

## CURRICULUM VITAE

David M. Nanus, M.D.

### A. General Information

Citizenship: U.S.A.

Licensure: New York #154617  
Date of issue: 1983  
Date of last regis.: 2007

DEA Number: AN3024596

Board Certification: 1985 - Internal Medicine # 103371  
1987 - Medical Oncology # 103371

### B. Addresses and phone numbers

Office address: 525 east 68<sup>th</sup> Street, ST-359  
New York, New York 10021

Office phone: 212-746-3152

Office FAX: 212-746-6645

Internet address: [dnanus@med.cornell.edu](mailto:dnanus@med.cornell.edu)

### C. Educational Background

1974-78	University of Illinois Urbana, Illinois	B.S.	awarded 1978
1978-82	University of Health Sciences/ The Chicago Medical School North Chicago, Illinois	M.D.	awarded 1982
2006	Harvard School for Public Health, Boston, Massachusetts Leadership Development for Physicians in Academic Health Centers		

### D. Professional Positions

## Post-doctoral Training

- 1982-83 Intern, Internal Medicine  
University of Wisconsin Hospital & Clinics, Madison, Wisconsin
- 1983-85 Resident, Internal Medicine  
Albert Einstein College of Medicine, Bronx, New York
- 1985-89 Clinical Fellow, Medical Oncology  
Memorial Sloan-Kettering Cancer Center, New York, New York
- 1985-89 Fellow in Medicine, Cornell University College of Medicine,  
New York, New York
- 1986-89 Research Fellow, Laboratory of Mammalian Cell Transformation  
Sloan-Kettering Institute for Cancer Research, New York, New York

## Academic Appointments

- 1989-92 Clinical Assistant  
Division of Solid Tumor Oncology, Department of Medicine,  
Memorial Sloan-Kettering Cancer Center, New York, New York
- 1989-92 Instructor in Medicine  
Department of Medicine, Cornell University Medical College,  
New York, New York
- 1992-97 Assistant Professor of Medicine  
Department of Medicine, Cornell University Medical College,  
New York, New York
- 1992-97 Assistant Member  
Memorial Sloan-Kettering Cancer Center, New York, New York
- 1998-2004 Associate Professor of Medicine,  
Department of Medicine,  
Weill Cornell Medical College of Cornell University, New York, NY
- 1998-2004 Associate Professor of Urology,  
Department of Urology,  
Weill Cornell Medical College of Cornell University, New York, NY
- 2004- Professor of Medicine,  
Department of Medicine,

- Weill Cornell Medical College of Cornell University, New York, NY
- 2004- Professor of Urology,  
Department of Urology,  
Weill Cornell Medical College of Cornell University, New York, NY
- 2004- Mark W. Pasmantier Professor of Hematology and Medical  
Oncology in Medicine, Weill Cornell Medical College of Cornell  
University,  
New York, NY
- 2004- Co-Division Chief, Division of Hematology and Medical Oncology,  
Department of Medicine,  
Weill Cornell Medical College of Cornell University, New York, NY

#### Hospital Appointments

- 1989-92 Clinical Assistant Physician  
Division of Solid Tumor Oncology, Department of Medicine,  
Memorial Hospital for Cancer and Allied Diseases,  
New York, New York
- 1992-97 Assistant Attending Physician  
Division of Solid Tumor Oncology, Department of Medicine,  
Memorial Hospital for Cancer and Allied Diseases,  
New York, New York
- 1998-04 Associate Attending Physician  
Division of Hematology - Medical Oncology,  
Department of Medicine,  
The New York Presbyterian Hospital  
New York, New York
- 2001- Consultant  
Department of Medicine  
Hospital for Special Surgery  
New York, New York
- 2004- Attending Physician  
Division of Hematology - Medical Oncology,  
Department of Medicine,  
The New York Presbyterian Hospital  
New York, New York

#### E. Professional memberships

American Association for Cancer Research  
American Association of Physicians  
American Society of Clinical Oncology  
American Society for Clinical Investigation  
American Society for Biochemistry and Molecular Biology  
American Urological Association  
New York Academy of Sciences  
Society of Urologic Oncology  
Society for Basic Urological Research

F. Honors and Awards:

- 1978 Distinction in General Biology.  
University of Illinois
- 1982 Dr. John J. Sheinin Research Award for originality and creativity in a  
research project, University of Health Sciences/Chicago Medical School
- 1986 National Research Service Award, Cancer Chemotherapy Training Grant  
Memorial Sloan-Kettering Cancer Center
- 1987 Alternate for American Society of Clinical Oncology (ASCO) Young  
Investigators Award for Cancer Research
- 1987 Charles H. Revson Foundation Clinical Scholars Training Fellowship in  
Biomedical Research, Memorial Sloan-Kettering Cancer Center
- 1988 ASCO Young Investigators Award for Cancer Research
- 1988 American Philosophical Society Daland Fellowship for research in clinical  
medicine
- 1989 Recipient of Philanthropic Grant Award, from The Society of Memorial  
Sloan-Kettering Cancer Center
- 1990 National Kidney Foundation Young Investigator Grant Award
- 1991 American Cancer Society Career Development Award
- 1992 First Independent Research Support and Transition (FIRST) Award  
National Institutes of Health
- 1995 Research Grant from the Byrne Fund, Memorial Sloan-Kettering Cancer  
Center

- 1995 Grant Award from the Association for the Cure of Cancer of the Prostate (CaP CURE)
- 1996 Grant Award from the Association for the Cure of Cancer of the Prostate (CaP CURE)
- 1997 Grant Award from the Association for the Cure of Cancer of the Prostate (CaP CURE)
- 1998-2007 Best Doctor, Best Doctors in America
- 1999 Research Grant from the Dorothy Rodbell Cohen Foundation
- 1999 Grant Award from the Association for the Cure of Cancer of the Prostate (CaP CURE)
- 2000 Mid-Career Development Award, National Institutes of Health
- 2000 Research Grant from the Dorothy Rodbell Cohen Foundation
- 2000 Grant Award from the Association for the Cure of Cancer of the Prostate (CaP CURE)
- 2001 Member, American Society for Clinical Investigation (ASCI)
- 2001 Michael Wolk Heart Foundation Department of Medicine Investigator Award, Weill Medical College of Cornell University
- 2004 Semi-Finalist, Doris Duke Charitable Foundation Distinguished Clinical Scientist Award
- 2005 Member, American Association of Physicians (AAP)
- 2007 NYP 2007 Patient Centered Care Award: Team Achievement Award for Oncology Fast Track in the Emergency Department

#### G. Other Activities

##### Administrative duties

- 1993 - 1996 Coordinator, Division of Solid Tumor Oncology Conference  
Department of Medicine, Memorial Sloan-Kettering Cancer Center
- 1995-97 Disease Management System for renal cancer, prostate cancer

Memorial Sloan-Kettering Cancer Center

- 1998- Medical Director, Genitourinary Oncology Program  
The New York Presbyterian Hospital – Weill Cornell Campus
  - 2004- Co-Division Chief, Division of Hematology and Medical Oncology  
Weill Cornell Medical College of Cornell University, New York, New York
  - 2004-07 Member, New York Presbyterian Hospital-Weill Cornell Oncology  
Operations Council
  - 2004-06 Member, New York Presbyterian Hospital Innovative Diagnostics &  
Therapeutics Committee
  - 2004- Member, New York Presbyterian Hospital Cancer Steering Committee
  - 2006-08 Member, New York Presbyterian Hospital Radiation Oncology Chairman  
Search Committee
  - 2006 Member, Weill Cornell Medical College Strategic Plan III Clinical  
Workgroup
  - 2006- Medical Director, Hematology Oncology Infusion Center Working Group
  - 2007- Member, Weill Cornell Medical College Department of Medicine Executive  
Committee
  - 2007- Member, Weill Cornell Cancer Center Internal Advisory Board
  - 2007- Member, Weill Cornell Cancer Center Cancer Clinical Research Working  
Group
  - 2007- Member, Weill Cornell Cancer Center Cancer Biobank Working Group
  - 2008- Co-Chair, Weill Cornell Cancer Center Cancer Membership Working Group
  - 2008- Co-Director, New York Presbyterian Hospital-Weill Cornell Oncology  
Operations Council
- Research
- 1992-95 Co-Director, Laboratory of Mammalian Cell Transformation  
Sloan-Kettering Institute for Cancer Research

1995-97 Director, Genitourinary Oncology Research Laboratory  
Sloan-Kettering Institute for Cancer Research

1998- Co-Director, Urological Oncology Research Laboratory  
Department of Urology, Weill Cornell Medical College of Cornell University

2003- Director, Genitourinary Oncology Research Laboratory  
Department of Medicine, Weill Cornell Medical College of Cornell  
University

Other

1998-2002 Book Review Editor, Cancer Investigation

1998-2000 External Grant Review Committee, Kidney Cancer Association

1998 Ad Hoc Reviewer, Department of Defense Prostate Cancer Research  
Program

2000 Ad Hoc Member, NCI Scientific Review Group, Clinical Oncology

2001-02 Member, ASCO Program Genitourinary Cancer subcommittee

2001-03 Member, NCI Scientific Review Group, Clinical Oncology

2001 Invited participant of the National Cancer Institute Kidney/Bladder Cancers  
Progress Review Group Roundtable Meeting, 11/28-30, 2001.

2004 Member, Editorial Board, Journal of Molecular Medicine

2004- External Scientific Advisory Committee  
Renal Cancer SPORE  
Dana Farber/Harvard Cancer Center  
Boston, MA

2004- External Advisory Board  
Center of Biomedical Research Excellence in the Molecular Basis of  
Human Disease (COBREMBHD)  
University of Kentucky College of Medicine  
Lexington, KY

- 2005- Associate Leader, Urology Disease Site Team, National Cancer Data Base, American College of Surgeons Commission on Cancer
- 2005- Member, Editorial Board, New York – Presbyterian Oncology Magazine
- 2005- Member, Editorial Board, Journal of Clinical Oncology
- 2006 Scientific Reviewer, Department of Defense 2006 Prostate Cancer Research Program (PCRP).
- 2006 External Advisory Board  
Site Visit Rehearsal  
Case Comprehensive Cancer Center  
Cleveland, Ohio
- 2006- Member, Editorial Advisory Board, Kidney Cancer Journal
- 2006- Member, External Advisory Board, Kidney Cancer Association
- 2007- Member, Editorial Board, Cancer Investigation

Journal Reviewer:

American Journal of Pathology  
 British Journal of Cancer  
 Cancer  
 Cancer Investigation  
 Cancer Research  
 Cancer Letters  
 Clinical Cancer Research  
 International Journal of Cancer  
 Journal of Clinical Oncology  
 Journal of the National Cancer Institute  
 Journal of Urology  
 Lancet  
 Nature Reviews  
 Oncogene  
 Urology

H. Research Support

Neutral Endopeptidase Inactivation in Prostate Cancer, 1998-2008  
 RO1 CA72717-01A1

Principal Investigator: David Nanus, MD  
Amount: \$188,000 direct costs year  
20% effort

Anti-tumor Therapies for Genitourinary Malignancies, 9/1/00 - 8/31/05  
K24 CA85608-01

Principal Investigator: David Nanus, MD  
Amount: \$106,250 direct costs year  
40% effort

Modulation of Retinoic Acid Action in Renal Cancer, 8/1/01- 7/31/07  
RO1 CA 092542-01

Principal Investigator: David Nanus, MD  
Amount: \$213,000 direct costs year  
10% effort

Neuropeptide Signaling In Prostate Cancer,  
RO1 DK060908-01

Principal Investigator: Ruoqian Shen, PhD.  
Amount: \$175,000 direct costs year  
10% effort

Retinoids and Histone Deacetylase Inhibitors in The Treatment of Prostate Cancer,  
2/1/02-1/31/05

DOD PC010321  
Amount: \$125,000 direct costs year  
Principal Investigator: Lorraine Gudas, PhD.  
5% effort

Anti-Angiogenic Action of Neutral Endopeptidase  
11/1/04-10/31/07

DOD PC040758  
Amount: \$125,000 direct costs year  
Principal Investigator: David Nanus, M.D.  
10% effort

Endocrine Research Training Program  
09/28/07-08/31/12

NIH/ NIDDK T32 DK07313  
Principal Investigator: Imperato-McGinley  
Mentor

This is a postdoctoral fellow training grant for the Tri-Institutes (Weill Medical College of Cornell University, Rockefeller University and Memorial Sloan-Kettering Cancer Institute).

Cancer Pharmacology Training Grant

7/1/2005 - 6/30/2010

T32 CA062948

Principal Investigator: Lorraine Gudas

Mentor

This is a training grant to fund postdocs and graduate student Ph.D. training and tuition costs in the Cancer Pharmacology program, a joint program between Weill Cornell Medical College and Memorial Sloan-Kettering Cancer Center.

## BIBLIOGRAPHY

### A. Journal Articles

1. Ezdinli EZ, Nanus DM. B-lymphoproliferative disorders: A proposed unified pathogenetic pathway. Hematol Oncol 1983;1:297-319.
2. Nanus DM, Kelsen D, Clark D. Radiation induced angiosarcoma. Cancer 1987;60:777-779.
3. Nanus DM, Kelsen DP, Lipperman R, Eisenberger M. Phase II trial of ifosfamide in epidermoid carcinoma of the esophagus: Unexpectant severe toxicity. Inv New Drugs 1988;6:239-241.
4. Nanus DM, Ebrahim SAD, Bander NH, Real FX, Pfeffer LM, Shapiro JR, Albino AP. Transformation of human kidney proximal tubule cells by ras-containing retroviruses: Implications for tumor progression. J Exp Med 1989;169:953-973.
5. Nanus DM, Kelsen DP, Niedzwiecki D, Chapman D, Brennan M, Melamed M. Flow cytometry as a predictive indicator in patients with operable gastric cancer. J Clin Onc 1989;7:1105-1112.
6. Albino AP, Nanus DM, Mentle IR, Cordon-Cardo C, McNutt S, Bressler J, Andreeff M. Analysis of ras oncogenes in malignant melanoma and precursor lesions: Correlation of point mutations with differentiation phenotype. Oncogene, 1989;4:1363-1374.
7. Nanus DM, Mentle IR, Motzer RJ, Bander NH, Albino AP. Infrequent point mutations of ras oncogenes in renal cell carcinoma. J Urol 1990;143:175-178.
8. Nanus, DM, Kelsen DP, Mentle IR, Altorki N, Albino AP. Infrequent Point Mutations of ras Oncogenes in Gastric Cancers. Gastroenterology 1990;98:955-960.
9. Dmitrovsky E, Murty VVVS, Moy D, Miller WH, Nanus D, Albino AP, Samamiego F, Bosl G, Chaganti RSK. Isochromosome 12p in non-seminoma cell lines: Karyologic amplification of c-Ki-ras, without point-mutational activation. Oncogene 1990;5:543-548.
10. Nanus DM, Pfeffer LM, Bander NH, Bahri S, Albino AP. Anti-proliferative and antitumor effects of alpha interferon in renal cell carcinomas: Correlation with the expression of a

- kidney associated differentiation glycoprotein. Cancer Res 1990;50:4190-4194.
11. Volkenandt M, Schlegel U, Nanus DM, Albino AP. Mutational analysis of the human p53 gene in malignant melanoma. Pigment Cell Res 1991;4:35-40.
  12. Albino AP, Nanus DM, Davis ML, McNutt S. Lack of evidence for ki-ras codon 12 mutations in melanocytic lesions. J Cutaneous Path 1991;18:273-278.
  13. Albino AP, Davis BM, Nanus DM. Induction of growth factor RNA expression in human malignant melanoma: Markers of transformation. Cancer Res 1991;51:4815-4820.
  14. Eisenkraft BL, Nanus DM, Albino AP, Pfeffer LM.  $\gamma$ -Interferon downregulates epidermal growth factor receptors on renal carcinoma cells: Relation of cellular responsiveness to the antiproliferative action of alpha-interferon. Cancer Res 1991;51:5881-5887.
  15. Nanus DM, Lynch SA, Rao PH, Anderson SM, Jhanwar SC, Albino AP. Transformation of human kidney proximal tubule cells by src-containing retroviruses. Oncogene 1991;6:2105-2111.
  16. Pfeffer LM, Eisenkraft BL, Nanus DM, Bander NH & Albino AP. The anti-proliferative and antitumor effects of alpha-interferon on cultured renal carcinomas correlate with the expression of a kidney-associated differentiation antigen. Interferons and Cytokines 1991;17:30-31.
  17. Ilson DH, Motzer RJ, Kradin R, Vogelzang NJ, Bajorin D, Scher H, Nanus D, O'Moore P, Marathias K, Bosl GJ. A phase II trial of interleukin-2 and interferon-alpha in patients with advanced renal cell carcinoma. J Clin Onc 1992;10:1124-1130.
  18. Motzer RJ, Nanus DM, O'Moore P, Scher HI, Bajorin DF, Reuter V, Tong WP, Iversen J, Louison C, Albino AP, Bosl GJ. A phase II trial of suramin in patients with advanced renal cell carcinoma: Treatment results, pharmacokinetics and tumor growth factor expression. Cancer Res 1992;52:5775-5779.
  19. Albino AP, Sozzi G, Nanus DM, Jhanwar S, Houghton A.N. Complete transformation of human melanocytes by infection with a retrovirus containing the viral Ha-ras oncogene and resulting genetic instability. Oncogene 1992;7:2315-2321.
  20. Rusch VW, Reuter VE, Kris MG, Kurie J, Miller WH, Nanus DM, Albino AP, Dmitrovsky E. ras Oncogene point mutation: An infrequent event in bronchioalveolar cancer. J Thorac Cardiovasc Surg 1992;104:1465-1469.
  21. Nanus DM, Engelstein D, Gastl GA, Gluck L, Vidal MJ, Morrison M, Finstad CL, Bander NH, Albino AP. Molecular cloning of the human kidney differentiation antigen gp160: Human aminopeptidase A. Proc Natl Acad Sci USA 1993;90:7069-7073.

22. Gastl GA, Abrams JS, Nanus DM, Oosterkamp R, Silver J, Liu F, Chen M, Albino AP, Bander NH. Interleukin-10 production by human carcinoma cell lines and its relationship to interleukin-6 expression. Int J Cancer 1993;55:96-101.
23. Loganzo F, Dosik JS, Zhao Y, Vidal MJ, Nanus DM, Sudol M, Albino AP. Elevated expression of protein tyrosine kinase c-yes, but not c-src, in human malignant melanoma. Oncogene 1993;8:2637-2644.
24. Nanus DM, Schmitz-Drager BJ, Motzer RJ, Lee AC, Vlavis V, Cordon-Cardo C, Albino AP, Reuter VE. Expression of basic fibroblast growth factor in primary human renal tumors: Correlation with poor survival. J Natl Cancer Inst 1993;85:1597-1599.
25. Albino AP, Vidal M, McNutt NS, Shea C, Prieto V, Nanus DM, Palmer JM, Hayward NK. Mutation and expression of the p53 gene in human malignant melanoma. Melanoma Res 1994;4:35-35.
26. Motzer RJ, Schwartz P, Murray-Law T, Hoffman AD, Albino AP, Vlavis V, Nanus DM. Antitumor Effect of interferon alfa-2a and 13 cis-retinoic Acid in renal cell carcinoma: Results of a Phase II Trial and in vitro Studies. J Clin Onc 1995;13:1950-57.
27. Scher HI, Zhang ZF, Nanus D, Kelly WK. Hormone and antihormone withdrawal: Implications for the management of androgen-independent prostate cancer. Urology 1996;47:61-69.
28. Hoffman AD, Engelstein D, Bogenrieder T, Papandreou C, Steckelman E, Motzer RJ, Dmitrovsky E, Albino AP, Nanus DM. Expression of retinoid acid receptor beta correlates with sensitivity to the antiproliferative effects of retinoic acid in human renal cell carcinomas. Clin Cancer Res 1996;2:1077-1082.
29. Presti JC, Reuter VE, Cordon-Cardo C, Albino AP, Jhanwar SC, Nanus DM. Expression of the retinoblastoma gene product in renal tumors. Anticancer Res 1996;16:549-556.
30. Papandreou CN, Bogenrieder T, Scher HI, Albino AP, Nanus DM. Expression and sequence analysis of the SD11/WAF1/CIP1/p21 tumor suppressor gene in prostate cancer cell lines. Int J Oncol 1996;8:1237-1241.
31. Papandreou C, Bogenrieder T, Loganzo F, Chao MV, Nanus DM, Albino AP. Mutation and expression of the low affinity nerve growth factor receptor in human malignant melanoma. Melanoma Res 1996;6:373-378.
32. Motzer RJ, Bander NH, Nanus DM. Renal cell carcinoma. N Engl J Med 1996;335:865-875.
33. Pfeffer LM, Wang C, Constantinescu SN, Croze E, Blatt LM, Albino AP, Nanus DM. Human renal cancers resistant to interferon's antiproliferative action exhibit sensitivity to IFN's gene-inducing and antiviral actions. J Urol 1996;156:1867-1871.

34. Hardy DO, Scher HI, Bodenreider T, Sabbatini P, Zhang Z-F, Nanus DM, Catterall JF. Androgen receptor CAG repeat lengths in prostate cancer: Correlation with age of onset. J Clin Endo Metab 1996;81:4400-4405.
35. Papandreou CN, Bogenrieder T, Loganzo F, Albino AP, Nanus DM. Expression and sequence analysis of the p21(WAF1/CIP1) gene in renal cancers. Urology 1997;41:481-486.
36. Bogenrieder T, Finstad CL, Freeman R, Reuter VE, Papandreou C, Scher HI, Albino AP, Nanus DM. Expression and localization of aminopeptidase A, aminopeptidase N, and dipeptidyl peptidase IV in human benign and malignant prostate tissue. Prostate 1997;33:225-232.
37. Berg WJ, Schwartz LH, Amsterdam A, Mazumdar M, Murray-Law T, Vlamis V, Nanus DM, Motzer RJ. Clinical studies with 13-*cis*-retinoic acid in patients with advanced renal cell carcinoma. Inv New Drugs 1997;15:353-355.
38. Papandreou CN, Usmani B, Geng Y, Bogenrieder T, Freeman R, Wilk S, Finstad CL, Reuter VE, Powell CT, Scheinberg D, Magill C, Scher HI, Albino AP, Nanus DM. Neutral endopeptidase 24.11 loss in metastatic human prostate cancer contributes to androgen-independent progression. Nature Med 1998;4:50-57.
39. Geng Y, Biffi A, Engelstein D, Ronchi E, Faustini M, Lai H-K, Albino AP, Di Fronzo G, Nanus DM. Expression of the kidney-associated differentiation glycoprotein gp160 and resistance to the antitumor effects of interferon in renal cell carcinomas. Anticancer Res 1998;18:1-8.
40. Nanus DM, Bogenrieder T, Papandreou CN, Finstad CL, Lee A, Vlamis V, Motzer RJ, Bander NH, Albino AP, Reuter VE. Aminopeptidase A expression and enzymatic activity in primary human renal cancers. Int J Oncol 1998;13:261-267.
41. Papandreou CN, Bogenrieder T, Finstad CL, Freeman RH, Chao MV, Albino AP, Scher HI, Reuter VE, Nanus DM. Reversal of the low affinity neurotrophin receptor stromal-epithelial expression pattern between benign and malignant human prostate. Urologic Oncol 1998;4:210-217.
42. Nanus DM. Decision to operate, radiate or watch and wait: the prostate cancer dilemma. Cancer Inv 1999;17:374-375.
43. Berg WJ, Nanus DM, Leung A, Brown KT, Hutchinson B, Vlamis V, Mazumdar M, Xu X-C, Lotan R, Reuter VE, Motzer RJ. Up-regulation of retinoic acid receptor- $\beta$  expression in renal cancers in vivo correlates with response to 13-*cis*-retinoic acid and interferon  $\alpha$ -2a. Clin Cancer Res 1999;5:1671-1675
44. Usmani BA, Janeczko M, Mazumdar M, Shen R, Papandreou CP, Nanus DM. Analysis of the

- insertion/deletion polymorphism of the human angiotensin converting enzyme (ACE) gene in patients with renal cell carcinoma. Br J Cancer 2000;82;550-2.
45. Kelly WK, Osman I, Reuter VE, Curley T, Heston WDW, Nanus DM, Scher HI. The development of biologic endpoints in patients treated with differentiation agents: An experience of retinoids in prostate cancer: Clin Cancer Res 2000;6;838-846.
  46. Shen R, Sumitomo M, Dai J, Harris A, Kaminetzky D, Gao M, Burnstein KL, Nanus DM. Androgen-induced growth inhibition of androgen receptor expressing androgen-independent prostate cancer cells is mediated by increased levels of neutral endopeptidase. Endocrinology 2000;141;1699-1704.
  47. Usmani BA, Shen R, Janeczko M, Papandreou CN, Lee W-H, Nelson WG, Nelson JB, Nanus DM. Methylation of the neutral endopeptidase gene CpG island in human prostate cancer. Clin Cancer Res, 2000;6;1664-70.
  48. Motzer RJ, Murphy BA, Bacik J, Schwartz LH, Nanus DM, Mariani T, Loehrer P, Wilding G, Fairclough DL, Cella D, Mazumdar M. Phase III trial of interferon alfa-2a with or without 13-cis retinoic acid for patients with advanced renal cell carcinoma. J Clin Onc 2000;18;2972-2980.
  49. Nanus DM, Geng Y, Shen R, Lai HK, Pfeffer SR, Pfeffer LP. Interaction of retinoic acid and interferon in renal cancer cell lines. J Interferon Cytokine Res 2000;20;87-94.
  50. Sumitomo M, Shen R, Walburg M, Dai J, Geng Y, Navarro D, Boileau G, Papandreou CN, Giancotti FG, Knudsen B, Nanus DM. Neutral endopeptidase inhibits prostate cancer cell migration by blocking focal adhesion kinase (FAK) signaling. J Clin Inv 2000;106;1399-1407.
  51. Sumitomo M, Shen R, Goldberg JS, Dai J, Navarro D, Nanus DM. Neutral endopeptidase promotes phorbol ester-induced apoptosis in prostate cancer cells by inhibiting neuropeptide-induced protein kinase C  $\delta$  degradation. Cancer Res 2000;60;6590-6596.
  52. Shen R, Sumitomo M, Dai J, Hardy DO, Navarro D, Usmani B, Papandreou CN, Hersh LB, Shipp MA, Freedman LP, Nanus DM. Characterization of two androgen-response regions in the human neutral endopeptidase gene. Mol Cell Endocrinology 2000;170;131-142.
  53. Guo X, Nanus DM, Riz A, Rando RR, Bok, D, Gudas LJ. Reduced levels of retinyl esters and vitamin A content in human renal cancers. Cancer Res 2001;61;2774-2781.
  54. Sumitomo M, Milowsky M, Shen R, Navarro D, Dai J, Asano T, Hayakawa M, Nanus DM. Neutral endopeptidase inhibits neuropeptide-mediated transactivation of the insulin-like growth factor receptor-Akt cell survival pathway. Cancer Res 2001;61;3294-3298.
  55. Dai J, Shen R, Sumitomo M, Goldberg JS, Geng Y, Navarro D, Xu S, Koutcher J, Garzotto M,

- Powell CT, Nanus DM. Tumor suppressive effects of neutral endopeptidase in androgen-independent prostate cancer cells. Clin Cancer Res 2001;7:1370-1377.
56. Milowsky MI, Rosmarin AS, Tickoo SK, Papanicolaou NI, Nanus DM. Active chemotherapy for collecting duct carcinoma of the kidney: Case report and review of the literature. Cancer 2002;94:111-116.
  57. Guo X, Knudsen BS, Peehl DM, Ruiz A, Bok D, Rando RR, Rhim JS, Nanus DM, Gudas LJ. Retinol metabolism and lecithin:retinol acyltransferase (LRAT) levels are reduced in cultured human prostate cancer cells and tissue specimens. Cancer Res 2002;62:1654-1661.
  58. Dai J, Shen R, Sumitomo M, Stahl R, Navarro D, Gershengorn MC, Nanus DM. Synergistic activation of the androgen receptor by bombesin and low-dose androgen. Clin Cancer Res 2002;8:2399-2405.
  59. Goldberg JS, Vargas M, Rosmarin AS, Papanicolaou N, Milowsky MI, Gudas LJ, Shelton G, Feit K, Petrylak D, Nanus DM. Phase I trial of interferon  $\alpha$ -2b and liposome encapsulated all-*trans* retinoic acid in the treatment of advanced renal cell carcinoma. Cancer 2002;95:1220-1227.
  60. Knudsen BS, Gmyrek GA, Inra J, Scherr DS, Vaughan ED, Nanus DM, Kattan MW, Gerald WL, Vande Woude GF. High Expression of the Met Receptor in Prostate Cancer Metastasis to Bone. Urology 2002;60:1113-7.
  61. Shen R, Milowsky MI, Ozaki N, Navarro D, Sumitomo M, Xu Y, Nanus DM. Detection of the p110  $\beta$  subunit of phosphatidylinositol 3-kinase complexed with neutral endopeptidase. Anticancer Res 2002;22:2533-8.
  62. Bander NH, Trabulsi EJ, Kostakoglu L, Yao D, Vallabhajosula S, Smith-Jones P, Joyce MA, Milowsky MI, Nanus DM, Goldsmith S. Targeting metastatic prostate cancer with radiolabeled monoclonal antibody J591 to the extracellular domain of prostate specific membrane antigen. J Urol 2003;170:1717-1721.
  63. Zhan HC, Gudas LJ, Bok D, Rando R, Nanus DM, Tickoo SK. Differential expression of the enzyme which esterifies retinol, lecithin:retinol acyltransferase, in subtypes of human renal cancer and normal kidney. Clin Cancer Res 2003;9:4897-905.
  64. Nanus DM, Milowsky MI, Kostakoglu L, Smith-Jones PM, Vallabhajosula S, Goldsmith SJ, Bander NH. Clinical utility of monoclonal antibody HuJ591 therapy: Targeting prostate specific membrane antigen (PSMA). J Urol 2003;170:S84-S89.
  65. Carroll PR, Benaron DA, Blackledge G, Coakley FV, D'Amico AV, Higano CS, Iversen P, Kattan M, Nanus DM, Nelson JB, Oh WK, Roach M 3rd, Sellers WR, Smith MR, McMann MC, Kantoff PW. Third international conference on innovations and challenges in prostate cancer: Prevention, detection and treatment. J Urol 2003;170:S3-5.

66. Sumitomo M, Asano T, Asakuma J, Asano T, Nanus DM, Hayakawa M. Chemosensitization of androgen-independent prostate cancer with neutral endopeptidase. Clin Cancer Res 2004;10:260-266.
67. Sumitomo M, Iwase A, Navarro D, Zheng R, Kaminetzky D, Shen R, Georgescu M-M, Nanus DM. Synergy in tumor suppression by direct interaction of neutral endopeptidase with PTEN. Cancer Cell 2004;5:67-78.
68. Marchio S, Lahdenranta J, Schlingemann RO, Valdembri D, Wesseling P, Arap MA, Hajitou A, Ozawa M, Trepel M, Giordano R, Nanus DM, Dijkman HBPM, Oosterwijk E, Sidman RL, Cooper MD, Bussolino F, Pasqualini R, Arap W. Aminopeptidase A is a functional vascular target in angiogenic blood vessels. Cancer Cell 2004;5:151-162.
69. Iwase A, Shen R, Navarro D, Nanus DM. Direct binding of neutral endopeptidase 24.11 to ezrin/radixin/moesin (ERM) proteins competes with the interaction of CD44 with ERM proteins. J Biol Chem 2004;279:11898-905.
70. Boorjian S, Tickoo SK, Mongan NP, Yu H, Bok D, Rando RR, Nanus DM, Scherr DS, Gudas LJ. Decrease of lecithin:retinol acyltransferase (LRAT) expression correlates with increased pathologic tumor stage in bladder cancer. Clin Cancer Res 2004;10:3429-37.
71. Milowsky MI, Nanus DM, Kostakoglu L, Vallabhajosula S, Goldsmith SJ, Bander NH. Phase I trial results of Yttrium-90 labeled anti-prostate specific membrane antigen monoclonal antibody J591 in the treatment of patients with recurrent prostate cancer. J Clin Onc 2004; 22:2522-31.
72. Osman I, Taneja S, Yee H, Nobert C, Chang C, Wiczorek R, Kang M, Levinson B, Zeleniuch-Jacqoutte A, Nanus DM. Neutral endopeptidase (NEP) protein expression and prognosis in localized prostate cancer. Clin Cancer Res 2004;10:4096-100.
73. Kelly JD, Dai J, Eschwage P, Golberg JH, Duggan BP, Williamson KE, Bander NH, Nanus DM. Down regulation of Bcl-2 sensitizes interferon resistant renal cancer cells to Fas. Br J Cancer 2004;91:164-70.
74. Nanus DM, Garino A, Milowsky MI, Larkin M, Dutcher JP. Active chemotherapy for sarcomatoid and rapidly progressing renal cell carcinoma. Cancer 2004;101:1545-1551.
75. Vallabhajosula S, Kuji I, Klaus HA, Konishi S, Kostakoglu L, Kothari PA, Milowsky MI, Nanus DM, Bander NH, Goldsmith SJ. Pharmacokinetics and Biodistribution of <sup>111</sup>In and <sup>177</sup>Lu Labeled J591 Antibody Specific to Prostate Specific Membrane Antigen: Prediction of <sup>90</sup>Y-J591 Radiation Dosimetry Based on <sup>111</sup>In or <sup>177</sup>Lu? J Nuc Med 2005;46(4):634-41..
76. Vallabhjosula S, Goldsmith SJ, Hamacher KA, Kostakoglu L, Konishi S, Milowsky MI, Nanus DM, Bander NH. Prediction of Myelotoxicity Based on Bone Marrow Radiation

Absorbed Dose: Radioimmunotherapy Studies using  $^{90}\text{Y}$  and  $^{177}\text{Lu}$  Labeled J591 Antibodies Specific to Prostate Specific Membrane Antigen (PSMA). J Nuc Med 2005;46(5):850-8.

77. Boorjian S, Scherr DS, Mongan NP, Zhuang Y, Nanus DM, Gudas LJ. Retinoid receptor mRNA expression profiles in human bladder cancer specimens. Int J Oncol. 2005;26(4):1041-8.
78. Touma SE, Goldberg JS, Moench P, Guo X, Tickoo SK, Gudas LJ, Nanus DM. Retinoic acid and the histone deacetylase inhibitor trichostatin a inhibit the proliferation of human renal cell carcinoma in a xenograft tumor model. Clin Cancer Res. 2005;11(9):3558-66.
79. Bander NH, Milowsky MI, Nanus DM, Kostakoglu L, Vallabhajosula S, Goldsmith SJ. Phase I trial of  $^{177}\text{Lu}$ -labeled J591, a monoclonal antibody to prostate specific membrane antigen, in patients with androgen-independent prostate cancer. J Clin Onc 2005;23:4591-601.
80. Sumitomo M, Shen R, Nanus DM. Involvement of neutral endopeptidase in neoplastic progression. Biochim Biophys Acta 2005;1751:52-9.
81. Vallabhajosula S, Goldsmith SJ, Kostakoglu L, Milowsky MI, Nanus DM, Bander NH. Radioimmunotherapy of prostate cancer using  $^{90}\text{Y}$ - and  $^{177}\text{Lu}$ -labeled J591 monoclonal antibodies: Effect of multiple treatments on myelotoxicity. Clin Cancer Res. 2005;11:7195s-200s
82. Raman JD, Mongan NP, Liu L, Tickoo SK, Nanus DM, Scherr DS, Gudas LJ. Decreased expression of the human stem cell marker, rex-1 (zfp-42), in renal cell carcinoma. Carcinogenesis. 2005, 27:499-507.
83. Gong J, Zhu J, Goodman O, Pestell RG, Schlegel PN, Nanus DM, Shen R. Activation of p300 histone acetyltransferase activity and acetylation of the androgen receptor by bombesin in prostate cancer cells. Oncogene 2006, 30;25:2011-21.
84. Horiguchi A, Sumitomo M, Asakuma J, Asano T, Zheng R, Asano T, Nanus DM, Hayakawa M. Leptin promotes invasiveness of murine renal cancer cells via extracellular signal-regulated kinases and rho dependent pathway. J Urol. 2006;176:1636-41.
85. Horiguchi A, Sumitomo M, Asakuma J, Asano T, Zheng R, Asano T, Nanus DM, Hayakawa M. Increased serum leptin levels and over expression of leptin receptors are associated with the invasion and progression of renal cell carcinoma. J Urol. 2006, 176:1631-5.
86. Zheng R, Iwase A, Shen R, Goodman OB, Sugimoto N, Takuwa Y, Lerner DJ, Nanus DM. Neuropeptide-stimulated cell migration in prostate cancer cells is mediated by RhoA kinase signaling and inhibited by neutral endopeptidase. Oncogene 2006;25:5942-52.
87. Zheng R, Shen R, Goodman OB, Nanus DM. Androgen regulation of the neutral endopeptidase gene. Mol Cell Endo 2006;259:10-21.

88. Goodman, OB Jr, Febbraio M, Simantov R, Shen R, Silverstein RL, Nanus DM. Neutral endopeptidase functions as a negative regulator of angiogenesis through proteolytic cleavage of basic fibroblast growth factor (FGF-2). J Biol Chem 2006;281:33597-605.
89. Osman I, Dai J, Sorhaindo L, Navarro D, Taneja SS, Lee P, Christos P, Shen R, Nanus DM. Loss of neutral endopeptidase and Akt activation is associated with prostate cancer progression. Cancer 2006;107:2628-36.
90. Velazquez EF, Yancovitz M, Pavlick A, Berman R, Shapiro R, Bogunovic D, O'Neill D, Yu Y-L, Spira J, Christos PJ, Mazumdar M, Nanus DM, Liebes L, Bhardwaj N, Polsky D, Osman I. Clinical Relevance of Neutral Endopeptidase (NEP/CD10) in Melanoma. J Translational Med 2007;5:2.
91. Milowsky MI, Nanus DM, Kostakoglu L, Vallabhajosula S, Goldsmith SJ, Ross JS, Bander NH. Vascular targeted therapy with anti-PSMA monoclonal antibody J591 in patients with advanced solid tumor malignancies, J Clin Onc 2007;25:540-7
92. Tewari A, Divine G, Chang P, Shemtov MM, Milowsky M, Nanus D, Menon M. Long-term survival in men with high grade prostate cancer: a comparison between conservative treatment, radiation therapy and radical prostatectomy--a propensity scoring approach. J Urol. 2007;177:911-5.
93. Hussain M, MacVicar GR, Petrylak D, Dunn R, Vaishampayan U, Lara, Jr PN, Chatta G, Nanus DM, Glode LM, Trump D, Chen H, Smith DC. Trastuzumab, paclitaxel, carboplatin, and gemcitabine in advanced Her-2/neu positive urothelial carcinoma: Results of a multi-center phase II NCI trial. J Clin Onc 2007;25:2218-24..
94. Horiguchi A, Zheng R, Goodman OB, Shen R, Guan H, Hersh LB, Nanus DM. Lentiviral vector neutral endopeptidase gene transfer suppresses prostate cancer tumor growth. Cancer Gene Therapy 2007;14:583-9.
95. David KA, Milowsky MI, Ritchey J, Carroll PR, Nanus DM. Low incidence of perioperative chemotherapy in stage III bladder cancer (1998-2003): A report from the National Cancer Data Base. J Urol 2007;178:451-4.
96. Zhu J, Gong JY, Goodman OB, Cartegni L, Nanus DM, Shen R. Bombesin attenuates pre-mRNA splicing of glucocorticoid receptor by regulating the expression of serine-arginine protein p30c (SRp30c) in prostate cancer cells. Biochim Biophys Acta 2007;1773:1087-94.
97. Boorjian SA, Milowsky MI, Kaplan J, Albert M, Rosario C, Coll DM, Mongan NP, Shelton G, Petrylak D, Gudas LJ, Nanus DM. Phase I/II clinical trial of interferon alpha 2b and weekly liposome-encapsulated all-trans retinoic acid in patients with advanced renal cell carcinoma J Immunother 2007;30:655-662.

98. Goodman OG, Barwe SP, Ritter B, McPherson PS, Vaskos AJ, Keens JH, Nanus DM, Bander NH, Rajeskaran AK. Interaction of prostate specific membrane antigen with clathrin and the adaptor protein complex-2. Int J Oncol. 2007;31:1199-203.
99. Horiguchi A, Chen DYT, Goodman OB, Zheng R, Shen R, Guan H, Hersh LB, Nanus DM. Neutral endopeptidase inhibits prostate cancer tumorigenesis by reducing FGF-2-mediated angiogenesis. Prostate Cancer Prostatic Dis. 2008;11:79-87.
100. Horiguchi A, Zheng R, Shen R, Nanus DM. Constitutive phosphorylation of the NF2 tumor suppressor protein merlin in prostate cancer cells. Prostate 2008;68:975-84
101. Bradley DA, Dunn R, Nanus D, Stadler W, Dreicer R, Rosenberg J, Smith DC, Hussain M. Randomized blinded phase II trial of maintenance sunitinib versus placebo post chemotherapy for patients with advanced urothelial carcinoma: scientific rationale and study design. Clin Genitourin Cancer 2008, in press.
102. Lee JG, Zheng R, McCafferty-Cepero JM, Burnstein KL, Nanus DM, Shen R. Endothelin-1 enhances the expression of the androgen receptor via activation of the c-Myc pathway in prostate cancer cells. Molecular Carcinogenesis 2008, in press.

B. Books, Chapters, Reviews, Editorials

1. Nanus DM and Bosl GB. Systemic chemotherapy in the management of bladder cancer. Cancer Treat Res 1989;46:143-158.
2. Bander NH, Gastl G, Nanus DM, Pfeffer LM, Finstad CL, Albino AP. Anti-proliferative and antitumor effect of  $\nabla$ -interferon in renal cell carcinoma: Correlation with the expression of a kidney associated differentiation glycoprotein in Basic and Clinical Research on Renal Cell Carcinoma, Staehler G, Pomer S, eds. Springer-Verlag, Berlin, 1992, 115-120.
3. Nanus DM and Albino AP. Oncogene induced transformation of human kidney proximal tubule cells in Renal Cell Carcinoma: Immunotherapy and Cellular Biology, Klein EA, Bukowski RM, Finke JH, eds. Marcel Dekker, Inc., New York, 1993, 53-65.
4. Bander NH, Gastl GA, Nanus DM, Finstad CL, Albino AP, Pfeffer LM. Antiproliferative and antitumor effect of interferon- $\nabla$  in renal cell carcinoma in Renal Cell Carcinoma: Immunotherapy and Cellular Biology, Klein E, Bukowski RM, Finke J, eds. Marcel Dekker, Inc., New York, 1993, 85-91.
5. Nanus DM and Walker CL. Experimental Models of Renal Cancer in Principles and Practice of Genitourinary Oncology, Raghavan D, Scher HI, Leibel SA, Lange P, eds. J.B. Lippincott Co., Philadelphia, 1996, 779-785.

6. Motzer RJ, Russo P, Nanus DM, Berg W. Renal cell carcinoma in Current Problems in Cancer, Ozols RF, ed., Mosby, St. Louis, 1997;21:185-232.
7. Nanus DM, Papandreou CN, Albino AP. Expression of cell-surface peptidases in neoplastic cells in Cell-surface Peptidases, Kenny J, Boustead CM, eds. Bios Scientific Publishers Ltd., Oxford, 1997, 353-369.
8. Motzer RJ, Bander NH, Nanus DM. Letter to the Editor. N Engl J Med 1997;336:810-811.
9. Motzer RJ, Schwartz P, Murray-Law T, Hoffman AD, Albino AP, Vlamis V, Nanus DM. Antitumor effect of interferon alfa-2a and 13 cis-retinoic Acid in renal cell carcinoma: Results of a Phase II Trial and in vitro Studies in Classic Papers and Current Comments: Highlights of Genitourinary Cancer Research, Vogelzang NJ ed. WB Saunders Co., Philadelphia, 1997;2:307-315.
10. Nanus DM and Gudas LJ. Retinoids and prostate cancer. Prostate J 2000;2;68-73.
11. Berg WJ, Divgi CR, Nanus DM, Motzer RJ. Novel investigative approaches for advanced renal cell carcinoma. Semin Oncol 2000;27:234-239.
12. Nanus DM. New treatment approaches for metastatic renal cell carcinoma. Curr Oncol Rep 2000;2:417-422.
13. Nanus DM and Engelstein D. Orthotopic Model of Renal Cell Carcinoma in Renal Cancer Methods and Protocols, Mydlo JH, ed. Humana Press Inc., Totowa, 2001;53:245-253.
14. Nanus DM. Introduction to Urologic Oncology Series. Cancer Invest 2001;19;76.
15. Pastore RD, Pfeffer LM, Nanus DM. Renal cell carcinoma and interferon at the millenium. Cancer Invest 2001;19:281-291.
16. Nanus DM. Renal cell carcinoma (Book Review). Cancer Invest 2001;19:343.
17. Nanus DM, Shen R, Dai J, Sumitomo M. Neutral endopeptidase and other peptidases such as aminopeptidase A and dipeptidyl peptidase IV in the development and progression of cancer in Cell Surface Aminopeptidases: Basic and Clinical Aspects, Mizutani S, Turner AJ, Nomura S, Ino K (eds), Amsterdam, Elsevier Science 2001:119-128.
18. Milowsky MI and Nanus DM. Advanced Renal Cell Carcinoma. Curr Treat Options Oncol 2001;2:437-45.
19. Milowsky MI, Nanus DM. Estramustine plus a taxane for advanced prostate cancer: The new standard therapy? Cancer Invest 2002;20;849-850.
20. Yao D, Trabulsi EJ, Kostakoglu L, Vallabhajosula S, Joyce MA, Nanus DM, Milowsky M, Liu

- H, Goldsmith S. The utility of monoclonal antibodies in the imaging of prostate cancer. Semin Urol Oncol. 2002;20:211-8.
21. Milowsky MI, Del Pizzo JJ, Nanus DM. Kidney Cancer in Atlas of Cancer, Markman M, ed, Lippincott Williams and Wilkins, Philadelphia, 2003;443-449.
  22. Milowsky MI and Nanus DM. Chemotherapeutic Strategies for Renal Cell Carcinoma in Contemporary Management of Renal Cell Carcinoma, Taneja SS, ed, W.B. Saunders Co., Philadelphia, Urol Clin N Am 2003;30:601-609.
  23. Bander NH, Nanus DM, Milowsky MI, Kostakoglu L, Vallabahajosula S, Goldsmith SJ. Targeted systemic therapy of prostate cancer with a monoclonal antibody to prostate specific membrane antigen. Semin Onc 2003;30:667-677.
  24. Nanus DM. Of Peptides and Peptidases: The role of cell-surface peptidases in cancer. Clin Cancer Res 2003;9:6307-6309.
  25. Ross JS, Gray KE, Webb I, Gray GS, Rolfe M, Schenkein DP, Nanus DM, Milowski MI, Bander NH. Antibody-based therapeutics: Focus on prostate cancer. Cancer Metast Rev 2005;24:517-533.
  26. David KA, Milowsky MI, Nanus DM. Chemotherapy for non-clear-cell renal cell carcinoma. Clin Genitourin Cancer 2006;4:263-8.
  27. David KA, Milowsky MI, Kostakoglu L, Vallabhajosula S, Goldsmith SJ, Nanus DM, Bander NH. Clinical utility of radiolabeled monoclonal antibodies in prostate cancer. Clin Genitourin Cancer 2006;4:249-56.
  28. Nanus DM and Milowsky MI. Genitourinary Cancers in ASCO-SEP Medical Oncology Self-Evaluation Program, Moore A, ed, American Society of Clinical Oncology 2007; 205-238.
  29. Jeske S, Del Pizzo JJ, Nanus DM. Kidney Cancer in Atlas of Cancer, Markman M, ed, Lippincott Williams and Wilkins, Philadelphia, 2007, in press.