

## Curriculum vitae Erica Novo

### Personal details

Born in Turin, 31/01/1975

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### Educations

- November 8th 2000: Degree in Biological Sciences at the Faculty of Science MFN of the University of Turin.
- March 1st 2001 - July 31st 2002: Research fellow within a National Project (PRIN 2000)
- February 16th 2007: PhD in Experimental and Molecular Pathology (University of Turin)
- November 1st 2006 - October 31st 2007: Research Fellow of the Bossolasco Foundation.
- November 1st 2007 to August 31st 2009: Research Fellow with bursary from University of Turin.
- September 1st 2009 – September 30 2010: Research Fellow with bursary from University of Turin.

### Professional experiences and current position

- from October 3<sup>th</sup> 2022 - present: Associated Professor (MED/04, General Pathology) – Dept. Clinical and Biological Sciences – University of Turin.
- from October 1st 2010 to October 2<sup>nd</sup> 2022: Assistant Professor (MED/04, General Pathology) - Dept. Clinical and Biological Sciences – University of Turin.

### Participation to Directive Boards of Scientific Societies and/or Institutions:

- Member of Editorial Board team of the journals *Antioxidants* and of *Gastroenterology Research and Practice*
- Guest Editor of the journal *Antioxidants* for the special issue "The Role of Oxidative Stress in Liver Cancer"

### Teaching activity:

- General Pathology - Degree Course in Biomedical Laboratory Techniques – University of Turin (Cuneo)
- Pathophysiology - Degree Course in Biomedical Laboratory Techniques - University of Turin
- Pathology and Pathophysiology - Degree Course in Medical Radiology Techniques, Imaging and Radiotherapy - University of Turin
- General Pathology - Master's Degree in Medicine and Surgery - University of Turin

### Research main topics

The research activity is mainly focused on experimental studies in which human liver samples obtained from patients with fibrosis, cirrhosis and/or hepatocellular carcinoma and in vitro samples were used for the purpose of characterizing and study the pathogenesis of chronic liver damage, focusing on the tissue, cellular and molecular events involved in liver fibrogenesis and its progression to the end stage of chronic liver disease (cirrhosis, non-alcoholic fatty liver diseases -NAFLD, non-alcoholic steatohepatitis- NASH).

### Main projects as PI:

2008 - Ricerca Sanitaria Finalizzata, regione Piemonte

2009 - Ricerca Sanitaria Finalizzata, regione Piemonte 2005-2008, 2012, 2016-2021: Local Research funds , University of Torino

2017 – Basic Research activity – MIUR

2012-2021 Local Research funds, University of Torino

### Bibliometry (2001-present) ([www.scopus.com](http://www.scopus.com))

H-index (Scopus): 33

### Publications

1. **Novo E**, Cappon A, Villano G, Quarta S, Cannito S, Bocca C, Turato C, Guido M, Maggiora M, Protopapa F, Sutti S, Provera A, Ruvoletto M, Biasiolo A, Foglia B, Albano E, Pontisso P, Parola M.

- SerpinB3 as a Pro-Inflammatory Mediator in the Progression of Experimental Non-Alcoholic Fatty Liver Disease. *Front Immunol.* 2022 Jul 8;13:910526. doi: 10.3389/fimmu.2022.910526
2. Di Maira, G., Foglia B., Napione L., Turato C., Maggiora M., Sutti S., **Novo E.**, Alvaro M., Autelli R., Colombatto S., Bussolino F., Carucci P., Gaia S., Rosso C., Biasiolo A., Pontisso P., Bugianesi E., Albano E., Marra F., Parola M. *J Pathol* 2022; doi: 10.1001/path.5871
  3. Foglia B., Sutti S., Cannito S., Rosso C., Maggiora M., Autelli R., **Novo E.**, Bocca C., Villano G.M., Ramavath N.N., Younes R., Tusa I., Rovida E., Pontisso P., Bugianesi E., Albano E., Parola M. Hepatocyte-specific deletion of HIF2 alpha prevents NASH-related liver carcinogenesis by decreasing cancer cell proliferation. *CMGH* 2022; 13: 452-481 doi: 10.1016/j.jcmgh.2021.10.002
  4. Foglia B. **Novo E.**, Protopapa F, Maggiora M. Bocca C, Cannito S, Parola M. Hypoxia, hypoxia inducible-factors and liver fibrosis. *Cells* 2021; 10: 1764. doi: 10.3390/cells1001764
  5. **Novo E.**, Bocca C., Foglia B., Protopapa F., Maggiora M., Parola M. Liver fibrogenesis: un update on established and emerging basic concepts. *ABB* 2020; 689 doi: 10.1016/j.abb.2020.108445
  6. Pierantonelli I, Lioci G., Gurrado F., Giordano D.M., Rychlicki C., Bocca C., Trozzi L., **Novo E.**, Panera N., De Stefanis C., D’Oria V., Marzioni M., Maroni L., Parola M., Alisi A., Svegliati-Baroni G. HDL cholesterol protects from liver injury in mice with intestinal specific LXR alpha activation. *Liver International* 2020; 40: 3127-3139 doi: 10.1111/liv. 14712
  7. B. Foglia, S. Sutti, D. Pedicini, S. Cannito, C. Bocca, M. Maggiora, M.R. Bevacqua, C. Rosso, E. Bugianesi, E. Albano, **E. Novo**†, M. Parola†. Oncostatin M, A Profibrogenic Mediator Overexpressed in Non-Alcoholic Fatty Liver Disease, Stimulates Migration of Hepatic Myofibroblasts. *Cells.* 2019; 9:28. N.E.† and M.P.† contributed equally to the study doi: 10.3390/cells9010028
  8. S. Cannito, B. Foglia, G. Villano, C. Turato, T. C. Delgado, E. Morello, F. Pin, **E. Novo**, L. Napione, S. Quarta, M. Ruvoletto, S. Fasolato, G. Zanusi, S. Colombatto, F. Lopitz-Otsoa, D. Fernández-Ramos, F. Bussolino, S. Sutti, E. Albano, M.L. Martínez-Chantar, P. Pontisso, M. Parola. SerpinB3 Differently Up-Regulates Hypoxia Inducible Factors-1 $\alpha$  and -2 $\alpha$  in Hepatocellular Carcinoma: Mechanisms Revealing Novel Potential Therapeutic Targets. *Cancers (Basel)* 2019; 11: 1933. doi: 10.3390/cancers11121933
  9. B. Foglia, S. Cannito, C. Bocca, M. Parola, **E. Novo** ERK Pathway in Activated, Myofibroblast-Like, Hepatic Stellate Cells: A Critical Signaling Crossroad Sustaining Liver Fibrosis. *Int J Mol Sci.* 2019; 20: 2700. doi: 10.3390/ijms20112700
  10. Morello E, Sutti S., Foglia B., **Novo E.**, Cannito S., Bocca C., Rajskey M., Bruzzi S., Abate M.L., Rosso C., Bozzola C., David E., Bugianesi E., Albano E., Parola M. Hypoxia-inducible factor 2 drives nonalcoholic fatty liver progression by triggering hepatocyte release of histidine-rich glycoprotein. *Hepatology* 2018; 67: 2196-2214 doi: 10.1002/hep.29754
  11. Cannito S., **Novo E.**, Parola M. Therapeutic pro-fibrogenic signaling pathways in fibroblasts *Adv Drug Deliv Rev* 2017 121: 57-84 doi: 10.1016/j.addr.2017.05.017
  12. **E. Novo**\*, G. Villano\*, C. Turato, S. Cannito, C. Paternostro, C. Busletta, A. Biasiolo, S. Quarta, E. Morello, C. Bocca, A. Miglietta, E. David, S. Sutti, M. Plebani, E. Albano, M. Parola, P. Pontisso. SerpinB3 Promotes Pro-fibrogenic Responses in Activated Hepatic Stellate Cells. *Sci Rep.* 2017; 7: 3420. N.E.\* and G.V.\* contributed equally to the study doi: 10.1038/s41598-017-03744-3
  13. S. Cannito, E. Morello, C. Bocca, B. Foglia, E. Benetti, **E. Novo**, F. Chiazza, M. Rogazzo, R. Fantozzi, D. Povero, S. Sutti, E. Bugianesi, A. E. Feldstein, E. Albano, M. Collino, M. Parola. Microvesicles released from fat-laden cells promote activation of hepatocellular NLRP3 inflammasome: A pro-inflammatory link between lipotoxicity and non-alcoholic steatohepatitis. *PLoS One.* 2017; 12(3): e0172575. doi: 10.1371/journal.pone.0172575 PMID:PMC5331985
  14. **E. Novo**, S. Cannito, M. Parola. In vivo reprogramming of hepatic myofibroblasts into hepatocytes attenuates liver fibrosis: back to the future? *Stem Cell Investig.* 2016; 3: 53. doi: 10.21037/sci.2016.09.08
  15. C. Bocca, **E. Novo**, A. Miglietta, M. Parola. Angiogenesis and Fibrogenesis in Chronic Liver Diseases. *Cell Mol Gastroenterol Hepatol.* 2015; 1(5): 477–488. doi: 10.1016/j.jcmgh.2015.06.011
  16. Sansoè G, Aragno M, Mastrocola R, Mengozzi G, **Novo E**, Parola M. Role of Chymase in the Development of Liver Cirrhosis and Its Complications: Experimental and Human Data. *PLoS One*, 2016; 11:e0162644. doi: 10.1371.
  17. Vivoli E, Cappon A, Milani S, Piombanti B, Provenzano A, **Novo E**, Masi A, Navari N, Narducci R, Mannaioni G, Moneti G, Oliveira CP, Parola M, Marra F. NLRP3 inflammasome as a target of berberine in experimental murine liver injury: interference with P2X7 signalling. *Clin Sci (Lond)*, 2016; 130(20):1793-806. doi: 10.1042/CS20160400.

18. **Novo E**, Cannito S, Morello E, Paternostro C, Bocca C, Miglietta A, Parola M. Hepatic myofibroblasts and fibrogenic progression of chronic liver diseases. *Histol Histopathol.* 2015; 9:1011-32. doi: 10.14670/HH-11-623.
19. Cannito S, Turato C, Paternostro C, Biasiolo A, Colombatto S, Cambieri I, Quarta S, **Novo E**, Morello E, Villano G, Fasolato S, Musso T, David E, Tusa I, Rovida E, Autelli R, Smedile A, Cillo U, Pontisso P, Parola M. Hypoxia up-regulates SERPINB3 through HIF-2 $\alpha$  in human liver cancer cells. *Oncotarget.* 2015 10;6(4):2206-21. doi:10.18631/oncotarget.2943
20. **Novo E**, Cannito S, Paternostro C, Bocca C, Miglietta A, Parola M. Cellular and molecular mechanisms in liver fibrogenesis. *Arch Biochem Biophys.* 2014; 548:20-37. doi: 10.1016/j.abb.2014.02.015.
21. Provenzano A, Milani S, Vizzutti F, Delogu W, Navari N, **Novo E**, Maggiora M, Maurino V, Laffi G, Parola M, Marra F. n-3 polyunsaturated fatty acids worsen inflammation and fibrosis in experimental nonalcoholic steatohepatitis. *Liver Int.* 2014; 34:918-30. doi: 10.1111/liv.12500.
22. S. Cannito, C. Paternostro, C. Busletta, C. Bocca, S. Colombatto, A. Miglietta, **E. Novo**, M. Parola. Hypoxia, hypoxia-inducible factors and fibrogenesis in chronic liver diseases. *Histol Histopathol*, 2014; 29:33-44 doi: 10.14670/HH-29.33
23. Paternostro C, Busletta C, Cannito S, **Novo E**, Parola M. Hepatic angiogenesis and fibrogenesis in the progression of chronic liver diseases. *Current Angiogenesis*, 2013; 2:23-29, ISSN: 2211-5528.
24. C. Busletta, **E. Novo**, M. Parola Human-induced pluripotent stem cells as a source of hepatocyte-like cells: new kids on the block. *Hepatol Int*, 2013; 7:299-305, doi: 10.1007/s12072-011-9300-0
25. Galastri S, Zamara E, Milani S, **Novo E**, Provenzano A, Delogu W, Vizzutti F, Sutti S, Locatelli I, Navari N, Vivoli E, Caligiuri A, Pinzani M, Albano E, Parola M, Marra F. Lack of CC chemokine ligand 2 differentially affects inflammation and fibrosis according to the genetic background in a murine model of steatohepatitis. *Clin Sci*, (2012) vol. 123:459-471, doi: 10.1042/CS20110515.
26. **Novo E**<sup>†</sup>, Povero D<sup>†</sup>, Busletta C, Paternostro C, di Bonzo LV, Cannito S, Compagnone A, Bandino A, Marra F, Colombatto S, David E, Pinzani M, Parola M. The biphasic nature of hypoxia-induced directional migration of activated human hepatic stellate cells. *J Pathol* (2012) vol. 226: 588-597 N.E.<sup>†</sup> and P.D.<sup>†</sup> contributed equally to the study doi: 10.1002/path.3005
27. **Novo E**, Parola M. The role of redox mechanisms in hepatic chronic wound healing and fibrogenesis. *Fibrogenesis & Tissue Repair*, 2012; 5. doi: 10.1186/1755-1536-5-S1-S4
28. Busletta C\*, **Novo E**\*, Valfrè Di Bonzo L, Povero D, Paternostro C, Ievolella M, Mareschi K, Ferrero I, Cannito S, Compagnone A, Bandino A, Colombatto S, Fagioli F, Parola M. Dissection of the biphasic nature of hypoxia-induced motogenic action in bone marrow-derived human mesenchymal stem cells. *Stem Cells*, 2011; 29:952-963, B.C.\* and N.E.\* contributed equally to the study doi: 10.1002/stem.642
29. **Novo E**<sup>†</sup>, Busletta C<sup>†</sup>, Bonzo LV, Povero D, Paternostro C, Mareschi K, Ferrero I, David E, Bertolani C, Caligiuri A, Cannito S, Tamagno E, Compagnone A, Colombatto S, Marra F, Fagioli F, Pinzani M, Parola M. Intracellular reactive oxygen species are required for directional migration of resident and bone marrow-derived hepatic pro-fibrogenic cells. *J Hepatol* 2011; 54:964-974. N.E.<sup>†</sup> and B.C.<sup>†</sup> contributed equally to the study doi: 10.1016/j.jhep.2010.09.022
30. Aleffi S, Navari N, Delogu W, Galastri S, **Novo E**, Rombouts K, Pinzani M, Parola M, Marra F Mammalian target of rapamycin mediates the angiogenic effects of leptin in human hepatic stellate cells. *Am J Physiol-Gastr Liv Phys*, 2011; 301:G210-G219. doi: 10.1152/ajpgi.00047.2010
31. Vizzutti F, Provenzano A, Galastri S, Milani S, Delogu W, **Novo E**, Caligiuri A, Zamara E, Arena U, Laffi G, Parola M, Pinzani M, Marra F. Curcumin limits the fibrogenic evolution of experimental steatohepatitis. *Lab Invest*, 2010; 90: 104-115 doi: 10.1038/labinvest.2009.112
32. Cannito S, **Novo E**, Di Bonzo LV, Busletta C, Colombatto S, Parola M Epithelial-Mesenchymal Transition: From Molecular Mechanisms, Redox Regulation to Implications in Human Health and Disease. *Antioxid Redox Sign*, 2010; 12:1383-1430 doi: 10.1089/ars.2009.2737
33. Paternostro C, David E, **Novo E**, Parola M. Hypoxia, angiogenesis and liver fibrogenesis in the progression of chronic liver diseases. *World J Gastroenterol*, 2010; 21:281-288 doi: 10.3748/wjg.w16.i3.281
34. Povero D, Busletta C, **Novo E**, di Bonzo LV, Cannito S, Paternostro C, Parola M. Liver fibrosis: a dynamic and potentially reversible process. *Histol Histopathol*, 2010; 25:1075-1091, doi: 10.14670/HH-25.1075
35. Nobili V, Parola M, Alisi A, Marra F, Piemonte F, Mombello C, Sutti S, Povero D, Maina V, **Novo E**, Albano E. Role of oxidative stress in the progression of paediatric non-alcoholic fatty liver disease. *Int J Mol Med*, 2010; 26:471-476 doi: 10.3892/ijmm\_00000487

36. Valfrè di Bonzo L, **Novo E**, Cannito S, Busletta C, Paternostro C, Povero D, Parola M. Angiogenesis and liver fibrogenesis. *Histol Histopathol*, 2009; 24:1323-1341 doi: 10.14670/HH-24.1323
37. **Novo E**, Valfrè di Bonzo L, Cannito S, Colombatto S, Parola M. Hepatic myofibroblasts: a heterogenous population of multifunctional cells in liver fibrogenesis. *Int J Biochem Cell B*, 2009; 41:2089-2093 doi: 10.1016/j.biocell.2009.03.010
38. Trappoliere M, Caligiuri A, Schmid M, Bertolani C, Failli P, Vizzutti F, **Novo E**, di Manzano C, Marra F, Loguercio C, Pinzani M. Silybin, a component of sylimarin, exerts anti-inflammatory and anti-fibrogenic effects on human hepatic stellate cells. *J Hepatol*, (2009) 50:1102-1111 doi: 10.1016/j.jhep.2009.02.023
39. Guglielmotto M, Aragno M, Autelli R, Giliberto L, **Novo E**, Colombatto S, Danni O, Parola M, Smith MA, Perry G, Tamagno E, Tabaton M (2009). The up-regulation of BACE1 mediated by hypoxia and ischemic injury: role of oxidative stress and HIF1 alpha. *J Neuroch*, 108:1045-1056 doi: 10.1111/j.1471-4159.2008.05858.x
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41. Valfrè di bonzo I, Ferrero I, Cravanzola C, Mareschi K, Rustichelli D, **Novo E**, Sanavio F, Cannito S, Zamara E, Bertero M, Davit A, Francica S, Novelli F, Colombatto S, Fagioli F, Parola M. Human mesenchymal stem cells as a two-edged sword in hepatic regenerative medicine: engraftment and hepatocyte differentiation versus profibrogenic potential. *Gut*, 2008; 57:223-231 doi: 10.1136/gut.2006.111617
42. **Novo E**, Parola M. Redox mechanisms in hepatic chronic wound healing and fibrogenesis. *Fibrogenesis & Tissue Repair*, 2008; 1: 1-5, ISSN: 1755-1536.
43. Cannito S, **Novo E**, Compagnone A, Valfrè di Bonzo L, Busletta C, Zamara E, Paternostro C, Povero D, Bandino A, Bozzo F, Cravanzola C, Bravoco V, Colombatto S, Parola M. Redox mechanisms switch on hypoxia-dependent epithelial-mesenchymal transition in cancer cells. *Carcinogenesis*, (008; 29:2267-2278 doi: 10.1093/carcin/bgn216
44. E. Zamara, S. Galastri, S. Aleffi, I. Petrai, M. Aragno, R. Mastrocola, **E. Novo**, C. Bertolani, S. Milani, F. Vizzutti, A. Vercelli, M. Pinzani, G. Laffi, G. Lavilla, M. Parola, F. Marra. Prevention of severe toxic liver injury and oxidative stress in MCP-1-deficient mice. *J Hepatol*, 2007; 46:230-238 doi: 10.1016/j.jhep.2006.09.007
45. **Novo E\***, Cannito S\*, Zamara E, Valfrè di Bonzo L, Caligiuri A, Cravanzola C, Compagnone A, Colombatto S, Marra F, Pinzani M, Parola M. Proangiogenic cytokines as hypoxia-dependent factors stimulating migration of human hepatic stellate cells. *Am j Pathol*, 2007; 170:1942-1953 \*E.N. and S.C\*. contributed equally to the study. doi: 10.2353/ajpath.2007.060887
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51. Aleffi S, Petrai I, Bertolani C, Parola M, Colombatto S, **Novo E**, Vizzutti F, Anania Fa, Milani S, Rombouts K, Laffi G, Pinzani M, Marra F. Upregulation of proinflammatory and proangiogenic cytokines by leptin in human hepatic stellate cells. *Hepatology* 2005; 42: p. 1339-1348 doi: 10.1002/hep.20965

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53. Robino G., Zamara E., Novo E., Dianzani M.U., Parola M. 4-hydroxy-2,3-alkenals as signal molecules modulating proliferative and adaptative cell responses- *Biofactors* 2001; 15:103-106 doi: 10.1002/biof.5520150211.