

Dr. Jacopo Morini, MSc PhD

Date of Birth: 12th of December 1987

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PostDoc Fellow at the Department of Physics, University of Pavia (Italy).

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Curriculum Vitae et Studiorum

From January, 2015: PostDoc Fellowship at the Department of Physics, University of Pavia (Italy).

From November, 2011 to January, 2015: PhD in Genetics, Molecular and Cellular Biology (XXVII cycle), University of Pavia, Italy.

Title of the thesis: "Analysis of X-rays-induced cellular modifications: the model of Shwachman-Diamond syndrome", Department of Molecular Medicine, Unit of Medical Genetics, and Department of Physics. Scientific Supervisors: Prof. Cesare Danesino, Prof. Andrea Ottolenghi.

November 2012: Granted access to the Italian Biologist Council in virtue of state examination.

Final Mark: 193/200.

From October, 2009 to July, 2011: Two years Master Course student at University of Pavia. Master Degree obtained in July, 20th, 2011 in Experimental Applied Biology, *curriculum* "Human Biology and Biomedical Sciences" (Faculty of Mathematics, Physics and Natural Sciences) at "Università degli Studi di Pavia", Italy.

Title of the thesis: "Proprietà anti-invasive del 4,4'-diidrossi-*trans*-stilbene in cellule di adenocarcinoma mammario umano (Anti-invasive property of 4,4'-dihydroxy-*trans*-stilbene in human breast adenocarcinoma cells)", Department of Experimental Medicine, Section of General Pathology "C. Golgi", Supervisor: Prof. Livia Bianchi, Co-Supervisor: Dr. Cristina Maccario.

Final Mark: 110/110 *cum laude*.

From September, 2006 to September, 2009: Bachelor Degree student at University of Pavia. Bachelor Degree obtained in September, 25th, 2009 in Biological Sciences, *curriculum* "Human Biology and Biomedical Sciences" (Faculty of Mathematics, Physics and Natural Sciences) at "Università degli Studi di Pavia", Italy.

Title of the thesis: "La camera di Boyden: effetto del resveratrolo e del 4,4'-diidrossi-*trans*-stilbene sulla migrazione cellulare (The Boyden Chamber: effect of resveratrol and 4,4'-dihydroxy-*trans*-stilbene on cellular migration)", Department of Experimental Medicine, Section of General Pathology "C. Golgi", Supervisor: Prof. Livia Bianchi, 1st Co-Supervisor: Dr. Monica Savio, 2nd Co-Supervisor: Dr. Cristina Maccario.

Final Mark: 108/110.

From September, 2001 to July, 2006: ITIS "G. Cardano", via Verdi, 19, I-27100, Pavia, (PV), Italy (Scientific Lyceum), Scientific-technological branch (Brocca experimentation).

Final Mark: 95/100.

Schools and Courses

From March, 21st, 2017 to March, 22nd, 2017: Training Course in Cytofluorimetry "Attune® NxT Acoustic Focusing Cytometer Basic Training", ThermoFisher Scientific, Darmstadt, Germany. Supervisors: Dr. Maike Rehage.

From May, 17th, 2016 to May, 20th, 2016: Advanced course on "Inflammation, cancer and degenerative diseases", Collegio Ghislieri, Pavia, Italy. Scientific Supervisor: Prof. Giampaolo Merlini.

From June, 3rd, 2013 to June, 21st, 2013: Selected for the "2013 NASA Space Radiation Summer School" at the U.S. Department of Energy - Brookhaven National Laboratory, Upton NY, USA. Scientific Directors: Dr. Dudley T. Goodhead and M.Sc. Linda Goodhead.

From May, 5th, 2013 to May, 17th, 2013: Two-Week DoReMi Training Course on "TIETO: Non-cancer effects of low dose radiation" at the Institute of Radiation Biology, Helmholtz Zentrum, Neuherberg, Munich, Germany. Course Directors: Prof. Michael J. Atkinson, Dr. Soile Tapio.

September, 1st, 2012: One-Day DoReMi Course on "Systems Radiation Biology" at St Anne's College, Oxford, UK. Course Organizers: Prof. Andrea Ottolenghi, Dr. Vere Smyth, Prof. Munira Khadim.

From May, 28th, 2012 to June, 8th, 2012: Two-Week DoReMi Training Course on "Modelling Radiation Effects from Initial Physical Events" at the Department of Physics, University of Pavia, Pavia, Italy. Course Director: Prof. Andrea Ottolenghi.

From April, 16th, 2012 to April, 27th, 2012: Two-Week DoReMi Training Course on "Interdisciplinary Radiation Research Focussing on Low Doses" at the Department of Radiation and Health, German Federal Office for Radiation Protection (BfS), Oberschleissheim, Munich, Germany. Course Directors: Prof. Wolfgang Weiss, Dr. Thomas Jung.

Awards

- Best Poster Award: "*Radiosensitivity and DNA damage repair in lymphoblastoid cell lines derived from Shwachman-Diamond syndrome patients*". 8th International Congress on Shwachman-Diamond Syndrome, Verona (Italy), 17-20 April 2016.

Teaching Activity

Thesis Supervisor Activity:

- 2 graduate student (MSc) in Physics, University of Pavia.
 - Title of the thesis: "Perturbation of intracellular signalling pathways induced by ionizing radiation: temporal dynamics and dose dependence" – "Perturbazione di pathways di segnalazione intracellulari indotta da radiazioni ionizzanti: dinamiche temporali e dipendenze dalla dose". Martina Ugolini. A.Y. 2012-2013. Supervisor: Andrea Ottolenghi; Co-supervisors: Gabriele Babini, Jacopo Morini.
 - Title of the thesis: "*In vitro* 3D chondrosarcoma models: a radioresistance study after X-ray and carbon ion irradiation" – "Modelli 3D *in vitro* di condrosarcoma: studio della radioresistenza dopo irraggiamenti con raggi X e ioni carbonio". Sofia Barbieri. A.Y. 2014-2015. Supervisor: Andrea Ottolenghi; Co-supervisors: François Chevalier, Jacopo Morini.
- 1 graduate student (MSc) in Biology, University of Pavia.
 - Title of the thesis: "Effetti delle radiazioni ionizzanti su co-culture di cellule intestinali Caco-2 e linfociti umani come modello *in vitro* di barriera intestinale" - "Ionizing radiation effects on intestinal Caco-2 cells/human lymphocytes co-culture as an *in vitro* model of intestinal barrier". Agnese Solari. A.Y. 2014-2015. Supervisor: Andrea Ottolenghi; Co-supervisors: Elena Giulotto, Jacopo Morini.
- 1 graduate student (BSc) in Biotechnology, University of Pavia.
 - Title of the thesis: "Il western blotting per lo studio della sindrome di Shwachman-Diamond" - "Study of Shwachman-Diamond syndrome through western blotting". Eniada Rrapaj. A.Y. 2015-2016. Supervisor: Monica Savio; Co-supervisor: Jacopo Morini.

Lecturer Activity:

- May, 23rd, 2016 - June, 3rd, 2016: Lecturer for the 2016 Two-Week Course "Modelling Radiation Effects From Initial Physical Events", Department of Physics, University of Pavia.
- June, 1st, 2015 - June, 12th, 2015: Lecturer for the 2015 Two-Week DoReMi Training Course "Modelling Radiation Effects From Initial Physical Events", Department of Physics, University of Pavia.
- April, 13th, 2015 - April, 18th, 2015: Contributor to the Course "Radiation Biology For Medical Physicists" in the framework of the EC-funded project EUTEMPE-RX. 2015.
- May, 26th, 2014 - June, 6th, 2014: Lecturer for the 2014 Two-Week DoReMi Training Course "Modelling Radiation Effects From Initial Physical Events", Department of Physics, University of Pavia.

Training Activity:

- Tutor for 1 "Erasmus+" student from the German Federal Office for Radiation Protection (BfS), Oberschleissheim, Munich, Germany, A.A. 2014/2015.

- Tutor for students of General Pathology course (Biological Sciences, *curriculum* "Human Biology and Biomedical Sciences", Faculty of Mathematics, Physics and Natural Sciences), A.A. 2009/2010.

Working Activity

From April, 16th, 2014 to October, 16th, 2014: Six-month contract "*Uso della radiobiologia per ottimizzare l'esposizione in radiologia: risposta multiscala dei sistemi biologici*", EU-funded EUTEMPE-RX project, Department of Physics, University of Pavia.

From March, 1st 2013 to September, 1st 2013: Six-month contract "*Biological responses and pathway activities activated by ionizing radiation induced damage*", EU-funded DoReMi (Initium) project, Department of Physics, University of Pavia.

Projects

EU-funded projects:

2012-2015: Andante - *Multidisciplinary evaluation of the cancer risk from neutrons relative to photons using stem cells and the induction of second malignant neoplasms following paediatric radiation therapy*. Collaboration on the scientific activity.

2011-2015: EpiRadBio - *Combining epidemiology and radiobiology to assess cancer risks in the breast, lung, thyroid and digestive tract after exposures to ionizing radiation with total doses in the order of 100mSv or below*. Collaboration on the scientific activity.

2010-2016: DoReMi - *Low Dose Research towards Multidisciplinary Integration*. Collaboration on the scientific activity.

National projects:

2014: *Mechanism underpinning the DNA-damage response in lymphoblastoid cell lines from Shwachman-Diamond syndrome patients*, funded by AISS - Italian Society for Shwachman Syndrome. Principal Investigator.

2014: MERIDIAN - *Measuring the Effects of Radiation on Immunity and Differentiation*, funded by INFN - Nuclear Physics National Institute. Collaboration on the scientific activity.

2013: *Susceptibility to oxidative stress caused by ionizing radiation exposure in Shwachman-Diamond Syndrome affected patients lymphocytes*, funded by AISS - Italian Society for Shwachman Syndrome. Principal Investigator.

2012-2014: RADIOSTEM - *Meccanismi di risposta RADIObiologica a fotoni e a particelle cariche di cellule STaMinali tumorali e derivanti da tessuto sano*, funded by INFN - Nuclear Physics National Institute. Collaboration on the scientific activity.

Personal Skills And Competences

Technical Skills

- ✓ Cell cultures;
- ✓ Western blotting;
- ✓ SDS-PAGE;
- ✓ 2D-DIGE;
- ✓ Zymography;
- ✓ Migration and invasion assay;
- ✓ Soft agar assay;
- ✓ Cellular transformation assay;
- ✓ Immunofluorescence;
- ✓ ELISA;
- ✓ Cell viability and proliferative assay;
- ✓ Flow cytometry

Informatic Skills

- ✓ Operating System: Microsoft Windows
- ✓ Software: Microsoft Office (Excel, Word, PowerPoint), NCBI database

Languages

Mother tongue: Italian

English: B1 Level Certification, British Institutes, Pavia.

Final Mark: 77/100

Artistical Studies

From November 2015 to October 2017: Two years Master Degree in Music at Conservatory of Music "F. Vittadini", Pavia, Italy.

Title of the thesis: "Il saxofono nella musica contemporanea: dalla didattica all'esecuzione (Saxophone in the contemporary music: from didactics to performance)", Supervisor: Prof. Paola Fre.

Final Mark: 110/110 *cum laude*.

From October 2008 to February 2015: Seven years Diploma in Music at Conservatory of Music "F. Vittadini", Pavia, Italy.

Final Mark: 7.60/10.

Scientific Career:

From March 2009 to June 2009: Bachelor's degree (Supervisor: Prof. Livia Bianchi).

Aim of the thesis was the study on the action of resveratrol, a phytoalexin known for its biological activities, and the resveratrol analogue 4,4'-dihydroxy-*trans*-stilbene on migration of MCF-7, SKBR-3 and ZR-75-1 breast cancer cells and NHF and HUVEC cells.

From November 2010 to July 2011: Master degree (Supervisor: Prof. Livia Bianchi).

Aim of the thesis was the study of the action of resveratrol analogue 4,4'-dihydroxy-*trans*-stilbene both on chemical-induced transformation of BALB/c 3T3 mouse fibroblasts and on the proliferation and invasion of human breast cancer MCF-7 cells.

In particular it was studied both anchorage-dependent and -independent MCF-7 growth, the reduction in matrix metalloproteinase-2 and -9 activities, the inhibition of cell adhesion to the extracellular matrix components as well as inhibition of cell migration and invasion, and the levels of the adhesion molecule E-cadherin.

From November 2011 to October 2014: PhD (Supervisor: Prof. Cesare Danesino, Andrea Ottolenghi).

Aim of the PhD project was the study of ionizing radiation effects on lymphoblastoid cell lines derived from patients affected with Shwachman-Diamond syndrome, focusing on DNA-damage repair and on the effects of SBDS gene depletion in acute myeloid leukaemia predisposition. Study focused on DNA damage repair and on proliferation impairment.

From November 2014: PostDoc Fellowship (Supervisor: Prof. Andrea Ottolenghi).

Aim of the research project is the study of the effect of low dose of ionizing radiation with respect to inter-individual radiosensitivity, inflammatory pathways activation, and mechanisms leading to different responses to radiation.

In particular, mechanisms which drive the repair of radio-induced damage are under investigation. The work is carried out with an experimental setup based on cell lines susceptible for diverse types of stressors, i.e. lymphoblastoid cell lines from patients affected with Shwachman-Diamond syndrome. Beyond the classical techniques of molecular and cellular biology, also new approaches e.g. whole exome sequencing are exploited to highlight a correlation linked to ionizing radiation hypersensitivity.