

**MARA MASSIMI**  
*Curriculum vitae et studiorum*

### Biographical Sketch

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**Position title** Professor of Molecular Biology of Cell and Development  
Professor of Comparative Anatomy  
**ORCID:** 0000-0002-9569-816  
**Place of work:** Department of Life, Health and Environmental Sciences, Cell Biology Laboratory (PI),  
University of L'Aquila - Tel. +39 0862 433219/85  
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### Education/Institution

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1987 Degree in Biological Sciences - Sapienza University of Rome.  
1988 Qualified for the National Biologists Order  
1992 Ph.D in Evolutionary Biology, major in Cell Biology - Sapienza University of Rome.  
1993–1997 Postdoctoral Research Fellow - Department of Medicine, University of California, San Francisco, CA, U.S.A.

### Positions and Employments

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1985-1987 Research activity for experimental thesis - Sapienza University of Rome.  
1987-1988 Research training: *Sapienza* University of Rome and University of Rome *Tor Vergata*.  
1990 Visiting PhD student - I.N.S.E.R.M., Strasbourg, France.  
1988-1991 Research activity for PHD thesis - Sapienza University of Rome.  
1992 – 1993 Research associate - Liver Center, Hospital “San Giacomo” (Rome).  
1993 – 1997 Postdoctoral Research Fellow – Metabolism Section, Department of Medicine, University of California, San Francisco, CA, U.S.A.  
1996- 1998 Postdoctoral Research Fellow - Sapienza University of Rome.  
1998-2000 Research fellow at the Dept. of Basic and Applied Biology, University of L'Aquila.  
2001 - 2012 Researcher with tenure in the same Department (SSD BIO/06 - Comparative Anatomy and Cytology).  
1999-present Professor in charge of Laboratory of Microscopic Techniques and of Laboratory of Experimental Biology I – University of L'Aquila.  
2006-08 e 2012-14 Professor in charge of Cell Biology, Biotechnology and Biological Sciences, University of L'Aquila.  
2008-2011 Professor in charge of Molecular Cell Biology, Biological Science, University of L'Aquila.  
2008-2013 Professor in charge of Molecular Cell Bioloy, Biological Sciences, University of L'Aquila.  
2009-2017 Professor in charge of Histology, Biological Sciences, University of L'Aquila.  
2013-present Professor of Molecular Cellular and Developmental Biology, Biological Sciences, University of L'Aquila  
2017-present Professor of Comparative Anatomy, Biological Sciences, University of L'Aquila.  
2012-2018 Senior Researcher in the Cell Biology Laboratory in the Department of Life, Health and Environmental Sciences, University of L'Aquila.  
Since 2018 Qualified as Full Professor – BIO/06  
Since 2018 Associate Professor at the Department of Life, Health and Environmental Sciences, University of L'Aquila.

**Other activities**

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2001-present	Expert reviewer for international scientific journals
2010-2013	Editorial Board Member of <i>World Journal of Gastroenterology</i> (WJG).
2007-2010	Member of the Board of the Department of Basic and Applied Biology
2016-2020	INFN associated within research Group 5, LNGS Section.
2008-2012	Member of the Ph.D board of the PhD School in Cellular and Molecular Biology, University of L'Aquila.
2012-present	Member of the Ph.D board of the PhD School in Cellular and Molecular Biotechnology [DOT13A8025]. Consortium between University of L'Aquila and University of Teramo.
2008-2012	Member of the Ph.D board of the PhD School in Cellular and Molecular Biology, University of L'Aquila.
2005-present	Supervisor, tutor or co-tutor of 8 PhD students.
2019-present	High school student engagement - Referent for the Biological Sciences' Area.

**Honors and “Awards”**

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1992	CNR National Fellowship for Research Abroad, Biotechnology and Molecular Biology # 203.17.2.
1993	CNR short-term National Fellowship for research abroad, AI93-00141.04, National Committee for Biological and Medical Sciences.
1994	American Liver Foundation “Award” (USA), selected project for innovative research.
1994	CNR-NATO National fellowship for Research Abroad, Biological Sciences and Medicine, # 215.27/0
1995	CNR short-term fellowship for research abroad, AI95-00277.04.

**Professional Memberships**

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Italian Society of Cell and Developmental Biology (GEI); Association of Cell Biology and Differentiation (ABCD) and Italian Federation of Life Sciences (FISV); Italian Association of In Vitro Toxicology (CellTox); The European Society of Toxicology in Vitro (ESTIV); Italian Union of Zoology (UZI-until 2015); International Association of Liver Studies (IALS, until 2012).

**Grants as Principal Investigator or Co-Principal Investigator**

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2017	Funding for basic research activities. MIUR. Euro: 3000
PRIN 2008	<u>Principal Investigator</u> of the Research Unit. Euro: 41.142 Title of the project: <i>Morpho-functional characteristics of cells of biomedical interest cultivated on innovative scaffolds and analysis of responses to the transport of bioactive molecules.</i>
PRIN 2003	Co-Principal Investigator. Title of the project: <i>Development of optimal conditions for the long-term maintenance of the differentiated phenotype in hepatocytes embedded in polymeric matrices and cultivated in bioreactor - to be used as a model for evaluation of effects and activity of pharmacologically active substances.</i>
2002-present	RIA - Projects of University Interest. University of L'Aquila.

**Research Projects as Participant and as Responsible Member of the Cell Biology Unit**

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Participant as an external collaborator and responsible for the Cell Biology experiments in the following projects funded by Sapienza University of Rome. Responsible for the project: Prof. Mariella Dentini - Dept. of Chemistry, Faculty of Mathematical, Physical and Natural Sciences - Sapienza University of Rome.

- 2005 - Development of new high-porosity Biomaterials for Tissue Engineering.
- 2006 - New Polymeric Materials for the biomedical sector.
- 2007 - New Polymeric Materials for the regeneration of tissues (AST Federated University Project).
- 2010 - Biomaterials for Tissue Engineering and Drug Delivery.
- 2011 - Innovative biomaterials for tissue engineering and the delivery of bioactive molecules.
- 2012 - Novel biomaterials for tissue engineering and the controlled delivery of bioactive molecules.
- 2013 - Novel biomaterials for tissue engineering: composite synthetic scaffolds for clinical applications.

### Other academic and organizational activities

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- 2007-2010 Member of the Board of the Department of Basic and Applied Biology
- 2008 Member of the Commission for comparative evaluation for a position of University Researcher (SSD BIO/06), issued by the Faculty of Physical and Natural Mathematical Sciences of the university of Perugia – Law Decree n. 1443 - G.U. 60 of 01.08.2008. President of the Commission: Prof. Carlo Cirotto - University of Perugia.
- 2008 Member of the commission for the public selection for one position, full-time and permanent, category C - economic position C1 - Technical Area, Technical Scientific and Data Processing, for the needs of the Department of Biomedical Sciences and Technologies of the University of L'Aquila. G.U. 89 of 14.11.2008.
- 2011 Member of the Selection Committee for admission to the PhD program in Cellular and Molecular Biology - XXVII doctoral cycle. University of L'Aquila. A.A. 2011-2012.
- 2016 Member of the Selection Committee for admission to the PhD program in Cellular and Molecular Biotechnologies - XXXII doctoral cycle. Consortium between University of L'Aquila and University of Teramo. A.A. 2016/2017.
- 2016-2020 INFN associated within research Group 5, LNGS Section (Project leader: Prof. L. Palladino).

### Activities as Editorial Boards Member or as Reviewer

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- 2010-2013 Editorial Board Member of *World Journal of Gastroenterology* (WJG). Required skills: hepatic regeneration, cell proliferation, apoptosis, autophagy, cell cycle modulation in hepatic cells.
- 2001-present Referee of International journal, including: *World Journal of Gastroenterology*, *PlosOne*, *Biomedical Materials*, *Acta Biomaterialia*, *Journal of Lipid Research*, *Liver International*, *Journal of Cellular Physiology and Biochemistry*, *Journal of Pharmacy and Pharmacology* etc. Most of the reviewing activities appear as verified records on “Publons”.

### Activities within National Ph.D Schools

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- 2012-present Member of the Ph.D board of the Ph.D School in Cellular and Molecular Biotechnology [DOT13A8025]. Consortium between University of L'Aquila and University of Teramo.

2008-2012	Member of the Ph.D board of the PhD School in Cellular and Molecular Biology, University of L'Aquila.
2008	Organizer and teacher for the theoretical-practical course: "In Situ Hybridization on Transcripts", for the Ph.D school in Cellular and Molecular Biology (University of L'Aquila, Dept. of Basic and Applied Biology).
2006-2014	Tutor or co-tutor of (2006-2014) Supervisor of the n. 4 Ph.D students. Tutor or co-tutor of n. 3 Ph.D students.
2016-present	Supervisor of n.1 Ph.D student. Project: Role of the different phosphodiesterase isoforms in the transformed liver phenotype. PhD in Molecular and Cellular Biotechnologies (University of L'Aquila - administrative headquarters: University of Teramo), Italy.

## Major Research Interests

**Studies on the effects of the modulation of cyclic nucleotide levels in normal and pathological hepatocytes.** One of the main objectives of the research project is the study of the expression pattern of the different isoforms of phosphodiesterases (enzymes responsible for the hydrolysis of cAMP/cGMP), during the onset of various liver disorders/diseases (HCC, insulin resistance, metabolic syndrome, NAFLD, NASH), with the aim to highlight the differences in their expression and to understand the molecular mechanisms underlying their regulation. This would allow to identify the isoforms most involved in the processes of cellular differentiation or transformation and to direct the pharmacological action towards more precise targets. Studies have already shown changes in the expression of the various PDE4 isoforms in HCC linked to tumor aggressiveness, discovering a role of PDE4D in the transformation of hepatocyte and tumor growth. The PDE4D enzymatic activity is strongly increased in the more aggressive cell lines and the transformed characteristics are significantly attenuated after treatments with specific inhibitors, in parallel with the results obtained by silencing experiments of this same isoform.

**Studies concerning the effects of hormones, nutrients or pro/antioxidant agents, of synthesis or from natural origin, on the pathophysiology of liver cells.** Their effects on the accumulation of free fatty acids, oxidative stress, apoptosis and autophagic phenomena are analyzed. One of the studies showed a relationship between alteration of the autophagic process and the onset of non-alcoholic steatohepatitis (NAFLD), one of the most prevalent liver diseases in the world. In particular, an in vivo model of rats on a combined fat and fructose diet was used to mimic the role played by the Western diet in the onset of this disease. The use of fructose made it possible to obtain the entire spectrum of non-alcoholic steatosis, that is macrovacuolar steatosis, ballooning, insulin resistance and oxidative stress. The research has highlighted an important involvement of the PTEN/Ak/mTOR pathway, one of the signal transduction pathways most involved in the control of the autophagic process. Studies are still ongoing to verify the involvement of other signaling pathways and to investigate the mechanisms underlying the entire process. (Project in collaboration with Dr. A. Alisi, IRCCS, Bambino Gesù, Rome).

**Evaluation of the potential protective/anti-inflammatory effects of molecules of natural origin and nutraceuticals on in vitro models of enterocytes and/or hepatocytes.** After highlighting the key role of zinc for the functionality of the intestinal barrier and for the integrity of cell-cell junctions in Caco-2 cells (as a model of human enterocytes), currently, the study has extended to the effect of nutraceuticals conveyed by intestinal cells on inflammatory and oxidative processes involved in intestinal and related organ pathologies. For this purpose, an enterocyte / hepatocyte co-culture system has been developed for the study of various liver diseases (eg NAFLD, steatosis, fibrosis, hepatocellular carcinoma, etc.). This system allows us to effectively mimic the intestine-liver axis in vitro and will allow us to evaluate the possible interrelationships between the two systems. (Project in collaboration with Dr. A. Finamore - Center for Research on Food and Nutrition - Council for Research in Agriculture and Analysis of Agricultural Economics).

**Studies concerning the in vitro validation of 3D systems for cell therapy and cytotoxicity studies.** A new, very versatile method was developed for the production of porous microspheres, born from a collaboration between the Department of Materials Science of the University of Warsaw and the Department of Chemistry of the University

of Rome Sapienza. These microspheres have proved to be optimal for the encapsulation and growth of mesenchymal cells (hMSC) and hepatocytes (HepaRG), paving the way for applications in the delivery and/or implantation of cells directly in the damaged organ, as an alternative to the transplantation of the whole organ or tissue. HMSCs represent a source of clinically relevant multipotent cells for their potential to differentiate into cartilage, bone or adipose tissue and, therefore, in great demand by researchers interested in regenerative medicine. On the other hand, 3D models of hepatocytes, which can be injected directly into the liver, represent valuable tools for cell therapies and tissue engineering. At the same time, the studies are aimed at the development and validation of innovative three-dimensional systems that faithfully reproduce both the composition of the extracellular matrix and the cellular heterogeneity of normal and tumor liver tissue, which allows the study of their reciprocal interactions and define their pathophysiological mechanisms, with the final goal to provide a preclinical model for metabolic studies and validation of new drugs. (Project in collaboration with Dr. Andrea Barbetta (Dept. Chemistry - Sapienza University of Rome and with Dr. Marco Costantini - Warsaw University of Technology, Faculty of Materials Science and Engineering, Poland).

## Publications

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(\*) Corresponding author; (§) Contributed equally

### INTERNATIONAL JOURNALS WITH IMPACT FACTOR

1. Giorgi M, Cardarelli S, Ragusa F, Saliola M, Biagioni S, Poiana G, Naro F, Massimi M\* (2020) Phosphodiesterase Inhibitors: Could They Be Beneficial for the Treatment of COVID-19? *Int J Mol Sci* 27, 21(15):5338 (doi: 10.3390/ijms21155338).
2. Massimi M\*, Ragusa F, Cardarelli S, Giorgi M. Targeting Cyclic AMP Signalling in Hepatocellular Carcinoma (2019) *Cells*.8 (12) E1511. (doi: 10.3390/cells8121511).
3. Costantini M, Guzowski J, Zuc PJ, Mozetic P, Panfilis S, Jaroszewicz J, Heljak M, Massimi M, Maxime Pierron M, Trombetta M, Dentini M, Świążkowski W, Rainer A, Garstecki P, Barbetta A. (2018) Electric field assisted microfluidic platform for synthesis of tailorable porous microbeads as cell carriers for tissue engineering. *Advanced Functional Materials*. 28, 20, (1870133) (doi: 10.1002/adfm.201800874).
4. Massimi M\*, Cardarelli S, Galli F, Giardi MF, Ragusa F, Panera N, Cinque B, Cifone MG, Biagioni S, Giorgi M. (2017) Increase of Intracellular Cyclic AMP by PDE4 Inhibitors Affects HepG2 Cell Cycle Progression and Survival. *J Cell Biochem*. 118(6): 1401-1411. (doi: 10.1002/jcb.25798). *Futured in: Biomedical Advances* – August 2017. ISSN 2573-0355.
5. Stampella A, Rizzitelli G, Donati F, Mazzarino M, de la Torre X, Botrè F, Giardi MF, Dentini M, Barbetta A, Massimi M\*. (2015) Human hepatoma cell lines on gas foaming templated alginate scaffolds for in vitro drug-drug interaction and metabolism studies. *Toxicol In Vitro*. 30: 331-40. (doi: 10.1016/j.tiv.2015.10.002). Falcone R, Florio TM, Di Giacomo E, Benedetti E, Cristiano L, Antonosante A, Fidoamore A, Massimi M, Alecci M, Ippoliti R, Giordano A, Cimini A. (2015) PPAR $\beta/\delta$  and  $\gamma$  in a rat model of Parkinson's disease: possible involvement in PD symptoms. *J Cell Biochem*. 5:844-55. ( doi: 10.1002/jcb.25041).
6. Gnocchi D, Massimi M, Alisi A, Incerpi S, Bruscalupi G. (2014) Effect of fructose and 3,5-diiodothyronine (3,5-T(2)) on lipid accumulation and insulin signalling in non-alcoholic fatty liver disease (NAFLD)-like rat primary hepatocytes. *Horm Metab Res*. 46(5):333-40. doi: 10.1055/s-0034-1371858.
7. Colosi C, Costantini M, Latini R, Ciccarelli S, Stampella A, Barbetta A, Massimi M, Conti Devirgiliis L and Mariella Dentini (2014) Rapid prototyping of chitosan-coated alginate scaffolds through the use of a 3D fiber deposition technique. *J. Mater. Chem. B – Material for biology and medicine*. 2, 6779-6791. (doi: 10.1039/C4TB00732H).
8. Chronopoulou L, Massimi M\*, Giardi M. F., Cametti C., Conti Devirgiliis L., Dentini M., Palocci C. (2013) Chitosan-coated PLGA nanoparticles: a sustained drug release strategy for cell cultures - *Colloids and Surf B: Biointerfaces* . 103:310-7. (doi: 10.1016/j.colsurfb.2012.10.063).

9. Massimi M\*, Stampella A, Devirgiliis LC, Rizzitelli G, Barbetta A, Dentini M, Cametti C. (2013) Dielectric characterization of hepatocytes in suspension and embedded into two different polymeric scaffolds. *Colloids and Surf B: Biointerfaces*.14(102C):700-707. (doi: 10.1016/j.colsurfb.2012.09.015).
10. Stampella A, Papi A, Costantini M, Colosi C, Massimi M\*, Conti Devirgiliis L, Mariella Dentini M and Rizzitelli G., Barbetta A (2013) Synthesis and Characterization of a Novel Poly(vinyl alcohol) 3D Platform for the Evaluation of Hepatocytes Response to Drug Administration. *J Mater. Chem. B - Materials for biology and medicine*. 1, 3083-3098. (doi:10.1039/C3TB20432D).
11. De Colli M, Massimi M\*, Barbetta A, Di Rosario BL, Nardecchia S, Conti Devirgiliis L, Dentini M. (2012) A Biomimetic porous hydrogel of gelatin and glycosaminoglycans cross-linked with transglutaminase and its application in the culture of hepatocytes. *Biomed Mat Biomed* 7(5): 055005.
12. N. Panera, A. Pastore, S. Ceccarelli, S. Petrini, G. Bruscalupi, M. Massimi, F. Piemonte, A. Alisi, V. Nobili. Emodin partially reverts diet-induced steatosis and completely reverts inflammation and redox status imbalance in rats. *Digestive and Liver Diseases*, 2012; 44: S34-S35
13. Massimi M, Tomassini A, Sciubba F, Sobolev AP, Conti Devirgiliis L, Miccheli A. (2012) Effects of resveratrol on HepG2 cells as revealed by (1)H-NMR based metabolic profiling. *Biochim Biophys Acta* 1820(1): 1-8.
14. Alisi A, Pastore A, Ceccarelli S, Panera N, Gnani D, Bruscalupi G, Massimi M, Tozzi G, Piemonte F, Nobili V. (2012) Emodin prevents intrahepatic fat accumulation, inflammation and redox status imbalance during diet-induced hepatosteatosis in rats. *Int J Mol Sci*.13(2):2276-89.
15. Bruscalupi G, Massimi M<sup>§</sup>, Spagnuolo S, Fiore AM, Leoni S. (2012) Hypertonic stress regulates amino acid transport and cell cycle proteins in chick embryo hepatocytes. *Cell Biol Int*. 36(2): 203-13.
16. Alisi A, Bruscalupi G, Pastore A, Petrini S, Panera N, Massimi M, Tozzi G, Leoni S, Piemonte F, Nobili V. (2012) Redox homeostasis and posttranslational modifications/activity of phosphatase and tensin homolog in hepatocytes from rats with diet-induced hepatosteatosis. *J Nutr Biochem*. 23(2): 169-78.
17. Bruscalupi G, Massimi M, Devirgiliis Conti L., Leoni S. (2009) Multiple parameters are involved in the effects of cadmium on prenatal hepatocytes. *Toxicol In Vitro*. 23(7): 1311-8.
18. A Pastore., F Piemonte., G Bruscalupi, Massimi M, Alissi A (2009) Hepatoprotective and anti-oxidant effects of emodin on primary rat hepatocytes isolated from rats fed with high-fat/low carbohydrate diet. *Free Radical Research* 43: 79.
19. A. Alisi, G. Piemonte, G. Bruscalupi, A. Pastore, M Massimi, G. Tozzi, S. Leoni, V. Nobili (2009) Emodin protects primary rat hepatocytes from pro-oxidative effects and AKT pathway dysregulation induced by a high-fat/low carbohydrate diet. Selected for presentation at the 44th Annual Meeting of the European Association for the Study of the Liver (EASL). *J. Hepatology* 50: S255-S255.
20. Barbetta A., Massimi M\*, Di Rosario B. L., Nardecchia S., De Colli M., Conti Devirgiliis L., Dentini M. (2008) Emulsion templated scaffolds based on gelatin and glycosaminoglycans. *Biomacromolecules* 9(10): 2844-56.
21. Finamore A., Massimi M, Conti Devirgiliis L, Mengheri E. (2008) Zinc deficiency induces membrane barrier damage and increases neutrophil transmigration in Caco-2 cells. *J. Nutr*. 138(9): 1664-70.
22. Massimi M\*, Conti Devirgiliis L. (2007) Adhesion to the extracellular matrix is positively regulated by retinoic acid in HepG2 cells. *Liver Int*. 27(1): 128-36.
23. C. Balsano, A. Spaziani, M. Massimi, A. Alisi, S. Lili, L. Conti Devirgiliis (2007) HCV influences the behaviour of cytoskeletal and adhesion molecules in HepG2 cells. *The FASEB Journal* 21: 827.
24. Pedersen JZ, De Maria F, Turella P, Federici G, Mattei M, Fabrini R, Dawood KF, Massimi M, Caccuri AM, Ricci G. (2007) Glutathione transferases sequester toxic dinitrosyl-iron complexes in cells: A protection mechanism against excess nitric oxide. *J Biol Chem*. 282(9): 6364-71.
25. Barbetta A, Massimi M\*, Conti Devirgiliis L, Dentini M. (2006) Enzymatic cross-linking versus radical polymerization in the preparation of gelatin PolyHIPEs and their performance as scaffolds in the culture of hepatocytes. *Biomacromolecules*. 7(11): 3059-68.
26. A Spaziani, M Massimi, S Anticoli, A Alisi, L Conti Devirgiliis, C Balsano (2006) HCV core protein influences the expression and the localization of adhesion molecules in hepatoma cells. *J Gastroenterol and Hepatol*, 21 (suppl. 2): A186.

27. Murtas S, Capuani G, Dentini M., Manetti C, Masci G., Massimi M, Miccheli A, Crescenzi V. (2005) Alginate beads as immobilization matrix for hepatocytes perfused in bioreactor. *J. Biomater. Sci. Polym.* Ed. 16(7): 829-46.
28. Massimi M\*, Leoni S., Conti Devirgiliis L. (2005) The lobular expression of the rat asialoglycoprotein receptor is regulated at post-transcriptional level. *Liver Int.* 25(2): 184-193.
29. C. Ara, L. Conti Devirgiliis and M. Massimi\* (2004) Influence of retinoic acid on adhesion complexes in human hepatoma cells: a clue to its antiproliferative effects. *Cell Commun. Adhes.* 11: 13-23.
30. A. Finamore, M. Massimi, L. Conti Devirgiliis, E. Mengheri. (2004) Effect of zinc deficiency on neutrophil transmigration and junction proteins distribution in Caco-2 cells. *Journal of Trace Elements in Experimental Medicine* 17: 222 (2004)
31. Bellovino D, Apreda M, Gragnoli S, Massimi M, Gaetani S. (2003) Vitamin A transport: in vitro models for the study of RBP secretion. *Mol Aspects Med.* 24(6): 411-420.
32. C. Ara, M Massimi, L Conti Devirgiliis (2002) Retinoic acid modulates gap junctional intercellular communication in hepatocytes and hepatoma cells. *Cell. Mol. Life Sci.* 59: 1758-1765.
33. L. Falasca, A Felici, M Massimi, L Dini, L Conti Devirgiliis (2001) Retinoid acid modulates asialoglycoprotein receptor expression in cultured fetal rat hepatocytes. *Mech. Ageing Dev.* 122: 31-39. (I.F. 4.308)
34. M Massimi, SR Lear, DL Williams, AL Jones, SK Erickson (1999) Differential expression of apolipoprotein E messenger RNA within the rat liver lobule determined by *in situ* hybridization. *Hepatology* 29: 1549-1555.
35. M Massimi, SR Lear, S L Huling, A L Jones, S K Erickson (1998) Cholesterol 7 $\alpha$ -hydroxylase: pattern of mRNA expression during rat liver development. *Hepatology* 28: 1064-1072.
36. J L Smith, S R Lear, T M Forte, W Ko, M Massimi, S K Erickson (1998) Effect of pregnancy and lactation on lipoprotein and cholesterol metabolism in the rat. *J. Lipid Res.* 39: 2237-2249.
37. G Hassan, S Moreno, M Massimi, P Di Biagio, S Stefanini (1997) Interleukin-1 $\beta$ -producing plasma cells in close contact with hepatocytes in patients with chronic active hepatitis. *J. Hepatol.* 27: 6-17.
38. M Massimi, S R Lear, S L Huling, W Tom, A. Jones, and S. K. Erickson (1997) Pattern of expression of cholesterol-7 $\alpha$ -hydroxylase mRNA during rat liver development. *FASEB Journal*, 11(9): A934.
39. M. Massimi, S. R. Lear, D. L. Williams, and S. K. Erickson (1996) Expression pattern of apolipoprotein E (apoE) mRNA within the rat liver acinus by in situ hybridization. *FASEB Journal*, 10 (6): A 1111.
40. M. Massimi, L. Falasca, A. Felici, L. Dini, L. Conti Devirgiliis (1996) Expression of the asialoglycoprotein receptor in cultured rat hepatocytes is modulated by cell density. *Biosci. Rep.* 16: 477-484.
41. M. Massimi, K. Sproull, M. Acosta, S.R. Lear, and S.K. Erickson (1995) Effect of a high cholesterol diet on DNA synthesis during the first cell cycle of rat liver regeneration. *Hepatology* 22(4): 455A.
42. M. Massimi, L. Conti Devirgiliis, V. Kolb-Bachofen, and L. Dini (1995) Independent modulation of galactose-specific receptor expression in rat liver cells. *Hepatology* 22: 1819-1828.
43. L. Conti Devirgiliis, M. Massimi, G. Bruscalupi, A. Felici, and L. Dini (1994) Regulation of asialoglycoprotein receptor expression in rat hepatocytes cultured under proliferative conditions. *Exp. Cell Res.* 210(1): 123-129. (I.F. 3.58)
44. L. Dini, A. Lentini, M. Massimi, P. Mattioli, and L. Conti Devirgiliis (1993) Modulation of the expression of galactose specific receptor on Kupffer cells after partial hepatectomy and Zymosan stimulation. *Liver* 13(1): 25-30.
45. S. Leoni, S. Spagnuolo, M. Marino, F. Terenzi, M. Massimi, and L. Conti Devirgiliis (1993) Different signal transduction by Epidermal Growth Factor may be responsible for the difference in modulation of amino acid transport between fetal and adult hepatocytes. *J. Cell. Physiol* 155(3): 549-555.
46. S. Leoni, S. Spagnuolo, M. Massimi, F. Terenzi, and L. Conti Devirgiliis (1992) Amino acid uptake regulation by cell growth in cultured hepatocytes isolated from fetal and adult rats. *Biosci. Reports* 12: 135-141.
47. L. Dini, A. Lentini, G. Mantile, M. Massimi, and L. Conti Devirgiliis (1992) Receptor-mediated endocytosis of galactose and mannose exposing ligands: an electron microscopic study on adult and neonatal cultured rat hepatocytes. *Biology of the Cell*, 74: 217-224.

48. S. Leoni, S. Spagnuolo, M. Massimi, and L. Conti Devirgiliis (1990) Epinephrine regulation of amino acid transport in rat hepatocytes isolated during development. *Membr. Biochemistry* 9: 117-128.
49. S. Leoni, S. Spagnuolo, M. Massimi, F. Terenzi, and L. Conti Devirgiliis (1990) Role of cytosolic calcium on amino acid transport stimulated by epinephrine in rat hepatocytes during development. *Cell Biology International Reports, Abstracts Supplement* 14: 95.
50. M. Massimi, G. Bruscalupi, L. Dini, and L. Conti Devirgiliis (1990) Modulation of ASGP-receptor expression in actively growing cultured hepatocytes. *Cell Biology International Reports, AS* 14: 108,0.
51. S. Leoni, S. Spagnuolo, L. Dini, M. Massimi, and L. Conti Devirgiliis (1988) Regulation of amino acid transport in hepatocytes isolated from adult and old rats. *Mech Aging Devel* 46: 19-27.