. W., Czechowicz, A., Logan, A. C., Bhardwaj, R., Poyser, J., Park, C. Y., Weissman, I. L., Shizuru, J. A.
2019

- **Hematopoietic chimerism and donor-specific skin allograft tolerance after non-genotoxic CD117 antibody-drug-conjugate conditioning in MHC-mismatched allotransplantation.** *Nature communications*
Li, Z., Czechowicz, A., Scheck, A., Rossi, D. J., Murphy, P. M.
2019; 10 (1): 616
- **Selective hematopoietic stem cell ablation using CD117-antibody-drug-conjugates enables safe and effective transplantation with immunity preservation.** *Nature communications*
Czechowicz, A., Palchadhuri, R., Scheck, A., Hu, Y., Hoggatt, J., Saez, B., Pang, W. W., Mansour, M. K., Tate, T. A., Chan, Y. Y., Walck, E., Wernig, G., Shizuru, et al
2019; 10 (1): 617
- **Clonal-level lineage commitment pathways of hematopoietic stem cells in vivo.** *Proceedings of the National Academy of Sciences of the United States of America*
Lu, R., Czechowicz, A., Seita, J., Jiang, D., Weissman, I. L.
2019
- **Anti-human CD117 antibody-mediated bone marrow niche clearance in non-human primates and humanized NSG mice.** *Blood*
Kwon, H., Logan, A. C., Chhabra, A., Pang, W. W., Czechowicz, A., Tate, K., Le, A., Poyser, J., Hollis, R., Kelly, B. V., Kohn, D. B., Weissman, I. L., Prohaska, et al
2019
- **Efficient transplantation via antibody-based clearance of hematopoietic stem cell niches** *SCIENCE*
Czechowicz, A., Kraft, D., Weissman, I. L., Bhattacharya, D.
2007; 318 (5854): 1296-1299
- **Nongenotoxic antibody-drug conjugate conditioning enables safe and effective platelet gene therapy of hemophilia A mice.** *Blood advances*
Gao, C., Schroeder, J. A., Xue, F., Jing, W., Cai, Y., Scheck, A., Subramaniam, S., Rao, S., Weiler, H., Czechowicz, A., Shi, Q.
2019; 3 (18): 2700-2711
- **Anti-CD117 antibody depletes normal and myelodysplastic syndrome human hematopoietic stem cells in xenografted mice** *BLOOD*
Pang, W. W., Czechowicz, A., Logan, A. C., Bhardwaj, R., Poyser, J., Park, C. Y., Weissman, I. L., Shizuru, J. A.
2019; 133 (19): 2069-78
- **Anti-human CD117 antibody-mediated bone marrow niche clearance in nonhuman primates and humanized NSG mice** *BLOOD*
Kwon, H., Logan, A. C., Chhabra, A., Pang, W. W., Czechowicz, A., Tate, K., Le, A., Poyser, J., Hollis, R., Kelly, B. V., Kohn, D. B., Weissman, I. L., Prohaska, et al
2019; 133 (19): 2104-8
- **The MarrowMiner: A Novel Minimally Invasive and Effective Device for the Harvest of Bone Marrow.** *Biology of blood and marrow transplantation : journal of the American Society for Blood and Marrow Transplantation*
Kraft, D., Walck, E., Carrasco, A., Crocker, M., Song, L., Long, M., Mosse, M., Nadeem, B., Imanbyev, G., Czechowicz, A., McCullough, M.
2019
- **Safe and Effective Platelet-Targeted Gene Therapy of Hemophilia A Enabled Using Non-Genotoxic, Antibody-Drug-Conjugate Conditioning**
Gao, C., Schroeder, J., Czechowicz, A., Shi, Q.
CELL PRESS.2018: 25
- **Selective HSC-Ablation Using CD117 Antibody-Drug-Conjugates Enables Safe and Effective Murine and Human Hematopoietic Stem Cell Transplantation**
Czechowicz, A., Palchadhuri, R., Scheck, A., Hu, Y., Hoggatt, J., Saez, B., Pang, W. W., Mansour, M. K., Shizuru, J. A., Winau, F., Scadden, D. T., Rossi, D. J.
CELL PRESS.2018: 23-24
- **Immune Sparing Conditioning for BMT/HSCT Using Anti-Ckit Immunotoxins**
Czechowicz, A., Palchadhuri, R., Scheck, A., Hu, Y., Winau, F., Hoggatt, J., Saez, B., Mansour, M. K., Sykes, D., Scadden, D., Rossi, D.
ELSEVIER SCIENCE INC.2018: S60-S61
- **Anti-Human CD117 Antibodies Mediate Clearance of Myelodysplastic Syndrome Hematopoietic Stem Cells and Facilitate Establishment of Normal Hematopoiesis in Transplantation**
Pang, W. W., Czechowicz, A., Poyser, J., Park, C. Y., Weissman, I. L., Shizuru, J. A.
ELSEVIER SCIENCE INC.2018: S230-S231

- **Non-genotoxic conditioning for hematopoietic stem cell transplantation using a hematopoietic-cell-specific internalizing immunotoxin** *NATURE BIOTECHNOLOGY*
Palchaudhuri, R., Saez, B., Hoggatt, J., Schajnovitz, A., Sykes, D. B., Tate, T. A., Czechowicz, A., Kfoury, Y., Ruchika, F. N., Rossi, D. J., Verdine, G. L., Mansour, M. K., Scadden, et al
2016; 34 (7): 738-?
- **A trial of plerixafor adjunctive therapy in allogeneic hematopoietic cell transplantation with minimal conditioning for severe combined immunodeficiency** *PEDIATRIC TRANSPLANTATION*
Dvorak, C. C., Horn, B. N., Puck, J. M., Czechowicz, A., Shizuru, J. A., Ko, R. M., Cowan, M. J.
2014; 18 (6): 602-608
- **A trial of alemtuzumab adjunctive therapy in allogeneic hematopoietic cell transplantation with minimal conditioning for severe combined immunodeficiency** *PEDIATRIC TRANSPLANTATION*
Dvorak, C. C., Horn, B. N., Puck, J. M., Adams, S., Veys, P., Czechowicz, A., Cowan, M. J.
2014; 18 (6): 609-616
- **In utero depletion of fetal hematopoietic stem cells improves engraftment after neonatal transplantation in mice.** *Blood*
Derderian, S. C., Togarrati, P. P., King, C., Moradi, P. W., Reynaud, D., Czechowicz, A., Weissman, I. L., MacKenzie, T. C.
2014; 124 (6): 973-980
- **Anti-KIT monoclonal antibody inhibits imatinib-resistant gastrointestinal stromal tumor growth** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Edris, B., Willingham, S. B., Weiskopf, K., Volkmer, A. K., Volkmer, J., Muehlenberg, T., Montgomery, K. D., Contreras-Trujillo, H., Czechowicz, A., Fletcher, J. A., West, R. B., Weissman, I. L., van de Rijn, et al
2013; 110 (9): 3501-3506
- **Anti-CD117 (c-Kit) Monoclonal Antibodies Deplete Human Hematopoietic Stem Cells and Facilitate Their Replacement in Humanized NOD/SCID/IL2R gamma(-/-) Mice: A Non-Toxic Conditioning Regimen for Allogeneic Transplantation**
Logan, A. C., Czechowicz, A., Kelley, B. V., Thway, T. M., Magana, I., Krampf, M. R., Poyser, J., Hollis, R. P., Kohn, D. B., Weissman, I. L., Shizuru, J. A.
AMER SOC HEMATOLOGY.2012
- **Clonal Level Lineage Commitment of Mouse Hematopoietic Stem Cells in Vivo** *54th Annual Meeting and Exposition of the American-Society-of-Hematology (ASH)*
Lu, R., Czechowicz, A., Seita, J., Weissman, I. L.
AMER SOC HEMATOLOGY.2012
- **Transplantation Conditioning Regimens Induce Different Hematopoietic Stem Cell Differentiation in Mice At the Clonal Level** *53rd Annual Meeting and Exposition of the American-Society-of-Hematology (ASH)*
Lu, R., Czechowicz, A., Weissman, I. L.
AMER SOC HEMATOLOGY.2011: 67-67
- **Purified Hematopoietic Stem Cell Transplantation: The Next Generation of Blood and Immune Replacement** *HEMATOLOGY-ONCOLOGY CLINICS OF NORTH AMERICA*
Czechowicz, A., Weissman, I. L.
2011; 25 (1): 75-?
- **Targeted Clearance of Human Hematopoietic Stem Cell Niches Via Inhibition of SCF Signaling Using Monoclonal Antibody SR-1** *52nd Annual Meeting and Exposition of the American-Society-of-Hematology (ASH)*
Czechowicz, A., Bhardwaj, R., Park, C. Y., Weissman, I. L.
AMER SOC HEMATOLOGY.2010: 39-40
- **Inhibition of Mac-1 (CD11b/CD18) enhances tumor response to radiation by reducing myeloid cell recruitment** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Ahn, G., Tseng, D., Liao, C., Dorie, M. J., Czechowicz, A., Brown, J. M.
2010; 107 (18): 8363-8368
- **Purified Hematopoietic Stem Cell Transplantation: The Next Generation of Blood and Immune Replacement** *IMMUNOLOGY AND ALLERGY CLINICS OF NORTH AMERICA*
Czechowicz, A., Weissman, I. L.
2010; 30 (2): 159-?

- **Niche recycling through division-independent egress of hematopoietic stem cells** *JOURNAL OF EXPERIMENTAL MEDICINE*
Bhattacharya, D., Czechowicz, A., Ooi, A. G., Rossi, D. J., Bryder, D., Weissman, I. L.
2009; 206 (12): 2837-2850
- **Niche Recycling through Division-Independent Egress of Hematopoietic Stem Cells.** *51st Annual Meeting and Exposition of the American-Society-of-Hematology*
Czechowicz, A., Bhattacharya, D., Ooi, L., Rossi, D. J., Bryder, D., Weissman, I. L.
AMER SOC HEMATOLOGY.2009: 37-37
- **Hematopoietic stem cell quiescence attenuates DNA damage response and permits DNA damage accumulation during aging** *CELL CYCLE*
Rossi, D. J., Seita, J., Czechowicz, A., Bhattacharya, D., Bryder, D., Weissman, I. L.
2007; 6 (19): 2371-2376
- **Adult human hematopoietic cells differentiate into mature T cells via a CD3-4+8-intermediate within the mouse thymic microenvironment; A new model system for the study of human thymocyte development.** *47th Annual Meeting of the American-Society-of-Hematology*
Kraft, D. L., Czechowicz, A., Weissman, I. L.
AMER SOC HEMATOLOGY.2005: 155A-156A