Antonio Recchiuti, PhD
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Assistant Professor of Clinical Pathology

Research Highlights

My research interests spam from general pathology, clinical pathology and immunology through and experimental and translational pharmacology.
As an independent group leader, I coordinate research projects focusing on the elucidation of roles, and functions of endogenous specialized pro-resolving lipid mediators (SPM) resolvins, lipoxins, protectins, and maresins that promote the resolution of inflammation.
SPM serve as bioactive mediators in resolution of mucosal, vascular, and tumor-associate inflammatory reaction. Our mission is to define bioactivities of SPM within the inflammatory and immune response and to promote the development of innovative therapies for the treatment of inflammation-based human pathologies such as cystic fibrosis, cardiovascular diseases, and cancer.

Education and Qualification

2003 – 2007	**Ph.D., Pharmacology** **Università degli Studi G. d'Annunzio Chieti e Pescara** Chieti, Italy Thesis *"Novel Determinants of Cardiovascular Risk in Myeloproliferative Diseases"* Tutor Prof. Giovanni Davì
1997 – 2003	**M.S., Pharmaceutical Chemistry and Technology,** *summa cum laude* **Università degli Studi G. d'Annunzio Chieti e Pescara** Chieti, Italy Thesis "*Synthesis and activity of novel GSH analogues containing an urethane backbone"* Tutor Prof. Francesco Pinnen
2016	**Abilitazione Scientifica Nazionale** 06/N1 - Scienze delle professioni sanitarie e delle tecnologie mediche applicate – Seconda Fascia

Employment and Academic Ranks

2019 – present	Assistant Professor in Clinical Pathology "G. d'Annunzio" University, Chieti
2015-2019	Research associate - "G. d'Annunzio" University, Chieti
2011 –2015	Marie Curie Researcher - "G. d'Annunzio" University, Chieti
2010 –2011	Post-doc - "G. d'Annunzio" University, Chieti
2007 – Aug 2010	Post-doc - Brigham and Women's Hospital and Harvard Medical School, Boston

Honors and Awards

2018	Selected speaker at 32nd NACFC 2018 during the Symposium Session: "Resolution of Inflammation in CF Airways: CFTR & Beyond"
2011	Winner of the Marie Curie Career Integration Grant
2010	Winner of Novartis prize for Young Pharmacologist during the British Pharmacological Society meeting (Dec 14-16, 2016, London)
2010	Winner of the Brigham and Women's Hospital Spring Research Excellence Award (Boston)

Memberships in Scientific Societies
Regular member of the Società Italiana di Patologia (**SIP**)
Former member of the Società Italiana di Farmacologia (**SIF**), Società Italiana Immunologia, Immunologia Clinica e Allergologia (**SIICA**), The American Society for Biochemistry and Molecular Biology (**ASBMB**)

Scopus Parameters
Scopus ID: 16402976200
h-index: 21
Citations: 2,134 (Retrieved on 03.27.20)

Scientific Achievements
During my post doctoral training in the laboratory of Dr. Serhan (BWH-HMS), who discovered lipoxins and resolvins and other specialized pro-resolution mediators (SPM), I have1) investigated their molecular mechanisms of actions; 2) elucidated target receptors and their mode of signaling through pro-resolving miRNAs; 3) employed animal and human models to delineate anti-inflammatory and pro-resolving properties of bioactive mediators. Most relevant findings include identification of GPCRs for RvD1, namely ALX/FPR2 and GPR32, which transduce the anti-inflammatory and pro-resolving actions of this eicosanoid on human leukocytes (PNAS, 2010) and definition of specific microRNAs (miR-21, 146b, 208a, and 219) that are involved in acute inflammation and its timely resolution. (FASEB Journal 2011, Am J Pathol, 2012). These results establish the first RvD1-GPCR-miRNA resolution circuits providing new molecular targets suitable for the design of anti-inflammatory and pro-resolving drugs.
As independent investigator, I have coordinated research aimed at further define pharmacological properties of endogenous pro-resolution mediators such as resolvins and lipoxins and their mechanism of action in resolution of inflammation in infectious diseases (Mucosal Immunol, 2018; Frontiers Immunol, 2020) and red blood cell disorders (Blood, 2019). These results are of wide interest in view of the therapeutic clinical development of SPM as a drug for treating inflammation-related human pathologies.

Funded Projects

Sept 2019	Grant: Cystic Fibrosis Foundation (2019-2021) USD 100,000
March 2017	Grant: Cystic Fibrosis Foundation (2017-2019) USD 100,000
Aug 2016	Grant: Fondazione Ricerca Fibrosi Cistica (2016-2018) €100,000
Aug 2014	Grant: Fondazione Ricerca Fibrosi Cistica (2014-2016) € 85,000
Feb 2014	Grant: Italian Ministry of Health Young Investigator Research Grant (2014-2017) € 242,000
Sep 2011	Grant: Marie Curie International Career Reintegration Grant (CIG) (2011-2015) € 100,000

Original Peer-Reviewed Publications (Total)

1. Elisa Isopi*, Domenico Mattoscio* (equally contributed; corresponding author), Marilina Codagnone, Veronica Cecilia Mari, Alessia Lamolinara, Marco D'Aurora, Eleonora Cianci, Annalisa Nespoli, Sara Franchi, Valentina Gatta, Marc Dubourdeau, Paolo Moretti, Maria Di Sabatino, Manuela Iezzi, Mario Romano, and **Antonio Recchiuti* (last and corresponding author)** *Resolvin D1 reduces lung infection and inflammation activating resolution in cystic fibrosis.* Frontiers Immunology 2020 (*In press)*
2. Marilina Codagnone, Eleonora Cianci, Alessia Lamolinara, Veronica Cecilia Mari, Annalisa Nespoli, Elisa Isopi, Domenico Mattoscio, Makoto Arita, Alessandra Bragonzi, Manuela

Iezzi, Mario Romano, **Antonio Recchiuti (Senior and corresponding author)**. *Resolvin D1 enhances the resolution of lung inflammation caused by long-term Pseudomonas aeruginosa infection.* Mucosal Immunol. 2018 Jan;11(1):35-49. doi: 10.1038/mi.2017.36. Epub 2017 Apr 19
This paper provides the first evidence for RvD1 pro-resolutive actions in chronic P. aeruginosa lung infection

3. Alessandro Matte, **Antonio Recchiuti (co-first author)**, Enrica Federti, Bérengère Koehl, Thomas Mintz, Wassim El Nemer, Pierre-Louis Tharaux, Valentine Brousse, Immacolata Andolfo, Alessia Lamolinara, Olga Weinberg, Angela Siciliano, Paul C. Norris, Ian R. Riley, Achille Iolascon, Charles N. Serhan, Carlo Brugnara and Lucia De Franceschi. *Resolution of sickle cell disease-associated inflammation and tissue damage with 17R-resolvin D1.*Blood 2018 :blood-2018-07-865378; doi: https://doi.org/10.1182/blood-2018-07-865378
This paper provides evidence for beneficial actions of resolvin D1 in reducing inflammation, leukocyte infiltration, and tissue damage in sickle cell disease
4. **Antonio Recchiuti** (**first and corresponding author**), Marilina Codagnone, Anna Maria Pierdomenico, Cosmo Rossi, Veronica Cecilia Mari, Eleonora Cianci, Felice Simiele, Valentina Gatta, and Mario Romano: *Immunoresolving Actions of Oral Resolvin D1 Include Selective Regulation of the Transcription Machinery in Resolution Phase Mouse Macrophages*. FASEB J. 2014 Jul;28(7):3090-102. doi: 10.1096/fj.13-248393. Epub 2014 Apr 1.
5. **Antonio Recchiuti**, Sriram Krishnamoorthy, Gabrielle Fredman, Nan Chiang, Charles N Serhan: *MicroRNAs in resolution of acute inflammation: identification of novel resolvin D1-miRNA circuits.*The FASEB Journal 10/2010; 25(2):544-60.
6. Sriram Krishnamoorthy, **Antonio Recchiuti (co-first author)**, Nan Chiang, Gabrielle Fredman, Charles N Serhan: *Resolvin D1 receptor stereoselectivity and regulation of inflammation and proresolving microRNAs*. American Journal Of Pathology 03/2012; 180(5):2018-27.
These papers unveil new molecular mechanisms of action of RvD1 triggered to activate resolution of inflammation
7. Sriram Krishnamoorthy, **Antonio Recchiuti (co-first author)**, Nan Chiang, Stephanie Yacoubian, Chih-Hao Lee, Rong Yang, Nicos A Petasis, Charles N Serhan: *Resolvin D1 binds human phagocytes with evidence for proresolving receptors.* Proceedings of the National Academy of Sciences 01/2010; 107(4):1660-5.
This paper reports the identification of RvD1 cognate G-protein coupled receptors ALX/FPR2 and GPR32
8. Felice Simiele, **Antonio Recchiuti**, Sara Patruno, Roberto Plebani, Anna Maria Pierdomenico, Marilina Codagnone, Mario Romano. *Epigenetic regulation of the formyl peptide receptor 2 gene*. Biochim Biophys Acta 2016 Oct; 1859 (10):1252-8 doi: 10.1016/j.bbagrm.2016.07.007. Epub 2016 Jul 14.
9. Anna Maria Pierdomenico,**Antonio Recchiuti**, Felice Simiele, Marilina Codagnone , Veronica Cecilia Mari, Giovanni Davì and Mario Romano: *MicroRNA-181b regulates ALX/FPR2 receptor expression and proresolution signaling in human macrophages.* J Biol Chem. 2015 Feb 6;290(6):3592-600. doi: 10.1074/jbc.M114.592352. Epub 2014 Dec 11.
10. Felice Simiele, **Antonio Recchiuti**, Domenico Mattoscio, Antonella De Luca, Eleonora Cianci, Sara Franchi, Valentina Gatta, Alessandro Parolari, Josè Pablo Werba, Marina Camera, Bartolo Favaloro, Mario Romano: *Transcriptional regulation of the human FPR2/ALX gene: evidence of a heritable genetic variant that impairs promoter activity*. The FASEB Journal 11/2011; 26(3):1323-33.
These papers uncover genetic and epigenetic mechanisms regulating lipoxins A4 and resolvin D1 specific receptor ALX/FPR2

11. Anna Maria Pierdomenico, Sara Patruno, Marilina Codagnone, Felice Simiele, Veronica Cecilia Mari, Roberto Plebani, **Antonio Recchiuti**, Mario Romano. *MicroRNA-181b is increased in cystic fibrosis cells and impairs lipoxin A_4 receptor-dependent mechanisms of inflammation resolution and antimicrobial defense*. Sci Rep. 2017;7(1).
12. Domenico Mattoscio, Virgilio Evangelista, Raimondo De Cristofaro, **Antonio Recchiuti**, Assunta Pandolfi, Sara Di Silvestre, Stefano Manarini, Nicola Martelli, Bianca Rocca, Giovanna Petrucci, Daniela F Angelini, Luca Battistini, Iole Robuffo, Tiziana Pensabene, Luisa Pieroni, Maria Lucia Furnari, Francesca Pardo, Serena Quattrucci, Stefano Lancellotti, Giovanni Davì, Mario Romano: *Cystic fibrosis transmembrane conductance regulator (CFTR) expression in human platelets: impact on mediators and mechanisms of the inflammatory response.*. The FASEB Journal 10/2010; 24(10):3970-80.
These papers demonstrate the impaired biosynthesis of lipoxins A4 and altered expression of its receptor ALX/FPR2 in cystic fibrosis

13. Licia Totani, Roberto Plebani, Antonio Piccoli, Sara Di Silvestre, Paola Lanuti, **Antonio Recchiuti**, Eleonora Cianci, Giuseppe Dell'Elba, Silvio Sacchetti, Sara Patruno, Simone Guarnieri, Maria A. Mariggiò, Veronica C. Mari, Marco Anile, Federico Venuta, Paola Del Porto, Paolo Moretti, Marco Prioletta, Felice Mucilli, Marco Marchisio, Assunta Pandolfi, Virgilio Evangelista, Mario Romano *Mechanisms of endothelial cell dysfunction in cystic fibrosis.* Biochim Biophys Acta - Mol Basis Dis. 2017;1863(12):3243–3253. PMID: 28847515
14. Roberto Plebani, Romina Tripaldi, Paola Lanuti, **Antonio Recchiuti**, Sara Patruno, Sara Di Silvestre, Pasquale Simeone, Marco Anile, Federico Venuta, Marco Prioletta, Felice Mucilli, Paola Del Porto, Marco Marchisio, Assunta Pandolfi and Mario Romano *Establishment and long-term culture of human cystic fibrosis endothelial cells.* Lab Invest. 2017 Nov;97(11):1375-1384. doi:10.1038/labinvest.2017.74. Epub 2017 Jul 31.
These papers demonstrate the role of CFTR in inflammatory mechanisms involving vascular endothelial cells
15. Eleonora Cianci ,Antonio Recchiuti, Oriana Trubiani, Francesca Diomede, Marco Marchisio, Sebastiano Miscia , Romain A Colas, Jesmond Dalli, Charles N Serhan , Mario Romano. *Human Periodontal Stem Cells Release Specialized Proresolving Mediators and Carry Immunomodulatory and Prohealing Properties Regulated by Lipoxins.* Stem Cells Transl Med. 2016 Jan;5(1):20-32. doi: 10.5966/sctm.2015-0163. Epub 2015 Nov 25.
16. Xuefen Chen, Iros Barozzi, Alberto Termanini, Elena Prosperini, **Antonio Recchiuti**, Jesmond Dalli, Flore Mietton, Gianluca Matteoli, Scott Hiebert, Gioacchino Natoli: *Requirement for the histone deacetylase Hdac3 for the inflammatory gene expression program in macrophages.*. Proceedings of the National Academy of Sciences 07/2012; 109(42):E2865-74.
17. Sungwhan F Oh, Padmini S Pillai, **Antonio Recchiuti**, Rong Yang, Charles N Serhan: *Pro-resolving actions and stereoselective biosynthesis of 18S E-series resolvins in human leukocytes and murine inflammation.*. The Journal of clinical investigation 02/2011; 121(2):569-81.
18. Alfredo Dragani, Silvia Pascale, **Antonio Recchiuti**, Domenico Mattoscio, Stefano Lattanzio, Giovanna Petrucci, Luciana Mucci, Elisabetta Ferrante, Aida Habib, Franco O Ranelletti, Giovanni Ciabattoni, Giovanni Davì, Carlo Patrono, Bianca Rocca: *The contribution of cyclooxygenase-1 and -2 to persistent thromboxane biosynthesis in aspirin-treated essential thrombocythemia: implications for antiplatelet therapy.*. Blood 11/2009; 115(5):1054-61.
19. Taisuke Ohira, Makoto Arita, Kazuhiro Omori, **Antonio Recchiuti**, Thomas E Van Dyke, Charles N Serhan: *Resolvin E1 receptor activation signals phosphorylation and phagocytosis.*. Journal of Biological Chemistry 11/2009; 285(5):3451-61.

20. Yee-Ping Sun, Eric Tjonahen, Raquel Keledjian, Min Zhu, Rong Yang, **Antonio Recchiuti**, Padmini S Pillai, Nicos A Petasis, Charles N Serhan: *Anti-inflammatory and pro-resolving properties of benzo-lipoxin A(4) analogs.*. Prostaglandins Leukotrienes and Essential Fatty Acids 10/2009; 81(5-6):357-66.
21. Francesca Santilli, Bianca Rocca, Raimondo De Cristofaro, Stefano Lattanzio, Laura Pietrangelo, Aida Habib, Caterina Pettinella, **Antonio Recchiuti**, Elisabetta Ferrante, Giovanni Ciabattoni, Giovanni Davì, Carlo Patrono: *Platelet cyclooxygenase inhibition by low-dose aspirin is not reflected consistently by platelet function assays: implications for aspirin "resistance"*. Journal of the American College of Cardiology 03/2009; 53(8):667-77.

Most Significant Publications

1. Sriram Krishnamoorthy, **Antonio Recchiuti (co-first author)**, Nan Chiang, Stephanie Yacoubian, Chih-Hao Lee, Rong Yang, Nicos A Petasis, Charles N Serhan: *Resolvin D1 binds human phagocytes with evidence for proresolving receptors*. Proceedings of the National Academy of Sciences 01/2010; 107(4):1660-5.
   This paper reports the identification of RvD1 cognate G-protein coupled receptors ALX/FPR2 and GPR32
2. Elisa Isopi*, Domenico Mattoscio* (equally contributed; corresponding author), Marilina Codagnone, Veronica Cecilia Mari, Alessia Lamolinara, Marco D'Aurora, Eleonora Cianci, Annalisa Nespoli, Sara Franchi, Valentina Gatta, Marc Dubourdeau, Paolo Moretti, Maria Di Sabatino, Manuela Iezzi, Mario Romano, and **Antonio Recchiuti* (last and corresponding author)** Frontiers Immunology (*In press)*
3. Marilina Codagnone, Eleonora Cianci, Alessia Lamolinara, Veronica Cecilia Mari, Annalisa Nespoli, Elisa Isopi, Domenico Mattoscio, Makoto Arita, Alessandra Bragonzi, Manuela Iezzi, Mario Romano, **Antonio Recchiuti (Senior and corresponding author)**. *Resolvin D1 enhances the resolution of lung inflammation caused by long-term Pseudomonas aeruginosa infection.* Mucosal Immunol. 2018 Jan;11(1):35-49. doi: 10.1038/mi.2017.36. Epub 2017 Apr 19
   This paper provides the first evidence for RvD1 pro-resolutive actions in chronic P. aeruginosa lung infection
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6. **Antonio Recchiuti**, Sriram Krishnamoorthy, Gabrielle Fredman, Nan Chiang, Charles N Serhan: *MicroRNAs in resolution of acute inflammation: identification of novel resolvin D1-miRNA circuits.*The FASEB Journal 10/2010; 25(2):544-60.
7. Sriram Krishnamoorthy, **Antonio Recchiuti (co-first author)**, Nan Chiang, Gabrielle Fredman, Charles N Serhan: *Resolvin D1 receptor stereoselectivity and regulation of*

inflammation and proresolving microRNAs. American Journal of Pathology 03/2012; 180(5):2018-27.

Invited Reviews

1. **Antonio Recchiuti,** Domenico Mattoscio, Elisa Isopi. Roles, actions, and therapeutic potential of specialized pro-resolving lipid mediators for the treatment of inflammation in cystic fibrosis. Frontiers in Pharmacology. Front Pharmacol. 2019 Apr 2;10:252. doi: 10.3389/fphar.2019.00252 (Invited article)
   This paper provides an overview of the state of the art on roles of resolvins and lipoxins in controlling resolution of inflammation, evidence for their impairment in CF, and proofs of principle for their exploitation as innovative, non-immunosuppressive drugs to address inflammation and infections in CF.
2. Mario Romano, Sara Patruno, Antonella Pomilio, **Antonio Recchiuti**: Concise Review: Pro-Resolving Lipid Mediators and Receptors in Stem Cell Biology. STEM CELLS TRANSLATIONAL MEDICINE 06/2019; 8(10)., DOI:10.1002/sctm.19-0078
3. Mario Romano, Eleonora Cianci, Felice Simiele and Antonio Recchiuti *Lipoxins and aspirin-triggered lipoxins in resolution of inflammation.* Eur J Pharmacol. 2015 Aug 5;760:49-63. doi: 10.1016/j.ejphar.2015.03.083. Epub 2015 Apr 18.
4. **Antonio Recchiuti**, Charles N Serhan: Pro-Resolving Lipid Mediators (SPMs) and Their Actions in Regulating miRNA in Novel Resolution Circuits in Inflammation. Frontiers in Immunology 01/2012; 3:298.
5. **Antonio Recchiuti**: *Resolvin D1 and its GPCRs in Resolution Circuits of Inflammation*. Prostaglandins & other lipid mediators 03/2013;

Peer-Reviewed Publication (last 10 years)

1. Elisa Isopi*, Domenico Mattoscio* (equally contributed; corresponding author), Marilina Codagnone, Veronica Cecilia Mari, Alessia Lamolinara, Marco D'Aurora, Eleonora Cianci, Annalisa Nespoli, Sara Franchi, Valentina Gatta, Marc Dubourdeau, Paolo Moretti, Maria Di Sabatino, Manuela Iezzi, Mario Romano, and **Antonio Recchiuti* (last and corresponding author)** Frontiers Immunology (*In press)*
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Valentina Gatta, and Mario Romano: *Immunoresolving Actions of Oral Resolvin D1 Include Selective Regulation of the Transcription Machinery in Resolution Phase Mouse Macrophages*. FASEB J. 2014 Jul;28(7):3090-102. doi: 10.1096/fj.13-248393. Epub 2014 Apr 1.

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Porto, Paolo Moretti, Marco Prioletta, Felice Mucilli, Marco Marchisio, Assunta Pandolfi, Virgilio Evangelista, Mario Romano *Mechanisms of endothelial cell dysfunction in cystic fibrosis.* Biochim Biophys Acta - Mol Basis Dis. 2017;1863(12):3243–3253. PMID: 28847515

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17. Sungwhan F Oh, Padmini S Pillai, **Antonio Recchiuti**, Rong Yang, Charles N Serhan: *Pro-resolving actions and stereoselective biosynthesis of 18S E-series resolvins in human leukocytes and murine inflammation*. The Journal of clinical investigation 02/2011; 121(2):569-81.

Current and Past Funding

Start	End	Source	Name	Gross Amount
2019	2021	Cystic Fibrosis Pilot and Feasibility Grant	Actions of Resolvins on Difficult to Treat CF Lung Infections	$ 100,000
2017	2019	Cystic Fibrosis Pilot and Feasibility Grant	Actions of Resolvin D1 on cystic fibrosis Infection and Inflammation	$ 100,000
2016	2018	Fondazione Fibrosi Cistica	Resolvin D1 for Targeting Chronic Lung Inflammation, Infection, and Damage in Cystic Fibrosis	$ 100,000
2015	2018	Italian Ministry of Health	Determining Resolvin D1 - Regulated Mechanims to Harness Resolution of Inflammation	€ 242,000
2014	2015	Regione Abruzzo under the Piano Speciale Multiasse Reti per l'Alta Formazione–POFSE 2007–2013	Resolvin D1 for Targeting Chronic Lung Inflammation and Infection in Cystic Fibrosis	€ 25,000
2014	2016	Fondazione Fibrosi Cistica	Testing Immunoresolving Therapies for Cystic Fibrosis	€ 65,000
2011	2015	European Union Seventh Framework Programme Marie Curie Career Integration Grant	Mechanisms of Inflammation Resolution: Role of miRNAs	€ 100,000