

CURRICULUM VITAE FOR ACADEMIC PROMOTION  
The Johns Hopkins University School of Medicine

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Luigi Marchionni, M.D. Ph.D.

August 25, 2008

**DEMOGRAPHIC AND PERSONAL INFORMATION**

CURRENT APPOINTMENT

**Instructor**

July, 2007 - present

*Cancer Biology Program,  
Johns Hopkins School of Medicine,  
Baltimore, MD, USA*

CONTACT INFORMATION

The Sidney Kimmel  
Comprehensive Cancer Center  
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EDUCATION AND TRAINING

**M.D., Summa cum Laude**

1998

*School of Medicine, University of Turin, Italy*

Dissertation in Human Genetics: "*The role of Histocompatibility HLA-B27 molecule in the pathogenesis of seronegative spondyloarthropathies*".

Advisor: Prof. E. Sergio Curtoni Licensed for medical practice in Italy in 1999

**Ph.D., Structural and Functional Genomics**

2004

*International School of Advanced Studies (SISSA), Trieste, Italy*

Dissertation title: "*Comprehensive gene expression data exploration in ovarian cancer uncovers molecular signatures related to cell plasticity and involving fibroblast growth factor*".

Advisors: Prof. Antonino Cattaneo, SISSA, Trieste, Italy, and Prof. Marcelo Magnasco, Rockefeller University, New York, USA

**Post-Doctoral Fellowship**

August, 2005 - June, 2007

*Oncology Biostatistics, Johns Hopkins School of Medicine, Baltimore, MD, USA*

During my post-doctoral fellowship I developed novel computational and visualization approaches to analyzed high dimensional genomic data.

## PROFESSIONAL EXPERIENCE

### **Research Internship** **1993 - 1998**

*Transplant Immunology, S. Giovanni Battista Hospital, Turin, Italy*  
Molecular typing techniques of the human MHC system.

### **Visiting Researcher** **1999 and 2001**

*RIKEN Genome Science Laboratory, Tsukuba, Japan*  
Gene expression profiling analysis of Wnt signaling by cDNA microarrays.

### **Research Fellowship** **1999 - 2000**

*FIRC Institute of Molecular Oncology IFOM, Milan, Italy*  
Set up the cDNA microarray facility operating at IFOM, in the framework of the Italian Cancer Research Association (AIRC) project for the use of nanotechnologies in cancer research.

### **Research Fellowship** **1999 - 2005**

*Interuniversity Consortium for Biotechnologies, National Laboratory (LNCIB), Trieste, Italy*  
Set up and coordination of the cDNA microarray Unit and gene expression analysis within the frame of the following research projects:

Microarray gene expression profiling analysis of ovarian cancer in cooperation with National Cancer Institute (INT, Milan)

TRANSFOG European Integrated Project, Translational and Functional Onco-Genomics: from cancer-oriented genomic screenings to new diagnostic tools and improved cancer treatment

Development of innovative technologies for gene expression analysis and genotyping in collaboration with ST-Microelectronics (Catania, Italy)

Italian Integrated Project for Oncology: Validation of DNA microarray based cancer classification, supported by the Italian University and Research Ministry (MIUR) and by the Italian National Research Council (CNR)

## RESEARCH ACTIVITIES

### PEER-REVIEWED ORIGINAL RESEARCH ARTICLES

\* Equally contributing co-authorships

1. J. Kawai, A. Shinagawa, K. Shibata, M. Yoshino, M. Itoh, Y. Ishii, T. Arakawa, A. Hara, Y. Fukunishi, H. Konno, J. Adachi, S. Fukuda, K. Aizawa, M. Izawa, K. Nishi, H. Kiyosawa, S. Kondo, I. Yamanaka, T. Saito, Y. Okazaki, T. Go jobori, H. Bono, T. Kasukawa, R. Saito, K. Kadota, H. Matsuda, M. Ashburner, S. Batalov, T. Casavant, W. Fleischmann, T. Gaasterland, C. Gissi, B. King, H. Kochiwa, P. Kuehl, S. Lewis, Y. Matsuo, I. Nikaido, G. Pesole, J. Quackenbush, L. M. Schriml, F. Staubli, R. Suzuki, M. Tomita, L. Wagner, T. Washio, K. Sakai, T. Okido, M. Furuno, H. Aono, R. Baldarelli, G. Barsh, J. Blake, D. Boffelli, N. Bo junga, P. Carninci, M. F. de Bonaldo, M. J. Brownstein, C. Bult, C. Fletcher, M. Fujita, M. Gariboldi, S. Gustincich, D. Hill, M. Hofmann, D. A. Hume, M. Kamiya, N. H. Lee, P. Lyons, **L. Marchionni**, J. Mashima, J. Mazzearelli, P. Mombaerts, P. Nordone, B. Ring, M. Ringwald, I. Rodriguez, N. Sakamoto, H. Sasaki, K. Sato, C. Sch Znbach, T. Seya, Y. Shibata, K. F. Storch, H. Suzuki, K. Toyo-oka, K. H. Wang, C. Weitz, C. Whittaker, L. Wilming, A.

- Wynshaw-Boris, K. Yoshida, Y. Hasegawa, H. Kawaji, S. Kohtsuki, Y. Hayashizaki, R. I. K. E. N. Genome Exploration Research Group Phase II Team, and the FANTOM Consortium. “*Functional annotation of a full-length mouse cDNA collection*”. *Nature*, 2001; 409: 685-690.
2. Y. Okazaki, M. Furuno, T. Kasukawa, J. Adachi, H. Bono, S. Kondo, I. Nikaido, N. Osato, R. Saito, H. Suzuki, I. Yamanaka, H. Kiyosawa, K. Yagi, Y. Tomaru, Y. Hasegawa, A. Nogami, C. Schonbach, T. Gojobori, R. Baldarelli, D. P. Hill, C. Bult, D. A. Hume, J. Quackenbush, L. M. Schriml, A. Kanapin, H. Matsuda, S. Batalov, K. W. Beisel, J. A. Blake, D. Bradt, V. Brusic, C. Chothia, L. E. Corbani, S. Cousins, E. Dalla, T. A. Dragani, C. F. Fletcher, A. Forrest, K. S. Frazer, T. Gaasterland, M. Gariboldi, C. Gissi, A. Godzik, J. Gough, S. Grimmond, S. Gustincich, N. Hirokawa, I. J. Jackson, E. D. Jarvis, A. Kanai, H. Kawaji, Y. Kawasaki, R. M. Kedzierski, B. L. King, A. Konagaya, I. V. Kurochkin, Y. Lee, B. Lenhard, P. A. Lyons, D. R. Maglott, L. Maltais, **L. Marchionni**, L. McKenzie, H. Miki, T. Nagashima, K. Numata, T. Okido, W. J. Pavan, G. Pertea, G. Pesole, N. Petrovsky, R. Pillai, J. U. Pontius, D. Qi, S. Ramachandran, T. Ravasi, J. C. Reed, D. J. Reed, J. Reid, B. Z. Ring, M. Ringwald, A. Sandelin, C. Schneider, C. A. Semple, M. Setou, K. Shimada, R. Sultana, Y. Takenaka, M. S. Taylor, R. D. Teasdale, M. Tomita, R. Verardo, L. Wagner, C. Wahlestedt, Y. Wang, Y. Watanabe, C. Wells, L. G. Wilming, A. Wynshaw-Boris, and et al. Yanagisawa, M. “*Analysis of the mouse transcriptome based on functional annotation of 60,770 full-length cDNAs*”. *Nature*, 2002; 420: 563-73.
  3. Dalla E., Verardo R., Lazarevic D., **Marchionni L.**, Reid J.F., Bahar N., Klaric E., Marcuzzi G., Marzio R., Belgrano A., Licastro D., Schneider C. “*Human full-length cDNAs collection: towards a better comprehension of the human transcriptome*”. *C R Biol*, 2003; 326: 967-70.
  4. Monte M., Benetti R., Collavin L., **Marchionni L.**, Del Sal G., Schneider C. “*hGTSE-1 expression stimulates cytoplasmic localization of p53*”. *J Biol Chem*, 2004; 279: 11744-52.
  5. De Cecco L\*. **Marchionni L.\***, Gariboldi M., Reid J.F., Lagonigro M., Caramuta S., Ferrario C., Bussani E., Mezzanzanica D., Turatti F., Delia D., Daidone M.G., Oggionni M., Bertuletta N., Ditto A., Raspagliesi F., Pilotti S., Pierotti M.A., Canevari S., Schneider. “*Gene expression profiling of advanced ovarian cancer: characterization of a molecular signature involving fibroblast growth factor 2*”. *Oncogene* 2004; 23(49): 8171-83.
  6. Dalla E., Mignone F., Verardo R., **Marchionni L.**, Marzinotto S., Lazarevi D., Reid J.F., Marzio R., Klari E., Licastro D., Marcuzzi G.; Gambetta R.; Pierotti M.A., Pesole G.; Schneider C. “*Discovery of 342 putative new genes from the analysis of 5'-end-sequenced full-length-enriched cDNA Human Transcripts*”. *Genomics*. 2005 Jun;85(6):739-51.
  7. P. Carninci, T. Kasukawa, S. Katayama, J. Gough, M. C. Frith, N. Maeda, R. Oyama, T. Ravasi, B. Lenhard, C. Wells, R. Kodzius, K. Shimokawa, V. B. Ba jic, S. E. Brenner, S. Batalov, A. R. Forrest, M. Zavolan, M. J. Davis, L. G. Wilming, V. Aidinis, J. E. Allen, A. Ambesi-Impimbatto, R. Apweiler, R. N. Aturaliya, T. L. Bailey, M. Bansal, L. Baxter, K. W. Beisel, T. Bersano, H. Bono, A. M. Chalk, K. P. Chiu, V. Choudhary, A. Christoffels, D. R. Clutterbuck, M. L. Crowe, E. Dalla, B. P. Dalrymple, B. de Bono, G. Della Gatta, D. di Bernardo, T. Down, P. Engstrom, M. Fagiolini, G. Faulkner, C. F. Fletcher, T. Fukushima, M. Furuno, S. Futaki, M. Gariboldi, P. Georgii-Hemming, T. R. Gingeras, T. Gojobori, R. E. Green, S. Gustincich, M. Harbers, Y. Hayashi, T. K. Hensch, N. Hirokawa, D. Hill, L. Huminiecki, M. Iacono, K. Ieko, A. Iwama, T. Ishikawa, M. Jakt, A. Kanapin, M. Katoh, Y. Kawasaki, J. Kelso, H. Kitamura, H. Kitano, G. Kollias, S. P. Krishnan, A. Kruger, S. K. Kummerfeld, I. V. Kurochkin, L. F. Lareau, D. Lazarevic, L. Lipovich, J. Liu, S. Liuni,

S. McWilliam, M. Madan Babu, M. Madera, **L. Marchionni**, H. Matsuda, S. Matsuzawa, H. Miki, F. Mignone, S. Miyake, K. Morris, S. Mottagui-Tabar, N. Mulder, N. Nakano, H. Nakauchi, P. Ng, R. Nilsson, S. Nishiguchi, and et al. Nishikawa, S. *“The transcriptional landscape of the mammalian genome”*. Science. 2005 Sep 2;309(5740):1559-63

- Edward M Schaeffer\*, **Luigi Marchionni\***, Zhenhua Huang, Brian Simons, Amanda Blackman, Wayne Yu, Giovanni Parmigiani, and David M Berman *“Androgen induced programs for prostate epithelial growth and invasion arise in embryogenesis and are reactivated in cancer”*. Oncogene. 2008 Sep 15. [Epub ahead of print]

#### REVIEW ARTICLES

- Luigi Marchionni**, Renee F Wilson, Antonio C Wolff, Spyridon Marinopoulos, Giovanni Parmigiani, Eric B Bass, and Steven N Goodman. *“Systematic review: gene expression profiling assays in early-stage breast cancer”*. Ann Intern Med, 148(5):358-369, Mar 2008.

#### TECHNICAL REPORTS

- Luigi Marchionni**, Renee F Wilson, Spyridon S Marinopoulos, AC Wolff, G Parmigiani, EB Bass, and SN Bass. *“Impact of gene expression profiling tests on breast cancer outcomes”*. Evidence report/technology assessment no. 160. Technical report, Prepared by Johns Hopkins University Evidence-based Practice Center under contract No. 290-02-0018. Rockville, MD, Agency for Healthcare Research and Quality., 2008.
- X. Zhong - **L. Marchionni**, L. Cope, E. S. Iversen, E. S. Garrett-Mayer, E. Gabrielson, and G. Parmigiani. *“Optimized cross-study analysis of microarray-based predictors”*, 2007.

#### ACTIVE EXTRAMURAL SPONSORSHIP

- Hedgehog signaling links bladder injury and cancer* 07/01/2006 - 04/30/2011  
R01 DK072000 NIH - NIDDK \$199,055 David Berman  
Role: Investigator 0.6 calendar  
Analysis of genomic data in laboratory models of urothelium injury.
- Multi-Study Genomic Data Analysis* 10/01/2004 - 12/30/2009  
DMS0342111 NSF \$219,543 Giovanni Parmigiani  
Role: Investigator 5.4 calendar  
To develop novel data analysis tools for comparison and integration of genomic information across studies, across measurement technologies and across biological systems.
- Patrick C Walsh Chair* ending on 06/30/2009  
PCW Chair Patrick C Walsh Chair Edward M Schaeffer  
Role: Co-Investigator 1.2 calendar
- Institute for Clinical and Translational Research, CTSA: Integrated Discovery of Biomarkers and Prognostic Molecular Profiles.* 09/17/2007 - 05/31/2012  
1U54RR023561-01A1 NIH - NCRR \$10,707,230 Ford  
Role: Co-Investigator 1.6 calendar  
The major goal of this project is to develop biomarkers and molecular profiles through the integration of gene expression data sets from the public domain.

## FUNDED EXTRAMURAL SPONSORSHIP

1. *Tools for Large-Scale Analysis of Driver Pathways* 07/01/2008 - 06/31/2010  
RFA-CA-08-005 NIH - NCI \$275,000 Rachel Karchin  
Role: Co-Investigator 1.2 calendar  
The major goal of this project is to establish methods to compare data across genomic scope of analysis, like gene expression, SNPs, CGH, sequencing.

## PREVIOUS EXTRAMURAL SPONSORSHIP

1. *CORE grant for the Johns Hopkins Oncology Center* 05/01/1996 - 04/30/2008  
P30 CA006973 NIH - NCI \$111,918 Martin D Abeloff  
Role: Co-Investigator 1.2 calendar  
CORE grant for the Johns Hopkins Oncology Center. Regional Oncology Research Center - Microarray Core.
2. *Impact of Gene Expression Profiling Tests on Breast Cancer Outcomes* 11/01/06 - 07/31/07  
290-02-0018 AHRQ \$148,928 Eric Bass  
Role: Co-Principal Investigator 2.4 calendar  
The major goal of this is to review and synthesize the evidence on the impact of gene expression profiling tests on breast cancer outcomes.
3. *SPORE in Prostate Cancer* 09/30/1992 - 03/31/2008  
P50 CA058236 NIH - NCI \$50,000 Nelson/Berman  
Role: Co-Investigator 0.6 calendar
4. *Determining the Efficacy of Upregulating NDRG1 in Inhibiting Metastasis of Prostate Cancer Cells* 01/01/2007 - 12/31/2007  
PCF Prostate Cancer Foundation \$100,000 Carducci  
Role: Co-Investigator 0.6 calendar  
The main goal of this project is to determine if NDRG1 modulation by these agents can decrease invasion/metastasis of PCA.
5. *Development, Stem Cells and Cancer* ending in 03/31/2008  
GeneTech Fellowship GeneTech Fellowship Watkins  
Role: Co-Investigator 1.8 calendar

## EDUCATIONAL ACTIVITIES

### TEACHING

- |   |             |
|---|-------------|
| Human Genetics (non tenured lecturer)   | 1999        |
| Undergraduate program at the Turin College of Nursing, Italy                    |             |
| Human Genetics (non tenured lecturer)   | 2000        |
| Biotechnology Sciences Undergraduate program, Trieste School of Medicine, Italy |             |
| Computational Biology (non tenured lecturer)                                    | 2004 - 2005 |
| Biotechnology Sciences Undergraduate program, Udine School of Medicine, Italy   |             |
| Molecular Investigation Techniques  | 2004 - 2005 |
| Human Genetics Graduate School, Trieste School of Medicine, Italy               |             |

Bioinformatics **2005**  
Structural and Functional Genomics PhD Program at SISSA, Trieste, Italy

## MENTORING

### PREVIOUS STUDENTS

Co-supervisor of Nabil Bahar, Graduate candidate, **2004**  
Chemistry and Pharmaceutical Technologies Program,  
University of Trieste, Italy  
Dissertation topics: *“cDNA microarray protocols optimization”*

Co-supervisor and thesis committee member, Graduate candidate Silvia Carlino, **2003**  
Information Technology Program,  
University of Udine, Italy.  
Dissertation topics: *“MATS, an integrated database for microarray data”*

### CURRENT STUDENTS

Co-supervisor and thesis committee member, PhD candidate Silvano Piazza, **2009**  
Structural and Functional Genomics,  
SISSA/ISAS, International School for Advanced Studies, Trieste, Italy  
Project topic: *“Gene expression analysis in ovarian cancer”*

Co-supervisor and thesis committee member, PhD candidate Mady Kortenhorst, **2003**  
Molecular Pathology,  
University of Utrecht, The Netherlands .  
Dissertation topics: *“Histone deacetylase Inhibitors in prostate cancer”*

Co-supervisor and thesis committee member, PhD candidate John Poirier, **2009**  
Johns Hopkins University, School of Medicine, Baltimore, USA  
Project topic: *“Use of Viruses in Neuroendocrine Cancers Treatment”*

## EDITORIAL ACTIVITIES

Peer reviewer for Annals of Internal medicine.

Peer reviewer for Springer, *“Use R!”* Series.

## CLINICAL ACTIVITIES

### CERTIFICATION

Italian Board of Medical Doctors (01/23/2004, Trieste chapter, identification: 3753)

## ORGANIZATIONAL ACTIVITIES

### CONSULTANTSHIPS

Bekton Dickinson

02/2007 - 02-2008

Differential gene expression analysis and classification methods.

## RECOGNITION

### INVITED TALKS, PANELS

Member of the FANTOM Consortium (RIKEN Genome Science Laboratory, Yokohama Institute, Japan)

L. Marchionni. “*cDNA Microarray protocols optimisation*”. 1st Italian Workshop on DNA microarray technology. LITA, Milan, Italy, 2001

L. Marchionni. “*Gene Expression analysis by cDNA microarray in cancer research*”. Lecture for the Biology Ph.D. program, University of Udine, Italy, 2002.

L. Marchionni. “*Data sets and computational tools for transcriptional profiling*”. Genomics workshop for the SISSA Ph.D. course in Structural and Functional Genomics, Trieste, Italy, 2002.

L. Marchionni. “*Gene expression profiling analysis in cancer reveals relevant biological processes and pathways*”. 1st Advanced Course on Molecular Biology and Genetics of Cancer, University of Trieste, Italy, 2003.

Luigi Marchionni. “*The transcriptional program of the developing prostat*”. Annual Young Investigator Symposium on Genomics and Bioinformatics. Baltimore, Johns Hopkins Medical Institution. September 25, 2007.

Luigi Marchionni. “*Genomic responses to tobacco smoke: A new shared research resource. Analysis of effects on immune activation and function*”. Environmental Health Sciences Retreat - Johns Hopkins Bloomberg School of Public Health. Baltimore, January 11, 2008.