

## CURRICULUM VITAE

### A: IDENTIFYING DATA

*Name* Dita Gratzinger, MD, PhD

*Current Positions* Assistant Professor, Stanford University of Medicine (Hematopathology)  
Program Director, Hematopathology Fellowship

### B: ACADEMIC HISTORY

#### *Degrees*

1992-1996 Bachelor of Arts, Highest Distinction, Biochemistry and Molecular Biology  
University of California at Berkeley, Berkeley, California

1996-2003 Doctor of Medicine, Yale University, New Haven, Connecticut

1996-2003 Doctor of Philosophy, Experimental Pathology, Yale University

#### *Post-doctoral and residency training*

2003-2005 Resident, Anatomic Pathology, Stanford Hospital and Clinics

2005-2006 Fellow, Surgical Pathology, Stanford Hospital and Clinics

2006-2007 Fellow, Hematopathology, Stanford Hospital and Clinics

#### *Board certification*

2006 Anatomic Pathology, American Board of Pathology

2008 Hematopathology, American Board of Pathology

2015 MOC Part III exam recertified, Anatomic Pathology and Hematopathology

#### *Licensure*

2004- California A88740

2013- Nevada 14861

#### *Scholarship and Honors*

1992-1996 Regents' and Chancellor's Scholar, UC Berkeley

1992-1996 Alumni Scholar, UC Berkeley

1995 Phi Beta Kappa, UC Berkeley

1995 President's Undergraduate Fellowship, UC Berkeley

1996-2003 Medical Scientist Training Program, Yale University

1996 Departmental Citation, Biochemistry and Molecular Biology, UC Berkeley

1996 Golden Key Society, Outstanding Senior Scholarship, UC Berkeley

1999 National Cancer Institute Cancer Education Program, Yale University

2000 Anna Fuller MD/PhD Predoctoral Fellowship in Oncology, Yale University

2001, 2002 American Society for Investigative Pathology Trainee Travel Award

2003 Perkins Prize, Yale University School of Medicine

2011 Teaching Excellence pin for Stanford Medical Student teaching

## C: EMPLOYMENT HISTORY

1992-1995	Student Assistant, Life Sciences Division, Lawrence Berkeley Labs
2007-2008	Clinical Instructor, Hematopathology and Surgical Pathology Stanford University School of Medicine, Stanford, California
2008	Acting Assistant Professor, Hematopathology, Stanford University
2008-2012	Staff Pathologist, Palo Alto VA Health Care System, Palo Alto, California
2009-	Assistant Professor, Hematopathology, Stanford University

## D: PUBLIC AND PROFESSIONAL SERVICE

### *Departmental, Stanford University Pathology Department*

2010-2016	Leadership group
2011	Residency education working group
2012-2015	Associate Director, QA/QI, Hematopathology
2013-2016	Clinical Competency Committee, Pathology residency
2013-2015	Associate Program Director, Hematopathology fellowship
2014	Curriculum review working group
2015	Departmental research web resource working group, leader
2015-	Department research retreat poster judge
2015-	Program Director, Hematopathology fellowship
2016-	Research Committee
2016	Search Committee, hematopathology faculty position
2016	Residency application selection committee

### *Institutional, Palo Alto VA Health Care System*

2011-2012	Scientific Review Subcommittee, R & D Committee, alternate
2011-2012	Surgical Operative and Invasive Procedures Committee
2012	Health Mode Failure Effect Analysis, specimen tracking, service specialist

### *Institutional, Stanford Hospital and Clinics*

2011-2014	Technology Assessment Committee
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### *National/International*

2015	Workshop on Immunodeficiency and Dysregulation Society for Hematopathology/American Society for Clinical Pathology Co-wrote proposal, co-organized workshop with Yasodha Natkunam International review panel member Co-chair, T/NK cell session, with Daphne de Jong Co-chair, Systemic EBV+ T/NK session, with Elaine Jaffe Co-chair, Primary Immunodeficiency session, with Elaine Jaffe
2015-	Graduate Medical Education Committee, College of American Pathologists
2015-2017	Society for Hematopathology Education Committee Pathologist Recertification Individualized Self-Assessment Examination (PRISE) Question Authors Subcommittee

2016-2018 Short course, Bone Marrow Manifestations of Systemic Disease  
United States and Canadian Academy of Pathology  
Wrote proposal; lead presenter. David Czuchlewski and Tracy George

2016- Applied Immunohistochemistry & Molecular Morphology Editorial Board

2017-2018 ASCP/CAP/ASH Laboratory Workup of Malignant Lymphoma Expert Panel  
Member

#### *Ad Hoc* Reviewer

Stem Cell  
Leukemia and Lymphoma  
British Journal of Haematology  
Haematologica  
European Journal of Cancer  
American Journal of Hematology  
Stem Cells and Development  
Histology and Histopathology  
Histopathology  
Human Pathology  
Modern Pathology  
Pathology  
Experimental Hematology  
PLOS One  
Journal of Bioconjugate Chemistry  
International Journal of Laboratory Hematology  
International Journal of Molecular Sciences  
BMC Cancer  
Journal of Cutaneous Pathology

#### **E: POST DEGREE HONORS AND AWARDS**

Career Development Award-2, Department of Veteran's Affairs (Jan 2011 to Aug 2012)

"Mapping diagnostic and prognostic markers in myelodysplastic bone marrow."

Dita Gratzinger, Principal Investigator

Value-Based Research Award, Department of Pathology, Stanford University (March 2017 to Feb 2018)

"Cytopathology as a Method of Hematopathology Diagnosis: Maximizing diagnostic and prognostic utility while minimizing patient interventions and cost"

Dita Gratzinger, Principal Investigator

#### Scientific Memberships

College of American pathologists  
American Society for Investigative Pathology  
United States and Canadian Academy of Pathology  
Society for Hematopathology

## **F: DESCRIPTION OF PROFESSIONAL ACTIVITIES**

### Clinical activities:

- 7/07-6/08 Clinical Instructorship, Stanford University Medical Center  
Surgical pathology, Hematopathology  
Acting medical director, Stanford Hematology laboratory (10/07-1/08)
- 7/08-8/12 Staff Physician, Palo Alto VA Health Care System  
Attending pathologist, hematopathology, surgical pathology, autopsy services
- 7/08- Acting, then Assistant Professor, Stanford University School of Medicine  
Attending hematopathologist: bone marrow and lymph node pathology, flow cytometry, consultation service, interpretation and integration of ancillary molecular and cytogenetic studies

### Teaching activities:

#### *Elementary school teaching*

- 2014 Blood is Beautiful: an introduction to blood and bone marrow for 3<sup>rd</sup>-6<sup>th</sup> graders  
2015- Kitchen table anatomy: introduction to anatomy for 3<sup>rd</sup>-6<sup>th</sup> graders (yearly session)

#### *Graduate Student Teaching (Teaching Assistant), Yale University*

- 8/00 to 12/00 MCDB 201L: *Undergraduate Genetics Lab*  
1/00 to 5/00 MCDB 315b: *Undergraduate Introductory Pathology*

#### *Clinical teaching*

Stanford University School of Medicine

- 7/03-now Periodic medical student laboratories (Human Health and Disease Course)  
7/05-now Periodic conferences and lectures for pathology residents and hematopathology fellows (Pathology Morning Conferences and noon Microscope Session)

#### *External teaching*

- Society for Hematopathology Workshop (Immunodeficiency), Oct 2015  
Co-wrote successful proposal  
Organizing committee member  
Expert panel member

USCAP Short Course, "Bone Marrow Manifestations of Systemic Disease," accepted for 3 year course starting 2016. Copresenters Dr. Czuchlewski and George, University of New Mexico.

### Research activities:

- 5/92-2/95 Student Assistant, Lawrence Berkeley Labs, P.I. KH Downing, PhD
- Electron microscopic studies of bovine brain tubulin subunit interactions
- 1/95-5/96 Undergraduate Honors Thesis, UC Berkeley, P.I. J Thorner, PhD
- Temperature-sensitive alleles of Kss1, a yeast pheromone-response MAP Kinase
- 1/99-2/02 PhD Thesis, Yale University School of Medicine, P.I. J.A. Madri, MD, PhD  
Platelet-Endothelial Cell Adhesion Molecule signaling in endothelial cell motility
- 7/03-3/09 Immunohistochemical studies, mentor Yaso Natkunam, MD, PhD, Stanford University
- VEGF and Angiogenesis as a Prognostic Factor in Diffuse Large B cell Lymphoma and Follicular Lymphoma
  - Tumor-Associated Macrophages as a Prognostic Factor in Follicular Lymphoma
  - Expression of LMO2 in the vasculature and in neoplasia
- 4/09-5/11 Pathology support (3% effort) to Program Project Grant to Ron Levy (Oncology), Stanford University
- Histopathologic characterization of response to anti-lymphoma vaccine in cutaneous T cell lymphoma patients
- 11/09-8/12 Translational research, Stanford University/Palo Alto Veteran's Affairs Health Care System
- Quantitative in situ immunofluorescent/immunohistochemical analysis of bone marrow to improve diagnosis and prognosis in myelodysplastic syndromes
  - Jan 2011 to Aug 2012 – Principal Investigator, VA Career Development Award-2
- 9/12- Translational research, Stanford University
- Quantitative in situ immunofluorescent/immunohistochemical analysis of bone marrow to improve diagnosis and prognosis in myelodysplastic syndromes
  - Cutaneous lymphoma microenvironment
  - Multiple collaborations with basic science and clinical colleagues

### Administrative activities:

- 5/15- Program director, Hematopathology Fellowship  
Fellow recruitment, education, and mentoring, oversight and updating of curriculum and evaluation according to Milestones requirements (as of 7/15), ACGME reporting.

## **BIBLIOGRAPHY**

### **Peer-reviewed articles (47)**

#### Mentee authors underlined

- 1) Wolf SG, Nogales E, Kikkawa M, **Gratzinger D**, Hirokawa N, Downing KH. Interpreting a medium-resolution model of tubulin: comparison of zinc-sheet and microtubule structure. *Journal of Molecular Biology*. 262:485-501 1996. PMID: 8893858
- 2) **Gratzinger D**, Canosa S, Engelhardt B and Madri JA. PECAM-1 modulates endothelial cell motility through the small G protein Rho. *FASEB Journal*. 17:1458-69, 2003. PMID: 12890700
- 3) **Gratzinger D**, Barreuther M, JA Madri. PECAM-1 modulates endothelial migration through its immunoreceptor tyrosine-based inhibitory motif. *Biochemical and Biophysical Research Communications*. 301:243, 2003. PMID: 12535670
- 4) Enciso JM, **Gratzinger D**, Camenisch TD, Canosa S, Pinter E, Madri JA. Elevated glucose inhibits VEGF-mediated endocardial cushion formation. *Journal of Cell Biology*. 160:605 2003. PMID: 12591918
- 5) Biswas P, Zhang J, Schoenfeld JD, Schoenfeld D, **Gratzinger D**, Canosa S, Madri JA. Identification of the regions of PECAM-1 involved in beta- and gamma-catenin associations. *Biochemical and Biophysical Research Communications*. 329:1225-33, 2005. PMID: 15766557
- 6) **Gratzinger D**, Zhao S, Marinelli RJ, Kapp AV, Tibshirani RJ, Hammer AS, Hamilton-Dutoit S, and Natkunam Y. Microvessel density and expression of vascular endothelial growth factor and its receptors in diffuse large B cell lymphoma subtypes. *American Journal of Pathology*. 170:1362-9, 2007. PMID: 17392174
- 7) **Gratzinger D**, Salama ME, Poh CF, and Rouse RV. Ameloblastoma, calcifying epithelial odontogenic tumor, and glandular odontogenic cyst show a distinctive immunophenotype with some myoepithelial antigen expression. *Journal of Oral Pathology and Medicine* 37(3):177-84. PMID: 18251942
- 8) **Gratzinger D**, Zhao S, Tibshirani RJ, Hsi ED, Hans CP, Pohlman B, Bast M, Avigdor A, Schiby G, Nagler A, Byrne GE, Lossos IS, and Natkunam Y. Prognostic significance of VEGF, VEGF receptors, and microvessel density in diffuse large B cell lymphoma treated with anthracycline-based chemotherapy. *Laboratory Investigation* 88(1):38-47, 2008. PMID: 17998899
- 9) Natkunam Y, Farinha P, Hsi ED, Hans CP, Tibshirani R, Sehn LH, Connors JH, **Gratzinger D**, Rosado M, Zhao S, Pohlman B, Wongchaowart N, Bast M, Avigdor A, Schiby G, Nagler A, Byrne GE, Levy R, Gascoyne RD, Lossos IS. LMO2 Protein Expression Predicts Survival in Patients with Diffuse Large B-cell Lymphoma Treated with Anthracycline-based Chemotherapy with and without Rituximab. *Journal of Clinical Oncology*, 26(3):447-54, 2008. PMID: 18086797
- 10) **Gratzinger D**, Zhao S, West R, Rouse RV, Vogel H, Cubedo Gil E, Levy R, Lossos IS, and Natkunam Y. The transcription factor LMO2 is a robust marker of vascular endothelium and vascular neoplasms and selected other entities. *Am J Clin Pathol*. 2009 Feb;131(2):264-78.
- 11) **Gratzinger D**. VEGF-C: putting the 'lymph' back in lymphoma? *Leuk Lymphoma*. 2009 Mar;50(3):311- 312. PMID: 19347719

- 12) **Gratzinger D**, Advani R, Zhao S, Talreja N, Tibshirani RJ, Shyam R, Horning S, Sehn LH, Farinha P, Briones J, Lossos IS, Gascoyne RD, Natkunam Y. "Lymphoma cell VEGFR2 expression detected by immunohistochemistry predicts poor overall survival in diffuse large B cell lymphoma treated with immunochemotherapy (R-CHOP)." *Br J Haematol*. 2009 Oct 11. PMID: 19821819
- 13) Luo RF, Zhao S, Tibshirani R, Myklebust JH, Sanyal M, Fernandez R, **Gratzinger D**, Marinelli RJ, Lu ZS, Wong A, Levy R, Levy S, Natkunam Y. CD81 protein is expressed at high levels in normal germinal center B cells and in subtypes of human lymphomas. *Hum Pathol*. 2010 Feb;41(2):271-80. PMID: 20004001
- 14) YH Kim, **D Gratzinger**, C Harrison, JD Brody, D Czerwinski, WZ Ai, A Morales, F Abdulla, L Xing, D Navi, RJ Tibshirani, RH Advani, B Lingala, S Shah, RT Hoppe, and R Levy. In situ vaccination against mycosis fungoides by intratumoral injection of a TLR9 agonist combined with radiation: a phase I/II study. *Blood*. 2012 Jan 12;119(2):355-63. PMID: 22045986  
*Responsible for all immunofluorescence/immunohistochemistry in this report.*
- 15) Ozdalga E and **D Gratzinger**. "Histoplasmosis presenting with ulcers on the soft palate." *J Gen Intern Med*. 2012 Sep;27(9):1219. Epub 2012 Apr 27. PMID: 22539064
- 16) Flores-Figueroa E, Varma S, Montgomery K, Greenberg PL, and **Gratzinger D**. Distinctive contact between CD34+ hematopoietic progenitors and CXCL12+ CD271+ mesenchymal stromal cells in benign and myelodysplastic bone marrow. *Lab Invest*. 2012 Sep;92(9):1330-41. PMID: 22710983
- 17) Paulus Y, Cockerham K, Cockerham G, **Gratzinger D**. IgG4-positive Sclerosing Orbital Inflammation Involving the Conjunctiva: A Case Report. *Ocul Immunol Inflamm*. 2012 Oct;20(5):375-7. PMID: 23030356
- 18) Metcalfe RA, Bashey S, Wysong A, Kim J, Kim YH, **Gratzinger D**. Intravascular ALK-negative anaplastic large cell lymphoma with localized cutaneous involvement and an indolent clinical course: toward recognition of a distinct clinicopathologic entity. *Am J Surg Pathol*. 2013 Apr;37(4):617-23. PMID: 23480896
- 19) **D Gratzinger**. VEGF, the salt in the Hodgkin cytokine stew? *Leuk Lymphoma*. 2014 Mar;55(3):474-5. PMID:23795806
- 20) **D Gratzinger** and P Greenberg. Update on classification and prognosis in myelodysplastic syndromes. *Surgical Pathology Clinics*. 2013 Dec 6(4) 693-728. PMID: 26839194
- 21) MA Samols, A Su, S Ra, MA Cappel, A Louissant,Jr, RA Knudson, RP Ketterling, J Said, S Binder, NL Harris, AL Feldman, J Kim, YH Kim, **D Gratzinger**. Intralymphatic cutaneous anaplastic large cell lymphoma/lymphomatoid papulosis: Expanding the spectrum of CD30 positive lymphoproliferative disorders. *Am J Surg Pathol*. 2014 Sep;38(9):1203-11. PMID: 24805854

- 22) Johnson RC, Kurzer JH, Greenberg PL, **Gratzinger D**. Mesenchymal stromal cell density is increased in higher grade myelodysplastic syndromes and independently predicts survival. *Am J Clin Pathol*. 2014 Dec;142(6):795-802 PMID: 25389333. *Selected for CME activity*.
- 23) **Gratzinger D**, Million L, Kim YH. Occult dermal lymphatic involvement is frequent in primary cutaneous anaplastic large cell lymphoma. *Am J Dermatopathol*. 2015 Oct;37(10):767-70. PMID: 26381026
- 24) Ozawa M, Ewalt MD, **Gratzinger D**. Dasatinib-related follicular hyperplasia: an under-recognized entity with characteristic morphology. *Am J Surg Pathol*. 2015 Oct;39(10):1363-9. PMID: 26360368
- 25) RE LeBlanc, MI Lefterova, CJ Suarez, M Tavallae, YH Kim, I Schrijver, J Kim, and **D Gratzinger**. Lymph Node Involvement by Mycosis Fungoides and Sézary Syndrome Mimicking Angioimmunoblastic T-Cell Lymphoma. *Hum Pathol*. 2015 Sep;46(9):1382-9. Jun 10. PMID:26193796
- 26) A Ungewickell, A Bhaduri, E Rios, J Reuter, CS Lee, A Mah, A Zehnder, R Ohgami, S Kulkarni, R Armstrong, W-K Weng, **D Gratzinger**, M Tavallae, A Rook, M Snyder, Y Kim and P Khavari. Genomic Analysis of Mycosis Fungoides and Sézary Syndrome Identifies Recurrent Alterations in TNFR2. *Nat Genet*. 2015 Sep;47(9):1056-60. PMID: 26258847  
*Performed all tissue-based translational immunohistochemistry studies including quantitative proliferation and apoptosis studies from cell-line based tumors grown in mice, and correlative immunohistochemistry on human cutaneous lymphoma biopsy specimens.*
- 27) G Nybakken and **D Gratzinger**. Myelodysplastic syndrome macrophages have aberrant iron storage and heme oxygenase-1 expression. *Leuk Lymphoma*. 2016 Aug;57(8):1893-902. PMID: 26758041
- 28) Nybakken GE, Bala R, **Gratzinger D**, Jones CD, Zehnder JL, Bangs CD, Cherry A, Warnke RA, Natkunam Y. Isolated Follicles Enriched for Centroblasts and Lacking t(14;18)/BCL2 in Lymphoid Tissue: Diagnostic and Clinical Implications. *PLoS One*. 2016 Mar 18;11(3):e0151735. PMID: 26991267  
*Provided and wrote up a case for this unusual case series.*
- 29) **Gratzinger D** and E Jaffe. Mucocutaneous ulcer: a mimic of EBV+ diffuse large B cell lymphoma in the immunodeficiency setting. *Correspondence*. *Leukemia and Lymphoma*, 2016 March. [Epub ahead of print]. PMID: 27071493
- 30) S Fernandez-Pol, D Bangs, A Cherry, DA Arber, **D Gratzinger**. Two cases of histiocytic sarcoma with BCL2 translocations and occult or subsequent follicular lymphoma. *Hum Pathol*. 2016 Sep;55:39-43. PMID: 27134111
- 31) Ewalt M and **D Gratzinger**. Selective Quantitation of Microvessel Density Reveals Sinusoidal Expansion in Myelodysplastic Syndromes. *Leuk Lymphoma*. 2016 Apr 22:1-4. PMID: 27104365
- 32) A Reinisch, D Thomas, M. Ryan Corces, XH Zhang, **D Gratzinger**, Wan-Jen Hong, Katharina Schallmoser, Dirk Strunk, and R Majeti. A Humanized Ossicle-niche Xenotransplantation Model Enables Increased Leukemic Engraftment. *Nat Med*. 2016 Jul;22(7):812-21. PMID: 27213817



*Performed pathologic review, immunohistochemistry and immunofluorescence to confirm human versus mouse constituents of engrafted myeloid neoplasia and stromal compartments in ossicle model.*

33) E Flores-Figueroa and **D Gratzinger**. Beyond the Niche: Myelodysplastic Syndrome Topobiology in the Laboratory and in the Clinic. *Int. J. Mol. Sci.* 2016, 17(4), 553; PMID: 27089321

34) H Li; RP Hasserjian; SH Kroft; AM Harrington; SE Wheaton; A Pildain; MD Ewalt; **D Gratzinger**; P Hosking; H Olteanu. Pure Erythroid Leukemia and Erythroblastic Sarcoma Evolving From Chronic Myeloid Neoplasms. *Am J Clin Pathol.* 2016 Apr;145(4):538-51. PMID: 27124944

*Reached out to group at another institution to include myself and trainee's case for this unusual case series.*

35) JM Matthews, S Bhatt, MP Patricelli, TK Nomanbhoy, Y Natkunam, AJ Gentles, X Jiang, E Martinez, D Zhu, JR Chapman, E Cortizas, R Shyam, S Chinichian, R Advani, Li Tan, J Zhang, HG Choi, R Tibshirani, SJ Buhrlage, **D Gratzinger**, R Verdun, NS Gray, IS Lossos. Pathophysiological Significance and Therapeutic Targeting of Germinal Center Kinase in Diffuse Large B-Cell Lymphoma. *Blood.* 2016 Jul 14;128(2):239-48. PMID: 27151888

*Performed and analyzed immunohistochemistry of a panel of kinases in human lymphoma tissue, confirming applicability of the mouse model to lymphoma patients (Figure 2 and Supp Figure 4).*

36) CH Yang , S Gombar, CJ Twist, **D Gratzinger**, CO Esquivel, AH Lau. Plasmacytic post-transplant lymphoproliferative disorder with hyperviscosity syndrome in a child after liver transplant. *Hepatology.* 2016 May 26. PMID: 27227484

*Made the diagnosis and wrote the pathology portion of the report.*

37) RE Domen, K Johnson, RM Conran; RD Hoffman, MD Post, JJ Steinberg, MD Brissette, **DA Gratzinger**, CB McCloskey, PM Raciti, CA Roberts, MD; AM Rojiani, S Zein-Eldin Powell. Professionalism in Pathology: A Case-Based Approach as a Potential Educational Tool. *Arch Pathol Lab Med.* 2016 Oct 20. PMID: 27763788

*Member of CAP Graduate Medical Education Committee, edited paper.*

38) A Louissaint Jr, KT Schafernak, J Geyer, AE Kovach, M Ghandi, **D Gratzinger**, CG Roth, CN Paxton, S Kim, C Namgyal, EA Morgan, DS Neuberg, S South, MH Harris, RP Hasserjian, EP Hochberg, L. Garraway, NL Harris and DM Weinstock. Pediatric-Type Nodal Follicular Lymphoma is a Biologically Distinct Variant of Lymphoma in Children and Adults With Frequent MAP Kinase Pathway Mutations. *Blood.* 2016 Aug 25;128(8):1093-100. PMID: 27325104

*Provided specimens and data for the study.*

39) BA Jonas, C Johnson, **D Gratzinger**, and R Majeti. Alkylator-induced and patient-derived xenograft mouse models of therapy-related myeloid neoplasms model clinical disease and suggest the presence of multiple cell subpopulations with leukemia stem cell activity. *PLoS One.* 2016 Jul 18;11(7):e0159189. PMID: 27428079

*Hematopathologist expert review of novel mouse myeloid neoplasm model.*

40) RT Swords, PL Greenberg, AH Wei, S Durrant, AS Advani, MS Hertzberg, ID Lewis, G Rivera, **D Gratzinger**, AC Fan, DW Felsher, JE Cortes, J Watts, GT Yarranton, JM Walling, and JE Lancet. KB004, a First in Class Monoclonal Antibody Targeting the Receptor Tyrosine Kinase EphA3, in Patients with Advanced Hematologic Malignancies: Results from a Phase 1 study. Leuk Res. 2016 Sep 28;50:123-131. PMID: 27736729

*Performed double immunofluorescence colocalization and quantitation experiments targeting the marrow microenvironment.*

41) E Gars, SM Yousry, Daniel Babu, JH Kurzer, TI George, **D Gratzinger**. A replicable CD271+ mesenchymal stromal cell density score: bringing the dysfunctional myelodysplastic syndrome niche to the diagnostic laboratory. Leuk Lymphoma. 2016 Nov 3:1-3. PMID: 27808583

42) Y Natkunam, **D Gratzinger**, A Chadburn, JKC Chan, D de Jong, JR Goodlad, J Said, ES Jaffe Immunodeficiency and dysregulation: report of the 2015 workshop of the Society for Hematopathology/European Association for Haematopathology. Am J Clin Path, 2017 Feb 147(2) 124-128. *Co-organizer and panelist of 2015 SH/EAHP Workshop on Immunodeficiency and Immune Dysregulation.*

43) Y Natkunam, JR Goodlad, A Chadburn, D de Jong, **D Gratzinger**, JKC Chan, J Said, ES Jaffe. 2015 SH/EAHP Workshop report - Part 1: EBV+ B-cell proliferations of varied malignant potential. Am J Clin Path, 2017 Feb 147(2) 129-152. *Co-organizer and panelist of 2015 SH/EAHP Workshop on Immunodeficiency and Immune Dysregulation.*

44) D de Jong, MGM Roemer, JKC Chan, J Goodlad, **D Gratzinger**, A Chadburn, ES Jaffe, J Said, Y Natkunam. SH/EAHP Workshop report - Part 2: B-cell and classical Hodgkin lymphomas associated with immunodeficiency. Am J Clin Path, 2017 Feb 147(2)153-170. *Co-organizer and panelist of 2015 SH/EAHP Workshop on Immunodeficiency and Immune Dysregulation.*

45) A Chadburn, J Said, JKC Chan, D de Jong, **D Gratzinger**, ES Jaffe, Y Natkunam, JR Goodlad. 2015 SH/EAHP Workshop report - Part 3: HHV8/KSHV-positive lymphoproliferative disorders and the spectrum of plasmablastic and plasma cell neoplasms. Am J Clin Path, 2017 Feb 147(2)171-187. *Co-organizer and panelist of 2015 SH/EAHP Workshop on Immunodeficiency and Immune Dysregulation.*

46) **D Gratzinger**, D de Jong, ES Jaffe, A Chadburn, JKC Chan, JR Goodlad, J Said, Y Natkunam. 2015 SH/EAHP Workshop report - Part 4: T- and NK-cell lymphomas and systemic lymphoproliferative disorders and the immunodeficiency setting. Am J Clin Path, 2017 Feb 147(2)188-203.

47) SH/EAHP Workshop report - Part 5: Primary/Congenital Immunodeficiency. **D Gratzinger**, A Chadburn, John K.C. Chan, D de Jong, JR Goodlad, J Said, Yasodha Natkunam, ES Jaffe. Am J Clin Path, 2017 Feb 147(2)204-216.

## **Book Chapters (6)**

Textbook:

- 1) Hematopathology: Jaffe, 2<sup>nd</sup> Edition; Chapter 1, Processing of the Lymph Node Biopsy. **Gratzinger D**, Natkunam Y. Aug 2016

Online:

- 1) **Gratzinger D**, Natkunam Y. T cell lymphomas.

Stanford Surgical Pathology Criteria

<http://surgpathcriteria.stanford.edu> R Rouse, editor (2007)

- 2) **Gratzinger D**, Park C, Natkunam Y. Plasma cell lesions and amyloidosis.

Stanford Surgical Pathology Criteria

<http://surgpathcriteria.stanford.edu> R Rouse, editor (2007); updated (2010) as sole author

- 3) **Gratzinger D**, George T. Myelodysplastic syndromes.

Stanford Surgical Pathology Criteria

<http://surgpathcriteria.stanford.edu> R Rouse, editor (2011)

- 4) **Gratzinger D**, George T. Myeloproliferative neoplasms.

Stanford Surgical Pathology Criteria

<http://surgpathcriteria.stanford.edu> R Rouse, editor (2011)

- 5) **Gratzinger D**. Myelodysplastic/myeloproliferative neoplasms.

Stanford Surgical Pathology Criteria

<http://surgpathcriteria.stanford.edu> R Rouse, editor (2011)

### **Meetings/conferences (35)**

Mentee authors underlined

- 1) **Gratzinger D**, Barreuther M, and JA Madri. Differential tyrosine dephosphorylation of PECAM-1 directly modulates the phosphatase activity of associated SHP2. FASEB Conference. 2001.
- 2) **Gratzinger D** and Madri JA. Role of PECAM-1 and SHP2 in endothelial cell motility and morphology. FASEB Conference. 2002.
- 3) **Gratzinger D** and Madri JA. Role of PECAM-1 mediated signaling in endothelial cell motility. Gordon Conference, Signaling by Adhesion Receptors, 2002.
- 4) **Gratzinger D** and Madri JA. PECAM regulates endothelial cell migration behaviors through RhoGTP activation. American Society for Cell Biology Conference. Cell Biology of Angiogenesis Minisymposium, 2002.
- 5) **Gratzinger D**, Poh CF, and Salama ME. Immunohistochemical characterization of selected odontogenic tumors: a case for myoepithelial differentiation? USCAP Conference. 2006.

- 6) **Gratzinger D**, Zhao S, Marinelli RJ and Natkunam Y. Angiogenesis in immunophenotypic subtypes of diffuse large B cell lymphoma. FASEB Conference. Frontiers in Translational Research Minisymposium. 2006.
- 7) **Gratzinger D**. Vascularity in diffuse large B cell lymphoma. Stanford Pathology Department Retreat, 2006.
- 8) **Gratzinger D**, Natkunam Y, Zhao S, Tibshirani RJ, Hsi ED, Hans CP, Pohlman B, Bast M, Avigdor A, Schiby G, Nagler A, Byrne GE, Lossos IS, and Natkunam Y. Prognostic significance of VEGF, VEGF receptors, and microvessel density in diffuse large B cell lymphoma treated with anthracycline-based chemotherapy. American Society for Hematology Conference 2007 Simultaneous session: Diffuse Large B cell Lymphoma prognosis.
- 9) **Gratzinger D**. Society for Hematopathology and European Association for Haematopathology 2007, Myeloid Neoplasms and Mastocytosis Workshop: 3 case examples accepted
- 10) **Gratzinger D**, Zhao S, Vogel H, Cubedo Gil E, Levy R, Lossos I, Natkunam Y. The transcription factor LMO2 is a robust marker of vascular endothelium and vascular neoplasms with rare exceptions. Experimental Biology Conference 2008 poster session.
- 11) **Gratzinger D**, Ai W, Tibshirani R, Zhao S, Levy R, Natkunam Y. Lymphoma-Expressed VEGF-a, VEGFR-1, VEGFR-2, and Microvessel Density Are Not Predictive of Overall Survival in Follicular Lymphoma. American Society for Hematology Conference 2008. Poster session -- Non-Hodgkin's Lymphoma - Biology.
- 12) **Gratzinger D**, Ai W, Tibshirani R, Zhao S, Levy R, Natkunam Y. Neither CD68+ nor CD163+ macrophages are associated with decreased survival in follicular lymphoma. American Society for Hematology Conference 2008. Poster session -- Non-Hodgkin's Lymphoma - Biology.
- 13) **Gratzinger D**, Advani R, Zhao S, Talreja N, Tibshirani R, Shyam R, Horning SJ, Sehn LH, Farinha P, Levy R, Lossos IS, Gascoyne R, and Natkunam Y. Prognostic significance of Vascular Endothelial Growth Factor (VEGF), VEGF receptors (VEGFR), and vascularity in diffuse large B cell lymphoma treated with immunochemotherapy (R-CHOP). American Society for Clinical Oncology 2009. J Clin Oncol (Meeting Abstracts) 2009 27: 8581.
- 14) Balasubramanian, R, **Gratzinger D**. Society for Hematopathology and European Association for Haematopathology 2010 Bone Marrow Workshop case.
- 15) YH Kim, **D Gratzinger**, C Harrison, J Brody, D Czerwinski, L Xing, A Morales, W Ai, F Abdulla, D Navi, RJ Tibshirani, R Advani, Y Natkunam, RT Hoppe, and R Levy. In Situ Vaccination with TLR9 Agonist Combined with Local Radiation In Mycosis Fungoides: Analysis of Phase I/II Study Lymphoma. American Society for Hematology Conference 2010. Oral presentation - Therapy with Biologic Agents.

- 16) **D Gratzinger**, JI Odegaard, RJ Marinelli, KJ Sridhar, and PL Greenberg, In Situ Tissue Microarray Cell-Lineage Specific Analysis of Protein Expression In Intact Myelodysplastic Bone Marrow: Data on Putative Poor Prognosis Biomarkers. American Society for Hematology Conference 2010. Poster Presentation – Myelodysplastic Syndromes 1.
- 17) E Flores-Figueroa, P Greenberg, **D Gratzinger**. "Nerve growth factor receptor/p75(NGFR)+ mesenchymal stromal cells are in contact with CD34+ progenitors and are increased in myeloid neoplasia," poster presentation at the 11th International Symposium on Myelodysplastic Syndromes in Edinburgh, UK, May 18 - 21, 2011.
- 18) E Flores-Figueroa, P Greenberg, **D Gratzinger**. "Mesenchymal stromal cells as a niche for normal and leukemic progenitors/stem cells." Presented orally by Dr. Flores-Figueroa, International Symposium on Stem Cells and Regenerative Medicine, Grupo Mexicano de Investigación en células troncales, UNAM, Mexico City, Mexico, Nov 10, 2011.
- 19) E Flores-Figueroa, P Greenberg, **D Gratzinger**. "Increased CD271+ CXCL12 Chemokine Overproducing Mesenchymal Stromal Cells Maintain Distinctive Association with CD34+ Hematopoietic Progenitor/Stem Cells in Myelodysplastic Syndrome." American Society for Hematology Conference 2011. Poster Presentation – Myelodysplastic Syndromes 2.
- 20) RA Metcalf, S Bashey, A Wysong, J Kim, Y Kim, **D Gratzinger**. "Intravascular ALK-negative systemic anaplastic large cell lymphoma with localized cutaneous involvement and an indolent clinical course: toward recognition of a distinct clinicopathologic entity." European Association for Hematopathology Conference, Oct 23 2012, Lisbon, Platform Presentation.
- 21) R Johnson, **D Gratzinger**. "Oligoblastic AML with t(8;21)." 2013 Society for Hematopathology conference on AML/MDS in Houston: oral presentation during Workshop session ""AML with recurrent genetic abnormalities Part I"". Oct 2013.
- 22) Ryan Johnson, Peter Greenberg, **Dita Gratzinger**. "CD271+ Mesenchymal Stromal Cell Density Is High In Poor-Risk MDS and Independently Predicts Overall Survival." Poster session, American Society for Hematology Conference Dec 7-10 2013. Poster Presentation – Myelodysplastic Syndromes 1.
- 23) JM Mathews, L Tan, S Bhatt, M Patricelli, T Nomanbhoy, J Zhang, X Jiang, Y Natkunam, HG Choi, A Gentles, E Martinez, D Zhu, JR Chapman, RM Shyam, S Chinichian, RH Advani, S Buhrlage, **D Gratzinger**, NS Gray, I Lossos. "Germinal Center Kinase Regulates the Proliferation and Survival of Diffuse Large B-Cell Lymphoma." American Society for Hematology Conference Dec 7-10 2013. Oral Presentation – Lymphoma: Pre-Clinical -- Chemotherapy and Biologic Agents: Small Molecule Targets in Lymphoma. Oral presentation
- 24) MA Samols, YH Kim, J Kim, MA Cappel, A Louissant, Jr., RA Knudson, RP Ketterling, NL Harris, AL Feldman, **D Gratzinger**. "Intralymphatic Localization of Anaplastic Large Cell Lymphoma in Skin Biopsies May Represent Part of the Spectrum of Cutaneous Anaplastic Large Cell Lymphoma",

to the United States & Canadian Academy of Pathology's 103rd Annual Meeting, March 1-7, 2014 in San Diego, CA.

- 25) Johnson RC, Soon C, Cherry TM, Tan B, Arber DA, and **Gratzinger D**. "Lymphoplasmacytic lymphoma with acquisition of a variant t(8;14) translocation and blastic transformation." - European Bone Marrow Working Group, European Association for Hematopathology/Society for Hematopathology Istanbul October 2014 Bone Marrow Workshop.
- 26) Ewalt M, **Gratzinger D**. "Classical Endothelial Markers Fail to Highlight Bone Marrow Sinusoids in the Marrow of Healthy Patients and Patients with Myelodysplastic Syndromes" Dec 8 2014, ASH (American Society for Hematology) Annual Meeting 302. Vascular Wall Biology, Endothelial Progenitor Cells and Platelet Adhesion: Poster III
- 27) Reinisch A, Hong W, **Gratzinger D**, Majeti R. "A Novel Humanized Bone Marrow Niche Xenotransplantation Model Allows Superior Engraftment of Human Normal and Malignant Hematopoietic Cells and Reveals Myelofibrosis-Initiating Cells in the HSC Compartment" Dec 8 2014, ASH (American Society for Hematology) Annual Meeting 506. Hematopoiesis and Stem Cells: Microenvironment, Cell Adhesion and Stromal Stem Cells: Pathogenic Bone Marrow Microenvironments. Oral Presentation.
- 28) Nybakken G and **D Gratzinger**. "Bone Marrow Heme Oxygenase-1+ Macrophages Are Aberrantly Increased in Transfused Patients With Myelodysplastic Syndromes and Portend Poor Outcome" USCAP Annual Meeting March 21-8 2015. Poster presentation.
- 29) **D Gratzinger**. "The malfunctioning bone marrow environment in situ." Stanford Pathology Department Annual Retreat. Oral presentation. May 2 2015.
- 30) **Gratzinger D** and D deJong. Session 4. T-cell and NK cell lymphomas associated with immunodeficiency. Society for Hematopathology Workshop, Long Beach, CA Oct 30 2015. Panelist.
- 31) **Gratzinger D** and E Jaffe. Session 5. Systemic EBV+ T and NK cell lymphoproliferative disorders; Primary/Congenital Immunodeficiency. Society for Hematopathology Workshop, Long Beach, CA Oct 31 2015. Panelist.
- 32) Ozawa M and **D Gratzinger**. Session 1. EBV-associated proliferations of varied malignant potential. "Dasatinib-related Lymphadenopathy." Society for Hematopathology Workshop, Long Beach, CA Oct 29 2015. Platform presentation.
- 33) A Louissaint Jr., KT Schafernak, JT Geyer, AE Kovach, **D Gratzinger**, CG Roth, CN Paxton, S Kim, C Namgyal, EA Morgan, ST South, MH Harris, EP Hochberg, RP Hasserjian, NL Harris, DM Weinstock. Pediatric-Type Nodal Follicular Lymphoma in Children and Adults Is Nearly Genetically Silent and Biologically Distinct from Typical Follicular Lymphoma. Blood 2015 126:3925; published ahead of print December 4, 2015
- 34) E Gars, S Yousry, D Babu, JH Kurzer, TI George, **D Gratzinger**. A replicable CD271+ mesenchymal stromal cell density score: bringing the dysfunctional myelodysplastic syndrome niche to the

diagnostic laboratory" International Society for Experimental Hematology 45th Annual Scientific Meeting in San Diego, California poster, August 27 2016

- 35) Hubert D. Lau, Sharon Wu, Steven Long, and **Dita Gratzinger**. Combined fine needle aspiration cytology and flow cytometric immunophenotyping is an effective method for diagnosis of hematolymphoid diseases. United States and Canadian Association of Pathologists (USCAP) Meeting in San Antonio, Texas; poster, 3/7/17

### Invited Presentations (18)

- 1) **Gratzinger D.** "Vascularity and VEGF in diffuse large B cell lymphoma." Feinberg School of Medicine, Northwestern University, Chicago, IL, Nov 2007.
- 2) **Gratzinger D.** "Vascularity and VEGF in diffuse large B cell lymphoma." University of Pennsylvania Health System, Philadelphia, PA, Nov 2007.
- 3) **Gratzinger D.** "Vascularity and VEGF in diffuse large B cell lymphoma." Johns Hopkins School of Medicine, Baltimore, MD, Dec 2007.
- 4) **Gratzinger D**, Natkunam Y. Microscope Tutorial, Extranodal Lymphomas, 11<sup>th</sup> Annual UCSF-Stanford Postgraduate Current Issues in Anatomic Pathology. San Francisco, CA, May 28-31, 2008.
- 5) **Gratzinger D.** 6<sup>th</sup> Annual Yale MD-PhD Program Retreat, Alumni Panel Speaker. New Haven, CT, Jan 2010.
- 6) **Gratzinger D.** "An Integrated Approach to the Diagnostic Bone Marrow Biopsy." Nov 8<sup>th</sup>, 2011, Centro Médico Nacional Siglo XXI, Mexico City, Mexico. Supported by a travel award from the Programa de Cooperación Internacional de la Coordinación de Investigación en Salud.
- 7) **Gratzinger D.** "The bone marrow: morphology and architecture." University of California, San Francisco, School of Medicine, May 15, 2012.
- 8) **Gratzinger D.** "Bone marrow architecture: human mesenchymal stromal cell derangements in MDS." Bone Marrow Failure Group Seminar, Stanford Cancer Center, Nov 9<sup>th</sup>, 2012.
- 9) **Gratzinger D** and D deJong. Session 4. T-cell and NK cell lymphomas associated with immunodeficiency. Society for Hematopathology Workshop, Long Beach, CA Oct 30 2015.
- 10) **Gratzinger D** and E Jaffe. Session 5. Systemic EBV+ T and NK cell lymphoproliferative disorders; Primary/Congenital Immunodeficiency. Society for Hematopathology Workshop, Long Beach, CA Oct 31 2015.
- 11) **Gratzinger D**, D Czuchlewski and TI George. Short course, Bone Marrow Manifestations of Systemic Disease, United States and Canadian Academy of Pathology, Seattle, WA March 16, 2016.

- 12) **Gratzinger D.** Bone Marrow Manifestations of Systemic Disease. Kaiser Northern California CME/SAM webinar July 20, 2016.
- 13) **Gratzinger D.** Case-based myeloproliferative neoplasm lecture with 2016 WHO update. Webinar. Mount Sinai St.-Luke's Roosevelt Hospital Center. August 16, 2016.
- 14) **Gratzinger D.** Myeloproliferative Disorders including discussion of molecular changes. Kaiser Northern California CME/SAM webinar Aug 17, 2016.
- 15) **Gratzinger D.** The human bone marrow in health and disease. International Society for Experimental Hematology, Hematology 101 Webinar series. Recorded Dec 2016 for release March 2017.
- 16) **Gratzinger D, D Czuchlewski and TI George.** Short course, Bone Marrow Manifestations of Systemic Disease, United States and Canadian Academy of Pathology, San Antonio, TX, March 9, 2017.
- 17) **Gratzinger D.** The bone marrow microenvironment. Pediatric stem cell transplant conference, Stanford Children's Health. April 25, 2017
- 18) **Gratzinger D.** Vascular at the core. Yale University. April 28, 2017
- 19) **Gratzinger D.** Spleen pathology. Kaiser Northern California CME/SAM webinar July 17, 2017.

## **Grant Support (6)**

### **Cytopathology as a Method of Hematopathology Diagnosis (March 2017 to Feb 2018)**

Role: Principal Investigator

Agency/Award: Value-Based Research Award, Department of Pathology, Stanford University

Goals/Responsibilities: Maximizing diagnostic and prognostic utility of cytopathologic specimens for hematopathologic diagnosis while minimizing patient interventions and cost

### **Biomarkers for PostTransplant Lymphoproliferative Disorders in Children (2/1/14 to 1/31/18)**

Role: Other investigator:

Agency/Award: The National Institute of Allergy and Infectious Diseases (NIAID) 5U01AI104342-03 NCT02182986

Goals/Responsibilities: Member, Clinicopathological Review Board, diagnosis of post-transplant lymphoproliferative disorder biopsy specimens according to WHO criteria

### **Biocorrelative studies for phase I/II trial (1/1/2013 to 12/31/2015).**

Role: Co-Investigator



Agency/Award: “Addendum to Phase I Study of the Anti-EphA3 Monoclonal Antibody KB004 in Subjects with EphA3 Expressing Hematologic Malignancies (KB004-01), KaloBios, Inc: Biological Correlates for the Myelodysplastic Syndrome (MDS) Component of the Study”.

Goals/Responsibilities: Characterize EphA3 expression in bone marrow stromal components by double immunofluorescence; effect of Anti-EphA3 on bone marrow stroma.

**Mapping diagnostic and prognostic markers in MDS bone marrow. (1/1/2011 to 8/31/12)**

Role: Principal Investigator

Agency/Award: Department of Veteran’s Affairs, Career Development Award-2,

Goals/responsibilities: The diagnosis and prognostication of myelodysplastic syndrome relies predominantly on morphologic features and blast enumeration within the aspirate smear and cytogenetic studies within the appropriate setting. The intact core biopsy marrow is an underutilized and readily available component of the routine diagnostic bone marrow examination which contains rich information on hematopoietic lineage-specific abnormalities of protein expression as well as on intact marrow stroma. I have developed a technique to make tissue microarrays from core biopsy material, perform double immunofluorescence, scan the slides, and quantitate intensity or area of features of interest. To date I have evaluated the intensity of expression of four potential prognostic markers in the cytoplasm of CD34+ progenitors as well as erythroid precursors and have also evaluated mesenchymal stromal cell area and chemokine expression.

Budget: USD 130,000

**Analysis of Cutaneous and Hematologic Disorders by HT Sequencing (10/1/2013 to 9/30/2014)**

Role: Other Investigator

Award: Youn H. Kim, other funding

Goals/Responsibilities: Immunohistochemistry and immunofluorescence studies of gene products identified through high throughput sequencing and their downstream targets in cutaneous lymphoma biopsy tissue.

**Anemia of the Elderly Study (11/12-12/12)**

Role: Other investigator

Agency/Award: National Institutes of Health AG029124

Goals/Responsibilities: Quantitative situ immunofluorescence to assess apoptotic marker expression in erythroid precursors

**Clinical and Laboratory Studies of Malignant Lymphomas (4/1/09-3/31/11):**

Role: Other Investigator

Agency/Award: National Institutes of Health PO1 CA034233

PI: Levy, Ronald

Goals/responsibilities Provided pathology support for study of CpG vaccine in cutaneous T cell lymphoma. Sole pathologist on subsequent paper. Extensively involved in conception and design of pathologic components of the paper (pathologic interpretation, immunohistochemistry and immunofluorescence) and performed all acquisition and analysis of pathology data.