

**GIOACCHINO NATOLI, M.D.**

*Curriculum vitae*

**ORCID ID: 0000-0003-0711-2411**

**SCOPUS ID: 7006129365**

**PRESENT POSITION and ADDRESS**

Group Leader  
Department of Experimental Oncology  
European Institute of Oncology (IEO)  
Milan

**DEGREE**

Medical Doctor with honors, University of Rome, La Sapienza (24/7/1991). Thesis title: *Activation of cellular proto-oncogenes by the Hepatitis B Virus X protein and its role in the pathogenesis of hepato-cellular carcinoma.*

**EDUCATION**

1991-October 1997	Residency in Internal Medicine (1st Post-graduate School of Internal Medicine, Univ. of Rome, La Sapienza).
1985-1991	Univ. of Rome, La Sapienza, School of Medicine.

**RESEARCH TRAINING**

1998-June 2000	Post-doctoral fellow in the Laboratory of Molecular Biology and Transcriptional Regulation, Dept. of Pharmacology, UCSD (Prof. Michael Karin)
1991-1997	Graduate student in the Laboratory of Genetic Expression, Institute of I Clinica Medica, Univ. of Rome, La Sapienza (Prof. Massimo Levrero).
1986-1990	Undergraduate Student in the Institute of Histology of the Univ. of Rome La Sapienza (Prof. Michela Galdieri).

**RESEARCH AND PROFESSIONAL EXPERIENCE**

2020-present  
Group Leader, European Institute of Oncology (IEO), Milan, Italy

July 2016-2019:  
Full Professor of Biochemistry, School of Medicine, Humanitas University, Milan

September 2005-2016:  
Group Leader, European Institute of Oncology (IEO), Milan, Italy

June 2000-August 2005:  
Group Leader, Institute for Research in Biomedicine (IRB), Bellinzona, Switzerland

**CURRENT AND PAST RESEARCH TOPICS**

Control of gene expression in innate immune responses and in macrophage differentiation. Transcriptional control and chromatin biology. Molecular biology of pancreatic cancer. Signaling through receptors for bacterial components and cytokines. Viral hepatitis and hepatocellular carcinoma.

**MAIN AWARDS AND GRANTS**

2020-2022	<i>Highly cited researcher</i> in Immunology (Clarivate)
2017	<i>Elected member of the Academia Europaea</i>
2016-2021	<i>European Research Council (ERC) Advanced Grant</i>
2013	<i>Elected member of the European Molecular Biology Organization (EMBO)</i>
2011-2015	<i>European Research Council (ERC) Advanced Grant</i>
2009	<i>Chiara D'Onofrio prize</i> for Italian researchers below 43 y
2007-2010	<i>Marie Curie Excellence Grant</i> (European Commission, Framework Program 6)
2005-2008	<i>Human Frontiers Science Program (HFSP)</i> , Young Investigator Grant
2003	<i>Roche Research Foundation</i>
2002-2006	<i>Swiss Federation against Cancer</i>
2001-2005	<i>Swiss National Science Foundation</i> (2)
1998-2000	Long Term Fellowship for M.D./Ph.D. from the <i>Damon Runyon-Walter Winchell Cancer Research Fund</i>
1991	<i>Institute Pasteur-Fondazione Cenci Bolognetti Prize</i> for best graduation thesis in the field of infectious diseases.

**OTHER GRANTS**

-AIRC (Italian Association for Research on Cancer): 2005-2008; 2008-2011; 2011-2014; 2014-2017; 2017-2022; 2023- )  
 -EC H-2020: SYSCID (Systems Biology of Chronic Inflammatory diseases; 2017-2022; Consortium grant)  
 -EC FP7:  
 MODHEP (Modeling Hepatocellular Carcinoma; 2011-2015; Consortium grant)  
 ModelIN (Modeling Inflammatory responses; 2008-2011; Consortium grant)  
 -AICR (Association for International Cancer Research, now Worldwide Cancer Research UK): 2010-2012  
 -Italian Ministry of Health (Ricerca Finalizzata): 2012-2016  
 -Italian Ministry of University and Research (Fare Ricerca): 2017-2021)  
 -Cariplo Foundation: 2017-2020  
 -Fellowships to group components from: AIRC, Marie Curie-Sklodowska program, Umberto Veronesi Foundation, EMBO

**COMMISSIONS OF TRUST (SELECTED)**

-2018-2024: European Research Council (ERC) Consolidator Grants  
 -2018, 2023: Max Delbrück Center (MDC), Berlin, Scientific Evaluation of the MDC  
 -2011-2019: Italian Association for Research on Cancer (AIRC) - Scientific and Technical Committee (CTS)  
 -2013-2016: Human Frontiers Science Program (HFSP) - Fellowship Selection Committee  
 -2009-2016: Steering Committee of the Structural Genomics Consortium (SGC; Oxford, Stockholm, Toronto) – Epigenetics  
 -2010, 2017: ANR (Agence Nationale de la Recherche, France), Evaluation Committee

- 2012, 2017: Fundação para a Ciência e a Tecnologia (Portugal), Evaluation Committee
- 2009: Chair of the SAB of the GIGA-R Signal Transduction Unit (Lieges, Belgium)

### **INSTITUTIONAL ACTIVITIES**

- Member of the Executive Committee, IFOM-IEO Campus (2007-2013)
- Chairman of the Recruitment and Career Track Committee, IFOM-IEO Campus (2007-2013)
- Chairman of the Management Committee, Department of Experimental Oncology, IEO (2009-2016)
- Member of the Office of the Chairman, Department of Experimental Oncology, IEO (2013-2017)

### **INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES** (selected)

- 2023 - EMBO Workshop on enhanceropathies, Marseille, France
- 2023 - Gordon Research Conference, Pancreatic Diseases, Il Ciocco, Italy
- 2022 - EMBO Workshop on RNA 3' end formation and the regulation of eukaryotic genomes, Oxford, UK
- 2022 - Gordon Research Conference, Immunochemistry and Immunobiology, Casteldefels, Spain
- 2022 - EMBO Workshop on The Many Faces of Cancer Evolution, Rimini, Italy
- 2021 - EMBO Workshop on Enhanceropathies: understanding enhancer function to understand human disease, Santander, Spain
- 2021 - Keystone symposia, Virtual conference - Innate immunity: mechanisms and regulation
- 2020 - 14<sup>th</sup> EMBL Conference on Transcription and Chromatin, Virtual conference
- 2019 - Future of Immunology @Berlin
- 2019 - 20th Anniversary FEBS International Summer School on Immunology – Immune System: genes, receptors and regulation, Hvar, Croatia
- 2019 - Next Gen Immunology in Health and disease, Osaka, Japan
- 2019 - Keystone symposia, Transcription and RNA regulation in inflammation and immunity, Granlibakken, USA (co-organizer)
- 2018 - 47<sup>th</sup> meeting of the Japanese Society of Immunology, Fukuoka, Japan
- 2018 - Cold Spring Harbor Laboratory, Gene Expression and Signaling in the Immune System, CSH, NY, USA
- 2018 - Keystone symposia, Regulation and dysregulation of innate immunity in disease, Vancouver, Canada
- 2018 - 9<sup>th</sup> German-Israeli Cancer Research School, Grainau, Germany
- 2017 - Epigenetics and chromosomal topology in differentiation and disease, Montpellier, France
- 2017 - 50<sup>th</sup> Anniversary Meeting, Society of Leukocyte Biology (SLB), Vancouver, Canada
- 2017 - European Macrophage and Dendritic Cell Society (EMDS) Meeting, Madrid, Spain
- 2017 - Symposium on Cellular Innate Immunity, Freiburg, Germany
- 2017 - 29<sup>th</sup> Pezcoller Symposium, Trento, Italy
- 2017 - AbbVie Myeloid Forum, Chicago, USA
- 2017 - International Organization of Inflammatory Bowel Diseases (IOIBD), Stresa, Italy
- 2017 - 37th European Workshop for Rheumatology Research (EWRR), Athens, Greece
- 2017 - INSERM Workshop 'Enhancer structure and function', Bordeaux, France
- 2016 - Cancer evolution: Mechanism of vulnerability and resistance, MD Anderson Cancer Center, Houston, TX, USA
- 2016 - Radboud Summer Frontiers Symposium, Nijmegen, The Netherlands
- 2016 - Society for Leukocyte Biology (SLB), Annual Meeting, Verona, Italy
- 2016 - iCORÉ meeting, Chromatin and RNA in gene regulation, Weizmann Institute of Science, Rehovot, Israel
- 2016 - Cell Press Conference, 100 years of Phagocytes, Giardini Naxos, Italy
- 2016 - Gordon Research Conference, Immunochemistry and Immunobiology, Il Ciocco, Italy
- 2016 - Keystone Symposia, Myeloid Cells, Killarney, Ireland
- 2016 - Keystone Symposia, Enhancer Malfunction in Cancer, Santa Fe, USA
- 2015 - European Society of Gene and Cell Therapy, Helsinki, Finland
- 2015 - Chromatin Symposium 2015, Marburg, Germany
- 2015 - World Congress of Inflammation, Boston, MA
- 2015 - Innate Immune Memory Conference, Wellcome Trust Hinxton Campus, Cambridge, UK
- 2014 - 11<sup>th</sup> EMBL conference on Transcription and Chromatin, Heidelberg, Germany

- 2014 - Cold Spring Harbor Laboratory Symposium on Gene Expression and Signaling in the Immune System, Cold Spring Harbor, NY
- 2014 - Keystone Symposium on Molecular Cell Biology of Macrophages, Santa Fe, USA
- 2014 - 24<sup>th</sup> Biocity Symposium, Turku, Finland
- 2013 - IHEC (International Human Epigenome Consortium) Science Days, Berlin, Germany
- 2013 - 35<sup>th</sup> Annual Sanford-Burnham Symposium, San Diego, USA
- 2013 - Enhancer function and biology meeting, Stowers Inst., Kansas City, USA
- 2013 - Single cell genomics meeting, Weizmann Institute, Rehovot, Israel
- 2013 - 15<sup>th</sup> International Congress of Immunology, ICI, Milan, Italy
- 2013 - 10<sup>th</sup> International Conference on Innate Immunity, Kos, Greece
- 2013 - 78<sup>th</sup> Cold Spring Harbor Laboratory Symposium on Quantitative Biology – Immunity and Tolerance, Cold Spring Harbor, NY
- 2013 - European Association for the Study of Liver, Amsterdam, The Netherlands
- 2013 - Oxford Epigenetics Symposium – SGC Epysim 2013, Oxford University
- 2013 - EMBO workshop - Dr Jekyll and Mr Hyde: The Macrophage in Inflammation and Immunity, Marseille, France
- 2012 - World Epigenetics Summit, London, UK
- 2012 - 2nd Barcelona Chromatin Club - The Epigenetic Regulation of Cellular Differentiation and Tissue Regeneration, Barcelona, Spain
- 2012 - Conference on Gene Regulation: from DNA Sequence to Nuclear Structure, Athens, Greece
- 2012 - 2nd Conference of Translational Medicine on the Pathogenesis and Therapy of Immune-Mediated Diseases Milan, Italy
- 2012 - Royal Society discussion meeting - Regulation from a distance: long-range control of gene expression in development and disease, London, UK
- 2012 - Training the Innate Immunity – Summer Frontiers Symposium, Nijmegen University, The Netherlands
- 2012 - European Macrophage and Dendritic Cell Society (EMDS) Annual meeting, Debrecen, Hungary
- 2011 - 12th International Conference on Systems Biology (ICSB) – Heidelberg, Germany
- 2011 - Cincinnati Cancer Symposium Series - Symposium on NF- $\kappa$ B, Cancer, Obesity, and Inflammation, Cincinnati, OH, USA
- 2010 - European Macrophage and Dendritic Cell Society, Edinburgh, Scotland
- 2010 - 10<sup>th</sup> Advanced Meeting on Cancer Omics, Italy
- 2010 - Harvard School of Public Health - Symposium Epigenetic Regulation in Health and Disease, Boston, MA, USA
- 2010 - Keystone Symposium (Santa Fé, USA) - NF-kappaB in Inflammation and Disease
- 2009 - Immunoepigenetics Symposium, Rockefeller University, New York, USA
- 2009 - Epigenetic Mechanisms in Health and disease, Toronto, Canada
- 2009 - EMBO conference - Tackling and Imaging the complexity of the Immune system, Italy
- 2009 - Nijmegen Medical Center - Symposium Epigenetics and disease, Nijmegen, The Netherlands
- 2008 - Oxford University - Epigenetic Mechanisms in Health and Disease: From Biology to Medicine, Oxford, UK
- 2008 - NIH Roadmap initiative to the Epigenome - NIDDK meeting on Dynamic Epigenome and Homeostatic Regulations in health and disease, Bethesda, USA
- 2008 - EMBO workshop - NF-kB network in development and disease, Capri, Italy
- 2008 - ICT-BIO – EC meeting on Computer modelling and simulation for improving human health Bruxelles, Belgium
- 2008 - Helmholtz Zentrum - Workshop Mouse models for functional genomics in Immunology", Braunschweig, Germany
- 2008 - Biophysical Society Meeting, Long Beach, USA
- 2008 - Keystone Symposium (Banff, Canada) - NF-kappaB in Inflammation and Disease 2006 - Society for Leukocyte Biology, San Antonio, Tx, USA
- 2006 - FEBS Congress, Istanbul, Turkey
- 2004 - Keystone Symposium (Snowbird, USA) - NF-kB from bench to bedside
- 2003 - Keystone Symposium (Keystone resort, USA) - Dendritic cells
- 2002 - German Society for Immunology, Marburg, Germany
- 2002 - ENII (European Network of Immunological Institutes) meeting, Iles des Embiez, France
- 2002 - Juan March Foundation workshop on NF-kB, Madrid, Spain

**SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

2000 – 2005    3 Postdocs / 1 PhD student / 1 Master Student  
                  Institute for Research in Biomedicine (IRB), Bellinzona, Switzerland  
2005 – 2021    32 Postdocs / 18 PhD students / 7 Master students  
                  European Institute of Oncology (IEO) and Hunimed, Milan

Former students and postdocs (selected):

- Luca Giorgetti (PhD 2006-2010 at IEO; now PI at FMI, Basel, Switzerland. ERC starting grant and SNSF consolidator grant winner; EMBO Young Investigator and EMBO member)
- Ivan Marazzi (PhD 2003-2005 at IRB; now PI at Mount Sinai, New York, USA)
- Renato Ostuni (postdoc 2011-2015 at IEO; now PI at DIBIT, San Raffaele Clinical Research Hospital, Milan. ERC starting and ERC consolidator grant winner)
- Francesca De Santa (postdoc 2005-2010 at IEO; now PI, National Research Council, CNR, Rome, Italy)
- Simona Sacconi (postdoc 2000-2005 at IRB; now PI at the Institute for Research on Cancer, IRCAN, Nice, France)
- Iros Barozzi (PhD 2009-2014 at IEO; postdoc at Lawrence Berkeley National Laboratory, Berkeley, USA; Research Fellow at the Imperial College, London; now PI at Vienna University, Austria)
- Betsabeh Khoramian Tusi: PhD student 2007-2011; postdoc at Harvard Medical School; now Senior Scientist at Rubius Therapeutics, Boston, MA.
- Liv M. Austenaa: postdoctoral fellow and staff scientist, 2008-2020; now Senior Scientist at Eleven Therapeutics, Cambridge, UK.
- Marta Milan: PhD student 2017-2021; now postdoc at the Crick Institute, London, UK.

**SELECTED PUBLICATIONS**

An integrative epigenome-based strategy for unbiased functional profiling of clinical kinase inhibitors. (Gualdrini F, Rizzieri S, Polletti S, Pileri F, Zhan Y, Cuomo A, [Natoli G.](#))

**Molecular Systems Biology** 2024 May 9. doi: 10.1038/s44320-024-00040-x. Epub ahead of print. PMID: 38724853.

Activation of endogenous retroviruses and induction of viral mimicry by MEK1/2 inhibition in pancreatic cancer (Cortesi A, Gandolfi F, Arco F, Di Chiaro P, Valli E, Polletti S, Noberini R, Gualdrini F, Attanasio S, Citron F, Ho IL, Shah R, Yen EY, Spinella MC, Ronzoni S, Rodighiero S, Mitro N, Bonaldi T, Ghisletti S, Monticelli S, Viale A, Diaferia GR, [Natoli G.](#))

**Science Advances**. 2024 Mar 29;10(13):eadk5386. doi: 10.1126/sciadv.adk5386. Epub 2024 Mar 27. PMID: 38536927

Mapping functional to morphological variation reveals the basis of regional extracellular matrix subversion and nerve invasion in pancreatic cancer (Di Chiaro P, Nacci L, Arco F, Brandini S, Polletti S, Palamidessi A, Donati B, Soriani C, Gualdrini F, Frigè G, Mazzarella L, Ciarrocchi A, Zerbi A, Spaggiari P, Scita G, Rodighiero S, Barozzi I, Diaferia GR, [Natoli G.](#))

**Cancer Cell**. 2024 Apr 8;42(4):662-681.e10. doi: 10.1016/j.ccell.2024.02.017. Epub 2024 Mar 21. PMID: 38518775

Acetyl-CoA production by Mediator-bound 2-ketoacid dehydrogenases boosts de novo histone acetylation and is regulated by nitric oxide (Russo M., Gualdrini F., Prosperini E., Noberini R., Pedretti S., Vallelonga V., Di Chiaro P., Polletti S., Ghirardi C., Bedin F., Cuomo A., Rodighiero S., Bonaldi T., Mitro N., Ghisletti S., [Natoli G.](#))

**Molecular Cell** Mar 7;84(5):967-980.e10. doi: 10.1016/j.molcel.2023.12.033. Epub 2024 Jan 18. PMID: 38242130

Cancer evolution: a multifaceted affair (Ciriello G., Magnani L., Aitken S., Akkari L., Behjati S., Hanahan D., Landau D., López-Bigas N., Lupiáñez D., Marine J.C., Martin-Villalba A., [Natoli G.](#), Obenaus A., Oricchio E., Scaffidi P., Sottoriva A, Swarbrick A, Tonon G., Vanharanta S., and Zuber J.)

**Cancer Discovery** Dec 6:OF1-OF13. doi: 10.1158/2159-8290.CD-23-0530 (Online ahead of print) PMID: 38047596

Restrictor synergizes with Symplekin and PNUTS to terminate extragenic transcription (Russo M., Piccolo V., Polizzese D., Prosperini E., Borriero C., Polletti S., Bedin F., Marena M., Michieletto D., Mandana G.M., Rodighiero S., Cuomo A., [Natoli G.](#))

**Genes & Development** Dec 26, 37(21-24):1017-1040. doi: 10.1101/gad.351057.123 (Online ahead of print). PMID: 38092518 (2023)

Interferon regulatory factor 1 (IRF1) controls the metabolic programmes of low-grade pancreatic cancer cells. (Alfarano G, Audano M, Di Chiaro P, Balestrieri C, Milan M, Polletti S, Spaggiari P, Zerbi A, Diaferia GR, Mitro N, [Natoli G.](#))

**Gut**. 2023 Jan;72(1):109-128. doi: 10.1136/gutjnl-2021-325811. Epub 2022 May 13. PMID: 35568393.

Current challenges in understanding the role of enhancers in disease (Zaugg J., Sahlen P., Andersson R., Alberich-Jorda M., de Laat W., Deplancke B., Ferrer J., Mandrup S., [Natoli G.](#), Plewczynski D., Rada-Iglesias A., Spicuglia S.)

**Nature Structural and Molecular Biology**, 29(12):1148-1158. doi: 10.1038/s41594-022-00896-3. Epub 2022 Dec 8. <https://doi.org/10.1038/s41594-022-00896-3>. PMID: 36482255 (2022)

Clonal hematopoiesis, inflammation, and cardiovascular disorders: a mitochondrial connection (Pileri F, [Natoli G.](#))

**Trends Immunol**. Sep;43(9):693-695. doi: 10.1016/j.it.2022.07.009. PMID: 35945112 (2022)

H3K9 trimethylation in active chromatin restricts the usage of functional CTCF sites in SINE B2 repeats (Gualdrini F, Polletti S, Simonatto M, Prosperini E, Pileri F, [Natoli G.](#))

**Genes & Development** Apr 1;36(7-8):414-432. doi: 10.1101/gad.349282.121. PMID: 35361678 (2022)

RFX transcription factors control a miR-150/PDAP1 axis that restrains the proliferation of human T cells. (Chirichella M, Bianchi N, Džafro E, Foli E, Gualdrini F, Kenyon A, [Natoli G.](#), Monticelli S.)

**PLoS Biol**. Feb 10;20(2):e3001538. doi: 10.1371/journal.pbio.3001538. PMID: 35143476 (2022)

Epithelial memory of inflammation limits tissue damage while promoting pancreatic tumorigenesis. (Del Poggetto E, Ho IL, Balestrieri C, Yen EY, Zhang S, Citron F, Shah R, Corti D, Diaferia GR, Li CY, Loponte

S, Carbone F, Hayakawa Y, Valenti G, Jiang S, Sapio L, Jiang H, Dey P, Gao S, Deem AK, Rose-John S, Yao W, Ying H, Rhim AD, Genovese G, Heffernan TP, Maitra A, Wang TC, Wang L, Draetta GF, Carugo A, [Natoli G](#), Viale A)  
**Science** Sep 17;373(6561):eabj0486. doi: 10.1126/science.abj0486. PMID: 34529467 (2021)

Integration of transcriptional and metabolic control in macrophage activation ([Natoli G](#), Pileri F, Gualdrini F, Ghisletti S.)  
**EMBO Rep.** Sep 6;22(9):e53251. doi: 10.15252/embr.202153251 PMID: 34328708 (2021)

ADP-ribosyltransferases, an update on function and nomenclature (Lüscher B, Ahel I, Altmeyer M, Ashworth A, Bai P, Chang P, Cohen M, Corda D, Dantzer F, Daugherty MD, Dawson TM, Dawson VL, Deindl S, Fehr AR, Feijs KLH, Filippov DV, Gagné JP, Grimaldi G, Guettler S, Hoch NC, Hottiger MO, Korn P, Kraus WL, Ladurner A, Lehtiö L, Leung AKL, Lord CJ, Mangerich A, Matic I, Matthews J, Moldovan GL, Moss J, [Natoli G](#), Nielsen ML, Niepel M, Nolte F, Pascal J, Paschal BM, Pawłowski K, Poirier GG, Smith S, Timinszky G, Wang ZQ, Yélamos J, Yu X, Zaja R, Ziegler M)  
**FEBS J.** Jul 29. doi: 10.1111/febs.16142. Epub ahead of print. PMID: 34323016 (2021)

Induction of OCT2 contributes to regulate the gene expression program in human neutrophils activated via TLR8. (Tamassia N, Bianchetto-Aguilera F, Gasperini S, Polletti S, Gardiman E, Ostuni R, [Natoli G](#), Cassatella MA)  
**Cell Reports** May 18;35(7):109143. doi: 10.1016/j.celrep.2021.109143. PMID: 34010659 (2021)

Tumor cell heterogeneity and its transcriptional bases in pancreatic cancer: a tale of two cell types and their many variants (M. Milan, G.R. Diaferia, [G. Natoli](#))  
**The EMBO Journal** Apr 12:e107206. Jul 1;40(13):e107206. doi: 10.15252/embj.2020107206 (2021)

A first exon termination checkpoint preferentially suppresses extragenic transcription (L. Austenaa, V. Piccolo, M. Russo, E. Prosperini, S. Polletti, D. Polizzese, S. Ghisletti, I. Barozzi, G.R. Diaferia, [G. Natoli](#))  
**Nature Structural and Molecular Biology** 28(4):337-346. PMID: 33767452 (2021).

Pancreatic cancer cells require the transcription factor MYRF (Myelin Regulatory Factor) to maintain ER homeostasis (M. Milan, C. Balestrieri, G. Alfarano, S. Polletti, E. Prosperini, P. Nicoli, P. Spaggiari, A. Zerbi, G.R. Diaferia, [G. Natoli](#))  
**Developmental Cell** 55(4):398-412. PMID: 32997974 (2020).

A molecular network regulating the proinflammatory phenotype of human memory T lymphocytes (Emming S, Bianchi N, Polletti S, Balestrieri C, Leoni C, Montagner S, Chirichella M, Delaleu N, [Natoli G](#), Monticelli S.)  
**Nature Immunology.** 4:388-399. PMID: 32205878 (2020)

Tumor-derived prostaglandin E2 promotes p50 NF- $\kappa$ B-dependent differentiation of monocytic MDSC (Porta C, Consonni FM, Morlacchi S, Sangaletti S, Bleve A, Totaro MG, Larghi P, Rimoldi M, Tripodo C, Strauss L, Banfi S, Storto M, Pressiani T, Rimassa L, Tartari S, Ippolito A, Doni A, Soldà G, Duga S, Piccolo V, Ostuni R, [Natoli G](#), Bronte V, Balzac F, Turco E, Hirsch E, Colombo MP, Sica A.)  
**Cancer Research** 80(13):2874-2888. PMID: 32265223 (2020)

FOXA2 controls the cis-regulatory networks of pancreatic cancer cells in a differentiation grade-specific manner (Milan M., Balestrieri C., Alfarano G., Polletti S., Prosperini E., Spaggiari P., Zerbi A., Diaferia G., [Natoli G.](#))  
**The EMBO Journal** 38(20):e102161 (2019).

Transcriptional repressors as guardians of tissue macrophage identity (Gualdrini F, [Natoli G.](#))  
**The EMBO Journal** 38(19):e103271. PMID: 31529710 (2019)

Dissection of acute stimulus-induced nucleosome remodeling in mammalian cells (Comoglio F., Simonatto M., Polletti S., Liu X., Smale S.T., Barozzi I., [Natoli G.](#))  
**Genes & Development** 33: 1159-1174. PMID: 31371436 (2019)

Adaptation and memory in immune responses ([Natoli G.](#) and Ostuni R.) **Nature Immunology** Jul;20(7):783-792. PMID: 31213714 (2019)

Big data in IBD: a look into the future (Olivera P., Danese S, Jay N., [Natoli G.](#), Peyrin-Biroulet L.)  
**Nature Reviews Gastroenterol. Hepatol.** 16(5):312-321. PMID: 30659247 (2019)

Control of inducible gene expression links cohesin to hematopoietic progenitor self-renewal and differentiation (Cuartero S, Weiss FD, Dharmalingam G, Guo Y, Ing-Simmons E, Masella S, Robles-Rebollo I, Xiao X,

Wang YF, Barozzi I, Djegloul D, Amano MT, Niskanen H, Petretto E, Dowell RD, Tachibana K, Kaikkonen MU, Nasmyth KA, Lenhard B, [Natoli G](#), Fisher AG, Merckenschlager M.). **Nature Immunology** 19, 932-941. PMID: 30127433 (2018).

Cooptation of tandem DNA repeats for the maintenance of mesenchymal identity (C. Balestrieri, G. Alfarano, M. Milan, V. Tosi, E. Prosperini, P. Nicoli, A. Palamidessi, G. Scita, G.R. Diaferia, [G. Natoli](#)). **Cell** 173:1150-1164. PMID: 29706544 (2018).

Sustained activation of detoxification pathways promotes liver carcinogenesis in response to chronic bile acid-mediated damage (Collino A, Termanini A, Nicoli P, Diaferia G, Polletti S, Recordati C, Castiglioni V, Caruso D, Mitro N, [Natoli G](#), Ghisletti S.) **PLoS Genetics**. 2018, 7;14(5):e1007380. PMID: 29734330 (2018).

PARP14 Controls the Nuclear Accumulation of a Subset of Type I IFN-Inducible Proteins (Caprara G, Prosperini E, Piccolo V, Sigismondo G, Melacarne A, Cuomo A, Boothby M, Rescigno M, Bonaldi T, [Natoli G](#)). **Journal of Immunology** 200, 2439-2454. PMID 29500242 (2018)

Transcriptional determination and functional specificity of myeloid cells: making sense of diversity (Monticelli S., [Natoli G](#)) **Nature Reviews Immunology** 17, 595-607 (2017)

Understanding spontaneous conversion: the case of the Ly6C<sup>-</sup> monocyte (Polletti S. and [Natoli G](#)). **Immunity** 46, 746-766. PMID 28514680 (2017)

Opposing macrophage polarization programs show extensive epigenomic and transcriptional cross-talk (Piccolo V., Curina A, Genua M, Ghisletti S, Simonatto M, Sabo' M, Amati B, Ostuni R, [Natoli G](#)). **Nature Immunology** 18, 530-540. PMID 28288101 (2017).

High constitutive activity of a broad panel of housekeeping and tissue-specific cis-regulatory elements depends on a subset of ETS proteins (Curina A, Termanini A, Barozzi I, Prosperini E, Simonatto M, Polletti S, Silvola A, Soldi M, Austenaa L, Bonaldi T, Ghisletti S, [Natoli G](#)) **Genes & Development** 31,399-412. PMID 28275002. (2017).

A shortcut for early macrophage recruitment into tumors by activated oncogenes (Austenaa L, [Natoli G](#)) **Genes & Development** 31, 223-225; doi: 10.1101/gad.296905.117. Review. PMID 28270513. (2017).

Mutual epithelium-macrophage dependency in liver carcinogenesis mediated by ST18 (Ravà M, D'Andrea A, Doni M, Kress TR, Ostuni R, Bianchi V, Morelli MJ, Collino A, Ghisletti S, Nicoli P, Recordati C, Iascione M, Sonzogni A, D'Antiga L, Shukla R, Faulkner GJ, [Natoli G](#), Campaner S, Amati B.). **Hepatology** Nov 14 [Epub ahead of print] PMID 27859418. (2016).

Specificity and Function of IRF Family Transcription Factors: Insights from Genomics (Mancino A, [Natoli G](#)) **J Interferon Cytokine Res**. 36:462-9. PMID 27379868. (2016)

In Vivo Genetic Screens of Patient-Derived Tumors Revealed Unexpected Frailty of the Transformed Phenotype (Bossi D, Cicalese A, Dellino GI, Luzi L, Riva L, D'Alesio C, Diaferia GR, Carugo A, Cavallaro E, Piccioni R, Barberis M, Mazzarol G, Testori A, Punzi S, Pallavicini I, Tosti G, Giacó L, Melloni G, Heffernan TP, [Natoli G](#), Draetta GF, Minucci S, Pelicci P, Lanfrancone L.) **Cancer Discovery** Jun;6(6):650-63. PMID: 27179036. (2016)

TET2 Regulates Mast Cell Differentiation and Proliferation through Catalytic and Non-catalytic Activities (Montagner S, Leoni C, Emming S, Della Chiara G, Balestrieri C, Barozzi I, Piccolo V, Togher S, Ko M, Rao A, [Natoli G](#), Monticelli S). **Cell Reports**, 15, 1566-79. PMID: 27160912. (2016)

Epigenetic regulation of neutrophil development and function (Ostuni R, [Natoli G](#), Cassatella MA, Tamassia N) **Seminars in Immunology** 28:83-93. PMID: 27084194. (2016)

Trained immunity: a program of innate immune memory in health and disease (M.G. Netea, L.A.B. Joosten, E. Latz, K.H.G. Mills, [G. Natoli](#), H. Stunnenberg, L.A.J O'Neill, R.J. Xavier) **Science** 352(6284):aaf1098. PMID: 27102489. (2016)

From the beauty of genomic landscapes to the strength of transcriptional mechanisms ([G. Natoli](#)) **Cell** (165, 18-18. PMID: 27015303. (2016).



Dissection of transcriptional and *cis*-regulatory control of differentiation in human pancreatic cancer (G. Diaferia, C. Balestrieri, E. Prosperini, P. Nicoli, P. Spaggiari, A. Zerbi, [G. Natoli](#)). **The EMBO Journal** 35, 596-617 PMID: 26769127 (2016).

Molecular control of macrophage activation and priming (C.K. Glass and [G. Natoli](#)) **Nature Immunology** 17, 26-33. PMID: 26681459. (2016)

CAGE profiling of ncRNAs in hepatocellular carcinoma reveals widespread activation of retroviral LTR promoters in virus-induced tumors. (Hashimoto K, Suzuki AM, Dos Santos A, Desterke C, Collino A, Ghisletti S, Braun E, Bonetti A, Fort A, Qin XY, Radaelli E, Kaczkowski B, Forrest AR, Kojima S, Samuel D, [Natoli G](#), Buendia MA, Faivre J, Carninci P.) **Genome Research** 25:1812-24. PMID: 26510915. (2015)

Transcription of mammalian *cis*-regulatory elements is restrained by actively enforced early termination (L. M.I. Austenaa, I. Barozzi, M. Simonatto, S. Masella, G. Della Chiara, S. Ghisletti, A. Curina, E. de Wit, B.A.M. Bouwman, S. de Pretis, V. Piccolo, A. Termanini, E. Prosperini, M. Pelizzola, W. de Laat, and [G. Natoli](#)). **Molecular Cell** 60, 460-474. PMID: 26593720. (2015).

Macrophages and cancer: from mechanisms to therapeutic implications (R. Ostuni, F. Kratochvill, P.J. Murray, [G. Natoli](#)) **Trends in Immunology** 36, 229-239. PMID: 25770924. (2015).

A dual *cis*-regulatory code links IRF8 to constitutive and inducible gene expression in macrophages (A. Mancino, A. Termanini, I. Barozzi, S. Ghisletti, R. Ostuni, E. Prosperini, K. Ozato, [G. Natoli](#)) **Genes & Development** 29, 394-408. PMID: 25637355. (2015).

Chromatin remodelling and autocrine TNF $\alpha$  are required for optimal interleukin-6 expression in activated human neutrophils. (Zimmermann M, Aguilera FB, Castellucci M, Rossato M, Costa S, Lunardi C, Ostuni R, Girolomoni [G. Natoli G](#), Bazzoni F, Tamassia N, Cassatella MA.) **Nature Commun.** 2015 6:6061. PMID: 25616107. (2015).

Co-regulation of transcription factor binding and nucleosome occupancy through DNA features of mammalian enhancers (I. Barozzi, M. Simonatto, S. Bonifacio, L. Yang, R. Rohs, S. Ghisletti, [G. Natoli](#)) **Molecular Cell** 54, 844-857. PMID: 24813947. (2014).

Transcriptional control of inflammatory responses (S.T. Smale, [G. Natoli](#)) **Cold Spring Harb Perspect Biol.** 6(11):a016261. PMID: 25213094. (2014).

Macrophage activation: glancing into diversity ([G. Natoli](#), S. Monticelli) **Immunity** 40:175-7. PMID: 24560195. (2014).

Two functionally distinct subsets of mast cells discriminated by IL-2-independent CD25 activities (Deho' L, Leoni C, Brodie TM, Montagner S, De Simone M, Polletti S, Barozzi I, [Natoli G](#), Monticelli S.) **J Immunol.** 193:2196-206. PMID: 25063866. (2014)

Macrophage activation and polarization: nomenclature and experimental guidelines (Murray PJ, Allen JE, Biswas SK, Fisher EA, Gilroy DW, Goerdts S, Gordon S, Hamilton JA, Ivashkiv LB, Lawrence T, Locati M, Mantovani A, Martinez FO, Mege JL, Mosser DM, [Natoli G.](#), Saeij JP, Schultze JL, Shirey KA, Sica A, Suttles J, Udalova I, van Ginderachter JA, Vogel SN, Wynn TA.) **Immunity** 41:14-20. PMID: 25035950. (2014).

Chromatin contribution to the regulation of innate immunity (S. Smale, A. Tharakovsky, [G. Natoli](#)) **Annual Review of Immunology** 32: 489-511. PMID: 24555473 (2014).

Massive gene amplification drives paediatric hepatocellular carcinoma caused by bile salt export pump deficiency (Iannelli F, Collino A, Sinha S, Radaelli E, Nicoli P, D'Antiga L, Sonzogni A, Faivre J, Buendia MA, Sturm E, Thompson RJ, Knisely AS, [Natoli G](#), Ghisletti S, Ciccarelli FD.) **Nature Comm.** 5:3850-3856 PMID: 24819516. (2014).

Lineages, cell types and functional states: a genomic view (R. Ostuni and [G. Natoli](#)) **Curr. Opin. Cell. Biol.** 25(6):759-64. PMID: 23906851. (2013).

Short term memory of danger signals and environmental stimuli in immune cells. (S. Monticelli and G. Natoli).

**Nature Immunol.** 14, 777-784. PMID: 23867934. (2013).

Non-coding transcription at cis-regulatory elements: computational and experimental approaches (Simonatto M, Barozzi I, Natoli G).

**Methods** 63:66-75. (2013).

Cutting edge: An inactive chromatin configuration at the IL-10 locus in human neutrophils (Tamassia N, Zimmermann M, Castellucci M, Ostuni R, Bruderek K, Schilling B, Brandau S, Bazzoni F, Natoli G, Cassatella MA.)

**J Immunol.** 190:1921-5 (2013).

Endogenous retrotransposition activates oncogenic pathways in hepatocellular carcinoma (Shukla R, Upton K, Muñoz-Lopez M, Gerhardt D, Fisher M, Nguyen T, Brennan T, Baillie T, Collino A, Ghisletti S, Sinha S, Iannelli F, Radaelli F, Dos Santos A, Rapoud D, Guettier C, Samuel D, Natoli G, Carninci P, Ciccarelli F, Garcia-Perez JC, Faivre J, Faulkner G.)

**Cell** 153:101-11 (2013)

Latent enhancers activated by stimulation in differentiated cells (Ostuni R, Piccolo V, Barozzi I, Polletti S, Termanini A, Bonifacio S, Curina A, Prosperini E, Ghisletti S, Natoli G.)

**Cell.** 152: 157-71. PMID: 23332752 (2013).

The H3K27 Demethylase JMJD3 Is Required for Maintenance of the Embryonic Respiratory Neuronal Network, Neonatal Breathing, and Survival (Burgold T, Voituren N, Caganova M, Tripathi PP, Menuet C, Tusi BK, Spreafico F, Bvengut M, Gestreau C, Buontempo S, Simeone A, Kruidenier L, Natoli G, Casola S, Hilaire G, Testa G.)

**Cell Reports** 2:1244-58 (2012).

Requirement for the histone deacetylase HDAC3 for the inflammatory gene expression program (X. Chen, I. Barozzi, A. Termanini, E. Prosperini, A. Recchiuti, J. Dalli, F. Mietton, G. Matteoli, S. Hiebert, G. Natoli)

**Proc Natl Acad Sci USA** 109:E2865-74 (2012)

Noncoding transcription at enhancers: general principles and functional models (G. Natoli and J.C. Andrau)

**Annual Review of Genetics** 46:1-19. PMID: 22905871 (2012).

Transcript dynamics of pro-inflammatory genes uncovered by RNA-Seq analysis of subcellular RNA fractions. (D.M. Bhatt, A. Pandya-Jones, A.J. Tong, I. Barozzi, M. Lissner, G. Natoli, Black D.L., Smale S.T.)

**Cell** 150, 279-290 (2012).

The histone methyltransferase Mll4 controls macrophage function through glycosylphosphatidylinositol anchor synthesis (L. Austenaa, I. Barozzi, A. Chronowska, A. Termanini, R. Ostuni, E. Prosperini, A. F. Stewart, G. Testa, G. Natoli)

**Immunity** 36, 572-585 (2012).

NF- $\kappa$ B and chromatin: ten years on the path from basic mechanisms to candidate drugs. (G. Natoli)

**Immunological Reviews** 246, 183-192 (2012).

Transcriptional control of macrophage polarization: enabling diversity with identity (T. Lawrence, G. Natoli)

**Nature Reviews Immunology** 11, 750-761. PMID: 22025054 (2011).

Fish the ChIPs: a pipeline for automated genomic annotation of ChIP-Seq data (I. Barozzi, A. Termanini, S. Minucci, G. Natoli)

**Biology Direct** 6:51 (2011).

Transcriptional control of macrophage diversity and specialization (R. Ostuni and G. Natoli).

**Eur. J. Immunol.** 41, 2486-90 (2011).

The genomic landscapes of inflammation (G. Natoli, S. Ghisletti, I. Barozzi)

**Genes & Development** 25, 101-106 (2011).

Specialized Chromatin Patterns in the Control of Inflammatory Gene Expression (G. Natoli)

**Curr Top Microbiol Immunol.** 2010 Sep 21. [Epub ahead of print]

Maintaining cell identity through global control of genomic organization (G. Natoli).

**Immunity** 23:12-24. PMID: 20643336 (2010).

A large fraction of extragenic RNA Pol II transcription sites overlap enhancers (F. De Santa, I. Barozzi, F. Mietton, S. Ghisletti, S. Polletti, BK Tusi, H. Muller, J. Ragoussis, CL Wei, [G. Natoli](#))  
**PLoS Biology** 8(5): e1000384. doi:10.1371/journal.pbio.1000384 (2010).

Identification and characterization of enhancers controlling the inflammatory gene expression program in macrophages (S. Ghisletti, I. Barozzi, F. Mietton, S. Polletti, F. De Santa, E. Venturini, L. Gregory, L. Lonie, A. Chew, C.L. Wei, J. Ragoussis, [G. Natoli](#))  
**Immunity**, 32:317-28. Epub 2010 Mar 4 (2010).

Non-cooperative interactions between transcription factors and clustered DNA binding sites enable graded transcriptional responses to environmental inputs (L. Giorgetti, T. Siggers, G. Tian, G. Caprara, S. Notarbartolo, T. Corona, M. Pasparakis, P. Milani, M. L. Bulyk, [G. Natoli](#)).  
**Molecular Cell** 37, 418-428 (2010)

Jmjd3 contributes to the control of gene expression in LPS-activated macrophages (F. De Santa, V. Narang, Z. H. Yap, B. Khoramian Tusi, T. Burgold, L. Austenaa, G. Bucci, M. Caganova, S. Notarbartolo, S. Casola, G. Testa, WK. Sung, CL. Wei, and [G. Natoli](#)).  
**The EMBO J.** 28, 3341-52 (2009).

Control of NF-kappaB-dependent Transcriptional Responses by Chromatin Organization (G. Natoli).  
**Cold Spring Harbor Perspect Biol.** Oct;1(4):a000224. (2009)

The future therapeutic potential of histone demethylase inhibitors: a critical analysis. ([G. Natoli](#), G. Testa, F. De Santa).  
**Curr. Opin. Drug. Devel. & Discov.** 12, 607-615 (2009).

Tolerance and M2 (alternative) macrophage polarization are related processes orchestrated by p50 nuclear factor {kappa}B. (Porta C, Rimoldi M, Raes G, Brys L, Ghezzi P, Di Liberto D, Dieli F, Ghisletti S, [Natoli G](#), De Baetselier P, Mantovani A, Sica A.).  
**Proc Natl Acad Sci USA** 106:14978-83. Epub 2009 Aug 17 (2009).

Chromatin-mediated control of gene expression in innate immunity and inflammation ([G. Natoli](#)).  
**Handbook of Cell Signalling 2<sup>nd</sup> edition.** (Bradshaw and Dennis eds., Academic Press) pp. 2461-2466 (2009).

Genome-Organizing Factors Top2 and Hmo1 Prevent Chromosome Fragility at Sites of S phase Transcription (R. Bermejo, T. Capra, V. Gonzalez-Huici, D. Fachinetti, A. Cocito, [G. Natoli](#), Y. Katou, H. Mori, K. Kurokawa, K. Shirahige and M. Foiani)  
**Cell** 138, 870-884 (2009).

Two modes of transcriptional activation at native promoters by NF-kappaB p65 (van Essen D, B. Engist, [G. Natoli](#), Saccani S)  
**PLoS Biol.** 7(3):e73 (2009).

When sirtuins and NF-kB collide ([G. Natoli](#))  
**Cell** 136, 19-21 (2009).

A birthday gift for TRADD. ([G. Natoli](#) and L. Austenaa).  
**Nature Immunol.** 9, 1015-6 (2008).

Burgold T, Spreafico F, De Santa F, Totaro MG, Prosperini E, [Natoli G](#), Testa G. The histone H3 lysine 27-specific demethylase Jmjd3 is required for neural commitment.  
**PLoS ONE.** 2008 Aug 21;3(8):e3034.

Nuclear ubiquitin ligases, NF-kB degradation and the control of inflammation ([G. Natoli](#) and S. Chiocca).  
**Science Signaling**, January 8, pe1 (2008).

The histone H3 lysine 27 demethylase Jmjd3 links inflammation to inhibition of polycomb-mediated gene silencing (F. De Santa, M.G. Totaro, E. Prosperini, S. Notarbartolo, G. Testa and [G. Natoli](#)).  
**Cell** 130, 1083-1094 (2007).

Natoli G. Tuning up inflammation: how DNA sequence and chromatin organization control the induction of inflammatory genes by NF-kappaB.  
**FEBS Lett.** 580:2843-9 (2006).

A hyper-dynamic equilibrium between promoter-bound and nucleoplasmic dimers controls NF- $\kappa$ B-dependent gene activity (D. Bosisio, I. Marazzi, A. Agresti, N. Shimizu, M.E. Bianchi and G. Natoli).  
**The EMBO J.** 25, 798-810 (2006).

Transcriptional regulation via the NF- $\kappa$ B signaling module (Hoffmann A, Natoli G, Ghosh G)  
**Oncogene.** 30, 6706-16 (2006).

A c-Rel subdomain responsible for enhanced DNA-binding activity and selective gene activation (S. Sanjabi, K.J. Williams, S. Saccani, L. Zhou, A. Hoffmann, G. Ghosh, S. Gerondakis, D. Baltimore, G. Natoli and S.T. Smale)  
**Genes & Development** 19, 2138-2151 (2005).

Interactions of NF- $\kappa$ B with chromatin: the art of being at the right place at the right time (G. Natoli, S. Saccani, D. Bosisio, I. Marazzi).  
**Nature Immunol.** 6, 439-445 (2005).

Arginine methyltransferase CARM1 is a promoter-specific regulator of NF- $\kappa$ B-dependent gene expression (M. Covic, P.O. Hassa, S. Saccani, C. Buerki, N.I. Meier, C. Lombardi, R. Imhof, M.T. Bedford, G. Natoli, M.O. Hottiger).  
**The EMBO J.** 24, 85-96 (2005).

Little things that count in transcriptional regulation (G. Natoli)  
**Cell** 118, 406-408 (2004).

Degradation of promoter-bound p65/RelA is essential for the prompt termination of the NF- $\kappa$ B response (S. Saccani, I. Marazzi, G. Natoli)  
**J. Exp. Med.** 200, 107-113 (2004)

Modulation of NF- $\kappa$ B activity by exchange of dimers (S. Saccani, S. Pantano, G. Natoli)  
**Molecular Cell** 11, 1563-1574 (2003).

Memory and flexibility of cytokine gene expression as separable properties of human Th1 and Th2 lymphocytes (M. Messi, I. Giachetto, K. Nagata, A. Lanzavecchia, G. Natoli and F. Sallusto).  
**Nature Immunol.** 4, 78-86 (2003).

Dynamic changes in histone H3-Lys9 methylation occurring at tightly regulated inducible inflammatory genes (S. Saccani and G. Natoli).  
**Genes & Development** 16, 2219-2214 (2002).

p38-dependent marking of inflammatory genes for increased Nuclear Factor kappa B recruitment (S. Saccani, S. Pantano, G. Natoli).  
**Nature Immunol.** 3, 69-75 (2002).

Two waves of Nuclear Factor kappa B recruitment to target promoters. (S. Saccani, S. Pantano, G. Natoli).  
**J. Exp. Med.** 193, 1351-1359 (2001).

Anti-inflammatory cyclopentenons prostaglandins are direct inhibitors of I $\kappa$ B kinase (IKK) (A. Rossi\*, P. Kapahi\*, G. Natoli\*, T. Takahashi, Y. Chen, M. Karin\*, G. Santoro\*)  
**Nature** 403, 103-108 (2000) \* *equal contributors*

IKK gamma is an essential regulatory subunit of the I $\kappa$ B kinase complex (D. Rothwarf, E. Zandi, G. Natoli, M. Karin)  
**Nature** 395, 297-300 (1998).

The human Toll signaling pathway: divergence of nuclear factor kappaB and JNK/SAPK activation upstream of tumor necrosis factor receptor-associated factor 6 (TRAF6) (M. Muzio, G. Natoli, S. Saccani, M. Levrero, A. Mantovani).  
**J. Exp. Med.** 187, 2097-2101 (1998).

Activation of SAPK/JNK by TNF-Receptor 1 through a non-cytotoxic TRAF2-dependent pathway (G. Natoli, A. Costanzo, A. Ianni, D.J. Templeton, J.R. Woodgett, C. Balsano, M. Levrero)  
**Science** 275, 200-203 (1997).

The hepatitis B virus X gene induces p53-mediated programmed cell death (P. Chirillo, S. Pagano, G. Natoli, P.L. Puri, V.L. Burgio, C. Balsano, M. Levrero)  
**Proc. Natl. Acad. Sci. USA** 94, 8162-8167 (1997).

Hepatitis B virus pX activates NF $\kappa$ B dependent transcription through a Raf-independent pathway (P. Chirillo, M. Falco, P.L. Puri, M. Artini, C. Balsano, M. Levrero, G. Natoli)  
**Journal of Virology** 70, 1, 641-646 (1996).

Resistance to Fas-mediated apoptosis in human hepatoma cells (G. Natoli, A. Ianni, A. Costanzo, G. De Petrillo, I. Ilari, P. Chirillo, C. Balsano, M. Levrero).  
**Oncogene** 11, 1157-1164 (1995).

Modulation of intracellular signal transduction pathways by the hepatitis B virus transactivator pX (G. Natoli, M.L. Avantaggiati, P. Chirillo, E. De Marzio, D. Colleparado, M. Falco, C. Balsano, M. Levrero).  
**Journal of Hepatology** Supp 22, 14-20 (1995).

Induction of the c-Jun/c-Fos heterodimers DNA binding activity by the hepatitis B virus transactivator pX. (G. Natoli, M.L. Avantaggiati, P. Chirillo, A. Costanzo, M. Artini, C. Balsano, M. Levrero).  
**Molecular and Cellular Biology** 14, 989-998 (1994).

Expression of the c-Myc proto-oncogene in cells infected with Hepatitis Delta Virus. (G. Tappero, G. Natoli, G. Anfossi, F. Rosina, F. Negro, A. Smedile, F. Bonino, A. Angeli, R. H. Purcell, M. Rizzetto, M. Levrero).  
**Hepatology** 20, 1109-1114 (1994).

Ras- and Raf-dependent induction of c-Jun transcriptional activity by the Hepatitis B Virus transactivator pX. (G. Natoli, M.L. Avantaggiati, P. Chirillo, P.L. Puri, C. Balsano, M. Levrero).  
**Oncogene** 9, 2837-2843 (1994).

The Hepatitis B Virus pX transactivates the c-Fos promoter through multiple cis-acting elements. (M.L. Avantaggiati, G. Natoli, C. Balsano, P. Chirillo, M. Artini, E. De Marzio, D. Colleparado, M. Levrero).  
**Oncogene** 8, 1567-1574 (1993).

Characterization of the Hepatitis B Virus preS/S region encoded transcriptional transactivator. (G. Natoli, M.L. Avantaggiati, C. Balsano, E. De Marzio, D. Colleparado, E. Elfassi, M. Levrero).  
**Virology** 187, 663-670 (1992).

Defective and non-defective adenovirus vectors to express foreign genes in vitro and in vivo (M. Levrero, V. Barbant, A. Ballay, C. Balsano, M.L. Avantaggiati, G. Natoli, H. Skellens, P. Tiollais, M. Perricaudet).  
**Gene** 45, 342-342-350 (1991).

The hepatitis B virus X protein transactivates the long terminal repeats of human immunodeficiency virus types 1 and 2 (M. Levrero, C. Balsano, G. Natoli, M.L. Avantaggiati, E. Elfassi).  
**Journal of Virology** 64, 3082-3086 (1990).