CURRICULUM VITAE

MARCO RUSSO

PERSONAL INFORMATION

Date of birth: April 5th, 1990
Place of birth: Palermo (PA) – Italy
Nationality: Italian
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Linkedin: www.linkedin.com/in/marco-russo-96504264/

RESEARCH EXPERIENCE

1 February 2023 - Present	**Postdoctoral Researcher** Project: "*Genome instability and immune gene response in cancer cells*". Funded by: Associazione Italiana per la Ricerca sul Cancro (AIRC) and Department of Pharmacy and Biotechnology (FaBiT), University of Bologna. FaBIT, University of Bologna, Bologna, Italy Supervisor: Giovanni Capranico, Prof.
1 February 2021 - 31 January 2023	**Postdoctoral Researcher** Project: "*R-loops and G4s: immunomodulatory effect of treatment with Topoisomerase I inhibitors*". Funded by: Progetto di Rilevante Interesse Nazionale (PRIN) "G-quadruplexes as modulators of genome stability" FaBIT, University of Bologna, Bologna, Italy Supervisors: Giovanni Capranico, Prof., Jessica Marinello, PhD
1 January 2020 - 31 January 2021	**Postdoctoral Researcher** Project: "*A.I. analysis of genetic mutations in omic datasets of human tumors*". Funded by: Regione Emilia-Romagna project "Alte Competenze 2019"

FaBIT, University of Bologna, Bologna, Italy
Supervisor: Giovanni Capranico, Prof.

1 November 2019 - 31 December 2019 — **Closing activities on PhD-related projects** (*paper writing*)
FaBIT, University of Bologna, Bologna, Italy
Supervisor: Giovanni Capranico, Prof.

7 January 2019 - 7 May 2019 — **Visiting Ph.D. Student**
The Francis Crick Institute, London, UK
Project title: "*Identification of mutation in genes related to 'nucleic acid immunity' in cancer tissues".*
Supervisor: Ciccarelli Francesca, Prof.

1 November 2016 - 31 October 2019 — **Ph.D. Student in Cellular and Molecular Biology**
FaBIT, University of Bologna, Bologna, Italy
Project title: *"Study of R-loop dynamics in cancer cells".*
Supervisor: Giovanni Capranico, Prof.

1 August 2015- 31 October 2016 — **Academic career break**

1 March 2015 - 31 July 2015 — **Post Graduate Trainee**
University of Padova, Padova, Italy
Project title: *"Development and application of new technologies for structural analysis of genomes and transcriptomes".*
Supervisor: Giorgio Valle, Prof.

EDUCATION

DEGREES

1 November 2016 - 31 October 2019 — **Ph.D. in Cellular and Molecular Biology**
FaBIT, University of Bologna, Bologna, Italy
Final degree mark: Excellent
Thesis evaluation marks:
- Originality: Excellent
- Quality of used methodologies: Excellent
- Quality of results: Excellent
- Level of knowledge of the topics covered: Excellent

Thesis title: *Multiomic characterization of the effects of G-quadruplex binders on R-loop homeostasis and innate immune response in human cancer cells*.
Supervisor: Giovanni Capranico, Prof.

15 October 2012 - 25 February 2015 — **Master's degree in Molecular Biology**
University of Padova, Padova, Italy

Final degree mark: 110/110
Thesis title: "*Development and application of new technologies for structural analysis of genomes and transcriptomes".*
Supervisor: Giorgio Valle, Prof.

12 September 2009 - 26 September 2012 — **Bachelor's degree in Molecular Biology**
University of Padova, Padova, Italy
Final degree mark: 103/110
Thesis title: "*Identification of SNPs using exome sequencing and their verification using traditional methods".*
Supervisor: Alessandro Vezzi, Ph.D.

COURSES

1-3 December 2021 — **High Performance Bioinformatics**
Credential ID 3CDEBBB0
Issued by CINECA, Italy

14-16 June 2021 — **Data Science with R**
Credential ID 377A9360
Issued by CINECA, Italy

12-16 April 2021 — **Introduction to Python programming**
Credential ID 3261F300
Issued by CINECA, Italy

9-19 February 2021 — **22nd Bologna Winter School - Bioinformatics for Discovery in Structural and Functional Biology**
University of Bologna, Bologna, Italy

9 July 2020 — **24 CFU - University Credits in anthropo-psycho-pedagogical disciplines and didactic methodologies and technologies**
University of Bologna, Bologna, Italy

26-27 April 2017 — **Introduction to R for data analytics**
Credential ID 319C320
Issued by CINECA, Italy

HONORS AND AWARDS

PRIZES AND SCHOLARSHIPS

2019 — **"Marco Polo Program" Scholarship – 3 months**
This UniBO program aims to promote scientific training abroad for young researchers at the University of Bologna, offering the opportunity to conduct research in an international context.

2016 **Ph.D. in Cellular and Molecular Biology Scholarship – 3 years**
Scholarship provided by the University of Bologna.

2015 **'Innovative Technologies for Next Generation Sequencing' Study award**
Prize awarded to graduates that have developed the best thesis on topic: 'Innovative Technologies for Next Generation Sequencing'. University of Padova, Padova, Italy.

PARTICIPATION IN RESEARCH PROJECTS

2019 Five-year Project title: *Mechanistic roles of R-loops and micronuclei in the innate immune response induced by anticancer G-quadruplex binders*
Funded by: AIRC, IG 2019, Project Code 23032
Principal Investigator: Giovanni Capranico, Prof.
Contribution: Data collection, analysis and integration.

2019 One-year Project title: "*A.I. analysis of genetic mutations in omic datasets of human tumors"* Funded by: Regione Emilia-Romagna project "Alte Competenze 2019"
Principal Investigator: Giovanni Capranico, Prof.
Contribution: Project writing, data collection and analysis.

2019 Project title: *Transcriptional profiles induced by G4 binders in human cancer cells*
Funded by: ISCRA class C, CINECA, Project Code HP10CCW7UV
Principal Investigator: Giovanni Capranico, Prof.
Validity: 10 May, 2019 - 10 February, 2020
Contribution: Project writing, data collection and analysis.

2017 Project title*: Analysis of genomic maps f R loops in human cells treated with G-quadruplex binders*
Funded by: Call ELIXIR-ITA CINECA (2017 - 2018) – Project Code prj15
Principal Investigator: Giovanni Capranico, Prof.
Validity: 18 October, 2017 - 30 April, 2018
Contribution: Project writing, data collection and analysis.

2016 Project title: *Bioinformatic Analysis of R-loop Structures in Human Cancer Cells*
Funded by: ISCRA class C, CINECA, Project Code HP10CC6M9F
Principal Investigator: Giovanni Capranico, Prof.
Validity: 7 December, 2016 - 7 October, 2017
Contribution: Project writing, data collection and analysis.

SCIENTIFIC ORGANISATIONS

March 2021 - Present **Associate Member**
American Association for Cancer Research - AACR

Member ID: 1102940

April 2023 - Present **Early Career Member**
European Association for Cancer Research - EACR

March 2023 - Present **Junior Member**
Società Italiana di Biofisica e Biologia Molecolare - SIBBM

PEER REVIEW ACTIVITY

2019 – Present Support to article peer-review for scientific journals: Nucleic Acid Research, Molecular Cancer, International Journal of Molecular Sciences.

PUBLICATIONS

JOURNAL ARTICLES

* Co-first authors

Russo, M.*, Morelli, S.*, & Capranico, G. (2023). Expression of down-regulated ERV LTR elements associates with immune activation in human small-cell lung cancers. *Mobile DNA*, 14(1), 1–16. https://doi.org/10.1186/S13100-023-00290-W

De Rosa, P., Severi, F., Khan Zadran, S., **Russo, M**., Aloisi, S., Rigamonti, A., Capranico, G., Milazzo, G., & Perini, G. (2023). MYCN Amplification, along with Wild-Type RB1 Expression, Enhances CDK4/6 Inhibitors' Efficacy in Neuroblastoma Cells. *International Journal of Molecular Sciences*, 24(6), 5408.

Miglietta, G., Marinello, J., **Russo, M**., & Capranico, G. (2022). Ligands stimulating antitumour immunity as the next G-quadruplex challenge. *Molecular Cancer*, 21(1), 180.

Marinello, J., Arleo, A., **Russo, M**., Delcuratolo, M., Ciccarelli, F., Pommier, Y., & Capranico, G. (2022). Topoisomerase I poison-triggered immune gene activation is markedly reduced in human small-cell lung cancers by impairment of the cGAS/STING pathway. *British Journal of Cancer*, 1–12.

Miglietta,G.*, **Russo, M**.*, Duardo,R.C. and Capranico,G. (2021) G-quadruplex binders as cytostatic modulators of innate immune genes in cancer cells. *Nucleic Acids Res*., 49, 6673–6686.

Miglietta,G.*, **Russo, M**.* and Capranico,G. (2020) G-quadruplex–R-loop interactions and the mechanism of anticancer G-quadruplex binders. *Nucleic Acids Res*., 48, 11942–11957.

Russo M., De Lucca,B., Flati,T., Gioiosa,S., Chillemi,G. and Capranico,G. (2019) DROPA: DRIP-seq optimized peak annotator. *BMC Bioinformatics*, 20, 414.

De Magis,A*., Manzo,S.G.*, **Russo,M.**, Marinello,J., Morigi,R., Sordet,O. and Capranico,G. (2019) DNA damage and genome instability by G-quadruplex ligands are mediated by R loops in human cancer cells. *Proc. Natl. Acad. Sci. U. S. A.*, 116, 816–825.

DISSERTATION THESIS

Russo, M. (2020) Multiomic characterization of the effects of G-quadruplex binders on R-loop homeostasis and innate immune response in human cancer cells, [Dissertation thesis], Alma Mater Studiorum Università di Bologna. Dottorato di ricerca in Biologia cellulare e molecolare, 32 Ciclo. 10.6092/unibo/amsdottorato/9253.

CONFERENCE PROCEEDINGS

M. Russo, G. Miglietta, G. Capranico. G4 binders as potential immunostimulatory compounds for cancer therapy [abstract]. In: Proceedings of the American Association for Cancer Research Annual Meeting 2021; 2021 Apr 10-15 and May 17-21. Philadelphia (PA): AACR; *Cancer Res* 2021;81(13_Suppl):Abstract nr 1234

A. De Magis, S. G. Manzo, **M. Russo**, Olivier Sordet, Rita Morigi, Giovanni Capranico. R loop-driven genome instability by G-quadruplex binders in BRCA2-silenced human cancer cells [abstract]. In: Proceedings of the American Association for Cancer Research Annual Meeting 2018; 2018 Apr 14-18; Chicago, IL. Philadelphia (PA): AACR; *Cancer Res* 2018;78(13 Suppl):Abstract nr 4838.

CONFERENCE PRESENTATIONS _____

ORAL PRESENTATIONS

September 2023	Invited talk: *R-loop dependent genome instability by Topoisomerase I poisons*. Nucleic Acid Secondary Structures: G4s And Beyond – Webinar Series 2023 21 September 2023, Online event
September 2023	Selected talk: *Top1cc stabilization induces genomic context-dependent R-loop modulation in cancer cells*. LS2 Meeting - DNA Topology and Topoisomerases in Genome Dynamics 2-3 September 2023, Villars-sur-Ollon, Switzerland
October 2022	Selected talk: *Analyses of G-quadruplex binder effects on immune genes and specific gene alterations in cancers for a precision medicine approach in anticancer immunotherapy*. G4ME 2022 Congress 27-28 October 2022, Naples, Italy

September 2018 — Selected talk: *Analyses of genomic R-loop maps induced by G-quadruplex ligands in human cancer cells*.
XV FISV Congress
18-21 September 2018, Rome, Italy

POSTER PRESENTATIONS

September 2023 — J. Marinello, S. Morelli, **M. Russo,** R. C. Duardo and G. Capranico *Topoisomerase I cleavage complexes mediate genome instability by induction of double strand breaks at highly transcribed genes close to early replication zones.*
EMBO Workshop: DNA topology and topoisomerases in genome dynamics.
3-7 September 2023, Villars-sur-Ollon, Switzerland

September 2023 — **M. Russo,** R. C. Duardo, J. Marinello, S. Pepe, S. Morelli, F. Guerra, B. Gómez-González, A. Aguilera and G. Capranico, *Top1cc stabilization induces genomic context-dependent R-loop modulation in cancer cells.*
EMBO Workshop: DNA topology and topoisomerases in genome dynamics.
3-7 September 2023, Villars-sur-Ollon, Switzerland

March 2023 — Miglietta,G., **Russo,M.,** Procacci, M. Ximénez de Embún Cadarso P., Muñoz J. and Capranico,G., *Multi-omic analyses of G-Quadruplex-mediated genome instability as a trigger of innate immune responses in cancer cells.*
EACR-AACR-SIC Conference - Immune Responses & Dna Repair
15-18 March 2023; Florence, Italy

November 2022 — **Russo,M**., Miglietta,G. Procacci, M. Ximénez de Embún Cadarso P., Muñoz J. and Capranico,G., *Multi-omic characterization of G4-binder modulation of immune gene and autophagy pathways in cancer cells.*
EMBO Workshop: From functional genomics to systems biology
15-18 November 2022; Heidelberg, Germany

June 2022 — G. Miglietta, **M. Russo**, M. Procacci and G. Capranico, *Micronuclei accumulation, global transcriptional profiles and chemokine activation by different G4 binders in cancer cells*
8th International Meeting on Quadruplex Nucleic Acids
27 June-1 July 2022, Marienbad (CZ)

June 2022 — **Russo,M**., Duardo R.C., Aguilera A. and Capranico,G. *DNA topoisomerase I poison camptothecin induces context-dependent R-loop changes in colon cancer cells*
SIBBM 2022 - The RNA World 3.0,
20-22 June 2022, Rome, Italy

June 2022	Morelli S., **Russo,M**. and Capranico,G. *Small cell lung tumours repress transposable elements expression to restrict innate immune activation* SIBBM 2022 - The RNA World 3.0, 20-22 June 2022, Rome, Italy
April 2021	**Russo,M**., Miglietta,G. and Capranico,G. *Abstract 1234: G4 binders as potential immunostimulatory compounds for cancer therapy* AACR Annual Meeting 2021 April 10-15, 2021 and May 17-21, 2021; Philadelphia, PA
June 2019	**Russo M**., Ciccarelli F., Capranico G., *Innate Immune Response Genes In Human Cancers: A Pancancer Survey* SIBBM 2019 – Frontiers in Molecular Biology 11-13 June 2019, Bologna, Italy
June 2019	Miglietta G., **Russo M**., Capranico G., *G4 binders as new potential immunostimulatory compounds in cancer therapy by micronuclei induction and cGAS-STING pathway activation* SIBBM 2019 – Frontiers in Molecular Biology 11-13 June 2019, Bologna, Italy
September 2018	De Magis A., Manzo S.G., Miglietta G., Marinello J., **Russo M.**, Sordet O., Morigi R. and Capranico G., *R-loops and micronuclei mediate cellular effects of G-quadruplex ligands in human cancer cells* 3rd Conference Nucleic Acids, Immunity and Genome Defence 4-6 September 2018, Brno, Czech Republic
April 2018	De Magis A., Manzo S.G., **Russo M.**, Sordet O., Morigi R. and Capranico G., *R loop-driven genome instability by G-quadruplex binders in BRCA2-silenced human cancer cells* AACR Annual Meeting 14-18 April 2018, Chicago, Illinois, USA
October 2017	Capranico G., De Magis A., **Russo M**., Sordet O., Manzo S. G., Marinello J., Morigi R., Locatelli A. and Rambaldi M., *G-quadruplex and R loop interactions can affect genome stability in human cancer cells* Meeting "DNA Damage and Repair: Computations Meet Experiments" 30 October - 3 November 2017, Leiden, The Netherlands.
February 2017	Delcuratolo M., Marinello J., **Russo M**., Capranico G., *DNA topoisomerase II-b depletion causes genomic DNA cleavage and nuclear R-loop increase*, 2° FaBIT Scientific Retreat 2017, Bologna, Italy
May 2014	Targon R., Telatin A., **Russo M**., Marchioretto L., Valle G., *Development Of A Novel Method For High Quality Full-Length Sequencing Of Long Individual Molecules Of Nucleic Acids UsingCurrent Sequencing Technology*

BioPh.D. Day 2014
2014, Padova, Italy

TEACHING ACTIVITIES

TEACHING TUTOR

2023 - 2024 — Teaching tutor of "Applied Genomics (Module 2 of Genomics of Diseases)"
Master's Degree in Pharmaceutical Biotechnology
Teacher: Prof. G. Capranico
University of Bologna, Bologna, Italy

2023 - 2024 — Teaching tutor of "Eukaryotic Genomes (Module of Genomes I)"
Bachelor's Degree in Genomics
Teacher: Prof. G. Capranico
University of Bologna, Bologna, Italy

2022 - 2024 — Teaching tutor of "Molecular Biology (Module 3)"
Bachelor's Degree in Biotechnology
Teacher: Prof. J. Marinello
University of Bologna, Bologna, Italy

TEACHING SUPPORT

2021 - 2022 — Teaching support to "Molecular Biology (Module 2)" class
Bachelor's Degree in Biotechnology
Teacher: Ph.D. J. Marinello
University of Bologna, Bologna, Italy

2019 - Present — Teaching support to "Eukaryotic Genomes" class
Bachelor's Degree in Genomics
Teacher: Prof. G. Capranico
University of Bologna, Bologna, Italy

STUDENT CO-SUPERVISION

Ph.D. students

1 November 2021 - Present — Student: Sara Morelli
Ph.D. in Cellular and Molecular Biology
Supervisor: Prof. G. Capranico
University of Bologna, Bologna, Italy
Project: *"Mechanisms of genomic instability in tumors".*

Master's degree students

1 March 2022 - Student: Arianna Bonetti

17 October 2022	Master's Degree in Health Biology Thesis supervisor: Prof. G. Capranico University of Bologna, Bologna, Italy Thesis: *"Transcriptomic analysis of differential G4 binders activity on murine fibrosarcoma cells".*
1 March 2020 - 19 March 2021	Student: Sara Morelli Master's Degree in Pharmaceuticals Biotechnology Thesis supervisor: Prof. G. Capranico University of Bologna, Bologna, Italy Thesis: *"Functional characterization of innate immune genes in human lung cancers through genomic data analyses".*

Bachelor's degree students

1 March 2021 - 22 July 2021	Student: Francesca Collini Bachelor's Degree in Genomics Thesis supervisor: Prof. G. Capranico University of Bologna, Bologna, Italy Thesis: *"Structural rearrangement detection in PDS treated cells using gene fusion detection tools".*
7 January 2017 - 31 March 2018	Student: Bruno de Lucca Visiting student in Molecular Biology Supervisor: Prof. G. Capranico Universidad de Chile Project: *"Development of software for R-loop genomic annotation".*

PUBLIC ENGAGEMENT ACTIVITIES

January 2017 - Present	**Fundraising Volunteer** AIRC - The Italian Foundation for Cancer Research, Emilia Romagna Activities: Volunteer at annual "*Arance della Salute*", "*Azalee della Ricerca*" and "*Cioccolatini della ricerca*" fundraising initiatives. Bologna, Italy
27 September 2019	**Volunteer** European Researchers' Night 2019 Activities: Organization and public demonstrations of research activities at "Il Labirinto del Farmaco" stand. FaBIT, University of Bologna, Bologna, Italy

I authorize the processing of personal data present in the CV pursuant to Legislative Decree .Lgs. 101/2018 and of the GDPR (EU Regulation 2016/679).