

**CURRICULUM VITAE****Bartosz Grzywacz****PROFESSIONAL ADDRESS**

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**IDENTIFYING INFORMATION****Education**

<b>Degree</b>	<b>Institution</b>	<b>Date Degree Granted</b>
M.D.	Wroclaw Medical University, Wroclaw, Poland, with honors	1999
Internship	Lower Silesian Centre for Cellular Transplantation, Wroclaw, Poland	2001 - 2005
Residency training in Medicine,	Lower Silesian Centre for Cellular Transplantation, Wroclaw, Poland	1999 - 2005
Research Associate / postdoctoral fellow	Hirszfeld Institute for Immunology and Experimental Therapy, Polish Academy of Science, Wroclaw, Poland	
Postdoctoral Fellow	University of Minnesota Cancer Center / Pediatric BMT, Laboratory of Dr M.Verneris	2005 - 2009
Residency training in Anatomic and Clinical Pathology	University of Wisconsin Hospital and clinics, Madison Wisconsin	2009 - 2013
Fellowship training in Hematopathology	Cleveland Clinic, Cleveland OH	2013 - 2014
Assistant Professor ,	Department of Laboratory Medicine and Pathology, University of Minnesota	2014 - present

**Certifications, Licenses**

Unrestricted Medical License in the state of Minnesota - 2014-present  
 Board Certified in Hematopathology, 2014  
 Board Certified in Pathology, AP / CP, 2013

**Academic Appointments**

University of Minnesota, Twin Cities Campus	July 2014- present	Assistant Professor
University of Minnesota, Twin Cities Campus	2005 - 2009	Postdoctoral scholar

**Academic Administrative Appointments**

Medical Director, BioNet, ( Biological Material Procurement Network) , University of Minnesota  
April 2015 to September 2017

**Clinical/Hospital Appointments**

Hematopathology fellowship	Cleveland Clinic	2013 - 2014
Pathology residency, AP / CP	University of Wisconsin Hospital and Clinics	2009 - 2013
Physician, Internal Medicine Residency Training	Lower Silesia Center for Cellular Transplantation, Wroclaw, Poland	2001 - 2005
Internship	Lower Silesia Center for Cellular Transplantation, Wroclaw, Poland	1999 - 2001

**Current Membership and Offices in Professional Organizations**

American Society for Clinical Pathology; Member  
United States College of Anatomic Pathology; Member  
Society for Hematopathology; Member  
International Society for the Advancement of Cytometry; Member  
American Society of Hematology; Member  
College of American Pathologists; Member  
Society for Natural Immunity  
American Association for Advancement of Liver Disease

**HONORS AND AWARDS FOR RESEARCH WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE****External Sources****American Society of Hematology ASH Trainee Research Award, 2011**

Title: *The influence of KIR and HLA genotype on the Clinical Response to Immunotherapy with Rituximab for patients with Follicular Lymphoma*

**American Society of Hematology Abstract Achievement Award**

(formerly known as “ASH Travel award”) to attend ASH annual meeting ;

New Orleans, LA (2013), San Francisco, CA (2008), Atlanta, GA (2007) , San Diego, CA (2006)

**Society for Natural Immunity Young Investigator Travel Award**

Natural Killer Cell Meeting; Cambridge, England, 2007

Natural Killer Cell Meeting; Noordwijkerhout , Netherlands, 2004

**European Federation for Immunogenetics Young Investigator Travel Award**

18th European Histocompatibility Conference, Sofia, Bulgaria, 2004

**SCHOLARSHIP**

2001	Scholarship of the Huygens Program Investigator of NUFFIC (The Netherlands Organization for International Cooperation in Higher Education)	Source: Leiden University Medical Centre, The Netherlands. Principal Investigator: Prof. F.H.J. Class
June-August 1999	Scholarship of the European Federation for Immunogenetics	Department of Immunohematology, Leiden University Medical Center, The Netherlands. Principal Investigator: Prof. F.H.J Class

1996 - 1997	Visiting scholar - Research Assistant	Department of Immunohematology, Leiden University Medical Centre, The Netherlands. Principal Investigator: Prof. F.H.J. Class
June 1996	Summer Exchange Program	Department of Clinical Immunology, Hospital El Puerta del Mar, Cadiz, Spain

## RESEARCH AND SCHOLARSHIP

### Grants and Contracts

#### Current External Sources

1. **Role:** Principal investigator  
**Grant Number:** NIH-NIDDK-DDN-2017-5, HHSN275201700005C  
**External Granting Agency:** NIH / NIDDK  
**Grant Title:** *“Liver Tissue and Cell Distribution System”*  
**Project Dates:** September 29, 2017 - September 28, 2022
2. **Role:** Co- investigator  
**Principal Investigator:** Mark Osborn  
**Grant Number:** RMM 102516 007  
**External Granting Agency:** Regenerative Medicine Minnesota  
**Grant Title :** “Natural Killer Cell Chimeric Antigen Receptor Therapy”  
**Project Dates:** 3/1/2017 to 2/28/2019

#### Previous funding:

1. Role: Co-investigator ; Principal Investigator: Paul Sondel, MD  
Number: 1R01CA166105-01 (2012) ; Agency: NCI  
**Title:** *The role of KIR FcR genotype in the efficacy of Mab and il2 immunotherapy”*
2. Role: Co-investigator ; Principal Investigator: Paul Sondel, MD (Investigator initiated pilot project) ;  
External Agency: University of Wisconsin P. Carbone Cancer Center  
**Title:** *“The Influence of KIR and HLA Genotype on the Response to Rituximab Immunotherapy in ECOG-E4402 Patients with Follicular Lymphoma”*
3. Role: Co-investigator ; Principal Investigator: Michael R. Verneris, MD  
External Agency: American Cancer Society –  
**Title:** *Two pathways of NK cell differentiation: generating alloreactive NK cells*  
**Date:** 2008
4. Role: Co-investigator ; Principal Investigator: Michael R. Verneris, MD MD  
External Agency: Leukemia Research Foundation  
**Title:** *Two pathways of NK Cell Differentiation: Generation of Alloreactive NK Cells*  
**Date:** 2007
5. Role: Principal Investigator ; External Agency: Children’s Cancer Research Fund  
**Title:** *The identification of discrete human NK cell developmental stages*  
**Dates:** 2006.

### University Sources

#### Current:

**Role:** Co-Principal Investigator  
**Funding Source:** Department of Lab Medicine and Pathology New Initiatives Grant  
**Title:** *Mechanism of infection of Natural Killer cells by Epstein Barr Virus (EBV) and the pathogenesis of EBV positive NK cell Lymphomas; Project Dates:* July 2015 – December 2017

**Past:****Role:** Co-investigator ; **Principal Investigator:** Michael R. Verneris, MD MD**Source:** Minnesota Medical Foundation**Title:** *Characterizing developmental Stages of NK cells, 2007***PUBLICATIONS****Impact Analytics**

<i>h</i> -index	<i>h(f)</i> -index	Total Publications	First/Last Author Publications	Total Citations	First/Last Author Citations
<b>11</b>	<b>4</b>	<b>17</b>	<b>6</b>	<b>576</b>	<b>250</b>

**Peer-Reviewed Publications**

- 1) Grzywacz B, Moench L, McKenna D<sup>1</sup>, Tessier K M , Bachanova V , Cooley S, Miller JS, Courville EL. *“Natural killer cell homing and persistence in the bone marrow after adoptive immunotherapy correlates with better leukemia control”*; In press, accepted at The Journal of Immunotherapy
- 2) Kityo C, Nganou Makamdop K, Rothenberger M, Chipman J G, Hoskuldsson T, Beilman GJ, **Grzywacz B**, Mugenyi P , Ssali Rama Akondy F, Anderson J, Schmidt T, Reimann T, Callisto S, Schoepfoerster J, Schuster J, Muloma N, Ssengendo P, Moysi E, Petrovas C, Lanciotti RS, Zhang L, Arevalo MT, Rodriguez B, Ross T, Trautmann L, Sekaly RP, Lederman M, Koup R, Ahmed R, Reilly C, Douek D, Schacker T. *“Lymphoid tissue fibrosis is associated with impaired vaccine responses”*; J Clin Invest. 2018 Jul 2;128(7):2763-2773. PMID:29781814
  - IF: 14.4 Cited : not available (too early)
- 3) Rothenberger M, Wagner JE, Haase A, Richman D, **Grzywacz B**, Strain M, Lada S, Estes J, Fletcher CV, Podany AT, Anderson J, Schmidt T, Wietgreffe S, Schacker T, Verneris MR. *Transplantation of CCR5Δ32 Homozygous Umbilical Cord Blood in a Child With Acute Lymphoblastic Leukemia and Perinatally Acquired HIV Infection*. Open Forum Infect Dis. 2018 May 22;5(5) PMID: 29868623
  - IF: 3.24 Cited : not available (too early)
- 4) Sundin A, **Grzywacz B**, Yohe S, Linden MA, Courville EL. *B-cell posttransplant lymphoproliferative disorder isolated to the central nervous system is Epstein-Barr virus positive and lacks p53 and Myc expression by immunohistochemistry*. Hum Pathol. 2017 Mar;61:140-147. PMID: 27993575, ;
  - IF: 2.899 , Cited 1 time
- 5) Hsi ED, Horwitz SM, Carson KR, Pinter-Brown LC, Rosen ST, Pro B, Federico M, Gisselbrecht C, Schwartz M, Bellm LA, Acosta M, Collie AM, Gruver AM, **Grzywacz B**, Turakhia S, Shustov AR, Advani RH, Feldman T, Lechowicz MJ, Smith SM, Lansigan F, Tulpule A, Craig MD, Greer JP, Kahl BS, Leach JW, Morganstein N, Casulo C, Park SI, Foss FM. : *Analysis of Peripheral T-cell Lymphoma Diagnostic Workup in the United States*. Clin Lymphoma Myeloma Leuk. 2017 Apr;17(4):193-200.. PMID:28209473
  - IF: 2.223 , Cited 2 times
- 6) Ondrejka SL, **Grzywacz B**, Bodo J, Makishima H, Polprasert C, Said JW, Przychodzen B, Maciejewski JP, HSI ED *Angioimmunoblastic T-cell Lymphomas With the RHOA p.Gly17Val mutation have classic clinical and pathologic features*. Am J Surg Pathol 2016 Mar ;40(3):2335-41
  - IF: 2.223 , Cited 2 times

- 7) Bachanova V, Frankel A E, Cao Q, Lewis D, **Grzywacz B**, Verneris M R, Ustun C, Lazaryan A., McClune B, Warlick E D, Kantarjian H, Weisdorf D J, Miller J S, Vallera DA. *Phase I study of a bispecific ligand-directed toxin targeting CD22 and CD19 (DT2219) for refractory B-cell malignancies*. Clinical Cancer Research. 2015; 21(6):1267-1272.
  - IF: 9.25 , Cited 11 times
- 8) Koehn T A, Trimble L L, Alderson K L, Erbe A K, McDowell K A, **Grzywacz B**, Hank JA, Sondel PM. *Increasing the clinical efficacy of NK and antibody-mediated cancer immunotherapy: Potential predictors of successful clinical outcome based on observations in high-risk neuroblastoma*. Frontiers in Pharmacology. 2012; 3 MAY.
  - IF: 4.275 , Cited 20 times
- 9) **Grzywacz B.**, Kataria NK, Kataria N, Blazar BR, Miller JS, Verneris MR. *Natural Killer cell differentiation by myeloid progenitors*. 2009; Blood 117(13):3548-58
  - IF: 10.37, Cited 51 times
- 10) **Grzywacz B**, Miller JS, Verneris MR. *Use of natural killer cells as immunotherapy for leukaemia*. 2008; Best practice & research in Hematology 21:467-483.
  - IF: 3.589, Cited 28 times
- 11) **Grzywacz B**, Kataria N, Verneris MR. *CD56(dim)CD16(+) NK cells downregulate CD16 following target cell induced activation of matrix metalloproteinases*. 2007; Leukemia 21:356-359; Letter to editor
  - IF: 9.923 Cited 74 times
- 12) **Grzywacz B**, Kataria N, Sikora M, Oostendorp RA, Dzierzak EA, Blazar BR, Miller JS, and Verneris MR. *Coordinated acquisition of inhibitory and activating receptors and functional properties by developing human natural killer cells*. 2006; Blood 108:3824-3833.
  - IF: 10.55, Cited 93 times
- 13) **Grzywacz B**, Dlubek D, Lange A. *NK cells become Ki-67+ in MLC and expand depending on the lack of ligand for KIR on stimulator cells in IL-2 supplemented MLC*. 2002; Human immunology 63:638-646.
  - IF: 2.57, Cited 4 times
- 14) Woll PS, **Grzywacz B**, Tian X, Marcus R, Knorr DA, Verneris MR and Kaufman DS. *Human embryonic stem cells differentiate into a homogeneous population of natural killer cells with potent in vivo antitumor activity*. 2009. Blood 113(24):6094-6101.
  - IF: 10.37, Cited 97 times
- 15) Anderson E, **Grzywacz B**, Wang H, Wang T, Lee SJ, Haagenon M, Spellman S, Blazar BR, Miller JS, Verneris MR. *Limited role of MHC-class I chain related gene A (MICA) typing in assessing the risk of graft-versus-host disease after fully human leukocyte antigen-matched unrelated donor transplantation*. 2009. Blood 114 (21):4753-4; Letter to editor
  - IF: 10.37 Cited 15 times
- 16) Tang Q, **Grzywacz B**, Wang H, Kataria N, Cao Q, Wagner JE, Blazar BR, Miller JS, Verneris MR. *Umbilical cord blood T cells express multiple natural cytotoxicity receptors after IL-15 stimulation, but only NKp30 is functional*. 2008. J Immunol 181:4507-4515.
  - IF:6.0 , Cited 26 times

- 17) Wang H, **Grzywacz B**, Sukovich D, McCullar V, Cao Q, Lee AB, Blazar BR, Cornfield DN, Miller JS, Verneris MR. *The unexpected effect of cyclosporin A on CD56+CD16- and CD56+CD16+ natural killer cell subpopulations*. 2007. Blood 110:1530-1539.
  - IF: 10.896, Cited 99 times
- 18) Lund TC, Anderson LB, McCullar V, Higgins V, Yun GH, **Grzywacz B**, Verneris MR, Miller JS. *iTRAQ is a useful method to screen for membrane-bound proteins differentially expressed in human natural killer cell types*. 2007. Journal of proteome research 6:644-653.
  - IF: 5.675 , Cited 45 times
- 19) Karabon L, Polak M, Pacuszko T, **Grzywacz B**, Koscinska K, Pietraszek E, Kalota A, Lange A. *HLA typing for donor-recipient matching in unrelated donor hematopoietic stem cell transplantation*. 2002. Transplantation proceedings 34:668-670.
  - IF: 0.48 , Cited 1 time
- 20) Miklaszewicz A, Giedrys-Kalemba S, Teodorczyk U, Halasa J, Goertz K, Zielinski S, Ostrowski M, Kostyrka R, Lapis J, Kulig G, Kulig T, Kruszewski T, Kozlowski M, Lewinski D, **Grzywacz B**, Grzywacz M, Kuprjanowicz L. *Influence of protective genes in the HLA system on renal graft survival*. 2000. Transplantation proceedings 32:1337-1338.
  - IF: 0.68 , Cited : no data available in search

#### Articles Submitted for Publication

1. S. Cooley, F. He, V. Bachanova, G. Vercellotti, T. DeFor, J. Curtsinger, P. Robertson, **B. Grzywacz**, K. C. Conlon, Th. A. Waldmann, D. McKenna, B. R Blazar, D. J Weisdorf & J.S Miller “*First-In-Human Trial of rhIL-15 and Haploidentical Natural Killer (NK) Cell Therapy for Advanced Acute Myeloid Leukemia*”; submitted to Blood , September 2018
2. A.K. Erbe; W. Wang; L. Carmichael; A. Hoefges; **B. Grzywacz**; P.K. Reville; E.A. Ranheim; J.A Hank; K. Mann Kim; S. Seo; E.A. Mendonca; Y. Song; V.P Kenkre; F. Hong; R. D. Gascoyne; E. Paietta; S.J. Horning; J.S. Miller; B. Kahl; P.M. Sondel “*Follicular Lymphoma Patients with KIR2DL2 and KIR3DL1 and Their Ligands (HLA-C1 and HLA-Bw4) Show Improved Outcome When Receiving Rituximab*” , submitted to the Journal of Immunotherapy of Cancer
3. Hashmi H, Grzywacz B, Trikudanathan G. “*Diagnosing Richter Transformation Using Endoscopic Ultrasound Guided Fine Needle Biopsy*”; Submitted to ACG case reports journal on 03/21/2018  
Submitted to Turkish Journal of Gastroenterology August 2018

#### Chapters in Books

"Bone Marrow Metastatic Tumors" By: Grzywacz, Bartosz and McKenna Robert.  
Chapter in the 4th edition of the AFIP fascicle - Tumors of the Bone Marrow  
ISBN: 978-1-933477-35-0, Published 2016

#### Developmental stages and pathways of NK cell maturation

By: Grzywacz, Bartosz; Miller, Jeffery S.; Verneris, Michael R.

Edited by: Lotze, MT; Thomson, AW

Natural Killer Cells: Basic Science and Clinical Application Pages: 3-24 Published: 2010