

## A. IDENTIFYING DATA

1. Name	Michael F. Clarke, M.D.
2. Date/Place of Birth	May 28, 1951/Indianapolis, Indiana
3. Ethnicity	White
4. U.S. Citizen	Yes
5. California Medical Licensure	C52663
Michigan Medical License	#4301049987

## B. ACADEMIC HISTORY

### COLLEGES AND UNIVERSITIES, DEGREES, AND DATES

1969-1973	B.A., Indiana University; Indianapolis, Indiana
1973-1977	M.D., Indiana University; Indianapolis, Indiana

### POST-DOCTORAL AND RESIDENCY TRAINING

1977-1978	Intern, University of Missouri Medical Center, Columbia, Missouri
1978-1980	Resident, Indiana University Medical Center, Indianapolis, Indiana

### BOARD ELIGIBILITY OR BOARDS PASSED

1980	Diploma, American Board of Internal Medicine
1984	Board certification, Oncology

### OTHER STUDY AND RESEARCH OPPORTUNITIES

1995	Senior Postdoctoral Training/special leave for research in Department of Pathology, Stanford University School of Medicine (Dr. Irving L. Weissman Laboratory)
------	--

## C. EMPLOYMENT

### ACADEMIC APPOINTMENTS

1980-1983	Clinical Associate, Medicine Branch, National Cancer Institute, National Institutes of Health, Bethesda, Maryland
1983-1986	Staff Fellow, National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Bethesda, Maryland
1986-1992	Assistant Professor, Internal Medicine, Department of Hematology and Oncology, University of Michigan, Ann Arbor, Michigan
1992-1998	Associate Professor, Internal Medicine, Department of Hematology and Oncology, University of Michigan, Ann Arbor, Michigan
1992-2005	Attending Physician, University of Michigan Bone Marrow Transplant Unit, Ann Arbor, Michigan
1992-2005	Attending Physician, University of Michigan, Lymphoma Clinic
1998-2005	Professor, Internal Medicine, Department of Hematology and Oncology, University of Michigan, Ann Arbor, Michigan
2003-2005	Professor of Cell and Development Biology, University of Michigan, Ann Arbor, Michigan
2005-present	Professor of Internal Medicine, The Karel and Avice Beekhuis Endowed Professorship in Cancer Biology, Associate Director of the Stanford Institute for Stem Cell Biology and Regenerative Medicine, Stanford, California

## **D. PUBLIC AND PROFESSIONAL SERVICE**

### **COMMITTEE AND ADMINISTRATIVE SERVICE**

1987-1992	Thesis Committee, Karen Moertel, Pharmacology
1987-present	Graduate Program in Molecular and Cellular Biology
1989-present	Faculty Advisor for Medical Students
1990-present	Internal Medicine House Staff Evaluation and Recruitment
1992-1994	House Staff Selection Committee
1994-present	Thesis Committee, Mary Benedict, Molecular & Cellular Biology
1996-1999	Thesis Committee, Qun Zeng, Biology
2001-present	Member of Center of Organogenesis
2004-2006	American Society of Hematology Stem Cell Committee

### **COMMUNITY SERVICE**

American Cancer Society  
Nature Conservancy  
Science Day at the Ann Arbor Public Schools, 1987-1991  
Interfaith Homeless Shelter

### **MILITARY SERVICE**

1980-1983	Public Health Service - Discharged as Lieutenant 04
1983-present	Public Health Service - Retired

### **SCIENTIFIC ACTIVITIES**

#### ***Grant Reviewer***

NIH Developmental Biology Study Section, June, 1996; November, 1997; Permanent Member, 2001-2006.  
Army Breast Cancer Molecular Biology Study Section, September, 1996  
Army Breast Cancer Research Program, 1999, 2000  
NIH Program Project Grants (5), 1999-2002  
Leukemia Society Translational Research Committee, 1999-2004

#### ***Ad Hoc Grant Reviewer***

1992-1993	National Science Foundation
1991-1992	Veterans Administration Merit Reviewer

#### ***Ad Hoc Journal Reviewer***

1989-present	Blood
1989-present	Proceedings of the National Academy of Sciences
1989-present	Oncogene
1989-present	Human Gene Therapy
1989-present	Journal of Clinical Investigation
2003-present	Nature
2003-present	Nature Medicine
2003-present	Nature Immunology
2003-present	The New England Journal of Medicine
2003-present	Cell
2003-present	Cancer Cell

**Chairman**

2001 “Tumor Suppressor Genes” session  
American Society of Hematology Meeting  
2004 “Stem Cells and Cancer” education session  
American Association for Cancer Research Meeting

**Editorial Board**

2000-2003 Cancer Gene Therapy  
2008-present Cell Stem Cell

**Co-Organizer**

1999 8th International Conference on Gene Therapy of Cancer  
1999 41st Annual Meeting of the American Society of Hematology  
2005 American Association for Cancer Research meeting  
2006 American Association for Cancer Research meeting  
2007 Keystone Cancer Stem Cells meeting

**Organizer and founder**

2007 Gordon Conference Stem Cells and Cancer meeting

**E. Post-degree Honors and awards, including memberships in professional Societies****MEMBERSHIPS AND OFFICES**

American Society of Hematology  
American Society of Clinical Oncology  
American Association for the Advancement of Science  
Central Society for Clinical Research  
American Society of Clinical Investigation  
Southwest Oncology Group - Bone Marrow & Stem Cell Transplant Committee  
American Association for Cancer Research  
American Society of Gene Therapy

**SCHOLARSHIPS AND HONORS**

1996 Elected, American Society of Clinical Investigation  
2003 Physician of the Year 2003, Detroit Business Weekly  
2005 Elected, Association of American Physicians  
2007-2008 The Ruth Sager Lecture (Boston Cancer Research Association)  
2016 Foreign organizer, Princess Takamatsu Cancer Symposium, Tokyo, Japan  
2017 Jury, Francqui Prize, Brussels, Belgium  
2017 Malkin Lecure, Northwestern University  
2011-2016 External faculty advisor, University of Hong Kong  
2017-2022 Chan-Zuckerberg Biohub Investigator

## GRANTS

### *Ongoing Research Support*

#### **Characterization of Breast Cancer Stem Cells**

P.I.: Michael F. Clarke, M.D.

Agency: Breast Cancer Research Foundation

SPO# 36622

Period: 10/01/2005 - 09/30/2021

The purpose of this project is to further characterize breast cancer stem cells within tumors, identify critical pathways that drive tumor formation and dissemination and develop prognostic markers for breast cancer.

#### **Targeting Senescence pathways in Alzheimer's disease**

P.I.: Michael F. Clarke, M.D.

Agency: NIH

Type: 1RF1AG059712-01    Period: 08/01/2018 – 03/31/2023

SPO: #133400

The goal of this application is to decipher the mechanism by which Cdkn2a contributes the pathologies of Alzheimer's disease (AD). Discoveries from this project could provide a new target and lead to new therapies for AD.

#### **Delineating developmental programs driving tumorigenesis in triple-negative breast cancer**

P.I.: Aaron Mathew Newman

Agency: National Institutes of Health

Type: R01 CA255450

Period: 02/01/2021-01/31/2026

SPO: # 177921

The goal of this application is to determine if precise identification of immature cancer cells could present new therapeutic opportunities to revolutionize TNBC treatment.

### *Pending Research Support*

(PI: West, Robert)

#### **Immature and cycling cell states in breast precancer progression**

Agency: National Institutes of Health

Type: SPO# 194858

Period: 02/01/2021 – 01/31/2026

(PI: Newman, Aaron)

#### **Decoding Single-Cell Developmental Potential in Health and Disease**

Agency: National Institutes of Health

Type: SPO# 201757

Period: 08/15/2021 – 06/30/2026

(PI: Dirbas, Frederick)

#### **Development of a Preclinical Model to Evaluate FLASH Radiotherapy for Breast Cancer**

Agency: Department of Defense

Type: SPO# 223994

Period: 11/01/2021 – 04/30/2023

(PI: Dirbas, Frederick)

#### **Evaluation of FLASH radiotherapy in a xenograft model of human breast cancer**

Agency: Department of Defense

Type: SPO# 241855      Period: 04/01/2022 – 09/30/2023

(PI: Clarke, Michael)

**The role of mammary gland developmental pathways and the microenvironment in cancer cell heterogeneity and treatment response**

Agency: National Institutes of Health

Type: SPO# 244472      Period: 07/01/2022 – 06/30/2027

***Completed Research Support***

**Decoding Tumor Initiating Cells in Breast Cancer by Digital Cytometry**

P.I.: Aaron Mathew Newman

Agency: Bio-X

Type: SPO# 139137      Period: 10/01/2018-09/30/2021

The goal is to develop a computational approach for the identification of stem cells and cancer stem cells from single-cell RNA sequencing data.

**Stanford University Cancer Center**

P.D.: Beverly Mitchell

Agency: NIH/NCI

Type: P30CA12443510      Period: 06/01/2010 – 12/31/2019  
SPO# 36168

The major goal of this project is to support the Cancer Center Support Grant (CCSG) and to maintain designation as a Comprehensive Cancer Center. The membership of the Center consists of 260 faculty members representing four Schools at SU (Medicine, Engineering, Humanities and Sciences, and the Graduate School of Business), and the Northern California Cancer Center (NCCC) with whom SU has a formal affiliation agreement. The Cancer Center includes 8 research programs and 13 shared resources. Dr. Clarke leads the Cancer Stem Cell Research Program.

**Targeting Toll-Like Receptor Signaling for Prevention and Treatment of Breast Cancer**

**BC123235 BCRP Breast Cancer Research Program – Innovator Award**

P.I.: Michael F. Clarke, M.D.

Agency: DoD

Type: W81XWH-13-1-0281      Period: 09/01/2013 – 08/31/2018  
SPO#110213

The major goal of this project is to determine whether inhibitors of the TLF pathway might be useful for breast cancer prevention and/or treatment

**Deep Super-localization Microscopy and Effectively Unbleachable Labeling for 4D Nucleomics**

P.D.: Jan Liphardt

Agency: NIH

Type: U01EB021237      Period: 09/30/2015 – 06/30/2018  
SPO# 119277

The major goal of this project is to develop probes for visualization of USP16 in single neural cells.

**Clinically-Relevant Regulatory Networks in the Lung Tumor Microenvironment**

P.I.: Plevritis

Agency: NIH  
Type: U01CA15496905      Period: 09/01/2011 – 08/31/2017  
SPO# 48893

The major goals of this project are to computationally derive and experimentally validate key mediators of Tumor microenvironment. These mediators will represent candidate drug targets for disruption the interaction between lung cancer cells and their microenvironment and improving treating outcomes associated with Lung cancer.

#### **Cellular and Molecular Characterization of ER+ Breast Cancer**

P.I.: Michael F. Clarke, M.D.  
Agency: DoD  
Type: W81XWH1110287      Period: 06/01/2011 – 05/31/2017  
SPO# 49502

The goals of this grant are to compare the cellular hierarchies of ER-,PR-, ERB-B2- (triple negative) breast tumors of different ethnicities to the cell types found in normal breast epithelium of different ethnicities.

#### **Self-Renewal of Normal and Leukemic Stem Cells**

P.I.: Michael F. Clarke, M.D.  
Agency: NIH  
Type: R01CA100225      Period: 04/01/2003 – 11/30/2016  
SPO# 37537

The major goals of this project is to determine whether alteration of the expression of putative *bmi-1* downstream targets restores the ability of *bmi-1* deficient bone marrow cells to give rise to leukemia, and to identify the target cell(s) for *bmi-1* –dependent transformation.

#### **Cellular Hierarchy of ER-Breast Cancers in Different Ethnic Groups**

P.I.: Michael F. Clarke, M.D.  
Agency: NIH  
Type: U01CA154209      Period: 09/29/2010 – 07/31/2015  
SPO# 49267

The major goals of this project are to compare the cellular hierarchies of ER-,PR-, ERB-B2- (triple negative) breast tumors of different ethnicities to the cell types found in normal breast epithelium. This knowledge may lead to new insights into the treatment of breast cancer.

#### **Identification of Cancer Stem Cell Therapeutic Targets**

P.I.: Michael F. Clarke, M.D.  
Agency: NIH  
Type: PO1 CA 139490-05      Period: 05/27/2009 – 04/30/2015  
SPO# 43422

There are three major goals of this proposal. The first is to do a comprehensive genomic and epigenomic analysis of leukemic and solid tumor cancer stem cells. The second is to develop new methods to culture cancer stem cells. The third is to develop new therapeutics against leukemia and breast cancer stem cells.

#### **USP16 controls stem cell number: implications for Down Syndrome RB3-05066**

P.I.: Michael F. Clarke, M.D.  
Agency: CIRM

Type: SPO# 52441

Period: 08/01/2011 – 07/31/2014

The major goals of this project are 1) Analysis of the self-renewal potential of human Down Syndrome HSCs, and 2) Evaluate if USP16 works as a protective factor from cancer appearance.

**Functional Analysis of the DLK1-GTL2 Imprinted Region in Breast Stem Cell Differentiation and Tumorigenesis**

P.I.: Michael F. Clarke, M.D.

Agency: Susan G. Komen Breast Cancer Foundation

Type: SPO#48215

Period: 09/27/2010 – 09/26/2013

The purpose of this project is to characterize the relevance of the DLK1-GTL2 region in mammary development and breast tumor formation

**Molecular and Functional Characterization of Colon Tumor Cancer Stem Cells and Stroma**

P.I.: Michael F. Clarke, M.D.

Agency: NIH/NCI

Type: U54 CA 126524

Period: 09/30/2006 – 08/31/2011

The major goal of this project is to understand the mechanisms by which cancer stem cells interact with the tumor stroma.

**Stem Cells and Cancer**

P.I.: Michael F. Clarke, M.D.

Agency: NIH

Period: 07/01/2007 – 06/30/2008

The goal of this proposal is to extensively characterize breast cancer stem cells (BCSCs). In the first aim, we will use the principles of stem cell biology to determine whether a single solid tumor stem cell exists that has the ability to form a tumor and to regenerate a heterogeneous population of cancer cells. In the second aim we will develop an expanded gene expression analysis of BCSCs. This should allow us to refine to the BCSC derived gene signature that appears to be a powerful predictor of survival and risk of metastasis for women with early stage breast cancer. The gene expression analysis of BCSCs also serves as the foundation for aim 3. In this aim, we will begin to identify better markers that can be used to identify BCSCs. We hypothesize that these new markers will be useful for the identification of women that have increased risk for relapse of their disease.

**Targeting PCD for Cancer Therapy**

P.I.: Michael F. Clarke

Agency: NIH/NCI

Type: P01CA75136

Period: 04/01/1998 – 01/31/2005

Project 3: Targeting PCD for Leukemia Treatment (Clarke, Project Leader)

Core B: Administrative Core (Clarke, Core Leader)

The major goals of this program project are: 1) to understand the perturbations in the programmed cell death (PCD) pathway in cancer cells; and, 2) to determine whether the differences between cancer cells and normal cells can be exploited to develop new therapeutic agents. To accomplish these goals, adenovirus vectors are being used to specifically inactivate inhibitory components of the PCD pathway. Cancers of the breast, ovarian, bladder and hematopoietic origin are being analyzed.

**Identification and Characterization of Tumor-Initiating Breast Cancer Cells**

P.I.: Michael F. Clarke, M.D.

Agency: Department of Defense—US Army

Type: BC021518

Period: 06/09/2003 – 06/08/2005

The major goals of this project are 1) to characterize the cancer stem cell phenotype of multiple tumors and establishment of a breast cancer xenograft tumor bank, and 2) to determine whether the stem cells from the

primary tumor and a metastatic tumor obtained from the same patient vary phenotypically or functionally and 3) to determine whether the tumorigenic subpopulation varies with ER/Pg/R status of these tumors.

#### **A Search for Genes that Regulate Stem Cells**

P.I.: Michael F. Clarke, M.D.

Agency: NIH/NIDDK

Type: P01 DK53074                      Period: 10/01/1997 – 05/31/2009

The major goal of this project is to identify, clone, characterize, and place within a biological context genes expressed by stem cells that play direct roles in specifying the developmental properties of self renewal and differentiation and the decision between these two developmental options. The following projects make up this program. Project 1: Search for genes that regulate hematopoietic stem cells, PI: (Weissman) Project 2: Polycomb and hematopoietic stem cell self-renewal pathway, PI: (Clarke) Project 3: Genomic and proteomic analysis of stem and progenitor cells, PI: (Hood) Project 4: Genes that control stem cell behavior, PI: (Fuller)

#### **The Role of RGS18 in Mouse Hematopoiesis**

P.I.: Michael F. Clarke, M.D.

Agency: NIH

Type: R01 HL068831                      Period: 04/01/2006 – 03/31/2009

The major goals of this project are 1) to determine the biological function(s) of RGS18, and 2) to determine the mechanisms by which interferon- $\gamma$  regulates RGS18, and, 3) to further define the biochemical functions of RGS18.

#### **Analysis of Leukemia Cells**

P.I.: Michael F. Clarke, M.D.

Agency: NIH

Type: R01 CA104987                      Period: 06/22/2006 – 05/31/2009

The goal of this grant is to begin to understand the similarities and differences of normal stem cells and tumorigenic cancer cells derived from patients with AML or solid tumors. The specific aims are #1: To determine whether a single tumorigenic cancer cell can generate the heterogeneous populations of tumorigenic and non-tumorigenic cancer cells, #2: To determine whether the proportion of tumorigenic cancer cells in a tumor changes during tumor growth, #3 To determine whether the phenotype of the tumorigenic cancer cells changes during passage in the xenograft mouse model, and #4 To identify the genomic makeup of tumorigenic cancer cells from multiple tumors and to determine whether tumorigenic solid tumor cancer cells and tumor-initiating leukemia cells share expression of “stem cell genes” with normal stem cells.

#### **Procurement for Xenograft Tumors and Novel Antibodies to Detect Cancer Stem Cells and Stromal Cells**

P.I.: Michael F. Clarke, M.D.

Agency: SAIC-Frederick, Inc.

Type: 28XS176                      Period: 04/11/2008 – 05/29/2009

The major goal of this project is to supply 25 human xenograft monoclonal antibodies for identification.

## **F. BIBLIOGRAPHY - LIST OF SCHOLARLY PUBLICATIONS**

**PEER REVIEWED PUBLICATIONS (TOTAL NUMBER: 140 PUBLISHED)**



1. van Weele LJ, Djomehri SI, Cai S, Antony J, Sikandar SS, Qian D, Ho WHD, West R, Scheeren FA, Clarke MF. Mesenchymal tumor cells drive adaptive resistance of Trp53<sup>-/-</sup> breast tumor cells to inactivated mutant Kras. *Mol Oncol*. 2022 Apr 9. doi: 10.1002/1878-0261.13220. Online ahead of print. PMID: 35398967
2. Vorperian SK, Moufarrej MN; Tabula Sapiens Consortium, Quake SR. Publisher Correction: Cell types of origin of the cell-free transcriptome. *Nat Biotechnol*. 2022 Mar 28. doi: 10.1038/s41587-022-01293-3. Online ahead of print. PMID: 35347330
3. Reinitz F, Chen EY, Nicolis di Robilant B, Chuluun B, Antony J, Jones RC, Gubbi N, Lee K, Ho WHD, Kolluru SS, Qian D, Adorno M, Piltti K, Anderson A, Monje M, Heller HC, Quake SR, Clarke MF. Inhibiting USP16 rescues stem cell aging and memory in an Alzheimer's model. *Elife*. 2022 Mar 21;11:e66037. doi: 10.7554/eLife.66037. Online ahead of print. PMID: 35311644
4. Pálovics R, Keller A, Schaum N, Tan W, Fehlmann T, Borja M, Kern F, Bonanno L, Calcuttawala K, Webber J, McGeever A; Tabula Muris Consortium, Luo J, Pisco AO, Karkanias J, Neff NF, Darmanis S, Quake SR, Wyss-Coray T. Molecular hallmarks of heterochronic parabiosis at single-cell resolution. *Nature*. 2022 Mar;603(7900):309-314. doi: 10.1038/s41586-022-04461-2. Epub 2022 Mar 2. PMID: 35236985
5. Vorperian SK, Moufarrej MN; Tabula Sapiens Consortium, Quake SR. Cell types of origin of the cell-free transcriptome. *Nat Biotechnol*. 2022 Feb 7. doi: 10.1038/s41587-021-01188-9. Online ahead of print. PMID: 35132263
6. Olivieri JE, Dehghannasiri R, Wang PL, Jang S, de Morree A, Tan SY, Ming J, Ruohao Wu A; Tabula Sapiens Consortium, Quake SR, Krasnow MA, Salzman J. RNA splicing programs define tissue compartments and cell types at single-cell resolution. *Elife*. 2021 Sep 13;10:e70692. doi: 10.7554/eLife.70692. PMID: 34515025
7. van Weele LJ, Scheeren FA, Cai S, Kuo AH, Qian D, Ho WHD, Clarke MF. Depletion of Trp53 and Cdkn2a Does Not Promote Self-Renewal in the Mammary Gland but Amplifies Proliferation Induced by TNF- $\alpha$ . *Stem Cell Reports*. 2021 Jan 6:S2213-6711(20)30507-5. doi: 10.1016/j.stemcr.2020.12.012. PMID: 33482103
8. Northstar enables automatic classification of known and novel cell types from tumor samples. Zanini F, Berghuis BA, Jones RC, Nicolis di Robilant B, Nong RY, Norton JA, Clarke MF, Quake SR. *Sci Rep*. 2020 Sep 17;10(1):15251. doi: 10.1038/s41598-020-71805-1. PMID: 32943655
9. A single-cell transcriptomic atlas characterizes ageing tissues in the mouse. Tabula Muris Consortium. *Nature*. 2020 Jul;583(7817):590-595. doi: 10.1038/s41586-020-2496-1. Epub 2020 Jul 15. PMID: 32669714
10. Zabala M, Lobo NA, Antony J, Heitink LS, Gulati GS, Lam J, Parashurama N, Sanchez K, Adorno M, Sikandar SS, Kuo AH, Qian D, Kalisky T, Sim S, Li L, Dirbas FM, Somlo G, Newman A, Quake SR, Clarke MF. LEFTY1 Is a Dual-SMAD Inhibitor that Promotes Mammary Progenitor Growth and Tumorigenesis. *Cell Stem Cell*. 2020 Aug 6;27(2):284-299.e8. doi: 10.1016/j.stem.2020.06.017. Epub 2020 Jul 20. PMID: 32693087.
11. Gunsagar S, Gulati<sup>1,†</sup>, Shaheen S, Sikandar<sup>1,†</sup>, Daniel J. Wesche<sup>1</sup>, Anoop Manjunath<sup>1</sup>, Anjan Bharadwaj<sup>1</sup>, Mark J. Berger<sup>2,‡</sup>, Francisco Ilagan<sup>1</sup>, Angera H. Kuo<sup>1</sup>, Robert W. Hsieh<sup>1</sup>, Shang Cai<sup>3</sup>, Maider Zabala<sup>1,#</sup>, Ferenc A. Scheeren<sup>4</sup>, Neethan A. Lobo<sup>1,#</sup>, Dalong Qian<sup>1</sup>, Feiqiao B. Yu<sup>5</sup>, Frederick M. Dirbas<sup>6</sup>, Michael F. Clarke<sup>1,7</sup>, Aaron M. Newman<sup>1</sup> Single-cell transcriptional diversity is a hallmark of developmental potential. *Science*, 2020 Jan 24;367(6476):405-411. doi: 10.1126/science.aax0249. PMID: 31974247.
12. Clarke MF. Clinical and Therapeutic Implications of Cancer Stem Cells. Reply. *N Engl J Med*. 2019 Sep 5;381(10):e19. doi: 10.1056/NEJMc1908886. No abstract available. PMID: 31483983

13. Clarke MF. Clinical and Therapeutic Implications of Cancer Stem Cells. *N Engl J Med.* 2019 Jun 6;380(23):2237-2245. doi: 10.1056/NEJMra1804280. Review. No abstract available. PMID: 31167052
14. Adorno M, di Robilant BN, Sikandar SS, Acosta VH, Antony J, Heller CH, Clarke MF. Usp16 modulates Wnt signaling in primary tissues through Cdkn2a regulation. *Sci Rep.* 2018 Nov 30;8(1):17506. doi: 10.1038/s41598-018-34562-w. PMID:30504774 PMCID: PMC6269430
15. Lobo NA, Zabala M, Qian D, Clarke MF. Serially transplantable mammary epithelial cells express the Thy-1 antigen. *Breast Cancer Res.* 2018 Oct 10;20(1):121. doi: 10.1186/s13058-018-1006-y.PMID: 30305179 PMCID: PMC6180607
16. The Tabula Muris Consortium, Stephen R. Quake, Tony Wyss-Coray, Spyros Darmanis, Clarke MF. Single-cell transcriptomics of 20 mouse organs creates a Tabula Muris. *Nature.* 2018 Oct;562 (7727):367-372. doi: 10.1038/s41586-018-0590-4. Epub 2018 Oct 3. PMID:30283141
17. Sikandar SS, Kuo AH, Kalisky T, Cai S, Zabala M, Hsieh RW, Lobo NA, Scheeren FA, Sim S, Qian D, Dirbas FM, Somlo G, Quake SR, Clarke MF. Role of epithelial to mesenchymal transition associated genes in mammary gland regeneration and breast tumorigenesis. *Nat Commun.* 2017 Nov 21;8 (1):1669. doi: 10.1038/s41467-017-01666-2. PMID: 29162812 PMCID: PMC5698470
18. Zarnegar MA, Reinitz F, Newman AM, Clarke MF. Targeted chromatin ligation, a robust epigenetic profiling technique for small cell numbers. *Nucleic Acids Res.* 2017 Sep 29;45(17):e153. doi: 10.1093/nar/gkx648. PMID: 28973448 PMCID: PMC5622369
19. Betancur PA, Abraham BJ, Yiu YY, Willingham SB, Khameneh F, Zarnegar M, Kuo AH, McKenna K, Kojima Y, Leeper NJ, Ho P, Gip P, Swigut T, Sherwood RI, Clarke MF, Somlo G, Young RA, Weissman IL. A CD47-associated super-enhancer links pro-inflammatory signalling to CD47 upregulation in breast cancer. *Nat Commun.* 2017 Apr 5;8:14802. doi: 10.1038/ncomms14802. PMID: 28378740
20. Zhao C, Cai S, Shin K, Lim A, Kalisky T, Lu WJ, Clarke MF, Beachy PA. Stromal Gli2 activity coordinates a niche signaling program for mammary epithelial stem cells. *Science.* 2017 Mar 9. pii: eaal3485. doi: 10.1126/science.aal3485 [Epub ahead of print] PMID:28280246
21. Cai S, Kalisky T, Sahoo D, Dalerba P, Feng W, Lin Y, Qian D, Kong A, Yu J, Wang F, Chen EY, Scheeren FA, Kuo AH, Sikandar SS, Hisamori S, van Weele LJ, Heiser D, Sim S, Lam J, Quake S, Clarke MF. A Quiescent Bcl11b High Stem Cell Population Is Required for Maintenance of the Mammary Gland. *Cell Stem Cell.* 2016 Dec 19. pii: S1934-5909(16)30403-9. doi: 10.1016/j.stem.2016.11.007. [Epub ahead of print] PMID: 28041896
22. Lee JJ, Rothenberg ME, Seeley ES, Zimdahl B, Kawano S, Lu WJ, Shin K, Sakata-Kato T, Chen JK, Diehn M, Clarke MF, Beachy PA. Control of inflammation by stromal Hedgehog pathway activation restrains colitis. *Proc Natl Acad Sci U S A.* 2016 Nov 4. pii: 201616447. [Epub ahead of print] PMID: 27815529
23. Dalerba P, Sahoo D, Clarke MF CDX2 as a Prognostic Biomarker in Colon Cancer. *N Engl J Med.* 2016 Jun 2;374(22):2184. doi: 10.1056/NEJMc1602584. No abstract available. PMID: 27248627 PMCID: PMC4955394
24. Dalerba P, Sahoo D, Paik S, Guo X, Yothers G, Song N, Wilcox-Fogel N, Forgó E, Rajendran PS, Miranda SP, Hisamori S, Hutchison J, Kalisky T, Qian D, Wolmark N, Fisher GA, van de Rijn M, Clarke MF. CDX2 as a Prognostic Biomarker in Stage II and Stage III Colon Cancer. *N Engl J Med.* 2016 Jan 21;374(3):211-22. doi: 10.1056/NEJMoa1506597.PMID:26789870
25. Chen EC, Karl TA, Kalisky T, Gupta SK, O'Brien CA, Longacre TA, van de Rijn M, Quake SR, Clarke MF, Rothenberg ME. KIT Signaling Promotes Growth of Colon Xenograft Tumors in Mice and Is Up-Regulated in a Subset of Human Colon Cancers. *Gastroenterology.* 2015 Sep;149(3):

705-17.e2. doi: 10.1053/j.gastro.2015.05.042. Epub 2015 May 28. PMID:26026391 PMCID: PMC4550533

26. Isobe T, Hisamori S, Hogan DJ, Zabala M, Hendrickson DG, Dalerba P, Cai S, Scheeren F, Kuo AH, Sikandar SS, Lam JS, Qian D, Dirbas FM, Somlo G, Lao K, Brown PO, Clarke MF, Shimono Y. miR-142 regulates the tumorigenicity of human breast cancer stem cells through the canonical WNT signaling pathway. *Elife*. 2014 Nov 18;3. doi: 10.7554/eLife.01977. PubMed PMID: 25406066; PubMed Central PMCID: PMC4235011.
27. Scheeren FA, Kuo AH, van Weele LJ, Cai S, Glykofridis I, Sikandar SS, Zabala M, Qian D, Lam JS, Johnston D, Volkmer JP, Sahoo D, van de Rijn M, Dirbas FM, Somlo G, Kalisky T, Rothenberg ME, Quake SR, Clarke MF. A cell-intrinsic role for TLR2-MYD88 in intestinal and breast epithelia and oncogenesis. *Nat Cell Biol*. 2014 Dec;16(12):1238-48. doi: 10.1038/ncb3058. Epub 2014 Nov 2. PubMed PMID: 25362351.
28. Wu AR, Neff NF, Kalisky T, Dalerba P, Treutlein B, Rothenberg ME, Mburu FM, Mantalas GL, Sim S, Clarke MF, Quake SR. Quantitative assessment of single-cell RNA-sequencing methods. *Nat Methods*. 2014 Jan;11(1):41-6. doi: 10.1038/nmeth.2694. Epub 2013 Oct 20. PubMed PMID: 24141493; PubMed Central PMCID: PMC4022966.
29. Adorno M, Sikandar S, Mitra SS, Kuo A, Nicolis Di Robilant B, Haro-Acosta V, Ouadah Y, Quarta M, Rodriguez J, Qian D, Reddy VM, Cheshier S, Garner CC, Clarke MF. Usp16 contributes to somatic stem-cell defects in Down's syndrome. *Nature*. 2013 Sep 19;501(7467):380-4. doi: 10.1038/nature12530. Epub 2013 Sep 11. PubMed PMID: 24025767; PubMed Central PMCID: PMC3816928.
30. Dalerba P, Clarke MF. Oncogenic miRNAs and the perils of losing control of a stem cell's epigenetic identity. *Cell Stem Cell*. 2013 Jul 3;13(1):5-6. doi: 10.1016/j.stem.2013.06.012. PubMed PMID: 23827702.  
Kuo AH, Clarke MF. Identifying the metastatic seeds of breast cancer. *Nat Biotechnol*. 2013 Jun;31(6):504-5. doi: 10.1038/nbt.2599. PubMed PMID: 23752434.
31. Bockhorn J, Dalton R, Nwachukwu C, Huang S, Prat A, Yee K, Chang YF, Huo D, Wen Y, Swanson KE, Qiu T, Lu J, Park SY, Dolan ME, Perou CM, Olopade OI, Clarke MF, Greene GL, Liu H. MicroRNA-30c inhibits human breast tumour chemotherapy resistance by regulating TWF1 and IL-11. *Nat Commun*. 2013;4:1393. doi: 10.1038/ncomms2393. PubMed PMID: 23340433; PubMed Central PMCID: PMC3723106.
32. Bockhorn J, Yee K, Chang YF, Prat A, Huo D, Nwachukwu C, Dalton R, Huang S, Swanson KE, Perou CM, Olopade OI, Clarke MF, Greene GL, Liu H. MicroRNA-30c targets cytoskeleton genes involved in breast cancer cell invasion. *Breast Cancer Res Treat*. 2013 Jan;137(2):373-82. doi: 10.1007/s10549-012-2346-4. Epub 2012 Dec 7. PubMed PMID: 23224145; PubMed Central PMCID: PMC3583223.
33. Sen A, Rothenberg ME, Mukherjee G, Feng N, Kalisky T, Nair N, Johnstone IM, Clarke MF, Greenberg HB. Innate immune response to homologous rotavirus infection in the small intestinal villous epithelium at single-cell resolution. *Proc Natl Acad Sci U S A*. 2012 Dec 11;109(50):20667-72. doi: 10.1073/pnas.1212188109. Epub 2012 Nov 27. PubMed PMID: 23188796; PubMed Central PMCID: PMC3528539.
34. Parashurama N, Lobo NA, Ito K, Mosley AR, Habte FG, Zabala M, Smith BR, Lam J, Weissman IL, Clarke MF, Gambhir SS. Remodeling of endogenous mammary epithelium by breast cancer stem cells. *Stem Cells*. 2012 Oct;30(10):2114-27. doi:

10.1002/stem.1205. PubMed PMID: 22899386; PubMed Central PMCID: PMC4158927.

35. Willingham SB, Volkmer JP, Gentles AJ, Sahoo D, Dalerba P, Mitra SS, Wang J, Contreras-Trujillo H, Martin R, Cohen JD, Lovelace P, Scheeren FA, Chao MP, Weiskopf K, Tang C, Volkmer AK, Naik TJ, Storm TA, Mosley AR, Edris B, Schmid SM, Sun CK, Chua MS, Murillo O, Rajendran P, Cha AC, Chin RK, Kim D, Adorno M, Raveh T, Tseng D, Jaiswal S, Enger PØ, Steinberg GK, Li G, So SK, Majeti R, Harsh GR, van de Rijn M, Teng NN, Sunwoo JB, Alizadeh AA, Clarke MF, Weissman IL. The CD47-signal regulatory protein alpha (SIRPα) interaction is a therapeutic target for human solid tumors. *Proc Natl Acad Sci U S A*. 2012 Apr 24;109(17):6662-7. doi: 10.1073/pnas.1121623109. Epub 2012 Mar 26. PubMed PMID: 22451913; PubMed Central PMCID: PMC3340046.
36. Rothenberg ME, Nusse Y, Kalisky T, Lee JJ, Dalerba P, Scheeren F, Lobo N, Kulkarni S, Sim S, Qian D, Beachy PA, Pasricha PJ, Quake SR, Clarke MF. Identification of a cKit(+) colon crypt base secretory cell that supports Lgr5(+) stem cells in mice. *Gastroenterology*. 2012 May;142(5):1195-1205.e6. doi: 10.1053/j.gastro.2012.02.006. Epub 2012 Feb 11. PubMed PMID: 22333952; PubMed Central PMCID: PMC3911891.
37. Kohrt HE, Houot R, Weiskopf K, Goldstein MJ, Scheeren F, Czerwinski D, Colevas AD, Weng WK, Clarke MF, Carlson RW, Stockdale FE, Mollick JA, Chen L, Levy R. Stimulation of natural killer cells with a CD137-specific antibody enhances trastuzumab efficacy in xenotransplant models of breast cancer. *J Clin Invest*. 2012 Mar 1;122(3):1066-75. doi: 10.1172/JCI61226. Epub 2012 Feb 13. PubMed PMID: 22326955; PubMed Central PMCID: PMC3287235.
38. Dalerba P, Kalisky T, Sahoo D, Rajendran PS, Rothenberg ME, Leyrat AA, Sim S, Okamoto J, Johnston DM, Qian D, Zabala M, Bueno J, Neff NF, Wang J, Shelton AA, Visser B, Hisamori S, Shimono Y, van de Wetering M, Clevers H, Clarke MF, Quake SR. Single-cell dissection of transcriptional heterogeneity in human colon tumors. *Nat Biotechnol*. 2011 Nov 13;29(12):1120-7. doi: 10.1038/nbt.2038. PubMed PMID: 22081019; PubMed Central PMCID: PMC3237928.
39. Liu H, Bockhorn J, Dalton R, Chang YF, Qian D, Zitzow LA, Clarke MF, Greene GL. Removal of lactate dehydrogenase-elevating virus from human-in-mouse breast tumor xenografts by cell-sorting. *J Virol Methods*. 2011 May;173(2):266-70. doi: 10.1016/j.jviromet.2011.02.015. Epub 2011 Feb 24. PubMed PMID: 21354210; PubMed Central PMCID: PMC3086718.
40. Rothenberg ME, Clarke MF, Diehn M. The Myc connection: ES cells and cancer. *Cell*. 2010 Oct 15;143(2):184-6. doi: 10.1016/j.cell.2010.09.046. PubMed PMID: 20946977.
41. Liu H, Patel MR, Prescher JA, Patsialou A, Qian D, Lin J, Wen S, Chang YF, Bachmann MH, Shimono Y, Dalerba P, Adorno M, Lobo N, Bueno J, Dirbas FM, Goswami S, Somlo G, Condeelis J, Contag CH, Gambhir SS, Clarke MF. Cancer stem cells from human breast tumors are involved in spontaneous metastases in orthotopic mouse models. *Proc Natl Acad Sci U S A*. 2010 Oct 19;107(42):18115-20. doi: 10.1073/pnas.1006732107. Epub 2010 Oct 4. PubMed PMID: 20921380; PubMed Central PMCID: PMC2964232.
42. Shimono Y, Zabala M, Cho RW, Lobo N, Dalerba P, Qian D, Diehn M, Liu H, Panula SP, Chiao E, Dirbas FM, Somlo G, Pera RA, Lao K, Clarke MF. Downregulation of miRNA-200c links breast cancer stem cells with normal stem cells. *Cell*. 2009 Aug 7;138(3):592-603. doi: 10.1016/j.cell.2009.07.011. PubMed PMID: 19665978;

PubMed Central PMCID: PMC2731699.

43. Hoey T, Yen WC, Axelrod F, Basi J, Donigian L, Dylla S, Fitch-Bruhns M, Lazetic S, Park IK, Sato A, Satyal S, Wang X, Clarke MF, Lewicki J, Gurney A. DLL4 blockade inhibits tumor growth and reduces tumor-initiating cell frequency. *Cell Stem Cell*. 2009 Aug 7;5(2):168-77. doi: 10.1016/j.stem.2009.05.019. PubMed PMID: 19664991.
44. Woodward WA, Bristow RG, Clarke MF, Coppes RP, Cristofanilli M, Duda DG, Fike JR, Hambarzumyan D, Hill RP, Jordan CT, Milas L, Pajonk F, Curran WJ, Dicker AP, Chen Y. Radiation Therapy Oncology Group translational research program stem cell symposium: incorporating stem cell hypotheses into clinical trials. *Int J Radiat Oncol Biol Phys*. 2009 Aug 1;74(5):1580-91. doi: 10.1016/j.ijrobp.2009.03.047. Epub 2009 Jun 17. PubMed PMID: 19540073.
45. Wu AR, Hiatt JB, Lu R, Attema JL, Lobo NA, Weissman IL, Clarke MF, Quake SR. Automated microfluidic chromatin immunoprecipitation from 2,000 cells. *Lab Chip*. 2009 May 21;9(10):1365-70. doi: 10.1039/b819648f. Epub 2009 Feb 27. PubMed PMID: 19417902; PubMed Central PMCID: PMC4123551.
46. Diehn M, Cho RW, Clarke MF. Therapeutic implications of the cancer stem cell hypothesis. *Semin Radiat Oncol*. 2009 Apr;19(2):78-86. doi: 10.1016/j.semradonc.2008.11.002. Review. PubMed PMID: 19249645; PubMed Central PMCID: PMC2789266.
47. Majeti R, Becker MW, Tian Q, Lee TL, Yan X, Liu R, Chiang JH, Hood L, Clarke MF, Weissman IL. Dysregulated gene expression networks in human acute myelogenous leukemia stem cells. *Proc Natl Acad Sci U S A*. 2009 Mar 3;106(9):3396-401. doi: 10.1073/pnas.0900089106. Epub 2009 Feb 13. PubMed PMID: 19218430; PubMed Central PMCID: PMC2642659.
48. Diehn M, Cho RW, Lobo NA, Kalisky T, Dorie MJ, Kulp AN, Qian D, Lam JS, Ailles LE, Wong M, Joshua B, Kaplan MJ, Wapnir I, Dirbas FM, Somlo G, Garberoglio C, Paz B, Shen J, Lau SK, Quake SR, Brown JM, Weissman IL, Clarke MF. Association of reactive oxygen species levels and radioresistance in cancer stem cells. *Nature*. 2009 Apr 9;458(7239):780-3. doi: 10.1038/nature07733. PubMed PMID: 19194462; PubMed Central PMCID: PMC2778612.
49. Dylla SJ, Beviglia L, Park IK, Chartier C, Raval J, Ngan L, Pickell K, Aguilar J, Lazetic S, Smith-Berdan S, Clarke MF, Hoey T, Lewicki J, Gurney AL. Colorectal cancer stem cells are enriched in xenogeneic tumors following chemotherapy. *PLoS One*. 2008 Jun 18;3(6):e2428. doi: 10.1371/journal.pone.0002428. Erratum in: *PLoS ONE*. 2008;3(8). doi: 10.1371/annotation/2aa6a20a-e63c-49b6-aeaa-ae62435617f. PubMed PMID: 18560594; PubMed Central PMCID: PMC2413402.
50. Clarke MF. What can we learn about breast cancer from stem cells? *Adv Exp Med Biol*. 2008;617:17-22. doi: 10.1007/978-0-387-69080-3\_2. Review. PubMed PMID: 18497027.
51. Akala OO, Park IK, Qian D, Pihajja M, Becker MW, Clarke MF. Long-term haematopoietic reconstitution by *Trp53*<sup>-/-</sup>*p16*<sup>Ink4a</sup><sup>-/-</sup>*p19*<sup>Arf</sup><sup>-/-</sup> multipotent progenitors. *Nature*. 2008 May 8;453(7192):228-32. doi: 10.1038/nature06869. Epub 2008 Apr 16. PubMed PMID: 18418377.
52. Dalerba P, Clarke MF. Cancer stem cells and tumor metastasis: first steps

into uncharted territory. *Cell Stem Cell*. 2007 Sep 13;1(3):241-2. doi: 10.1016/j.stem.2007.08.012. PubMed PMID: 18371356.

53. Cho RW, Clarke MF. Recent advances in cancer stem cells. *Curr Opin Genet Dev*. 2008 Feb;18(1):48-53. doi: 10.1016/j.gde.2008.01.017. Epub 2008 Mar 19. Review. PubMed PMID: 18356041.
54. Cho RW, Wang X, Diehn M, Shedden K, Chen GY, Sherlock G, Gurney A, Lewicki J, Clarke MF. Isolation and molecular characterization of cancer stem cells in MMTV-Wnt-1 murine breast tumors. *Stem Cells*. 2008 Feb;26(2):364-71. Epub 2007 Nov. PubMed PMID: 17975224.
55. Lobo NA, Shimono Y, Qian D, Clarke MF. The biology of cancer stem cells. *Annu Rev Cell Dev Biol*. 2007;23:675-99. Review. PubMed PMID: 17645413.
56. Dalerba P, Dylla SJ, Park IK, Liu R, Wang X, Cho RW, Hoey T, Gurney A, Huang EH, Simeone DM, Shelton AA, Parmiani G, Castelli C, Clarke MF. Phenotypic characterization of human colorectal cancer stem cells. *Proc Natl Acad Sci U S A*. 2007 Jun 12;104(24):10158-63. Epub 2007 Jun 4. PubMed PMID: 17548814; PubMed Central PMCID: PMC1891215.
57. Hosen N, Yamane T, Muijtjens M, Pham K, Clarke MF, Weissman IL. Bmi-1-green fluorescent protein-knock-in mice reveal the dynamic regulation of bmi-1 expression in normal and leukemic hematopoietic cells. *Stem Cells*. 2007 Jul;25(7):1635-44. Epub 2007 Mar 29. PubMed PMID: 17395774.
58. Li C, Heidt DG, Dalerba P, Burant CF, Zhang L, Adsay V, Wicha M, Clarke MF, Simeone DM. Identification of pancreatic cancer stem cells. *Cancer Res*. 2007 Feb 1;67(3):1030-7. PubMed PMID: 17283135.
59. Liu R, Wang X, Chen GY, Dalerba P, Gurney A, Hoey T, Sherlock G, Lewicki J, Shedden K, Clarke MF. The prognostic role of a gene signature from tumorigenic breast-cancer cells. *N Engl J Med*. 2007 Jan 18;356(3):217-26. PubMed PMID: 17229949.
60. Diehn M, Clarke MF. Cancer stem cells and radiotherapy: new insights into tumor radioresistance. *J Natl Cancer Inst*. 2006 Dec 20;98(24):1755-7. PubMed PMID: 17179471.
61. Liu TX, Becker MW, Jelinek J, Wu WS, Deng M, Mikhalkovich N, Hsu K, Bloomfield CD, Stone RM, DeAngelo DJ, Galinsky IA, Issa JP, Clarke MF, Look AT. Chromosome 5q deletion and epigenetic suppression of the gene encoding alpha-catenin (CTNNA1) in myeloid cell transformation. *Nat Med*. 2007 Jan;13(1):78-83. Epub 2006 Dec 10. PubMed PMID: 17159988.
62. Dalerba P, Cho RW, Clarke MF. Cancer stem cells: models and concepts. *Annu Rev Med*. 2007;58:267-84. Review. PubMed PMID: 17002552.
63. Clarke MF, Dick JE, Dirks PB, Eaves CJ, Jamieson CH, Jones DL, Visvader J, Weissman IL, Wahl GM. Cancer stem cells--perspectives on current status and future directions: AACR Workshop on cancer stem cells. *Cancer Res*. 2006 Oct 1;66(19):9339-44. Epub 2006 Sep 21. PubMed PMID: 16990346.
64. Akala OO, Clarke MF. Hematopoietic stem cell self-renewal. *Curr Opin Genet Dev*. 2006 Oct;16(5):496-501. Epub 2006 Aug 17. Review. PubMed PMID: 16919448.

65. Clarke MF, Becker MW. Stem cells: the real culprits in cancer? *Sci Am*. 2006 Jul;295(1):52-9. PubMed PMID: 16830680.
66. Clarke MF, Fuller M. Stem cells and cancer: two faces of eve. *Cell*. 2006 Mar 24;124(6):1111-5. PubMed PMID: 16564000.
67. Clarke M, Newton RW, Klapper PE, Sutcliffe H, Laing I, Wallace G. Childhood encephalopathy: viruses, immune response, and outcome. *Dev Med Child Neurol*. 2006 Apr;48(4):294-300. PubMed PMID: 16542518.
68. Clarke MF. Oncogenes, self-renewal and cancer. *Pathol Biol (Paris)*. 2006 Mar;54(2):109-11. Epub 2006 Mar 9. Review. PubMed PMID: 16524671.
69. Clarke M. Does amblyopia matter? *BMJ*. 2006 Apr 8;332(7545):824. Epub 2006 Mar 6. PubMed PMID: 16520327; PubMed Central PMCID: PMC1432154.
70. Clarke MF. A self-renewal assay for cancer stem cells. *Cancer Chemother Pharmacol*. 2005 Nov;56 Suppl 1:64-8. Review. PubMed PMID: 16273355.
71. Clarke MF. Epigenetic regulation of normal and cancer stem cells. *Ann N Y Acad Sci*. 2005 Jun;1044:90-3. Review. PubMed PMID: 15958701.
72. Clarke MF. Self-renewal and solid-tumor stem cells. *Biol Blood Marrow Transplant*. 2005 Feb;11(2 Suppl 2):14-6. Review. PubMed PMID: 15682169.
73. Clarke MF. Neurobiology: at the root of brain cancer. *Nature*. 2004 Nov 18;432(7015):281-2. PubMed PMID: 15549078.
74. Al-Hajj M, Clarke MF. Self-renewal and solid tumor stem cells. *Oncogene*. 2004 Sep 20;23(43):7274-82. Review. PubMed PMID: 15378087.
75. Clarke MF. Chronic myelogenous leukemia--identifying the hydra's heads. *N Engl J Med*. 2004 Aug 12;351(7):634-6. PubMed PMID: 15306664.
76. Al-Hajj M, Becker MW, Wicha M, Weissman I, Clarke MF. Therapeutic implications of cancer stem cells. *Curr Opin Genet Dev*. 2004 Feb;14(1):43-7. Review. PubMed PMID: 15108804.
77. Pardal R, Clarke MF, Morrison SJ. Applying the principles of stem-cell biology to cancer. *Nat Rev Cancer*. 2003 Dec;3(12):895-902. Review. PubMed PMID: 14737120.
78. Park IK, Morrison SJ, Clarke MF. Bmi1, stem cells, and senescence regulation. *J Clin Invest*. 2004 Jan;113(2):175-9. Review. PubMed PMID: 14722607; PubMed Central PMCID: PMC311443.
79. Molofsky AV, Pardal R, Iwashita T, Park IK, Clarke MF, Morrison SJ. Bmi-1 dependence distinguishes neural stem cell self-renewal from progenitor proliferation. *Nature*. 2003 Oct 30;425(6961):962-7. Epub 2003 Oct 22. PubMed PMID: 14574365; PubMed Central PMCID: PMC2614897.
80. Dontu G, Al-Hajj M, Abdallah WM, Clarke MF, Wicha MS. Stem cells in normal breast development and breast cancer. *Cell Prolif*. 2003 Oct;36 Suppl 1:59-72. Review. PubMed PMID: 14521516.
81. Dontu G, Abdallah WM, Foley JM, Jackson KW, Clarke MF, Kawamura MJ, Wicha

MS. In vitro propagation and transcriptional profiling of human mammary stem/progenitor cells. *Genes Dev.* 2003 May 15;17(10):1253-70. PubMed PMID: 12756227; PubMed Central PMCID: PMC196056.

82. Park IK, Qian D, Kiel M, Becker MW, Pihalja M, Weissman IL, Morrison SJ, Clarke MF. Bmi-1 is required for maintenance of adult self-renewing haematopoietic stem cells. *Nature.* 2003 May 15;423(6937):302-5. Epub 2003 Apr 20. PubMed PMID: 12714971.
83. Al-Hajj M, Wicha MS, Benito-Hernandez A, Morrison SJ, Clarke MF. Prospective identification of tumorigenic breast cancer cells. *Proc Natl Acad Sci U S A.* 2003 Apr 1;100(7):3983-8. Epub 2003 Mar 10. Erratum in: *Proc Natl Acad Sci U S A.* 2003 May 27;100(11):6890. PubMed PMID: 12629218; PubMed Central PMCID: PMC153034.
84. Becker MW, Clarke MF. SLUGging away at cell death. *Cancer Cell.* 2002 Oct;2(4):249-51. PubMed PMID: 12398886.
85. Hernandez-Alcoceba R, Pihalja M, Qian D, Clarke MF. New oncolytic adenoviruses with hypoxia- and estrogen receptor-regulated replication. *Hum Gene Ther.* 2002 Sep 20;13(14):1737-50. PubMed PMID: 12396626.
86. Park IK, He Y, Lin F, Laerum OD, Tian Q, Bumgarner R, Klug CA, Li K, Kuhr C, Doyle MJ, Xie T, Schummer M, Sun Y, Goldsmith A, Clarke MF, Weissman IL, Hood L, Li L. Differential gene expression profiling of adult murine hematopoietic stem cells. *Blood.* 2002 Jan 15;99(2):488-98. PubMed PMID: 11781229.
87. Morrison SJ, Qian D, Jerabek L, Thiel BA, Park IK, Ford PS, Kiel MJ, Schork NJ, Weissman IL, Clarke MF. A genetic determinant that specifically regulates the frequency of hematopoietic stem cells. *J Immunol.* 2002 Jan 15;168(2):635-42. PubMed PMID: 11777956.
88. Reya T, Morrison SJ, Clarke MF, Weissman IL. Stem cells, cancer and cancer cells. *Nature,* 414:105-111, 2001.
89. In-Kyung-Park A, He Y, Lin F, Laerum O, Bumgarner R, Klug CA, Cheshier S, Li K, Kuhr C, Doyle MJ, Sun Y, Schummer M, Goldsmith A, Clarke MF, Weissman IL, Hood L, Li L. Differential gene expression profiling of adult murine hematopoietic stem cells. *Blood,* 99(2):488-98, 2002.
90. Liang SH, Clarke MF Regulation of p53 localization. *European Journal of Biochemistry,* 3, 2001.
91. Hernandez-Alcoceba R, Pihalja M, Nunez G, Clarke MF Evaluation of a new dual-specificity promoter for selective induction of apoptosis in breast cancer cells. *Human Gene Therapy,* 8:298-307, 2001.
92. Park IK, Klug C., Kaijun L, Jerabek L, Linheng, L, Nanamori, M, Neubig, RR, Hood, L, Weissman, IL., Clarke MF/ Molecular cloning and characterization of a novel regulator of G-protein signaling from mouse hematopoietic stem cells. *J. Biol. Chem,* 276: 915-928, 2001.
93. Ayash LJ, Clarke MF, Adams P, Ferrara J, Ratanatharathorn V, Reynolds C, Roessler B, Silver S, Strawderman M, Uberti J, Wicha MW. Clinical protocol. Purging of autologous stem cell sources with bcl-x(s) adenovirus for women undergoing high-dose chemotherapy for stage IV breast carcinoma. *Human Gene Therapy,* 12(16):2023-5, 2001.
94. Ayash L, Clarke MF, Silver S, Braun T, Uberti J, Ratanatharathorn V, Reynolds C, Ferrara J, Broun E, Adams P. Double Dose-intensive chemotherapy with autogous stem cell support for relapsed and refractory testicular cancer: The University of Michigan experience and literature review. *Bone Marrow Transplantation,* 27:939-47, 2001.



95. Hernandez-Alcoceba R, Pihalja M, Wicha MW, Clarke MF. A novel replication-restricted adenovirus for the treatment of breast cancer that allows controlled replication of E1a-deleted adenoviral vectors. *Human Gene Therapy*, 11, 2000
96. Liang S.-H. and Clarke MF. A bipartite nuclear localization signal is required for the p53 nuclear import regulated by a carboxyl-terminal domain. *J.Biol. Chem*, 32699-32703, 1999.
97. Liang S.-H, and Clarke MF. The nuclear import of p53 is determined by the presence of a basic domain and its relative position to the nuclear localization signal. *Oncogene*, 18: 2163-2166, 1999.
98. Yoshifumi S, Zasadny KR, Grossman HB, Francis IR, Clarke MF, and Wahl RL. Germ Cell Tumor: Differentiation of viable tumor, mature teratoma, and necrotic tissue with fluorine-18 -fluorodeoxyglucose positron emission tomography and kinetic modeling. *Radiology*, 211(1):249-56, 1999.
99. Jasty R, Lu J, Irwin T, Suchard S, Clarke MF and Castle VP Role of p53 in the regulation of radiation-induced apoptosis in neuroblastoma cells. *Mol. Genet. Metab.*, 65:155-164, 1998.
100. Han JS, Qian D, Wicha MW and Clarke MF. A method of limited replication for the efficient in vivo delivery of adenovirus to cancer cells. *Human Gene Therapy*, 9:1209-1216, 1998.
101. Liang S-H, Hong D and Clarke MF. Cooperation of a single lysine mutation and a C-terminal domain in the cytoplasmic sequestration of the p53 protein. *J Biol Chem*, 273:19817-19821, 1998.
102. Han JS, Nuñez G., Wicha MW and Clarke MF. Targeting cancer cell death with a bcl-xs adenovirus. *Springer Seminars in Immunopathology*, 19:279-288, 1997.
103. Parsels LA, Zellars RC, Lonny TL, Parsels JD, Clarke MF, Lawrence TS and Maybaum J. Prevention of fluorodeoxyuridine-induced cytotoxicity and DNA damage in HT29 colon carcinoma cells by conditional expression of WT p53 phenotype. *Molecular Pharmacology*, 52:600-605, 1997.
104. Chuck A.S., Peng CA, Clarke MF and Palsson BO. Retroviral infection is limited by Brownian Motion. *Human Gene Therapy*, 7:1527-1534, 1996.
105. Dole MG, Clarke MF, Holman P, Benedict M, Lu J., Jasty R, Eipers PG, Thompson CB, Rode C, Bloch C, Nuñez G and Castle VP. Bcl-xs enhances adenoviral vector induced apoptosis in neuroblastoma cells. *Cancer Research*, 56:5734-5740, 1996.
106. Ealovega MW, McGinnis P.K., Sumantran VN, Clarke MF and Wicha MW. bcl-xS gene therapy induces apoptosis of human mammary tumors in nude mice. *Cancer Research*, 56:1965-1969, 1996.
107. Schott AF, Apel IJ, Nuñez G. and Clarke MF. Bcl-xL protects cancer cells from p53-mediated apoptosis. *Oncogene*, 11:1389-1394, 1995.
108. Eipers PG, Krauss JC, Palsson BO, Emerson SG, Todd III, RF and Clarke MF. Retroviral-mediated gene transfer in human bone marrow cells grown in continuous perfusion culture vessels. *Blood*, 86:3754-3762, 1995.
109. Emerson SG, Palsson BO, Clarke MF, Silver SM, Adams PT, Koller MR, Van Zant G, Rummel S, Armstrong RD, Maluta J, et al. In vitro expansion of hematopoietic cells for clinical application. *Cancer Treat Res.*;76:215-23. Review, 1995
110. Clarke MF, Apel I.A., Eipers PG, Sumantran V, Gonzalez-Garcia M, Benedict M, Pipaya G, Fukunaga N, Davidson B, Long M, Minn AJ, Boise LH, Thompson CB, Wicha MW and Nunez G. A recombinant bcl-xs adenovirus selectively induces apoptosis in cancer cells, but not normal bone marrow cells. *Proceedings of the National Academy of Sciences*, 92:11024-11028, 1995.

111. Fukunaga N, Ryan JJ, Nunez G. and Clarke MF. Bcl-2 protects murine erythroleukemia cells from p53-dependent and -independent radiation-induced cell death. *Carcinogenesis*, 16:1761-1767, 1995.
112. Sumantran V., Ealovega MW, Nunez G, Clarke MF and Wicha MW. Overexpression of Bcl-xS sensitizes MCF-7 cells to chemotherapy induced apoptosis. *Cancer Research*, 55:2507-2510, 1995.
113. Ryan JJ, Prochownik EV, Gottlieb CA, Apel I, Merino R, Nunez G and Clarke MF. c-myc and bcl-2 modulate p53 function by altering p53 subcellular trafficking during the cell cycle. *Proceedings of the National Academy of Sciences*, 91:5878-5882, 1994.
114. Nunez G and Clarke MF. The Bcl-2 family of proteins: regulators of cell death and survival. *Trends in Cell Biology*, 4:399-403, 1994.
115. Ryan JJ and Clarke MF. Alteration of p53 conformation and induction of apoptosis in a murine erythroleukemia cell line by dimethylsulfoxide. *Leukemia Research*, 18:617-621, 1994.
116. Clarke MF, El-Awar F, Schwartz RM, Palsson, BO and Emerson, SG. Retroviral gene transfer into human hematopoietic cells using rapidly perfused long term bone marrow cultures. *Cancer Bulletin*, 45:153-158, 1993.
117. Ryan JJ, Danish R, Gottlieb CA and Clarke MF. Cell cycle analysis of p53 induced cell death in murine erythroleukemia cells. *Mol & Cell Biol*, 13:711-719, 1993.
118. Schwartz RM, Caldwell J, Clarke MF, Emerson SG and Palsson, B. The influence of extra-cellular matrix and stroma remodeling on the productivity of long term human bone marrow cultures. *Cytotechnology*, 10:217-224, 1992.
119. MacArthur L, Clarke MF and Westin E. Malignant transformation of NIH 3T3 fibroblasts by human c-sis is dependent upon the level of oncogene expression. *Molecular Carcinogenesis*, 5:311-319, 1992.
120. Danish, R, El-Awar O, Langmore J, Weber B, Turka LA and Clarke MF. C-myc effects on kinetic events during MEL cell differentiation. *Oncogene*, 7:901-907, 1992.
121. Varma A., El-Awar FY, Palsson BO, Emerson SG and Clarke MF. Can dexter cultures support stem cell proliferation? *Experimental Hematology*, 20:87-91, 1992.
122. Angelotti, TP, Clarke MF, Longino MA and Emerson SG. Biotinylated granulocyte/macrophage colony-stimulating factor analogs: effect of linkage chemistry on activity and binding. *Bioconjugate Chemistry*, 2 (6):466-474, 1991.
123. Schwartz RM, Emerson SG, Clarke MF and Palsson BO. In vitro myelopoiesis stimulated by rapid medium exchange and supplementation with hematopoietic growth factors. *Blood*, 78 (12):3155-3161, 1991.
124. Emerson SG, Palsson BO and Clarke MF. The construction of high efficiency human bone marrow tissue ex vivo. *J Cell Biochem*, 45:268-272, 1991.
125. Caldwell, J, Locey B, Clarke MF, Emerson SG and Palsson, BO. The influence of culture conditions on genetically engineered NIH-3T3 cells. *Biotech Prog*, 7:1-8, 1991.
126. Westin EW, Gorse K and Clarke MF. Alternative splicing of the human c-myc gene. *Oncogene*, 5 (8):1117-1124, 1990.
127. Weber BL, Westin E and Clarke MF. Differentiation of mouse erythroleukemia cells enhanced by alternatively spliced c-myc mRNA. *Science*, 249:1291-1293, 1990.

128. Adams S, Upadhyaya G, Clarke MF and Emerson SG. The proliferation of human leukemic cell line AML-193 is regulated by multiple hematopoietic growth factors and cytokines. *Leukemia*, 3:314-315, 1989.
129. Clarke MF, Kukowska-Latallo JF, Westin E, Smith M and Prochownik EV. Constitutive expression of a c-myc cDNA blocks Friend murine erythroleukemia cell differentiation. *Mol & Cell Biol*, 8:884-892, 1988.
130. Okamoto T, Reitz, MS, Clarke MF, Jagodzinski LL and Wong-Staal F. Activation of a novel kpn I transcript by downstream integration of a human T-lymphotropic virus type I provirus. *J Biol Chem*, 261:4615-4619, 1986.
131. Clarke MF, Mann, DL, Murray C and Reitz, MS. Differential methylation of class I histocompatibility antigen genes in T-cell lines derived from two different types of T-cell malignancies. *Leukemia Res*, 8(6):965-973, 1984.
132. Clarke MF, Fitzgerald P, Brubaker J. and Simpson, RT. Sequence-specific interaction of histones with the simian virus 40 enhancer region in vitro. *J Biol Chem*, 260:12394-12397, 1985.
133. Mann DL, Clark J, Clarke MF, Reitz MS, Jr., Papovic M, Francini G, Trainor CD, Strong DM, Blattner WA. and Gallo, RC. Identification of human T-cell lymphoma virus (HTLV) in B-cell lines established from patients with adult T-cell leukemia. *JCI*, 74:56-62, 1984.
134. Josephs SF, Ratner L, Clarke MF, Westin, EH, Reitz, MS and Wong-Staal F. Transforming potential of human c-sis nucleotide sequences encoding platelet-derived growth factor. *Science*, 225:636-639, 1984.
135. Clarke MF, Trainor CD, Mann DL, Gallo R.C. and Reitz MS, Jr.. Methylation of human T-cell leukemia virus proviral DNA and viral RNA expression in short- and long-term cultures of infected cells. *Virology*, 135:97-104, 1984.
136. Reitz MS Jr, Mann DL, Eiden M, Trainor CD and Clarke MF. DNA methylation and expression of HLA DR alpha. *J Mol Cell Biol*, 4:890-897, 1984.
137. Reitz MS, Mann D, Clarke MF, Kalyanaraman VS, Robert-Guroff M, Popovic M and Gallo RC. Presence of HTLV in a subset of T cells from an infected patient: some immunochemical properties of the infected cells. *Hamatol Bluttransfus*, 28:459-461, 1983.
138. Clarke MF, Westin E, Schmidt D, Josephs SF, Ratner L., Wong-Staal F, Gallo RC and Reitz MS, Jr.. Transformation of NIH 3T3 cells by a human c-sis cDNA clone. *Nature*, 308:464-467, 1984.
139. Clarke MF, Gleman EP and Reitz MS, Jr.. Homology of human T-cell leukemia virus envelope gene with class I HLA gene. *Nature*, 305:60-62, 1983.
140. Ingraham LM, Weening RS, Clarke MF, Boxer LA and Baehner RL. Relationship of the respiratory burst and rachidonate metabolism during phagocytosis by guinea pig alveolar macrophages. *J Lab Clin Med*, 99:908-916, 1982.

#### **BOOKS (NONE)**

#### **BOOK CHAPTERS (TOTAL = 10)**

1. Reitz MS, Mann D, Clarke MF, Kalyanaraman VS, Robert-Guroff M, Popovic M and Gallo RC. HTLV is present in a subset of T-cells from infected cells. In Neth, R., Gallo, R.C., Greaves, MF, Moore, MAS. and Winkler, K., Eds. *Modern Trends in Human Leukemia V*, Munich, Springer-Verlag, 1983, pp. 459-461.

2. Reitz MS, Jr., Clarke MF, Mann DL and Gallo R.C. Human T-cell leukemia virus and class I major histocompatibility antigens. In Gallo, R.C. and Essex, M., Eds. *Cancer Cells*, Vol. 3, Cold Springs Harbor Laboratory, 1984, pp. 181-187.
3. Gallo R, Wong-Staal F, Clarke MF, Guo HG, Westin E, Saxinger WC, Blattner WA and Reitz MS, Jr. Human T-cell leukemia viruses and oncogenes and the origin of some human leukemias and lymphomas. In Santi, L. and Zardi, L., Eds. *Theories and Models in Cellular Transformation*, Academic Press, 1985, pp 85-100.
4. Gallo RC, Clarke MF, Guo HG, Wong-Staal F. and Reitz MS, Jr. Recent observations on human T-cell malignancies: Possible mechanisms of leukemagenesis. In Mathe, G. and Reizenstein, P., Eds. *Pathophysiological Aspects of Cancer Epidemiology*, Pergamon Press, 1985, pp. 51-63.
5. Clarke MF and Weissman I.L. Stem Cell Differentiation and Cancer. Chapter 8, pp 139-151, *Abeloff Clinical Oncology*. 3<sup>rd</sup> Edition 2004, Churchill Livingstone, An Imprint of Elsevier, Eds: Armitage, Niederhuber, Kastan, McKenna
6. Clarke MF, and Hass A., Cancer Stem Cells. In *Encyclopedia of Molecular Cell Biology and Molecular Medicine*, Volume 2, Second Edition, Bio-Chla, 2004, pp. 221-241.
7. Diehn M, Cho RW, Weissman IL, Clarke MF. "Cancer Stem Cell Biology and its Role in Radiotherapy" in *Textbook of Radiation Oncology*. Eds: Leibel SA, Phillips T, Hoppe R, and Roach M.
8. Clarke MF and Weissman I.L. Stem Cells, Cell Differentiation and Cancer. Chapter 7, pp 95-104, *Abeloff Clinical Oncology*. 4<sup>th</sup> Edition 2008, Churchill Livingstone, An Imprint of Elsevier, Eds: Armitage, Niederhuber, Kastan, McKenna
9. Kalani M.A., Dalerba P. and Clarke. M.F. *Implications of cancer stem cells for tumor metastasis*. In: Leong S.P.L. (ed.), *From Local Invasion to Metastatic Cancer: Involvement of Distant Sites through the Lymphovascular System*, *Current Clinical Oncology*, 10:443-453, Chapter 38, SpringerLink (2009).
10. Dalerba, P., Clarke, MF, Weissman, IL, Diehn M. *Stem cells, cell differentiation and cancer*. In: "Abeloff's Clinical Oncology, 5<sup>th</sup> edition", edited by Niederhuber, J.E., Armitage, J.O., Doroshow, J.H., Kastan, M.B., and Tepper J.; Chapter 7, Elsevier (Oct 28, 2013)

#### **BOOK REVIEWS (NONE)**

#### **ABSTRACTS (SIX SELECTED; TOTAL = 14)**

1. Clarke MF, Westin E, Schott AP, Richardson A, Schultz C, Bender TP and Ryan, JJ. p53 and myb physically interact and modulate each other's function. Presented at the Cold Spring Harbor Apoptosis Meeting, 1995.
2. Schott AF, Fukunaga N, Nuñez G and Clarke MF. Bcl-2 and myc regulate p53 conformation and nuclear trafficking. Presented at the Cold Spring Harbor Apoptosis Meeting, 1995.
3. Clarke MF, Nuñez G, Sanda M and Wicha, MW. A bcl-xs adenovirus vector to selectively kill cancer cells derived from epithelial tissues. Presented at the Cold Spring Harbor Gene Therapy Meeting, 1996.
4. Park IK, Apel IJ, Ryan JJ, Richardson A, Schultz C, Westin E, Benchimol S, Bender TP and Clarke MF. Functional interaction between Myb and p53. Presented at the American Society of Hematology, 1996.
5. Morrison S, Park I.-K, Qian D, Jerabek L, Weissman IL and Clarke MF. Strategy for identifying genes responsible for hematopoietic stem cell homeostasis. Presented at the American Society of Hematology, 1996.

6. Clarke MF. Stem Cells, Cancer and Self-Renewal Signals, American Society of Hematology Education Session, December 8, 2001.

#### **INVITED PRESENTATIONS**

- 2008 "Self-Renewal and Cancer Stem Cells" City of Hope - Duarte, CA February 13, 2008
- 2008 "Regulation of Self-Renewal in Normal Stem Cells and Cancer" AACR/Advances in Cancer - Dead Sea, Jordan March 16-20, 2008
- 2008 "New Approaches to Cancer Prevention and Therapy" Johns Hopkins Medicine/The Sidney Kimmel Comprehensive Cancer Center/NCI/CCC - Baltimore, MD April 27-28, 2008
- 2008 "Self Renewal in Normal and Cancer Stem Cells" NCI/CCC/UCSF 2008 Symposium: Helen Diller Family Comprehensive Cancer Center - San Francisco, CA May 22-23, 2008
- 2008 "Self Renewal in Normal Stem Cells and Cancer" Evans Scholar Lecture, MGH Cancer Center/Harvard Medical School - Boston, MA June 17-20, 2008
- 2008 "What Can We Learn about Self Renewal and Cancer Therapy from the Prospective Isolation of Cancer Stem Cells?" 2008 National Cancer Research Institute of the UK Cancer Conference – Birmingham October 5-8, 2008
- 2008 "What Can We Learn About Cancer Self Renewal from the Prospective Identification of Cancer Stem Cells?" Ludwig Institute for Cancer Research, Karolinska Institute, DBRM - Stockholm, Sweden September 25-27, 2008
- 2008 "What Can We Learn from the Prospective Isolation of Cancer Stem Cells?" Plenary Lecture - Nagoya, Japan October 28-30, 2008
- 2008 "Not all Cancers are Alike: Identifying the Cells that grow into Cancers, and What We Can Do about Them" The Breast Cancer Research Foundation Symposium and Awards Luncheon – New York, NY October 29, 2008
- 2008 "Epigenetic Regulation of Stem Cell Self-Renewal and Fate Decisions" Chairman Pan American Health Organization – Havana, Cuba November 10-14, 2008
- 2009 "Stem Cell Pathways and Cancer" Department of Hematology-Oncology & Abramson Family Cancer Research Institute at The University of Pennsylvania – Philadelphia, Pennsylvania January 06, 2009
- 2009 "Consequences of Utilization of Stem Cell Pathways by Cancer Cells" 22<sup>nd</sup> Annual International Symposium of the Hunter College Center for Study of Gene Structure & Function – New York January 21, 2009
- 2009 "Stem Cells in Malignant Epithelial Tumors" 9<sup>th</sup> Symposium of the Charles Brupbacher Foundation – Zurich February 13, 2009
- 2009 "Molecular Analysis of Normal and Malignant Epithelial Stem Cells" CNIO Cancer Conference – Madrid, Spain February 23, 2009
- 2009 "What Can We Learn from the Prospective Isolation of Cancer Stem Cells?" Cancéropôle CLARA – Archamps (Haute-Savoie), France March 24-25, 2009
- 2009 "Advances in Cancer Stem Cells" 2009 Annual Meeting of the American Association for Cancer Research – Denver, Colorado April 18-22, 2009

- 2009 “Stem Cell Signaling, Self Renewal and Cancer” Tulane University – New Orleans, Louisiana April 23, 2009
- 2009 “Stem Cells Pathways and Cancer” The University of Chicago Biomedical Sciences Cluster Committee on Cancer Biology and Breast Cancer Spore Seminar Series – Chicago, Illinois May 19-20, 2009
- 2009 “Molecular Regulators of Self Renewal in Normal Tissues and Cancer” University of Minnesota Cancer Center Seminar Series – Minneapolis, Minnesota June 15-16, 2009
- 2009 “Molecular Regulation of Self Renewal and Normal Stem Cell and Cancer” Society for Biomolecular Sciences, Boston, Massachusetts, September 2-3, 2009
- 2009 “Molecular Regulation of Stem Cell Self Renewal in Normal and Diseased Tissues” Gordon Research Conferences, Les Diablerets, Switzerland, September 13-18, 2009
- 2009 “Molecular Analysis of Normal and Malignant Epithelial Stem Cells” 7<sup>th</sup> International Symposium on Minimal Residual Cancer - Athens, Greece, September 16-19, 2009
- 2009 “Stem Cells and Cancer, Two Faces of Self Renewal” Pittsburgh University Seminar Series - Pittsburg, Pennsylvania, October 6, 2009
- 2009 “The Relevance of Stem Cells to the Prevention and Treatment of Breast Cancer” 2009 Breast Cancer Symposium - San Francisco, California, October 8-10, 2009
- 2009 “Stem Cells and Cancer, Two Faces of Self Renewal” Life Technologies 2009 Science and Technology Symposium - Skamania Lodge, Washington, October 11-14, 2009
- 2009 “Stem Cells and Cancer, Two Faces of Self Renewal” Josephine Nefkens Symposium - Rotterdam, The Netherlands, November 13, 2009
- 2010 “Overview of Cancer Stem Cells” Gynecologic Oncology Group – San Diego, California, January 28, 2010
- 2010 “Stem Cells and Cancer, Two Faces of Self Renewal” American Association for Cancer Research Conference – Arlington, Virginia, February 28 – March 2, 2010
- 2010 “Stem Cells and Cancer, Two Faces of Self Renewal” University of Texas Distinguished Lecturer Series – San Antonio, Texas April 5-7, 2010
- 2010 “Stem Cells and Cancer, Two Faces of Self Renewal” Stony Brook Cancer Symposium, New York, New York April 27, 2010
- 2010 “Stem Cells and Cancer, Two Faces of Self Renewal” Columbia University, New York, New York April 28, 2010
- 2010 “Regulation of Self Renewal by the Microenvironment in Normal Epithelial Stem Cells and Epithelial Cancer Cells or Stem Cells and Cancer, Two Faces” The Banbury Center, Cold Spring Harbor, New York May 5-7, 2010
- 2010 “Regulation of Mammary Stem Cells by MicroRNAs” 2010 GRC Mammary Gland Conference, Lucca (Barga), Italy June 6-11, 2010
- 2010 “Epigenetics and MicroRNAs in Cancer and Leukemia” Wilsede Meeting Heinrich-Pette-Institut – Wilsede, Germany June 19-23, 2010
- 2010 “Clinical Implications of Cancer Stem Cells” Molecular Radiotherapy Meeting – Toulouse, France June 24-25, 2010

- 2010 “Stem Cells and Cancer” Stem Cells: the diverging goals of regenerative medicine and oncology Meeting – Rome, Italy July 1-2, 2010
- 2010 “Cancer Stem Cells: Diagnostic, Prognostic, Theranostic and Therapeutic Implications” Beckman Coulter 2010 Science and Technology Symposium – Brea, California July 6-8, 2010
- 2010 “3<sup>rd</sup> International Conference on Stem Cells and Cancer” – Heidelberg, Germany October 3-5, 2010
- 2010 “ICC on Mouse Models of Cancer” – Barcelona, Spain October 7-8, 2010
- 2010 “UEGW Meeting” – Barcelona, Spain October 25-26, 2010
- 2010 “International Forum on Prospective Cancer Research” – Paris, France November 6, 2010
- 2010 “Singapore Cancer Meeting” – Singapore November 8-10, 2010
- 2010 “Frontiers in Biomedical Research Symposium” – Hong Kong November 30-December 5, 2010
- 2010 “33<sup>rd</sup> Annual Breast Cancer Symposium” – San Antonio, Texas December 9-11, 2010
- 2011 “Helene Harris Memorial Trust 12<sup>th</sup> International Forum on Ovarian Cancer – Miami Florida January 15-19, 2011
- 2011 “Keystone –Genomic Instability and DNA Repair” conference, Keystone Colorado, January 30-February 4, 2011
- 2011 “26<sup>th</sup> Nagoya International Cancer Treatment Symposium” – Nagoya, Japan February 10-12, 2011
- 2011 “2011 Molecular and Cellular Basis of Human Disease Symposium”-Cleveland, Ohio March 29, 2011
- 2011 “American Association for Cancer Research 102<sup>nd</sup> Annual Meeting” – Orlando, Florida April 2-4, 2011
- 2011 “Department of Biochemistry and Molecular Genetics Seminar” – Chicago, Illinois April 19-21, 2011
- 2011 “3<sup>rd</sup> Biennial International Collaborative Symposium” – Soul, Korea April 28-30, 2011
- 2011 “ISSCR” – Toronto, Canada May 14-17, 2011
- 2011 “111<sup>th</sup> Annual Congress of Japan Surgical Society” – Tokyo, Japan May 25-27, 2011
- 2011 “EOH Conference” – Orlando, Florida August 5, 2011
- 2011 “NBCC Summit on Prevention of Metastatic Breast Cancer” – Aspen, Colorado August 25-29, 2011
- 2011 “2011 Working Conference on Neoplastic Stem Cells” – Vienna, Austria August 31- September 5, 2011
- 2011 “AARC Special Conference in Breast Cancer Research” – San Francisco, California October 12-15, 2011
- 2011 “Seminar at MD Anderson Cancer Center” – Houston, Texas October 17-19, 2011
- 2011 “Scholar Lecture at University of North Carolina” - Chapel Hill, NC October 31- November 2, 2011
- 2012 “Scholar Lecture at University of Toronto” - Toronto, Canada January 18-20, 2012
- 2012 “AACR Annual Conference” – Chicago, Illinois March 31-April 2, 2012
- 2012 “Frontiers in Oncology Seminar”-University of Maryland, Baltimore MD, April 11-12, 2012

- 2012 “Keynote Symposium-Cancer Research”- University of Indiana, Indianapolis May 6-9, 2012
- 2012 “First Symposium on Head, Neck and Cancer Stem Cells”-University of Michigan, Ann Arbor Michigan May 10-11, 2012
- 2012 “Breakthrough Breast Cancer Conference”-University of Manchester, UK May 15-18, 2012
- 2012 “Molecular and Translational Oncology workshop”-Sanibel, Florida May 18-20, 2012
- 2012 “H Foundation Basic Science Technology Symposium”-Northwestern University, Chicago Illinois June 6-8, 2012
- 2012 “Nobel Conference-Breast Cancer, Progress and Challenges in Prevention, Risk, Prediction, Tumor Biology and Treatment”-Karolinska Institute, Stockholm Sweden June 13-17, 2012
- 2012 “Stem Cell Perturbations in Downs Syndrome and Cancer “- Boston Massachusetts, September 13-18, 2012
- 2012 “ACTC: From Basic Research to Clinical Practice” – Athens, Greece September 26-29, 2012
- 2012 “4<sup>th</sup> Int’l Conference on Stem Cells and Cancer” – Heidelberg, Germany October 12-14, 2012
- 2012 “Biomed Conference” – Barcelona, Spain November 12-14, 2012
- 2012 “Cancer Stem Cell Meeting”-Fukuoka, Japan November 30-December 1, 2012
- 2013 “NIH Genetics Training Program – seminar” – University of Utah, Salt Lake City, January 7, 2013
- 2013 “Tumor Invasion and Metastasis”- AACR Conference, San Diego, January 20-23, 2013
- 2013 “SFB Symposium: "Control of Cell Motility in Development and Cancer" – Freiburg, Germany, February 20-22, 2013
- 2013 AACR Annual Meeting, Washington DC, April 6, 2013
- 2013 Eppley Cancer Center Grand Round – seminar, University of Nebraska, Omaha, NE, April 9, 2013
- 2013 7<sup>th</sup> International Meeting - Stem Cell Network NRW, Cologne, Germany, April 23-24, 2013
- 2013 4<sup>th</sup> Gordon Research Conference “Stem Cell and Cancer”, Les Diablerets, Switzerland, April 24-26, 2013
- 2013 Gordon Research Conference “Mucosal Health & Disease”, Stonehill College, Easton MA, June 9-14
- 2013 “Down Syndrome & cancer: the yin and yang of stem cell” – Lecture at Childrens Hospital, Boston, Massachusetts, September 5, 2013
- 2013 “Stem Cells in Normal tissue and disease” – Lecture at Methodist Cancer Center, Houston, TX, September 16, 2013
- 2013 “Ludwig Scientific Retreat”, Oxford, UK, September 23-25, 2013
- 2013 “Int’l Symposium on Minimal Residual”, Paris, France September 24-27, 2013
- 2013 “Annual Stem Cell Symposium”, UC Berkeley’s Student Society for Stem Cell Research, October 5, 2013
- 2013 “Evaluation and Development of Molecular Therapies for Cancer”, University of Michigan, November 26, 2013



- 2014 "Cancercon 2014", Chennai Madras, India January 30 – February 2, 2014
- 2014 "Keystone Symposium: Stem Cells and Cancer" Banff, Alberta Canada, February 5-7, 2014
- 2014 "Regulation of Normal and Cancer Stem Cell senescence by USP16" San Diego, CA April 5-9, 2014
- 2014 "Down Syndrome and Cancer: the Ying and Yang of stem cells" Houston, Texas April 14-15, 2014
- 2014 "Molecular modulation of Cancer Stem Cells in Down syndrome" Bodrum, Turkey April 23-25, 2014
- 2014 "Molecular regulation of aging of normal and cancer stem cells" Heidelberg, Germany May 7-10, 2014
- 2014 "Downs Syndrome and Cancer: the Ying and Yang of stem cells" University of Michigan May 13-15, 2014
- 2014 "Characterization of colon cancer stem cells" Fukushima, Japan July 16-18, 2014
- 2014 "Molecular regulation of self-renewal in cancer stem cells" Cleveland, Ohio, August 18-20, 2014
- 2014 "Identification of a molecular switch between quiescent and migratory mammary stem cells" Heidelberg, Germany September 28-30, 2014
- 2014 "Molecular regulators of normal and malignant stem cells" Crete, Greece October 8-11, 2014
- 2014 "Targeting Cancer Stem Cells" Chicago, IL October 9-12, 2014
- 2014 "A cell intrinsic role for TLR2-MYD88 in intestinal and breast stem/progenitor cells and oncogenesis" Hong Kong, October 16-18, 2014
- 2014 "A molecular link of inflammatory colitis and colon cancer" Kobe, Japan October 23-26, 2014
- 2014 "A molecular link between inflammation and cancer" Havana, Cuba November 10-14, 2014
- 2015 "Molecular imaging targets for epithelial cancer stem cells" San Diego, CA February 11-14, 2015
- 2015 "Molecular regulation of stem cells in Down's Syndrome" Tahoe City, CA March 18-19, 2015
- 2015 "Degenerative Diseases and Cancer: The yin and yang of stem cells" Grand Rapids, Michigan May 17, 2015
- 2015 "Molecular Regulation of Stem Cells in Down's Syndrome and Neurodegeneration" Havana, Cuba June 16, 2015.
- 2015 "Self renewal pathways in normal and malignant breast epithelium" Cardiff University, September 15-16, 2015
- 2015 "Therapeutic Implication of Cancer Stem Cells" Shanghai, China November 6, 2015
- 2016 "Molecular Regulation of Stem Cells in Down's Syndrome" Santa Fe, New Mexico January 25, 2016
- 2016 "Perturbations of Stem Cell epigenetic Program in Cancer" Houston, TX February 2, 2016
- 2016 "Clinical Implications of Regulators of Self-Renewal in Cancer" Breckenridge, CO March 9, 2016
- 2016 "CDX2, high-risk patients and directing adjuvant therapy" Portland, OR June 17, 2016
- 2016 "Stem Cells and Cancer" Houston, TX June 21, 2016

- 2016 “Stem cells in cancer and regenerative medicine” Florence, Italy October 18-21, 2016
- 2016 “Cancer stem cells biology enters the clinic" Tokyo, Japan November 8-10, 2016
- 2018 “Perturbations in stem cell self renewal pathways in degenerative disease and cancer" Miami, FL Jan 28-31, 2018
- 2018 "Characterization of drug resistant cancer stem cells" Mumbai, India February 2-14, 2018
- 2018 “Identification of markers for metastatic, drug resistant breast cancer stem cells” Montpellier, France May 3-5, 2018
- 2018 “Clinical implications of cancer stem cells” Toronto, Canada May 9-10, 2018
- 2018 “Identification and Characterization of Cancer Stem Cells" Lurie Cancer Centers Malkin-Kraft Lectureship Chicago, IL May 15, 2018
- 2018 "Stem cell self renewal pathway dysfunctions in degenerative disease and cancer" International Behr Symposium Heidelberg September 16-19, 2018
- 2018 "Chromatin, Stem Cells, Down’s Syndrome and Alzheimer's Disease" University of Colorado Cancer Center October 8-9, 2018
- 2018 “Molecular regulation of stem cell self renewal in health and disease” UC Irvine, CA November 13-14, 2018
- 2019 “Solid tumor cancer stem cells: From bench to bedside” American Association for Cancer Research (AACR) Atlanta, GA March 29-April 2, 2019
- 2019 “Perturbations in stem cell self-renewal pathway: Implications for cancer and degenerative disease” Indiana University April 24-26, 2019
- 2019 “Rescue of premature aging defects in Alzheimers disease” National Institute on Aging workshop Bethesda, Maryland September 18-19, 2019
- 2019 “Solid tumor cancer stem cell states and metastasis” 4th International Symposium of the CRC Lyon, France October 2-4, 2019
- 2021 “What are cancer stem cells?” Huntsman Cancer Institute SCAGS Meeting Salt Lake City, Utah March 17, 2021
- 2021 “Clinical and Therapeutic Implications of Cancer Stem Cells” The 80<sup>th</sup> Annual Meeting of the Japanese Cancer Association September 30-October 2, 2021

## **PATENTS**

Methods for regulating the specific lineages of cells produced in a human hematopoietic cell culture, methods for assaying the effect of substances on lineage-specific cell production, and cell compositions produced by these cultures. Patent allowed November 7, 1994.

Method and compositions for the ex vivo replication of stem cells, for the optimization of hematopoietic progenitor cell cultures, and for increasing the metabolism, GM-CSF secretion and/or IL-6 secretion of human stromal cells. Patent allowed November 7, 1994.

Methods for human gene therapy, including methods and compositions for the ex vivo replication and stable genetic transformation of human stem cells, for the optimization of human hematopoietic progenitor cell cultures and stable genetic transformation thereof. Patent allowed November 7, 1994.

Methods for human gene therapy, including methods and compositions for the ex vivo replication and stable genetic transformation of human stem cells, for the optimization of human hematopoietic progenitor cell cultures and stable genetic transformation thereof, and for increasing the metabolism, GM-CSF secretion and/or IL-6 secretion of human stromal cells. Patent allowed March 21, 1995.

Methods of increasing rates of infection by directing motion of vectors. Patent allowed February 9, 1999.

Epithelial Cancer Stem Cells. Patent allowed 2005.

Targeting chromatin modifiers for the treatment of medical conditions. Patent pending.