

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Dita Gratzinger

eRA COMMONS USER NAME (credential, e.g., agency login): dgratzinger

POSITION TITLE: Associate Professor, Stanford University

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	Completion Date MM/YYYY	FIELD OF STUDY
University of California, Berkeley	B.A.	1996	Biochemistry
Yale University	M.D.	2003	Medicine
Yale University	Ph.D.	2003	Experimental Pathology
Stanford University Residency Program	board certified	2006	Anatomic Pathology
Stanford University Fellowship Program	board certified	2007	Hematopathology

**A. Personal Statement**

I am a hematopathologist with research interests in hematolymphoid malignancy, and particular interests in the bone marrow microenvironment in myelodysplastic syndromes, in immunodeficiency-related lymphoproliferative disorders, and in diagnosis of lymphoma using small specimens (fine needle aspiration and other cytopathology techniques).

- I have senior authored multiple manuscripts on the intact bone marrow microenvironment in health and disease, work that was initially funded by a VA Career Development Award. Regarding immunodeficiency-related lymphoproliferative disorders,
- I co-organized and ran the Workshop on Immunodeficiency and Dysregulation on this topic in Oct 2015, drawing an audience of >500 hematopathologists from around the country and around the world, and co-authored the subsequent dedicated issue of the American Journal of Clinical Pathology on this topic as well as a recently published Blood Perspective on the topic. I recently acted as the central pathology reviewer for an interinstitutional study on biomarkers for PTLD in pediatric patients.
- I sat on an expert panel that did an extensive literature review on the diagnostic workup of lymphoma using small specimens, published on the topic, presented on the topic at annual society meetings, and founded an interinstitutional collaborative to systematically address this issue with a view to the future increasing use of small volume specimens in combination with advanced ancillary testing to support personalized medicine.

**B. Positions and Honors**

**Positions and Employment**

- 2007-2008 Clinical Instructor, Hematopathology and Surgical Pathology, Stanford University
- 2007 Acting Associate Medical Director, Clinical Hematology, Stanford University Medical Center
- 2008-2009 Acting Assistant Professor, Surgical Pathology and Hematopathology, Stanford University
- 2008-2012 Staff Physician, Pathology Service, Palo Alto Veterans Affairs Health Care System.

2010-2017 Assistant Professor, Hematopathology, Stanford University  
2015- Program Director, Hematopathology fellowship  
2018- Associate Professor, Hematopathology, Stanford University

### **Other Applicable Experience**

- 2015 Workshop on Immunodeficiency and Dysregulation  
Society for Hematopathology /American Society for Clinical Pathology  
Co-wrote proposal, co-organized workshop  
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
- 2017-2018 Laboratory Workup of Malignant Lymphoma Expert Panel Member, American Society for Clinical Pathology (ASCP)/College of American Pathologists (CAP)/American Society for Hematology (ASH)
- 2018 Workshop sessions on cytopathology and hematopathology diagnosis at CAP (College of American Pathologists) and ASC (American Society for Cytopathology) annual meetings

### **C. Selected Peer-reviewed Publications (Since 2013)**

1. **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: 2348089
2. **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
3. **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.
4. **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
5. **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
6. **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
7. 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
8. **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
9. **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
10. E Flores-Figueroa and **D Gratzinger**. Beyond the Niche: Myelodysplastic Syndrome Topobiology in the Laboratory and in the Clinic. *Int. J. Mol. Sci*. 2016, 2016 Apr 13;17(4):553 PMID: 27089321
11. 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

12. 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
13. 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. PMID: 28395103
14. 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. PMID: 28395107
15. 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. PMID: 28395108
16. 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.
17. **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. PMID: 28395105
18. **D Gratzinger**, A Chadburn, John K.C. Chan, D de Jong, JR Goodlad, J Said, Yasodha Natkunam, ES Jaffe. SH/EAHP Workshop report - Part 5: Primary/Congenital Immunodeficiency. *Am J Clin Path*, 2017 Feb 147(2)204-216. PMID: 28395106 Additional recent publications of importance to the field (in chronological order)
19. **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 Aug;57(8):1982-3. PMID: 27071493
20. 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
21. 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
22. 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
23. 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 Dec;64(6):2250-2252. PMID: 27227484
24. 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
25. 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
26. 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
27. 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 Path Lab Med.* 2017 Feb;141(2):215-219. PMID: 27763788
  28. 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.* 2017 Jul;58(7):1730-1732. PMID: 27808583
  29. Brissette MD, Johnson KA, Raciti PM, McCloskey CB, **Gratzinger DA**, Conran RM, Domen RE, Hoffman RD, Post MD, Roberts CA, Rojiani AM, Powell SZ. Perceptions of Unprofessional Attitudes and Behaviors: Implications for Faculty Role Modeling and Teaching Professionalism During Pathology Residency. *Arch Pathol Lab Med.* 2017 Jul 7. PMID: 28686498
  30. Lynch RC, **Gratzinger D**, Advani RH. Clinical Impact of the 2016 Update to the WHO Lymphoma Classification. *Curr Treat Options Oncol.* 2017 Jul;18(7):45. PMID: 28670664
  31. CB McCloskey, RE Domen, RM Conran, RD Hoffman, MD Post, MD Brissette, **D Gratzinger**, PM Raciti, DA Cohen, CA Roberts, AM Rojiani, CS Kong, JEG Peterson, K Johnson, S Plath, SZ Powell. Entrustable Professional Activities for Pathology: Recommendations from the College of American Pathologists Graduate Medical Education Committee. *Acad Pathol.* 2017 Jun 27; PMID: 28725792
  32. **D Gratzinger**, KA Johnson, MD Brissette, D Cohen, AM Rojiani, RM Conran, RD Hoffman, MD Post, CB McCloskey, CA Roberts, RE Domen, ML Talbert, SZ Powell. The recent Pathology residency graduate job search experience: a synthesis of 5 years of College of American Pathologists job market surveys. In press, June 2017, *Archives of Pathology & Laboratory Medicine.* PMID: 29210592
  33. Scott GD, Atwater SK, **Gratzinger DA**. Normative data for flow cytometry immunophenotyping of benign lymph nodes sampled by surgical biopsy. *J Clin Pathol.* 2018 Feb;71(2):174-179 PMID: 28916595
  34. Lezama LS, **Gratzinger D**. Nodal Involvement by CD30+ Cutaneous Lymphoproliferative Disorders and Its Challenging Differentiation From Classical Hodgkin Lymphoma. *Arch Pathol Lab Med.* 2018 Jan;142(1):139-142. PMID: 29257929
  35. Conran RM, Powell SZ, Domen RE, McCloskey CB, Brissette MD, Cohen DA, Dixon LR, George MR, **Gratzinger DA**, Post MD, Roberts CA, Rojiani AM, Timmons CF, Johnson K, Hoffman RD. Development of Professionalism in Graduate Medical Education: A Case Based Educational Approach from the College of American Pathologists' GME Committee." *Academic Pathology, in press*, March 2018
  36. M Aghighi, AJ Theruvath, A Pareek, L Pisani, R Alford, A Muehe, T Sethi, S Holdsworth, F Hazard, **D Gratzinger**, S Luna-Fineman, R Advani, S Spunt, and H Daldrup-Link. Magnetic Resonance Imaging of Tumor Associated Macrophages: Clinical Translation. *Clinical Cancer Research, in press*, May 2018. PMID: 29764855
  37. Chapelin F, Khurana A, Moneeb M, Gray Hazard FK, Chan CFR, Nejadnik H, **Gratzinger D**, Messing S, Erdmann J, Gaur A, Daldrup-Link HE. Tumor Formation of adult stem cell transplants in rodent arthritic joints. *Mol Imaging Biol, in press*, May 2018. PMID: 29869062
  38. Gars E, Purington N, Scott G, Chisholm K, **Gratzinger D**, Martin BA, Ohgami RS. Bone marrow histomorphologic criteria can accurately diagnose hemophagocytic lymphohistiocytosis. *Haematologica.* 2018 Jun 14. [Epub ahead of print] PMID: 29903767
  39. Scott GD, Lau HD, Kurzer JH, Kong CS, **Gratzinger DA**. Flow immunophenotyping of benign lymph nodes sampled by fine needle aspiration: representative with diagnostic pitfalls. *Cancer Cytopathology, [Epub ahead of print]* Sept 2018 PMID: 30194715
  40. Y Natkunam, **D Gratzinger**, A Chadburn, JR Goodlad, J K Chan, J Said, E S Jaffe, and D De Jong. Immunodeficiency-associated lymphoproliferative disorders: time for reappraisal? *Blood.* 2018 Aug 6. PMID: 30082493

#### D. Research Support

#### Completed Research Support (since 2013)

5U01AI104342-03

Esquivel (PI)

02/01/14-01/31/18

### Biomarkers for Post-Transplant Lymphoproliferative Disorders in Children

The goal of this study is to identify biomarkers of risk for development of post-transplant lymphoproliferative disorders in pediatric transplant recipients. My role is to serve as a central reviewer to correctly classify post-transplant lymphoproliferative disorders according to the WHO classification.

Role: Other investigator

### **Completed Research Support**

Kalobios

Greenberg (PI)

01/01/13-12/31/15

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.

My role was to characterize EphA3 expression in bone marrow stromal components by double immunofluorescence and analyze the effect of anti-EphA3 on intact bone marrow stroma.

Role: Co-Investigator