

CURRICULUM VITAE

Paola Fiorani

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EDUCATION

1994	Laureate <i>cum laude</i> in Biological Sciences, University of Rome "La Sapienza".
1999	Advanced degree program in Applications of Biotechnology, University of Rome "La Sapienza".

RESEARCH EXPERIENCE

2009-Present	Permanent research position at National Research Council (CNR).
2004-2009	Research position in the laboratory of Prof Alessandro Desideri. University of Rome Tor Vergata.
2001-2003	Post-doctoral fellow in the laboratory of Prof Alessandro Desideri. University of Rome Tor Vergata.
1997-2001	Post-doctoral fellow in the laboratory of Dr. Mary-Ann Bjornsti. Dept. of Molecular Pharmacology, St. Jude Children's Research Hospital, Memphis, TN 38103. Research topic: Genetic analysis of camptothecin-induced cytotoxicity.

1995-1997 Advanced degree program in Applications of Biotechnology in the laboratory of Dr. Piero Benedetti. Institute of Cell Biology, CNR Rome. Research topic: Structure-function and studies of human DNA Topoisomerase.

PUBLICATIONS

1) Benedetti, P., Fiorani, P., Capuani, L., Wang, J. C. (1993). Camptothecin resistance from a single mutation changing glycine 363 of human DNA topoisomerase I to cysteine. *Canc. Res.* 53: 4343-4348.

2) Benedetti, P., Silvestri, A., Fiorani, P., and James C. Wang. (1997). Study of yeast DNA Topoisomerase II and its truncation derivatives by transmission electron microscopy. *J. Biol. Chem.* 272: 12132-12137.

3) Fiorani, P., Amatruda, J. F., Silvestri, A., Butler, R.H., Bjornsti, M. A., and Piero Benedetti (1999). Domain interactions affecting human DNA Topoisomerase I catalysis and camptothecin sensitivity. *Molecular Pharmacology*, 56:1105-1115

4) Reid, R.J.D., Fiorani, P., Suguwara, M., and Mary-Ann Bjornsti (1999). Cdc45 and Dpb11 are required for processive DNA replication and resistance to DNA topoisomerase I-mediated DNA damage. *PNAS* 96 (20): 11440-11445.

5) Paola Fiorani, Christine L. Hann, Piero Benedetti and Mary-Ann Bjornsti. (2000). Drug-induced Stabilization of Covalent DNA Topoisomerase I-DNA Intermediates: DNA Cleavage Assays. *DNA Topoisomerase protocols. Methods in Molecular Biology*. 95: 291-301.

6) Paola Fiorani and Mary-Ann Bjornsti. (2000). Mechanisms of DNA topoisomerase I-induced cell killing in the yeast *Saccharomyces cerevisiae*. *Ann N Y Acad Sci.* 922:65-75. Review.

7) Chillemi G, Fiorani P, Benedetti P, Desideri. (2003) . Protein concerted motions in the DNA-human topoisomerase I complex. *Nucleic Acids Res.* 31 (5): 1525-35.

- 8) Paola Fiorani, Alessandro Bruselles, Mattia Falconi, Giovanni Chillemi, Alessandro Desideri and Piero Benedetti. (2003). Single mutation in the linker domain confers protein flexibility and Camptothecin resistance to human Topoisomerase I. *J Biol Chem.* 278(44):43268-75.
- 9) Fiorani P, Reid RJ, Schepis A, Jacquiau HR, Guo H, Thimmaiah P, Benedetti P, Bjornsti MA. (2004) The deubiquitinating enzyme Doa4p protects cells from DNA topoisomerase I poisons. *J. Biol Chem.* 279(20):21271-81
- 10) Chillemi G, Fiorani P, Castelli S, Bruselles A, Benedetti P, Desideri A. (2005). Effect on DNA relaxation of the single Thr718Ala mutation in human topoisomerase I: a functional and molecular dynamics study. *Nucleic Acids Res.* 8;33(10):3339-50.
- 11) Fiorani, P., Chillemi, G., Losasso, C., Castelli, S., Desideri, A. (2006). The different cleavage DNA sequence specificity explains the camptothecin resistance of the human topoisomerase I Glu418Lys mutant. *Nucleic Acids Res.* 34 (18) : 5093-100
- 12) Chillemi G, Bruselles A, Fiorani P, Bueno S, Desideri A. (2007). The open state of human topoisomerase I as probed by molecular dynamics simulation. *Nucleic Acids Res.* 35 (9) : 3032-8.
- 13) Chillemi G, Fiorani P, Bruselles A, Castelli S, Campagna A, Sarra O, Tesauro C, Fiorentini M, Vassallo O, D'Annessa I, Santoleri S, Desideri A (2007). Role of flexibility and long range communication on the function of human topoisomerase I. *Ital J Biochem.* 56 (2) :110-4.
- 14) Losasso C, Cretaio E, Fiorani P, D'Annessa I, Chillemi G, Benedetti P (2008). A single mutation in the 729 residue modulates human DNA topoisomerase IB DNA binding and drug resistance. *Nucleic Acids Res.* 17:5635-44.
- 15) Chillemi G, D'Annessa I, Fiorani P, Losasso C, Benedetti P, Desideri A (2008). Thr729 in human topoisomerase I modulates anti-cancer drug resistance by altering

protein domain communications as suggested by molecular dynamics simulations. *Nucleic Acids Res.* 17:5645-51.

16) Castelli S, Campagna A, Vassallo O, Tesauro C, Fiorani P, Tagliatesta P, Oteri F, Falconi M, Majumder HK, Desideri A. (2009). Conjugated eicosapentaenoic acid inhibits human topoisomerase IB with a mechanism different from camptothecin. *Arch Biochem Biophys.* 486 (2):103-10.

17) Fiorani P, Tesauro C, Mancini G, Chillemi G, D'Annessa I, Graziani G, Tentori L, Muzi A, Desideri A (2009). Evidence of the crucial role of the linker domain on the catalytic activity of human topoisomerase I by experimental and simulative characterization of the Lys681Ala mutant. *Nucleic Acids Res.* 37 (20):6849-58.

18) Tesauro C, Fiorani P, D'Annessa I, Chillemi G, Turchi G, Desideri A (2009). Erybraedin C, a natural compound from the plant *Bituminaria bituminosa*, inhibits both the cleavage and religation activities of human topoisomerase I. *Biochem J.* 425:531-9.

19) D'Annessa I, Tesauro C, Fiorani P, Chillemi G, Castelli S, Vassallo O, Capranico G, Desideri A. (2012) Role of Flexibility in Protein-DNA-Drug Recognition: The Case of Asp677Gly-Val703Ile Topoisomerase Mutant Hypersensitive to Camptothecin. *J Amino Acids.* 2012:206083.

20) Castelli S, Coletta A, D'Annessa I, Fiorani P, Tesauro C, Desideri A (2012) Interaction between natural compounds and human topoisomerase I. *Biol Chem.* 393 (11): 1327-40.

21) Juul S, Nielsen CJ, Labouriau R, Roy A, Tesauro C, Jensen PW, Harmsen C, Kristoffersen EL, Chiu YL, Frøhlich R, Fiorani P, Cox-Singh J, Tordrup D, Koch J, Bienvenu AL, Desideri A, Picot S, Petersen E, Leong KW, Ho YP, Stougaard M, Knudsen BR. (2012) Droplet Microfluidics Platform for Highly Sensitive and Quantitative Detection of Malaria-Causing Plasmodium Parasites Based on Enzyme Activity Measurement. *ACS Nano.* 6 (12): 10676-83

22) Arnò B, Coletta A, Tesauro C, Zuccaro L, Fiorani P, Lentini S, Galloni P, Conte V, Floris B, Desideri A. (2013) A small organic compound enhances the religation reaction of human topoisomerase I and identifies crucial elements for the religation mechanism. *Biosci Rep. Biosci Rep.* 7 (2)

23) Arnò B, D'Annessa I, Tesauro C, Zuccaro L, Ottaviani A, Knudsen B, Fiorani P, Desideri A. (2013) Replacement of the human topoisomerase linker domain with the plasmodial counterpart renders the enzyme camptothecin resistant. *PLoS One.* 2;8 (7).

24) Tesauro C, Morozzo della Rocca B, Ottaviani A, Coletta A, Zuccaro L, Arnò B, D'Annessa I, Fiorani P, Desideri A. (2013) Molecular mechanism of the camptothecin resistance of Glu710Gly topoisomerase IB mutant analyzed in vitro and in silico. *Mol Cancer* 3;12(1):100. doi: 10.1186/1476-4598-12-100.

25) D'Annessa I, Tesauro C, Wang Z, Arnò B, Zuccaro L, Fiorani P, Desideri. (2013) The human topoisomerase 1B Arg634Ala mutation results in camptothecin resistance and loss of inter-domain motion correlation. *Biochim Biophys Acta.* 2013 1834(12):2712-21

FELLOWSHIPS

1994	Fellowship for Research in Technology of Recombinant DNA, National Research Council (CNR).
1995	Adriano Buzzati Traverso Foundation Fellowship.
1996	Adriano Buzzati Traverso Foundation Fellowship.
1997	Post-doctoral Fellowship for Research Abroad, Italian National Research Council.
2001	FIRC Foundation Fellowship
2004	Researcher position at National Research Council (CNR).

2009 Permanent Researcher position at National Research Council
(CNR).

HONOURS AND AWARDS

Awarded from the Bristol-Myers Squibb company for the abstract presented at the AACR meeting. Philadelphia, PA 10-14 April 1999.

Awarded from the Glaxo Wellcome Oncology, Inc., company for the abstract presented at the AACR meeting. S. Francisco, CA 1-5 April 2000.