

## **CURRICULUM VITAE**

Denise A. Wells, M.D.

### **Education**

1980 BS Microbiology (High Honors)  
University of Washington  
Seattle, Washington

1985 M.D. (Honors)  
School of Medicine  
University of Washington  
Seattle, Washington

### **Postgraduate Training**

July 1985 to July 1986  
Research Associate Viral Disease Clinic  
Harborview Medical Center  
Seattle, Washington 98195

July 1986 to July 1990  
Resident in Anatomic and Clinical Pathology  
University of Washington Medical Center  
Seattle, Washington 98195

July 1990 to September 1992  
Senior Fellow in Hematopathology  
Department of Laboratory Medicine  
University of Washington  
Seattle, Washington 98195

### **Medical License**

State of Washington, 1986  
State of Colorado, 2003

### **Board Certification**

Clinical Pathology, November, 1992  
Board Eligible, Hematopathology

## **Organizations**

Fellow, College of American Pathologists  
Member, International Society for Laboratory Hematology  
Member, American Society of Clinical Pathologists  
Member, The Myelodysplastic Syndromes Foundation  
Member, New York Academy of Sciences

## **Positions Held/Clinical Experience**

Medical Director, HematoLogics, Inc., 1995 to present  
Affiliate Scientist, Fred Hutchinson Cancer Research Center 1993 to present  
Medical Director, Cytometry Associates Research Division, 1993 to 1995

## **Awards**

Young Investigator Award, Academy of Clinical Laboratory Physicians and Scientists, 1991 and 1992.

## **Selected Abstracts, Presentations**

Participant European Leukemia Net working conference on flow cytometry in MDS, Amsterdam, March 2008, Munich, 2009, and London, 2010.

Flow Cytometry in Myelodysplastic Syndromes: Problems and Pitfalls. Plenary session 9<sup>th</sup> Euroconferenc on Clinical Cell Analysis, September 2009, St. Etienne France.

What's Beyond Morphology. Oral presentation American Society of Hematology, MDS Foundation symposium, December 2007, Atlanta, Georgia.

Invited participant Satellite meeting Workshop Proposals for Flow-Cytometry in MDS, 9<sup>th</sup> International Symposium on Myelodysplastic Syndromes, May 2007, Florence, Italy.

Standards in flow cytometry in MDS . Oral Presentation, July 2007, Standards and Standardization in MDS - Working Conference, Vienna, Austria.

Prognostic Significance of Pretransplant Multidimensional Flow Cytometric Parameters for Posttransplant Survival and Relapse in 111 Patients with Myelodysplastic Syndrome (MDS). Martin Benesch, Denise A. Wells, Wendy Leisenring, Michael R. Loken, David Myerson, and H. Joachim Deeg. Oral Presentation, 2002 ASH Annual Meeting December 6-10, 2002, Philadelphia, Pennsylvania

Combining Diagnostic Modalities to Detect Residual Tumor Post Bone Marrow Transplant. 10<sup>th</sup> International Symposium on Technological Innovations in Laboratory Hematology, Brugge, Belgium, June 12-15, 1997.

Special Education Session: State of the art in the laboratory diagnosis of leukemia and lymphoma. 10<sup>th</sup> International Symposium on Technological Innovations in Laboratory Hematology, Brugge, Belgium, June 12-15, 1997.

Wells DA. Flow Cytometric Evaluation of Patients with Paroxysmal Nocturnal Hemoglobinuria. Grand Rounds, Fred Hutchinson Cancer Research Center, April, 1997.

Hall MC, Wells DA, Loken MR. CD45 and Right Angle Light Scatter (RALS) Gating in a Three Color Analysis Differentiates Hairy Cell Leukemia from Myelodysplastic Syndrome. 1997 ASCP/CAP Spring Meeting April 8, 1997, Chicago, IL.

Wells DA. Quantification of malignant cells contaminating stem cell harvest. AABB 49th Annual Meeting, Stem Cell Quantification Workshop, October, 1996, Orlando, FL.

Wells DA. Minimal disease detection in leukemia and clinical outcome. 10th International Symposium on Technological Innovations in Laboratory Hematology, Banff, Alberta, Canada, April, 1996.

Symposium on Flow Cytometry and CD34: New Technologies and Clinical Applications, May 1996, Laborkolloquium Aarau Annual Meeting, Kantonsspital Aarau, Switzerland, May 1996.

Wells DA, Shulman H, Sale G, and Loken MR. Multi-dimensional flow cytometry differentiates acute myeloblastic leukemia from normal myeloblasts and lymphoblasts in marrow from post chemotherapy and bone marrow transplant patients. United States and Canadian Academy of Pathology, Annual Meeting, Washington, D.C., March, 1996.

Wells DA, Sale G, Shulman H, and Loken MR. Five dimensional flow cytometry differentiates acute lymphoblastic leukemia from normal lymphoblasts and myeloblasts in marrow from post chemotherapy and bone marrow transplant patients. 37th Annual Meeting of the American Society of Hematology, Seattle, WA, December, 1995.

Braylan RC, et al. North American Consensus Conference on the use of flow cytometry in immunophenotyping of leukemias and lymphomas: Medical Indications Committee. National Institute of Health, Bethesda, MD, December, 1995.

Wells DA. Flow Cytometry in Hematology: Diagnosis of Lymphoma. 1994 Northwest Medical Laboratory Symposium, Bellevue, WA, October 13, 1994.

Wells DA, Loken MR, Shulman H, Myerson D. Multi-dimensional flow cytometric antigenic comparison of bone marrow from normal, acute myeloid leukemia, and myelodysplastic patients. Third International Symposium on Myelodysplastic Syndromes, Chicago, IL, October 2, 1994.

## **Publications**

Chu SC, Wang TF, Li CC, Kao RH, Li DK, Su YC, Wells DA, Loken MR. Flow cytometric scoring system as a diagnostic and prognostic tool in myelodysplastic syndromes. *Leukemia research* (0145-2126), PMID or MEDLINE UI 21397943 DOI: 10.1016/j.leukres.2011.02.016

Cutler JA, Wells DA, van de Loosdrecht AA, de Baca ME, Kalnoski MH, Zehentner BK, Eidenschink L, Ghirardelli KM, Biggerstaff JS, Loken MR. Phenotypic abnormalities strongly reflect genotype in patients with unexplained cytopenias. *Cytometry. Part B, Clinical cytometry* (1552-4949), 80B (3), p. 150.

Foster JH, Hawkins DS, Loken MR, Wells DA, Thomson B. (03/02/2011). "Minimal residual disease detected prior to hematopoietic cell transplantation". *Pediatric blood & cancer* (1545-5009).

van de Loosdrecht AA, Alhan C, Bené C, Dräger A, Della Porta M, Feuillard J, Font P, Germing U, Haase D, Homburg C, Ireland R, Jansen J, Kern W, Loken M, Malcovati L, te Marvelde J, Mufti G, Ogata K, Orfao A, Ossenkoppele GJ, Porwit A, Preijers F, Richards S, Schuurhuis GJ, Subira, Valent P, van den Velden V, Westra G, de Witte T, Wells D, Westers M. Standardization of flow cytometry in myelodysplastic syndromes: Report from the first ELNet working conference on flow cytometry in myelodysplastic syndromes. *Haematologica*, vol 94, issue 8, 2009, p. 1124..

Loken, MR, Chu, SC, Fritschle, W, Kalnoski M, Wells DA. Normalization of bone marrow aspirate for hemodilution in flow cytometric analyses. *Cytometry B Clin Cytoe*, 76B, 2008, p. 27.

Loken MR, Wells DA. The Role of Flow Cytometry in Myelodysplastic Syndromes. *Journal of the National Comprehensive Cancer Network*. *J Natl Compr Canc Netw*. 2008 Oct;6(9):935-41.

Wells DA, Loken MR. Diagnostic and Prognostic Utility of Flow Cytometry in MDS. In Steensma: *Myelodysplastic Syndromes: Pathobiology and Clinical Management*, 2<sup>nd</sup> Edition. New York: Informa Healthcare USA Inc, 2009: p. 247- 266..

Wells DA, Loken MR. Flow Cytometry: Providing additional information in diagnosis, prognosis and monitoring treatment of MDS. Guest editorial, *MDS Foundation Newsletter*, 2008.

Scott BL, Wells DA, Loken MR, Myerson D, Leisenring WM, Deeg HW. Validation of a Flow Cytometric Scoring System as a Prognostic Indicator for Post-Transplant Outcome in Patients with MDS. *Blood*, in press.

Loken MR, Chu SC, Fritschle W, Kalnoski M, Wells DA. "Normalization of bone marrow aspirates for hemodilution in flow cytometric analyses.". *Cytometry. Part B, Clinical Cytometry* 2008 (1552-4949)

Wells DA, Ogata K. (02/2008). "On flow cytometry in myelodysplastic syndromes, with caveats.". *Leukemia research* (0145-2126), 32 (2), p. 209.

Davis BH, Holden JT, Bene MC, Borowitz MJ, Braylan RC, Cornfield D, Gorczyca W, Lee R, Maiese R, Orfao A, Wells D, Wood BL, Stetler-Stevenson M. "2006 Bethesda International Consensus recommendations on the flow cytometric immunophenotypic analysis of hematolymphoid neoplasia: medical indications.". *Cytometry. Part B, Clinical cytometry* 2007 (1552-4949), 72 Suppl 1 (s1), p. S5.

Michael R. Loken, Arjan van de Loosdrecht, Kiyoyuki Ogata, Alberto Orfao, Denise A. Wells. *Flow Cytometry in Myelodysplastic Syndromes: Report from a Working Conference*. *Leuk Res*. 2008 Jan;32(1):5-17.

Valent P, Horny HP, Bennett JM, Fonatsch C, Germing U, Greenberg P, Haferlach T, Haase D, Kolb HJ, Krieger O, Loken M, van de Loosdrecht A, Ogata K, Orfao A, Pfeilstocker M, Ruter B, Sperr WR, Stauder R, Wells DA. Definitions and standards in the diagnosis and treatment of the myelodysplastic syndromes: Consensus statements and report from a working conference. *Leuk Res*. 2007 Jun;31(6):727-36. Epub 2007 Jan 25.

Zehentner, Barbara K., Michael R. Loken, Denise A. Wells. *JAK2<sup>V617F</sup> mutation can occur exclusively in the erythroid lineage and be absent in granulocytes and progenitor cells in classic myeloproliferative disorders*. Letter, *Am J Hem*, in press.

Zehentner BK, Fritschle W, Stelzer T, Ghirardelli KM, Hunter K, Wentzel C, Bennington R, Hansen CL, Myerson D, Kalnoski M, Wells DA, Loken MR. Minimal disease detection and confirmation in hematologic malignancies: combining cell sorting with clonality profiling. *Clin Chem*. 2006 Mar;52(3):430-7. Epub 2006 Jan 12.

Wang L, Wells DA, Deeg HJ, Loken MR. Flow cytometric detection of nonneoplastic antigenic polymorphisms of donor origin after allogeneic marrow transplant: a report of two cases. *Am J Clin Pathol*. 2004 Jul;122(1):135-40.

Benesch, M, Deeg, HJ, Wells, DA, and Loken, MR. Flow Cytometry for Diagnosis and Assessment of Prognosis in Patients with Myelodysplastic Syndromes. *Hematology*, 2004 Jun;9(3):171-7. Review.

Wells DA, Benesch M, Loken MR, Vallejo C, Myerson D, Leisenring WM, Deeg HJ. Myeloid and monocytic dyspoiesis as determined by flow cytometric scoring in myelodysplastic syndrome correlates with the IPSS and with outcome after hemopoietic stem cell transplantation. *Blood*, 1 July 2003, vol. 102, 1, 394-403.

- Storek, J; Wells, D; Dawson, M; Storer, B; Maloney, D. Factors influencing B-lymphopoiesis after allogeneic hematopoietic cell transplantation. *Blood*, vol. 98, 2, 489-491, 2001.
- Loken, MR; Rowley, S; McSweeney, P, Wells, DA. Quantification of lymphoma in CD34+ enriched stem cell harvests: Evidence of non random, non specific contamination. *Cancer Research Therapy and Control*, vol. 11, pp.33-39, 2001.
- Shulman, H. M.; Wells, D.; Gooley, T.; Myerson, D.; Bryant, E.; Loken, M. R. The biologic significance of rare peripheral blasts after hematopoietic cell transplantation is predicted by multidimensional flow cytometry. *Am J Clin Pathol*, 112, 4, 513-23, 2000.
- Loken MR, Wells DA. Normal antigen expression in hematopoiesis: Basis for interpreting leukemia phenotypes. In, *Clinical Flow Cytometry*, Stewart CC and Nickolson J, eds, Wiley-Liss, Inc., 2000.
- Wells DA, Loken MR. More on hematogones, letter to editor. *Laboratory Medicine* 29, 728-729, 1998.
- Wells DA, Hall MC, Shulman HM, Loken MR. Occult B cell malignancies can be detected by three-color flow cytometry in patients with cytopenias. *Leukemia* 1998;12(12):2015-23.
- Wells DA, Sale GE, Shulman HM, Myerson D, Bryant EM, Gooley T, and Loken MR. Multidimensional flow cytometry of marrow can differentiate leukemic lymphoblasts from normal lymphoblasts and myeloblasts following chemotherapy and/or bone marrow transplant. *Am J Clin Path* 110, 84-94, 1998.
- Davis BH, Foucar K, Szczarkowski W, Ball E, Witzig T, Foon KA, Wells DA, Kotylo P, Johnson R, Hanson C, and Bessman D. U.S.-Canadian Consensus recommendations on the immunophenotypic analysis of hematologic neoplasia by flow cytometry: Medical Indications. *Cytometry (Communications in Clinical Cytometry)* 30: 249-263, 1997.
- Sievers EL, Lange BJ, Buckley JD, Smith FO, Wells DA, Daigneault-Creech CA, Shults KE, Bernstein ID, Loken MR. Prediction of relapse of pediatric acute myeloid leukemia by multidimensional flow cytometry. *Journal of the National Cancer Institute*, vol 88, October 16, 1996.
- McSweeney P, Wells D, Shults K, Nash R, and Loken M. Tumor-specific aneuploidy not detected in CD19-positive B-lymphoid cells from myeloma patients in a multidimensional flow cytometric analysis. *Blood*, vol 88, July 15, 1996, pp 622-632.
- Loken MR, and Wells DA. Immunofluorescence of cell surface markers, in *Flow Cytometry: A Practical Approach* (2nd Edition), MG Ormerod, editor, Oxford University Press, 1993.
- Wells DA, Simrell CS, Daigneault-Creech CA. The effect of iron status on reticulocyte mean channel fluorescence. *American Journal of Clinical Pathology*, January 1992.
- Kirby PK, Kiviat N, Beckman A, Wells DA, Sherwin S, Corey L. Tolerance and efficacy of recombinant human interferon gamma in the treatment of refractory genital warts. *American Journal of Medicine*, August 1988.
- Mazloun H, Totten PA, Brooks GF, Dawson CR, Falkow S, James JF, Knapp JS, Koomey JM, Lammel CJ, Peters (Wells) DA, Schachter J, Tang WS, Vedros NA. An unusual *Neisseria* isolated from conjunctival cultures in rural Egypt. *Journal of Infectious Diseases*, February, 1986.
- Totten PA, Handsfield HH, Peters (Wells) D, Holmes KK, Falkow S. Characterization of ampicillin resistance plasmids from *Haemophilus ducreyi*. *Antimicrobial Agents and Chemotherapy*. April, 1982.