

CURRICULUM VITAE

Dr. GIACOMO BUSCEMI

PhD, Researcher

Consiglio Nazionale delle Ricerche

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◇ EDUCATION:

2007: **Ph.D. Degree**, The Open University, Milton Keynes, UK.

Title of the Thesis: "Analysis of Chk2, ATM and NBS1, three proteins involved in the cellular response to DNA damage". *Supervisors:* Dr. D. Delia (Fondazione IRCCS Istituto Nazionale Tumori, Milan) and Prof. G. Peters (London Research Institute, Cancer Research UK). *Examiners:* Prof. D.A. Gillespie (The Beatson Institute for Cancer Research, Glasgow) and Dr. N. Zaffaroni (Fondazione IRCCS Istituto Nazionale Tumori, Milan)

1997: **Master Degree in Biological Science**, University of Milan (score: 110 cum laude).

Title of the Thesis: "A systematic approach to discover new functions for *Saccharomyces cerevisiae* genes: analysis of five putative genes". *Tutor:* Dr. M.L. Agostoni Carbone, *Co-tutor:* Prof. G. Lucchini (Dept. of Genetics and Microorganisms Biology, University of Milan).

◇ BRIEF CHRONOLOGY OF EMPLOYMENT:

2018-present: Researcher, Istituto di Genetica Molecolare "Luigi Luca Cavalli Sforza" (IGM), National Research Council (CNR), Pavia

2015-2018: Research fellow, Dept. Biosciences, University of Milan

2012-2015: Assistant Professor (non tenure), Dept. Biosciences, University of Milan

2007-2012: Project Contract position, "Molecular mechanism of cell cycle control" laboratory (Dr. D. Delia, head), Fondazione IRCCS Istituto Nazionale Tumori, Milan.

1999-2007: Fellow, "Molecular mechanism of cell cycle control" laboratory (Dr. D. Delia, head), Fondazione IRCCS Istituto Nazionale Tumori, Milan.

1999: Visiting scientist, Dr. L. Bini, Department of Molecular Biology, University of Siena.

1998: Post Graduate training, Dr. M.L. Agostoni Carbone, University of Milan.

1996-1997: Internal student, University of Milan.

◇ **FELLOWSHIPS:**

2003-2007: Fondazione IRCCS Istituto Nazionale dei Tumori Fellowship

2000-2002: Fondazione Italiana Ricerca sul Cancro (FIRC) Fellowship

1999: Telethon Foundation Fellowship

◇ **AWARDS AND HONOURS:**

2014: Cover image and editorial in the December issue of the Journal of Molecular Cell Biology (“CHK2 kinase in the DNA damage response and beyond”)

2009: Keystone Symposia Scholarship

1998: Award for Distinguished New Graduates of the University of Milan, Confalonieri Foundation

◇ **PUBLICATIONS**

BOOK CHAPTERS:

1. **Buscemi G.** “DNA repairs and genome integrity” for the *Oxford Textbook of Cancer Biology*, (Oxford University Press) edited by Prof. D. Kerr, Prof. F. Pezzella and Prof. M. Tavassoli.

2. Zannini L., **Buscemi G.** “CHK2” for the *Encyclopedia of Signaling Molecules, 2nd Edition* (Springer Nature) edited by Prof. Sangdun Choi.

3. Delia D. and **Buscemi G.** “Regulation of the Cell Cycle, cell cycle checkpoints and cancer” for “*The cancer Handbook, second edition*” (2007) Ed. J. Wiley & Sons. Editor-in-Chief Malcolm R. Alison.

SCIENTIFIC ARTICLES:

1. Magni M., **Buscemi G.**, Maita L., Peng L., Chan S.Y., Montecucco A., Delia D., Zannini L. (2019) TSPYL2 is a novel regulator of SIRT1 and p300 activity in response to DNA damage. *Cell Death Differ.* 26(5):918-931.

2. Magni M., Buscemi G., Zannini L. (2018) Cell cycle and apoptosis regulator 2 at the interface between DNA damage response and cell physiology. *Mutation Research/Reviews in Mutation Research*, 776:1-9

3. Restelli M., Magni M., Ruscica V., Pinciroli P., De Cecco L., **Buscemi G.**, Delia D., Zannini L. (2016) A novel crosstalk between CCAR2 and AKT pathway in the regulation of cancer cell proliferation. *Cell Death and Disease* 7(11):e2453.

4. Fiorino A., Manenti G., Gamba B., Bucci G., De Cecco L., Sardella M., **Buscemi G.**, Ciceri S., Radice M.T., Radice P., Perotti D. (2016) Characterization of RPF-1 transcription factor unveils a function in coordinating developmental genes expression. *The Int. Journal of Biochemistry & Cell Biology* 78:162-172.

5. Magni M., Ruscica V., Restelli M., Fontanella E., **Buscemi G.** and Zannini L. (2015) CCAR2/DBC1 is required for Chk2-dependent KAP1 phosphorylation and repair of DNA damages. *Oncotarget* 6(19):17817-17831.
6. Zannini L., Delia D., **Buscemi G.** * (2014) CHK2 kinase in the DNA damage response and beyond. *J. Mol. Cell Biol.* 6(6):442-457. ***Last and Corresponding author**
7. Magni M., Ruscica V., **Buscemi G.**, Kim J.E., Nachimuthu B.T., Fontanella E., Delia D., Zannini L. (2014) Chk2 and REG γ -dependent DBC1 regulation in DNA damage induced apoptosis. *Nucleic Acids Research* 42(21):13150–13160.
8. **Buscemi G.** *, Ricci C., Zannini L., Fontanella E., Plevani P., Delia D. (2014) Bimodal regulation of p21^{waf1} protein as function of DNA damage levels. *Cell Cycle.* 13(18):2901-12. ***Co-corresponding author**
9. Zannini L., **Buscemi G.***, Kim J.E., Fontanella E., Delia D. (2012) DBC1 phosphorylation by ATM/ATR inhibits SIRT1 deacetylase in response to DNA damage. *J. Mol. Cell Biol.* 4(5):294-303. ***Co-first author**
10. Carlessi L., **Buscemi G.**, Fontanella E., Delia D. (2010) A protein phosphatase feedback mechanism regulates the basal phosphorylation of Chk2 kinase in the absence of DNA damage. *Biochim. Biophys. Acta. Mol. Cell Res.* 1803(10):1213-1223.
11. Zannini L., **Buscemi G.**, Fontanella E., Lisanti S., Delia D. (2009) REG γ /PA28 γ proteasome activator interacts with PML and Chk2 and affects PML nuclear bodies number. *Cell Cycle.* 8(15):2399-407.
12. **Buscemi G.***, Zannini L., Lecis D., Lisanti S., Delia D. (2009) The shelterin protein TRF2 inhibits Chk2 activity at telomeres in the absence of DNA damage. *Current Biology* 19(10):874-879. ***First author**
13. Zannini L., Lecis D., **Buscemi G.**, Carlessi L., Gasparini P., Fontanella E., Lisanti S., Barton L., Delia D. (2008) REG γ proteasome activator is involved in the maintenance of chromosomal stability. *Cell Cycle* 7(4):504-512.
14. Carlessi L., **Buscemi G.**, Larson G., Hong Z., Wu J.Z., Delia D. (2007) Biochemical and cellular characterization of VRX0466617, a novel and selective inhibitor for the checkpoint kinase Chk2. *Molecular Cancer Therapeutics* 6(3):935-944.
15. **Buscemi G.***, Carlessi L., Zannini L., Lisanti S., Fontanella E., Canevari S., Delia D. (2006) DNA damage-induced cell cycle regulation and function of novel Chk2 phosphoresidues. *Molecular and Cellular Biology* 26(21):7832-7845. ***First author**
16. Pereg Y., Lam S., Teunisse A., Biton S., Meulmeester E., Mittelman L., **Buscemi G.**, Okamoto K., Taya Y., Shiloh Y., Jochemsen A.G. (2006) Differential roles of ATM- and Chk2-mediated phosphorylations of Hdmx in response to DNA damage. *Molecular and Cellular Biology* 26(18):6819-6831.
17. **Buscemi G.***, Pereg P., Carenini N., Nakanishi M., Chessa L., Chen J., Khanna K.K., Delia D. (2004) Activation of ATM and Chk2 kinases in relation to the amount of DNA strand breaks. *Oncogene* 23(46):7691-7700. ***First author**

18. Delia D., Piane M., **Buscemi G.**, Savio C., Palmeri S., Lulli P., Carlessi L., Fontanella E., Chessa L. (2004) MRE11 mutations and impaired ATM-dependent responses in an Italian family with ataxia-telangiectasia-like disorder. *Human Molecular Genetics*. 13(18):2155-2163.
19. Zannini L., Lecis D., Lisanti S., Benetti R., **Buscemi G.**, Schneider C., Delia D. (2003) Karyopherin-alpha2 protein interacts with Chk2 and contributes to its nuclear import. *J Biol Chem*. 278(43):42346-51.
20. Monte M., Benetti R., **Buscemi G.**, Sandy P., Del Sal G., Schneider C. (2003) The cell cycle-regulated protein human GTSE-1 controls DNA damage-induced apoptosis by affecting p53 function. *Journal of Biological Chemistry* 278(32):30356-30364.
21. **Buscemi G.***, Savio C., Zannini L., Miccichè F., Masnada D., Nakanishi M., Tauchi H., Komatsu K., Mizutani S., Khanna K.K., Chen P., Concannon P., Chessa L., Delia D. (2001) Chk2 activation dependence on Nbs1 after DNA damage. *Molecular and Cellular Biology*. 21(15):5214-22. ***First author**
22. **Buscemi G.***, Saracino F., Masnada D., Carbone M.L. (2000) The *Saccharomyces cerevisiae* SDA1 gene is required for actin cytoskeleton organization and cell cycle progression. *Journal of Cell Science*. 113(Pt 7):1199-211. ***First author**
23. Mancini R., Saracino F., **Buscemi G.**, Fischer M., Schramek N., Bracher A., Bacher A., Gütlich M., Carbone M.L. (1999) Complementation of the fol2 deletion in *Saccharomyces cerevisiae* by human and *Escherichia coli* genes encoding GTP cyclohydrolase I. *Biochem Biophys Res Commun*. 1999 Feb 16;255(2):521-527.

◇ **FUNDED GRANTS:**

1. **AIRC 2014** Agency: Associazione Italiana per la Ricerca sul Cancro Project Title: Unravelling novel functional interplay of double strand DNA break repair factors in maintaining genome integrity. Project Period: January 2015- January 2018 Total Budget: 330000 euro Role: Internal Collaborator Coordinator: Prof. Achille Pelliccioli
2. **Piano di Sviluppo della Ricerca 2014** Agency: Università degli Studi di Milano Project Title: Role of DAXX chaperone protein in chromatin remodelling during the human DNA damage response. Project Period: April 2014-June 2015 Total Budget: 4525 euro Coordinator: Dr. Giacomo Buscemi
3. **Bando per la Ricerca Scientifica in Ambito Biomedico** Agency: Fondazione CARIPLO Project Title: Analysis of the senataxin role in DNA damage response to define the molecular mechanisms underlying the neurological disease Ataxia with oculomotor apraxia type 2. Project Period: June 2014-June 2016 Total Budget: 342000 euro Role: Collaborator Coordinator: Dr. Giordano Liberi.

From 1999 to 2012 I was included as a participant in successfully founded AIRC and Telethon grants, coordinated by Dr. D. Delia.

◇ **REVIEWER ACTIVITY FOR INTERNATIONAL JOURNALS:**

Reviewer for: Oncogene, Cell Death and Differentiation, Cellular and Molecular Life Sciences, DNA repair, Cell Cycle, BMC Cancer, Journal of Cellular and Molecular Medicine, PeerJ.

◇ **TEACHING EXPERIENCE:**

Academic years 2012-2015: University of Milan, Department of Biosciences, Interdisciplinary Laboratory Course of the First Level Degree in Industrial and Environmental Biotechnology (32 hours, 2CFU). Member of the Examination Board for the same course.

Academic years 2018-2020: University of Pavia, Guest lecturer for the Course of Molecular Biology of the Cell (Master Degree in Experimental and Applied Biology)

National Scientific Qualification for University Professor position recruiting: Applied Biology (05/F2) from 2016 to 2022.

◇ **PhD STUDENT TUTORIAL, STUDENT THESIS TUTORIAL, EXAMINING BOARD:**

University of Milan:

Supervisor of Master students and Co-supervisor of PhD students (Molecular and Cellular Biology PhD Course). Component of Graduation Examining Board for Master Degree in Molecular Biology of the Cell and Biology Applied to Biomedical Research.

Component of Graduation Examining Board for First level Degree in Molecular Biotechnologies and Bioinformatics.

University of Pavia:

Component of the Examining Board for the Course of Molecular Biology of the Cell (Master Degree in Experimental and Applied Biology)

◇ **ATTENDED MEETINGS:**

Sept. 1st-5th, 2010 EMBO Workshop: The Interface between the Ubiquitin Family and the DNA Damage Response, Red Island, Croatia.

Oct. 9th-14th, 2009 Keystone Symposia: Telomere Biology and DNA Repair, Ashmore, Queensland, Australia

Nov. 3th-7th, 2007 CNIO Cancer Conference, Links between Cancer, Replication Stress & Genomic Integrity Spanish National Cancer Centre (CNIO), Madrid, Sp.

May 14th-17th, 2007 VII Meeting of Molecular Oncology, Gruppo di Oncologia Molecolare-SIC, Positano, It

June 8th-11th, 2005 The 2005 International Workshop on Ataxia-Telangiectasia, ATM and the DNA damage response, Belgirate, It.

Jan. 22nd-25th, 2003 Cell and Molecular Biology of the Cancer, Lausanne, Swi.

May31st-June5th, 2000 65th Cold Spring Harbor Laboratory Symposium - Biological Response to DNA Damage, New York, U.S.A.

Nov. 14th-16th, 1999 VIII Convention Telethon, Rimini, It.

Sept. 23th-26th, 1997 Convegno Congiunto AGI - SIMA, Orvieto, It.

Oct. 2nd-5th, 1996 Convegno Congiunto ABCD - AGI - SIBBM, Riccione, It.

June 20th-21st, 1996 Gene '96, Milano, It.

◇ **CONFERENCE ABSTRACTS:**

I am author of more than 30 international conference abstracts, including three published on journals with impact factor.

In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Milan, May 5th, 2020

Signature

