## **Curriculum Vitae**

Prof. Luigi E. Xodo

Nato il 7 novembre 1952 a Donada (Rovigo), Italia;

Laurea in Chimica 15-12-1976, presso l'Università degli Studi di Trieste, Italia;

Servizio Militare, 09/1977-09/1978 (Tarvisio, Italia);

Borsista presso l'Università di Reading (UK) 1979;

Assegnista di ricerca presso l'Università di Guildford (UK):1980;

Ricercatore Universitario, Università di Trieste: 1983-1992;

Professore Associato (BIO 10), Università di Trieste: 1992-1997;

Professore Associato (BIO 10), Università di Udine: 1997-2003;

Professore Ordinario (BIO 10), Università degli Studi di Udine, dal 2003 ad oggi;

Docente del corso di “Biochimica Medica” per studenti di Medicina dal 1997/1998 ad aggi;

Membro del Collegio dei Docenti del Corso di Dottorato in Scienze Mediche e Biotecnologiche.

Responsabile del Laboratorio di Biochimica presso il Dipartimento di Medicina di Udine;

Membro Comitato consultivo editoriale di “Scientific Reports” (Nature);

Regolare attività di “Peer reviewing” per Nucleic Acids Research (Oxford Press), J. Medicinal Chemistry (ACS); J. American Chemical Society (ACS), Scientific Reports…

Autore di 120 pubblicazioni (in PubMed/Web of Science),

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Titolare di Fondi di Ricerca AIRC “Associazione Italiana per la Ricerca sul Cancro”, PRIN e FVG:

**AIRC: IG 2007** “Characterization of a regulatory cis-element of oncogenic KRAS and strategies to down-regulate transcription”, (114.000 euro), Progetto Triennale (2007-2009);

**AIRC: IG 2010** “Molecular targeting of oncogenes: rationale design of anticancer drugs directed against KRAS”,(105.000 euro),Progetto Triennale (2010-2012);

**AIRC: IG 2013:** “Epigenetic modifications in gene regulation: effect of 8-oxoguanine on KRAS transcription in pancreatic cancer cells”, (150.000 euro),Progetto Triennale (2013-2015);

**AIRC: IG 2017** “Epigenetic modifications in gene regulation: effect of 8-oxoguanine on KRAS transcription in pancreatic cancer cells”, (370.000 euro), Progetto Quinquennale (2017-2022);

**PRIN 1999-2001:** (101.429.000 lire), “Oligonucleotides and molecular strategies to study and control neoplastic cell progression”; progetto biennale, responsabile Unità di ricerca di Udine;

**PRIN 2001-2003** (62.000 euro), “Use of antigene and antisense effector molecules for the control of tumor cell proliferation: oligonucleotides conjugated to polyethylene glycol”, progetto biennale, responsabile Unità di ricerca di Udine;

**PRIN 2005-2007** (71500 euro),“Use of PNA-DNA oligonucleotides conjugated to PEG in molecular strategies against protein targets”, progetto biennale, responsabile Unità di ricerca di Udine;

**PRIN 2008-2010** (88858 euro),“Formation of G-quadruplex structures in the promoter of the KRAS oncogene and their involvement in transcription regulation”, progetto biennale, responsabile Unità di ricerca di Udine;

**PRIN 2011-2013** (52000 euro),“Development oif G4 decoy oligonucleotides with potent antiproliferative activity specific for the human KRAS and HRAS genes”.progetto biennale, responsabile Unità di ricerca di Udine;

**FVC (Friuli Venezia Giulia)** **da 1-06-2008 a 30-09-2011,** (55000 euro UniUd; 27000 euro UniTs); Titolare del progetto congiunto Università di Udine e Università di Trieste “Sviluppo di nuovi farmaci per la terapia fotodinamica del cancro”(codice 200501822001).

**International Collaborations active:**

* **Prof. Gilmar Salgado**, Laboratoire d'Optique et Biosciences, Ecole Polytechnique, CNRS, INSERM, Institut Polytechnique de Paris, Route de Saclay, Palaiseau Cedex 91128, France.
* **Prof. Stefan Vogel**, Department of Physics, Chemistry and Pharmacy, University of Southern Denmark, Odense, Denmark.
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**Congressi internazionali nel poeriodo 2017-2022**

1. Meeting Italiano su G-quadruplex, G4ME 26-27 Ottobre 2022, **Napoli** (INVITED CHAIRMAN)
2. ANNA 2019 Advances in non-canonical Nucleic Acids, Thursday, October 2019, **Rogaska Slatina** (Slovenia), (INVITED SPEAKER)
3. International Symposium BIONIC 2018, Biology of non-canonical nucleic acids: from human to pathogens, 26-28 Settembre 2018,**Padova**, Botanocal Garden, (INVITED SPEAKER);
4. ANNA 2017 Advances in non-canonical Nucleic Acids, Thursday, 26-28 October 2017, **Villa Bled** (Slovenia), (INVIATED SPEAKER)
5. G-quadruplexes: benchmarking from structures to functions, **Paris** 2018, Institute Curie, 12 rue Lhomond., 20 February 2018; (INVIATED SPEAKER)

**Publications**

1. M.H.Abraham, **L.E.Xodo**, R.J.Abraham, M.J.Cook. A direct experimental and theoretical study of solvent effects on the equilibrium between trans cis and trans tran 1,2-dibromo-4-butylcyclohexanes. *Tetrahedron Letters* (1981) **22**, 5183-5186.

2. M.J.Cook, M.H.Abraham, **L.E.Xodo**, R.Cruz. Empirical determination of medium effects on the equilibrium between trans cis and trans trans 1,2-dibromo-4-t- butylcyclohexanes. *Tetrahedron Letters* (1981) **22**, 2991-2994.

3. M.H.Abraham, **L.E.Xodo**, M.J.Cook, R.Cruz.Solvent and gas-phase effects on the equilibrium between configurational isomers of some 4-t-butylcyclohexanes. *J. Chem. Soc. Perkin Trans. II* (1982) 1503-1509.

4. M.L.Barcellona, G.Manzini, **L.E.Xodo**, N.Ragusa, M.Avitabile, F.Quadrifoglio.Interaction of DAPI with natural and synthetic polyribonucleotides: calorimetric measurements. *The Italian Journal of Biochemistry* (1985) **34**, 467-470.

5. G.Manzini, **L.E.Xodo**, M.L.Barcellona, F.Quadrifoglio. Interaction of 4'-6-diamidino-2-phenylindole.2HC1 with synthetic and natural deoxy- and ribonucleic acids. *Journal of Biosciences* (1985) **8**, 699-711.

6. G. Manzini, **L.E. Xodo**, M.L. Barcellona, F. Quadrifoglio.Interaction of DAPI with double stranded ribonucleic acids. *Nucleic Acids Research* (1985) **13**, 8955-8967.

7. **L.E.Xodo**, G.Manzini, F.Quadrifoglio, G.A.van der Marel, J.H. van Boom.Thermodynamic behaviour of the heptadecadeoxynucleotide d(CGCGCGTTTTTCGCGCG) forming B and Z hairpins in aqueous solution.*Nucleic Acids Research* (1986) **14**, 5389-5398.

8. G.Manzini, **L.E.Xodo**, F.Quadrifoglio, J.H.van Boom, G.H.van der Marel.dC-dG alternating oligonucleotides: thermodynamic and kinetic aspects of the B-Z transformation. *Journal of Biomolecular Structure & Dynamics* (1987) **4**, 651-662.

9. Base specificity in the interaction of ethidium with synthetic polyribonucleotides. Y.Babayan, G.Manzini, **L.E.Xodo**, F.Quadrifoglio. *Nucleic Acids Research* (1987) **15**, 5803-5812.

10. **L.E.Xodo**, G.Manzini, J.Ruggiero, F.Quadrifoglio. Base specificity in the interaction of daunomycin with synthetic polynucleotides.*Biochemical Pharmacology* (1988) **37**, 1867-1868.

11. **L.E.Xodo**, G.Manzini, G.H.van der Marel, J.H.van Boom, F. Quadrifoglio. Oligodeoxynucleotide folding in solution. Loop size and stability of B-hairpins.*Biochemistry* (1988) **27**, 6321-6326.

12. **L.E.Xodo,** G.Manzini, G.H.van der Marel, J.H.van Boom, F. Quadrifoglio.The B-Z conformational transition in folded oligodeoxynucleotides: loop size and stability of Z-hairpins.*Biochemistry* (1988) **27**, 6327-6331.

13. **L.E.Xodo**, G.Manzini, J.Ruggiero, F.Quadrifoglio. On the interaction of daunomycin with natural and synthetic DNAs: sequence specificity and polyelectrolyte effects on the intercalation process. *Biopolymers* (1988) **27**, 1839-1857.

14. **L.E. Xodo**, G.Manzini, G.H.van der Marel, J.H.van Boom, F. Quadrifoglio.The duplex-hairpin conformational transition of d(CGCGCGATCG-CGCG) and d(CGCGCGTACGCGCG): a kinetic and thermodynamic study.*Journal of Biomolecular Structure & Dynamics* (1988) **6**, 139-152.

15. Y.Babayan, **L.E.Xodo**, G.Manzini. Netropsin does not bind to the oligodeoxynucleotide d(CGGTACGC) *Biofizica* (1988) **4**, 716-717.

16. G.Manzini, **L.E.Xodo**, N.Yathindra, F.Quadrifoglio.Sequence effects on the energetics of the duplex-hairpin-coil conformational transitions in palindromic oligodeoxynucleotides. *The Italian Journal of Biochemistry* (1989) 145-148.

17. **L.E. Xodo**, G.Manzini, F.Quadrifoglio, N.Yathindra, G. A.van der Marel, J.H.van Boom.A facile duplex-hairpin interconversion through a cruciform intermediate in a DNA fragment. *Journal of Molecular Biology* (1989) **205**, 777-781.

18. **L.E.Xodo**, G.Manzini, F.Quadrifoglio, N.Yathindra, G. A.van der Marel, J.H. van Boom. The left-handed Z-DNA conformation in oligodeoxynucleotides containing different amounts of AT base pairs: a far UV circular dichroism study. *Journal of Biomolecular Structure & Dynamics* (1989) **6**, 1217-1231.

19. **L.E.Xodo**, G.Manzini, F.Quadrifoglio, G.A.van der Marel, J.H. van Boom.Hairpin structures in synthetic oligodeoxynucleotides: sequence effects on the duplex-hairpin interconversion.*Biochimie* (1989) **71**, 793-803.

20. **L.E.Xodo**, G.Manzini. Use of oligodeoxynucleotides as simple models for studying the polymorphysm of DNA. *Italian Journal of Biochemistry* (1990) **6**, 395-400.

20. G.Manzini, **L.E. Xodo**, F.Fogolari, F.Quadrifoglio. Secondary structure effects on the interaction of different polynucleotides with Ca2+. *Biopolymers* (1990) **30**, 325-333.

22. G. Manzini, **L.E.Xodo**, D.Gasparotto, F. Quadrifoglio, G.H. van der Marel, J.H. van Boom. Triple helix formation by oligopurine-oligopyrimidine DNA fragments: electrohoretic and thermodynamic behavior.n *Journal of Molecular Biology* (1990) **213**, 833-843.

23. **L. E. Xodo**, G.Manzini and F.Quadrifoglio. Spectroscopic and calorimetric investigation on the DNA triplex formed by d(CTCTTCTTTCTTTTCTTTCTTCTC) and d(GAGAAGAAAGA) at acidic pH. *Nucleic Acids Research* (1990) **18**, 3557-3564.

24. **L.E.Xodo,** G.Manzini, F.Quadrifoglio, G.H.van der Marel, J.H. van Boom.DNA hairpin loops in solution. Correlation between primary structure, thermostability and reactivity with single-strand- specific nuclease from mung bean. *Nucleic Acids Research* (1991) 19, 1505-1511.

25. **L.E.Xodo**, G.Manzini, F.Quadrifoglio, G.H.van der Marel, J.H. van Boom.

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*Nucleic Acids Research* (1991) 19, 5625-5631.

26. Yu.S.Babayan, G.Manzini, **L.E.Xodo**. Binding of mitoxantrone and ametantrone with polyd(G-C):polyd(G-C) is not obstracted by NaCl induced B-Z transition.*Biofizica* (1991) **36**, 266-270.

27. J.Ruggiero, **L.E. Xodo**, A.Ciana, G.Manzini, F.Quadrifoglio. Charge effects in the interaction of antracyclines into double-stranded DNA.  *Biochimica et Biophysica Acta* (1992) **1129**, 294-302.

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33. **Luigi E. Xodo** Kinetic analysis of triple-helix formation by pyrimidine oligonucleotides and duplex DNA**.** *European Journal of Biochemistry*,(1995) **228**, 918-926

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**Luigi E. Xodo**, Doroti Pirulli, F. Quadrifoglio

*European Journal of Biochemistry* (1997) **248**, 424-432.

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Eleonora Marsich, **Luigi E. Xodo**, Giorgio Manzini

*European Journal Biochemistry*, (1998) **259**, 1-7.

41. Formation of stable DNA triple helices within the human Bcr promoter at a critical oligopurine target interrupted in the middle by two adjacent pyrimidines

**Luigi E. Xodo**, Giorgio Manzini, Franco Quadrifoglio

*Antisense & Nucleic Acid Drug Development* (1998) **8**, 477-488.

42. Formation of triple helices at irregular poly (RY) sites located in critical positions in the human *bcr* promoter

**Luigi E. Xodo**, Elisa Del Terra, Bruna Scaggiante, Giorgio Mnazini, Franco Quadrifoglio *Nucleosides & Nucleotides* (1999*)* **18**,1587-1592.

43. Effect of oligomer length and base substitutions on the cytotoxic activity and specific nuclear protein recognition of GTn oligonucleotides in the human leukemic CCRF-CEM cell line

C. Morassuti, B. Dapas, B. Scaggiante, G. Paroni, **L. E. Xodo** F. Quadrifoglio

*Nucleosides & Nucleotides* (1999*)* **18**, 1711-1716.

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Romina Floris, Bruna Scaggiante, Giorgio Manzini, Franco Quadrifoglio, **Luigi E. Xodo**

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C. Morassutti, B. Scaggiante, **L.E.Xodo**, B.Dapas, G.Paroni, G.Tolazzi, F.Quadrifoglio

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46. Effect of phosphorothioate modifications on the ability of GTn oligodeoxynucleotides to specifically recognize single-stranded DNA-binding proteins and to affect human cancer cellular growth.

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47. Down regulation of c-Ki-*ras* promoter activity by triplex-forming oligonucleotides endogenously generated in human 293 cells,

S. Cogoi, C. Suraci, E. Del Terra, S. Diviacco, G. van der Marel, F. Quadrifoglio, **L.E.Xodo***,*

*Antisense & Nucleic Acid Drug Development* (2000) **10**, 283-295.

48. Antigene effect in live cells of AG motif triplex-forming oligonucleotides containing an increasing number of phosphorothioate linkages

Susanna Cogoi, Valentina Rapozzi, Franco Quadrofoglio and **Luigi E.Xodo**

*Biochemistry* (2001) **40**, 1135-1143.

49. Targeting neighbouring poly (purine-pyrimidine) sequences located in the human bcr promoter by triple-forming oligonucleotides

**Luigi E. Xodo,** R.Thenmalarchelvi, F. Quadrifoglio, G. Manzini and N. Yathindra

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51. Triple, MPEG-conjugated, helix-forming oligonucleotides (TRIPEGXs): liquid-phase synthesis of natural and chimeric “all-purine” sequences linked to high molecular weight poly(ethylene glycols)

M. Ballico, S. Drioli, F. Morvan, **L.E.Xodo**, GM. Bonora

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52. Antigene effect in K562 cells of a PEG-conjugated triple-forming oligonucleotide targeted to the bcr/abl oncogene

V. Rapozzi, S. Cogoi, S. Spessotto, A. Risso, GM. Bonora, F. Quadrifoglio and **L.E.Xodo**

#### Biochemistry (2002) **41**, 502-510.

53. Antiproliferative effect in chronic myeloid leukaemia cells by antisense peptide nucleic acids of antisense peptide nucleic acids

V. Rapozzi, B.Burm, S. Cogoi, G. van der Marel, J. van Boom, F. Quadrifoglio**, L.E.Xodo**

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