

Curriculum vitae

Prof.ssa Jessica Marinello

Associate Professor of Molecular biology, Laboratory of Cancer Genome Instability, Department of Pharmacy and Biotechnology - University of Bologna. Old area and SSD: 05E2, BIO/11. New GSD and SSD: 05/BIOS-08-BIOLOGIA MOLECOLARE, BIOS-08/A-Biologia Molecolare.

Faculty member of the Ph.D. program in “Cellular and Molecular Biology”, Department of Pharmacy and Biotechnology - University of Bologna.

PERSONAL DATA

Born in Pieve di Cadore (Belluno, Italia), 14th December 1980.
Work address: Via Selmi 3, Bologna, Italia.
Married, two children aged 5 and 9.

EDUCATION

March 18th, 2009 - PhD in Pharmaceutical Sciences (PhD School in Molecular Sciences), University of Padova, Italy.

July 5th, 2005 - Chemistry and Pharmaceutical Technology Master degree, University of Padova, Italy.

RESEARCH EXPERIENCE AND POSITIONS HELD

November 2022 – present: Associate Professor in the Laboratory of Cancer Genome Instability of the Department of Pharmacy and Biotechnology - University of Bologna. SSD BIO/11.

November 2019 – November 2022: RTDb in the Laboratory of Cancer Genome Instability of the Department of Pharmacy and Biotechnology - University of Bologna. SSD BIO/11.

August 2014 - November 2019: RTDa in the Laboratory of Cancer Genome Instability of the Department of Pharmacy and Biotechnology - University of Bologna. SSD BIO/11.

February 2009 - July 2014: Post-Doctoral fellow in the Laboratory of Cancer Genome Instability of Prof. Giovanni Capranico (Department of Pharmacy and Biotechnology - University of Bologna).

September 2007 - October 2008: PhD Student at the National Institute of Health, National Cancer Institute branch, Bethesda, Maryland, USA, under the supervision of Yves Pommier, MD, PhD.

January 2006 - August 2007: PhD Student in the Department of Pharmaceutical Sciences, University of Padova – Italy, under the supervision of Prof. Barbara Gatto.

RESEARCH GRANTS

PRIN 2022: National Coordinator and Bologna Unit PI. Title: "Identification of genetic and epigenetic regulators supervising R-loops formation".

FONDAZIONE DEL MONTE Bando Ricerca Scientifica 2021 (thematic macro-area: oncological diseases): PI. Title: “Acquisition of high performance instrument for genomic, transcriptomic and proteomic analyses of xenotransplant models”.

CARISBO Ricerca Medica e Alta Tecnologia 2021: PI. Title: “Acquisition of high-performance instrument for chemiluminescent/fluorescent imaging for preclinical biomedical research”.

PRIN 2017: Bologna PI Research Unit (national coordinator Maria Pia Longhese). Title: "G quadruplexes as modulators of genome stability".

SCIENTIFIC ACTIVITY

Research activity is focused on the study of regulation of non-B DNA structures (i.e. R-loops and G4) by human Topoisomerase I, with particular interest in defining molecular mechanisms linked to DNA damage onset.

ORAL PRESENTATION AT INTERNATIONAL AND NATIONAL MEETINGS

Speaker: “DNA topoisomerase I poisons cause R-loops and replication-dependent DNA damage downstream of arrested RNA polymerase II at highly transcribed genes”. EMBO meeting on “Transcription and genome maintenance”, Jacques-Monod Conference series, Roscoff (France), 9-13 September 2024.

Speaker: “Genome instability induced by Camptothecin, a Topoisomerase I poison”. Virtual Topoisomerases Webinar Series, 28 April 2023.

Speaker: “Topoisomerase I poison-triggered immune gene activation mediated by STING pathway can be impaired in human lung cancer cell lines”. EMBO virtual workshop “DNA Topology in genomic transactions”. 20-23 September 2021.

Speaker: “Transient R loop induction by DNA topoisomerase inhibitors in cancer cells”. French-Italian Workshop on “DNA damage, cancer and neurodegeneration”. Bologna, February 22nd, 2018.

Oral Presentation: “Antisense non-coding RNAs induced by Topoisomerase I inhibition at human CpG island promoters of human cells”. 12th FISV Congress, September 24th-27th, 2012. Sapienza University, Rome, Italy.

Oral Presentation: “Antisense non-coding RNAs induced by Topoisomerase I inhibition at human CpG island promoters”. 10th EMBL Conference on Transcription and Chromatin, August 25th-28th, 2012. EMBL, Heidelberg, Germany.

Speaker: “HIV integrase mutations and resistance to Raltegravir and Elvitegravir”. HIV drug resistance program, Think Tank meeting, April 16th, 2008, Frederick, Maryland, USA.

PARTECIPATIONS IN THE ORGANIZING COMMITTEE OF SCIENTIFIC MEETINGS

2019 SIBBM “*Frontiers in molecular Biology*” Seminar: “*Nucleic acid immunity: from cellular mechanisms to new technologies*”. Bologna, June 11th-13th, 2019.

French-Italian Workshop on “*DNA damage, cancer and neurodegeneration*”. Bologna, February 22nd, 2018.

SCIENTIFIC PARTECIPATIONS AS INVESTIGATOR TO RESEARCH PROJECTS (other than PI)

AIRC ID23032 Capranico (PI) 01/01/2020 – 12/31/2024
“Mechanistic roles of R-loops and micronuclei in the innate response induced by anticancer G-quadruplex binders”.

AIRC IG15886 Capranico (PI) 01/01/2015 – 12/31/2017
“R-loop regulation at transcribed regions: implications for cell sensitivity to DNA topoisomerase I inhibitors”.

Menarini Ricerche Capranico (PI) 01/01/2016 – 12/31/2017
“Epigenetic profiling of sabarubicin and doxorubicin in human cancer cells”.

FARB RFBO120249 Recanatini (PI) 01/01/2014 – 12/31/2015
“Modulation of protein-DNA interactions with small molecules: novel opportunities for drug design”.

AIRC IG10184 Capranico (PI) 01/01/2011 – 12/31/2013
“Transcriptional Topoisomerase I functions: implications for tumor resistance to enzyme poisons”.

MEMBERSHIP

Member of the Società Italiana di Biofisica e Biologia Molecolare (SIBBM), Viale Ippocrate 91, Roma (Italy).

TEACHING ACTIVITIES

From AY 2019/2020 - present: responsible teacher of the course “Eukaryotic Molecular Biology”, Bachelor of Science in Biotechnology, University of Bologna, Italy. 5 CFU, 40 hours per academic year.

From AY 2015/2016 - present: responsible teacher of the course “Molecular Biology”, laboratory module, Bachelor of Science in Biotechnology, University of Bologna, Italy. 2 CFU, 60 hours per academic year.

From AY 2023/2024 - present: teacher of the course “Biological drugs”, Master of Science in Pharmacy, University of Bologna, Italy. 2 CFU, 16 hours per academic year.

From AY 2023/2024 - present: responsible teacher of the course “Structures and functions of RNAs and their modulation by small molecules”, Master of Science in Chemistry and Pharmaceutical Technology, University of Bologna, Italy. 4 CFU, 32 hours per academic year.

From AY 2024/2025 - present: responsible teacher of the course “Technologies for genome instability”, PhD program in Cellular and Molecular Biology, University of Bologna, Italy. 1 CFU, 15 hours per academic year.

From AY 2009/2010 to AY 2013/2014: academic tutor of the course “Molecular and genetic aspects of diseases with laboratory”, Faculty of Pharmacy, master degree in Pharmaceutical Biotechnologies, University of Bologna, Italy.

INSTITUTIONAL DUTIES AND ROLES

From AY 2023/2024: member of internship committee for the Bachelor of Science in Biotechnology, Department of Pharmacy and Biotechnology, University of Bologna.

From AY 2023/2024: responsible for the Erasmus exchange between University of Bologna and INP Bordeaux (France).

From AY 2023/2024: member of the faculty-student joint committee, Department of Pharmacy and Biotechnology, University of Bologna.

February 2023: member of the evaluation committee of a call for an RTDa position, SSD BIO/11, at the Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina.

From 2014 to present: member of the committee for admission test TOLC.

From 2015 to present: member of FABIT committees for awarding post-doctoral position.

AY 2021/2022: member of the committee for the revision of the degree program for the Bachelor of Science in Biotechnology.

AY 2017/2018: member of the committee for the revision of the Syllabi of the Bachelor of Science in Biotechnology. Engaged in third mission events such as the orientation day at the high school “Liceo Classico Statale Marco Minghetti” (23rd March 2022) or educational science workshops at kindergartens and elementary schools (February 2024).

LIST OF PUBLICATIONS

1. Miglietta G, Russo M, Capranico G, Marinello J. (2024) Stimulation of cGAS-STING signaling pathway as a strategy in the treatment of small cell lung cancer. *Br J Cancer*, under revision. **2Y IF 8.8; 5Y IF 8.4.**
2. Duardo RC*, Marinello J*, Russo M*, Morelli S, Pepe S, Guerra F, Gómez-González B, Aguilera A, Capranico G. (2024) Human DNA topoisomerase I poisoning causes R-loop-mediated genome instability attenuated by transcription factor IIS. *Sci Adv* 20(21):eadm8196. **2Y IF 13.6; 5Y IF 15.4.**

3. Geraud M, Cristini A, Salimbeni S, Bery N, Jouffret V, Russo M, Ajello AC, Fernandez Martinez L, Marinello J, Cordelier P, Trouche D, Favre G, Nicolas E, Capranico G, Sordet O. (2024) TDP1 mutation causing SCAN1 neurodegenerative syndrome hampers the repair of transcriptional DNA double-strand breaks. *Cell Rep* 43(5):114214. **2Y IF 8.8; 5Y IF 9.9.**
4. Miglietta G, Marinello J, Capranico G. Immunofluorescence microscopy of G-quadruplexes and R-loops. (2024) *Methods Enzymol.* 695:103-118. Book chapter.
5. Miglietta G, Marinello J, Russo M, Capranico G. (2022) Ligands stimulating antitumour immunity as the next G-quadruplex challenge. *Mol Cancer.* 21(1):180. **2Y IF 37.3; 5Y IF 33.1.**
6. Marzano S, Miglietta G, Morigi R, Marinello J, Arleo A, Procacci M, Locatelli A, Leoni A, Pagano B, Randazzo A, Amato J, Capranico G. (2022) Balancing Affinity, Selectivity, and Cytotoxicity of Hydrazone-Based G-Quadruplex Ligands for Activation of Interferon β Genes in Cancer Cells. *J Med Chem.* 65(18):12055-12067. **2Y IF 7.3; 5Y IF 7.3.**
7. 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. *Br J Cancer.* 127(7):1214-1225. **2Y IF 8.8; 5Y IF 8.4.**
8. Marinello J, Capranico G. (2022) Highly Purified Top1-Bound DNA Fragments. *Methods Mol Biol.* 2528:203-213. Book chapter.
9. Cristini A, Ricci G, Britton S, Salimbeni S, Huang SN, Marinello J, Calsou P, Pommier Y, Favre G, Capranico G, Gromak N, Sordet O. (2019) Dual processing of R-loops and topoisomerase I induces transcription-dependent DNA double-strand breaks. *Cell Rep.* 28(12):3167-3181.e6. **2Y IF 8.8; 5Y IF 9.9.**
10. De Magis A, Manzo SG, Russo M, Marinello J, Morigi R, Sordet O, 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 USA* 116:816-825. **2Y IF 11.1; 5Y IF 12.2.**
11. Marinello J, Delcuratolo M, Capranico G (2018) Anthracyclines as Topoisomerase II poisons: from early studies to new perspectives. *Int J Mol Sci* 19(11). **2Y IF 5.6; 5Y IF 6.2.**
12. Manzo SG, Hartono SR, Sanz LA, Marinello J, De Biasi S, Cossarizza A, Capranico G, Chedin F (2018) DNA Topoisomerase I differentially modulates R-loops across the human genome. *Genome Biol.* 19(1). **2Y IF 12.3; 5Y IF 17.4.**
13. Miglietta G, Cogoi S, Marinello J, Capranico G, Tikhomirov AS, Shchekotikhin A, Xodo LE (2017) RNA G-quadruplexes in Kirsten Ras (KRAS) oncogene as targets for small molecules inhibiting translation. *J Med Chem* 60(23):9448-9461. **2Y IF 7.3; 5Y IF 7.3.**
14. Capranico G, Marinello J, Chillemi G (2017) Type I DNA Topoisomerases. *J Med Chem* 60(6):2169-2192. **2Y IF 7.3; 5Y IF 7.3.**
15. Amato J, Pagano A, Cosconati S, Amendola G, Fotticchia I, Iaccarino N, Marinello J, De Magis A, Capranico G, Novellino E, Pagano B, Randazzo A (2017) Discovery of first dual G-triplex/G-quadruplex stabilizing compound: a new opportunity in the targeting of G-rich DNA structures? *Biochim Biophys Acta Gen Subj* 1861(5 Pt B):1271-1280. **2Y IF 3.0; 5Y IF 3.4.**
16. Marinello J, Bertocini S, Aloisi I, Cristini A, Malagoli Tagliazucchi G, Forcato M, Sordet O, Capranico G (2016) Dynamic effects of Topoisomerase I inhibition on R-loops and short transcripts at active promoters *PLoSOne* 11(1). **2Y IF 3.7.**
17. Drwal MN, Marinello J, Manzo SG, Wakelin LP, Capranico G, Griffith R. (2014) Novel DNA topoisomerase IIa inhibitors from combined ligand- and structure-based virtual screening. *PLoSOne* 9(12). **2Y IF 3.7.**
18. Bertozzi D*, Marinello J*, Manzo SG, Fornari F, Gramantieri L, Capranico G (2014) The Natural Inhibitor of DNA Topoisomerase I, Camptothecin, Modulates HIF-1 α Activity by Changing miR Expression Patterns in Human Cancer Cells. *Mol Cancer Ther* 13(1): 239-248. (* shared first authorship). **2Y IF 5.7; 5Y IF 6.3.**
19. Marinello J, Chillemi G, Bueno S, Manzo SG, Capranico G (2013) Antisense transcripts enhanced by camptothecin at divergent CpG-island promoters associated with bursts of topoisomerase I-DNA cleavage complex and R-loop formation. *Nucleic Acids Res* 41(22): 10110-10123. **2Y IF 14.9.**
20. Petronzi C, Festa M, Peduto A, Castellano M, Marinello J, Massa A, Capasso A, Capranico G, La Gatta A, De Rosa M, Caraglia M, Filosa R (2013) Cyclohexa-2,5-diene-1,4-dione-based antiproliferative agents: design, synthesis, and cytotoxic evaluation. *J Exp Clin Cancer Res* 32: 24. **2Y IF 11.3; 5Y IF 11.5.**
21. Manzo SG, Zhou ZL, Wang YQ, Marinello J, He JX, Li YC, Ding J, Capranico G, Miao ZH (2012) Natural product triptolide mediates cancer cell death by triggering CDK7-dependent degradation of RNA polymerase II. *Cancer Res* 72(20): 5363-5373. **2Y IF 11.2; 5Y IF 13.**
22. Fornari F, Milazzo M, Chieco P, Negrini M, Marasco E, Capranico G, Mantovani V, Marinello J, Sabbioni S, Callegari E, Cescon M, Ravaioli M, Croce CM, Bolondi L, Gramantieri L (2012) In hepatocellular carcinoma miR-519d is up-regulated by p53 and DNA hypomethylation and targets CDKN1A/p21, PTEN, AKT3 and TIMP2. *J Pathol* 227(3): 275-285. **2Y IF 7.3; 5Y IF 7.5.**
23. Capranico G, Baranello L, Bertozzi D, Marinello J (2012) Transcriptional stress by camptothecin: mechanisms and implications for the drug antitumor activity. In *DNA Topoisomerases and Cancer*, Pommier Y (ed), 14, pp 309-324. Humana Press. Book chapter.

24. Bertozzi D, Iurlaro R, Sordet O, Marinello J, Zaffaroni N, Capranico G (2011) Characterization of novel antisense HIF-1alpha transcripts in human cancers. *Cell Cycle* 10(18): 3189-3197. **2Y IF 4.3; 5Y IF 4.5.**
25. Ricci A, Marinello J, Bortolus M, Sanchez A, Grandas A, Pedroso E, Pommier Y, Capranico G, Maniero AL, Zagotto G (2011) Electron paramagnetic resonance (EPR) study of spin-labeled camptothecin derivatives: a different look of the ternary complex. *J Med Chem* 54(4): 1003-1009. **2Y IF 7.3; 5Y IF 7.3.**
26. Capranico G, Marinello J, Baranello L (2010) Dissecting the transcriptional functions of human DNA topoisomerase I by selective inhibitors: implications for physiological and therapeutic modulation of enzyme activity. *Biochim Biophys Acta* 1806(2): 240-250. **2Y IF 3.0; 5Y IF 3.4**
27. Tumiatti V, Milelli A, Minarini A, Micco M, Gasperi Campani A, Roncuzzi L, Baiocchi D, Marinello J, Capranico G, Zini M, Stefanelli C, Melchiorre C (2009) Design, synthesis, and biological evaluation of substituted naphthalene imides and diimides as anticancer agent. *J Med Chem* 52(23): 7873-7877. **2Y IF 7.3; 5Y IF 7.3.**
28. Marinello J, Marchand C, Mott BT, Bain A, Thomas CJ, Pommier Y (2008) Comparison of raltegravir and elvitegravir on HIV-1 integrase catalytic reactions and on a series of drug-resistant integrase mutants. *Biochemistry* 47(36): 9345-9354. **2Y IF 2.9.**