

## CURRICULUM VITAE

Cognome/Surname : **DI VIRGILIO**  
 Nome/Name : **FRANCESCO**  
 Cittadinanza/citizenship : italiana  
 Data e luogo di nascita/date and place of birth : 3 agosto/August 3, 1954, Pescara (Italia)  
 Coniugato con/married with Doriana Sandonà



Codice fiscale/social security number: **DVRFNC54M03G482D**

### Education

**1979:** Medical Degree, University of Padova (Italy).

### Employment and research

**1982 :** Honorary Research Assistant, Department of Experimental Pathology, University College, London, U.K. Role of cytoplasmic calcium and G-proteins in the activation of inflammatory cells.

**1984:** Research Assistant, Istituto di Patologia Generale, University of Padova. Stimulus-activation coupling in inflammatory and neurosecretory cells.

**1985:** Visiting Fellow, Department of Physiology and Cellular Biophysics, Columbia University, New York, USA. Molecular mechanisms of phagocytosis.

**1986:** Associate Professor of Molecular Pathology, Istituto di Patologia Generale, University of Padova. Extracellular ATP and P2 receptors as immunomodulators.

**1992:** Associate Professor of General Pathology, Istituto di Patologia Generale, University of Ferrara (Italy). Extracellular ATP and P2 receptors as immunomodulators.

**1994:** Professor of General Pathology, Istituto di Patologia Generale, University of Ferrara.

**2001-2015:** Chairman of the Center of Excellence for the Study of Inflammation established by the Italian Ministry of Education and Scientific Research at the University of Ferrara. Field of activity: "Molecular mechanisms of inflammation".

**2005:** Director of the Postgraduate School in Clinical Pathology, University of Ferrara.

**2006:** Professor of Clinical Pathology, Istituto di Patologia Generale, University of Ferrara. "Molecular mechanisms of inflammation".

**2007-2012:** Dean for Education (Presidente Corso di Laurea in Medicina), Medical School, University of Ferrara.

**2008-2012:** Departmental Chairman, Department of Experimental and Diagnostic Medicine, University of Ferrara.

**2009-2011:** Member of the Committee for Receptor Nomenclature, International Union of Pharmacology (IUPHAR).

**2011-2015:** Deputy Rector for Research and Technology Transfer, University of Ferrara.

**2016:** Director of the PhD Program in Molecular Medicine and Pharmacology.

**2012:** Member of the Faculty of 1000 (Cell Biology Section).

**2016:** Member of the European Academy of Tumor Immunology.

**2016:** Member of the *Accademia Europea*.

**2021:** Member of the Sigma Xi Scientific Research Honour Society (USA).

### Clinical experience

**2009-2018:** Head of the Research Program in Inflammation and Autoimmunity, Laboratory of Clinical Pathology, Ferrara University Hospital.

### Impact on current scientific literature

As of March 2022 publications by Dr Di Virgilio received over 30000 citations, with an h-index of 95 (ISI-Web of Science), 94 (Scopus), or 110 (Google Scholar).

**WOS ResearcherID: J-3754-2018**

**Scopus Author ID: 7005252008**

**ORCID n. 0000-0003-3566-1362**

**Esaminatore esterno per il conseguimento del titolo di Ph. D./****External examiner for Ph. D. degree:**

- 1) University of Copenhagen, Faculty of Health Sciences, candidate Niklas Rye Jorgensen (2000).
- 2) University of Cambridge, Faculty of Biology, candidate Kyla M. Thompson (2001).
- 3) Universite Libre de Bruxelles, Faculty de Medicine, candidate Xavier Duhant (2004).
- 4) Universite Libre de Bruxelles, Faculty de Medicine, candidate Frederic Marteau (2006)
- 5) University of Maastricht, Department of Epidemiology, Faculty of Medicine, candidate Els Swennen (2007).
- 6) University of Antwerp, Faculty of Pharmacy, candidate Pieter-Jan D.F. Guns (2007).
- 7) University of Copenhagen, Faculty of Health and Medical Sciences, candidate Karin Dreisig Sorensen (2016).

**Comitati Editoriali/Editorial Boards:**

- 1) British Journal of Pharmacology (2000-2005)
- 2) Inflammation (2001-....)
- 3) Autonomic Neuroscience: basic and clinical (2001-2011)
- 4) Purinergic Signalling (2004-....)
- 5) American Journal of Physiology-Cell Physiology (2013-....)
- 6) Editor-in-Chief, Current Opinion in Pharmacology, Elsevier (2021-...)
- 7) Editorial Board Member Scientific Reports, Nature publishing (2019-...)
- 8) Editorial Board Member, Signal Transduction and Targeted Therapy, Springer-Nature Publishing (2021-...)

**Revisore/Referee (ultimi tre anni/last three years):**

- 1) The Journal of Immunology
- 2) Science Translational Medicine
- 3) The Journal of Neurochemistry
- 4) Molecular Biology of the Cell
- 5) British Journal of Pharmacology
- 6) Inflammation
- 7) Blood
- 8) Nature Medicine
- 9) EMBO Journal
- 10) PLoS ONE
- 11) Immunity
- 12) The Journal of Experimental Medicine
- 13) Cell Death & Differentiation
- 14) Science
- 15) FASEB J
- 16) Cancer Research
- 17) Nature Communications
- 18) EMBO Mol Med
- 19) eLife
- 20) Science Translational Medicine

**Revisore/Referee (Agenzie di Finanziamento Internazionali/International Funding Agencies):**

- 1) Fonds national suisse de la recherche scientifique (Suisse)
- 2) Commission of the European Communities. International Scientific Cooperation (EU)
- 3) Austrian Science Fund
- 4) Wellcome Trust (UK)
- 5) Associazione Italiana per la Ricerca sul Cancro (Italia)
- 6) Agence nationale de la research (France)
- 7) Biotechnology and Biology Sciences Research Council (UK)
- 8) Alzheimer Society (UK)
- 9) National Science Center Poland
- 10) Institut Clinique de la Souris (Phenomin) France.
- 11) European Commission ERC Starting Grants.
- 12) Fundacio Bancaria la Caixa (Spain).

**Fondi di ricerca/Research grants 2012-2021**

- 1) Cure Alzheimer's Fund (USA) 2021 (Titolo/Title: Extracellular ATP is a key factor in promoting Alzheimer's disease neuroinflammation, 375 000 USD).
- 2) Associazione Italiana per la Ricerca sul Cancro/Italian Association for Cancer Research (Investigator Grant 2012 n. IG 13025, 280 000 euro). Titolo/Title The P2X7 receptor is a key switch of cancer cell glycolytic metabolism.
- 3) Associazione Italiana per la Ricerca sul Cancro/Italian Association for Cancer Research (Investigator Grant n. IG 2016 Id.18581, 299 000 euro). Titolo/Title The P2X7 receptor: a key determinant of cellular metabolic energetics in cancer progression.
- 4) Associazione Italiana per la Ricerca sul Cancro/Italian Association for Cancer Research (Investigator Grant 2019 n. IG 22883, 530 000 euro). Titolo/Title "Repurposing purinergic signaling for cancer therapy"
- 5) Fondazione Telethon (Investigator Grant n. GGP 11014, 190 000 euro). Titolo/Title: "The P2X7 receptor/Adenosine-generation system: a novel target for the therapy of autoinflammatory diseases".
- 6) Ministero Istruzione Università Ricerca/Ministry of Education and Research (FIRB n. RBAP11FXBC, 316 000 euro). Titolo/Title: I recettori purinergici P2 e le ectonucleotidasi: nuovi bersagli per lo sviluppo di farmaci anti-tumorali/P2 purinergic receptors and ectonucleotidases: novel targets for anti-cancer drugs.
- 7) European Community (ERA-NET "Nanostroke", 250 000 euro).
- 8) Ricerca Finalizzata Ministero della Salute/Finalized Research Ministry of Health (RF-2011-02348435, 480 000 euro) Titolo/Title Investigation of the role of extracellular ATP and the P2X7 receptor in the modulation of immunosuppression within tumour microenvironment. Primo classificato su 3353 Progetti/Ranked first of 3353 Applications.
- 9) EU COST BM1406 "Ion channels and immune responses toward global understanding of immune cell physiology and for new therapeutic approaches".
- 10) Royal Society Exchange Fellowship IES\R3\170196.
- 11) Projects of National Interest (PRIN) Ministry of Education of Italy 2019 (679 000 euros).

#### **Trasferimento Tecnologico/Technology Transfer**

Member of the Scientific Advisory Boards of:

- 1) Duska Therapeutics Inc (USA) anni/years 2000-2005.
- 2) Affectis Pharmaceuticals AG (Germany) anni/years 2010-2014.
- 3) Biosceptre Ltd (UK) anni/years 2016-current.
- 4) Axxam SpA (Italy) anni/years 2021-current

Consultant

- 1) Janssen Pharmaceuticals (Belgium) 30/03/2017-30/09/2017.

## PUBBLICAZIONI/PUBLICATIONS.

ARTICOLI ORIGINALI SU RIVISTE INTERNAZIONALI CON REVISORI/  
ORIGINAL ARTICLES IN INTERNATIONAL REFEREED JOURNALS.

- 1) T.POZZAN, **F.DI VIRGILIO**, M.BRAGADIN, V.MICONI & G.F.AZZONE. H<sup>+</sup>/site, charge/site and ATP/site ratios in mitochondrial electron transport. (1979) **Proc.Natl.Acad.Sci.U.S.A.** 76,2123-2127.
- 2) G.F.AZZONE, T.POZZAN & **F.DI VIRGILIO**. H<sup>+</sup>/site, charge/site and ATP/site ratios at coupling site III in mitochondrial e<sup>-</sup> transport. (1979) **J.Biol.Chem.** 254,10206-10212.
- 3) T.POZZAN, V.MICONI, **F.DI VIRGILIO** & G.F.AZZONE. H<sup>+</sup>/site, charge/site and ATP/site ratios at coupling sites I and II in mitochondrial e<sup>-</sup> transport. (1979) **J.Biol.Chem.** 254,10200-10212.
- 6) M.POZZAN, P.BERNARDI & **F.DI VIRGILIO**. The mechanism for Ca<sup>2+</sup> release induced by N-ethylmaleimide in rat liver mitochondria. (1981) **FEBS Lett.** 127,263-266.
- 7) **F.DI VIRGILIO**, M.POZZAN & G.F.AZZONE. Sidedness of e<sup>-</sup> donation and stoichiometry of H<sup>+</sup> pumps at sites II+III in mitochondria from rat liver. (1981) **Eur.J.Biochem.** 117,225-231.
- 8) **F.DI VIRGILIO** & G.F.AZZONE. Activation of Site I redox driven pump by exogenous quinones in intact mitochondria. (1982) **J.Biol.Chem.** 257,4106-4113.
- 9) **F.DI VIRGILIO** & B.D.GOMPERTS. Ionophore monensin induces Na<sup>+</sup>-dependent secretion from rabbit neutrophils. Requirement for intracellular Ca<sup>2+</sup> stores. (1983) **Biochim.Biophys.Acta** 763,292-298.
- 10) **F.DI VIRGILIO** & B.D.GOMPERTS. Cytosol Mg<sup>2+</sup> modulates Ca<sup>2+</sup> ionophore-induced secretion from rabbit neutrophils. (1983) **FEBS Lett.** 163,315-318.
- 11) **F.DI VIRGILIO**, D.P.LEW & T.POZZAN. Protein kinase C activation of physiological processes in human neutrophils at vanishingly small cytosolic Ca<sup>2+</sup> levels. (1984) **Nature** (London) 310,691-693.
- 12) P.DE TOGNI, G.CABRINI & **F.DI VIRGILIO**. Cyclic AMP inhibition of fMet-Leu-Phe-dependent metabolic responses in human neutrophils is not due to its effects on cytosolic Ca<sup>2+</sup>. (1984) **Biochem.J.** 224,629-635.
- 13) P.DE TOGNI, V.DALLA BIANCA, M.GRZESKOWIAK, **F.DI VIRGILIO** & F.ROSSI. Mechanism of desensitization of neutrophil responses to N-Formylmethionylleucylphenylalanine by slow rate of receptor occupancy. Studies on Ca<sup>2+</sup> changes and phosphatidylinositol turnover. (1985) **Biochim.Biophys.Acta** 838,23-31.
- 14) P.ARSLAN, **F.DI VIRGILIO**, M.BELTRAME, R.Y.TSIEN & T.POZZAN. Cytosolic Ca<sup>2+</sup> homeostasis in Ehrlich and Yoshida carcinomas. A new membrane impermeant chelator of heavy metals reveals that these ascites tumor lines have normal cytosolic Ca<sup>2+</sup>. (1985) **J.Biol.Chem.** 260,2719-2727.
- 15) D.P.LEW, T.ANDERSSON, J.HED, **F.DI VIRGILIO**, T.POZZAN & O.STENDAHL. Calcium-dependent and calcium-independent phagocytosis in human neutrophils. (1985) **Nature** (London) 315,509-511.
- 16) L.M.VICENTINI, **F.DI VIRGILIO**, A.AMBROSINI, T.POZZAN & J.MELDOLESI. Tumor promoter phorbol 12-myristate, 13-acetate inhibits phosphoinositide hydrolysis and cytosolic Ca<sup>2+</sup> rise induced by the activation of muscarinic receptors in PC12 cells. (1985) **Biochem.Biophys.Res.Commun.** 127,310-317.
- 17) L.M.VICENTINI, A.AMBROSINI, **F.DI VIRGILIO**, T.POZZAN & J.MELDOLESI. Muscarinic receptor-induced phosphoinositide hydrolysis at resting cytosolic Ca<sup>2+</sup> concentration in PC12 cells. (1985) **J.Cell Biol.** 100,1330-1333.
- 18) **F.DI VIRGILIO**, L.M.VICENTINI, S.TREVES, G.RIZ & T.POZZAN. Inositol phosphate formation in fMet-Leu-Phe stimulated human neutrophils does not require an increase of the cytosolic free Ca<sup>2+</sup> concentration. (1985) **Biochem.J.** 229,361-367.
- 19) P.VOLPE, G.SALVIATI, **F.DI VIRGILIO** & T.POZZAN. Inositol-1,4,5-trisphosphate induces calcium release from sarcoplasmic reticulum of skeletal muscle. (1985) **Nature** (London), 316,347-349.
- 20) T.POZZAN, **F.DI VIRGILIO**, L.M.VICENTINI & J.MELDOLESI. Activation of muscarinic receptors in PC12 cells. I: Stimulation of Ca<sup>2+</sup> influx and redistribution. (1986) **Biochem.J.** 234,547-553.
- 21) L.M.VICENTINI, A.AMBROSINI, **F.DI VIRGILIO**, T.POZZAN & J.MELDOLESI. Activation of muscarinic receptors in PC12 cells. II: Correlation between cytosolic Ca<sup>2+</sup> rise and phosphoinositide hydrolysis. (1986) **Biochem.J.** 234,555-562.
- 22) **F.DI VIRGILIO**, T.POZZAN, C.WOLLHEIM, L.M.VICENTINI & J.MELDOLESI. Tumor promoter phorbol myristate acetate inhibits Ca<sup>2+</sup> influx through voltage-gated Ca<sup>2+</sup> channels in two secretory cell lines, PC12 and RINm5F. (1986) **J.Biol.Chem.** 261,32-35.
- 23) **F.DI VIRGILIO**, G.SALVIATI, T.POZZAN & P.VOLPE. Is a guanine nucleotide binding protein involved in excitation-contraction coupling in skeletal muscle? (1986) **EMBO J.** 5,259-262.
- 24) V.DELLA BIANCA, P.DE TOGNI, M.GRZESKOWIAK, L.M.VICENTINI & **F.DI VIRGILIO**. Cyclic AMP inhibition of phosphoinositide turnover in human neutrophils. (1986) **Biochim.Biophys.Acta** 886,441-447.
- 25) S.TREVES, **F.DI VIRGILIO**, G.M.VASELLI & T.POZZAN. Effect of cytochalasins on cytosolic free calcium concentration and phosphoinositide metabolism in leukocytes. (1987) **Exp.Cell Res.** 168,285-298.

- 26) **F. DI VIRGILIO**, L. CALO', S. CANTARO, S. FAVARO, A. PICCOLI & A. BORSATTI. Resting and stimulated cytosolic free calcium levels in neutrophils from patients with Bartter's syndrome. (1987) **Clinical Science** 72,483-488.
- 27) **F. DI VIRGILIO**, P. D. LEW, T. ANDERSSON & T. POZZAN. Plasma membrane potential modulates chemotactic peptide-stimulated cytosolic free  $Ca^{2+}$  changes in human neutrophils. (1987) **J. Biol. Chem.** 262,4574-4579.
- 28) S. TREVES, **F. DI VIRGILIO**, V. CERUNDOLO, P. ZANOVELLO, D. COLLAVO & T. POZZAN. Calcium and inositol phosphates in the activation of T-cell mediated cytotoxicity. (1987) **J. Exp. Med.** 166,33-42.
- 29) **F. DI VIRGILIO**, D. MILANI, A. LEON, J. MELDOLESI & T. POZZAN. Voltage dependent activation and inactivation of calcium channels in PC12 cells: correlation with neurotransmitter release. (1987) **J. Biol. Chem.** 262,9189-9195.
- 30) **F. DI VIRGILIO**, T. H. STEINBERG, J. A. SWANSON & S. C. SILVERSTEIN. Fura-2 secretion and sequestration in macrophages. A blocker of organic anion transport reveals that these processes occur via a membrane transport system for organic anions. (1988) **J. Immunol.** 140,915-920.
- 31) **F. DI VIRGILIO**, B. C. MEYER, S. GREENBERG & S. C. SILVERSTEIN. Fc receptor mediated-phagocytosis occurs in macrophages at exceedingly small cytosolic  $Ca^{2+}$  levels. (1988) **J. Cell Biol.** 106,657-666.
- 32) S. M. GREENBERG, **F. DI VIRGILIO**, T. H. STEINBERG & S. C. SILVERSTEIN. Evidence for two distinct receptors for extracellular nucleotides that mediate  $Ca^{2+}$  fluxes in J774 macrophages. (1988) **J. Biol. Chem.** 263,10337-10343.
- 33) **F. DI VIRGILIO**, C. FASOLATO & T. H. STEINBERG. Inhibitors of membrane transport system for organic anions block fura-2 excretion from PC12 and N2A cells. (1988) **Biochem. J.** 256,959-963.
- 34) **F. DI VIRGILIO**, V. BRONTE, D. COLLAVO & P. ZANOVELLO. Responses of mouse lymphocytes to extracellular adenosine 5'-triphosphate. (1989) **J. Immunol.** 143,1955-1960.
- 35) P. ZANOVELLO, A. ROSATO, V. BRONTE, V. CERUNDOLO, S. TREVES, **F. DI VIRGILIO**, T. POZZAN, G. BIASI & D. COLLAVO. Interaction of lymphokine activated killer (LAK) cells with susceptible targets does not induce second messenger generation and cytolytic granule exocytosis. (1989) **J. Exp. Med.** 170,665-677.
- 36) - E. PICELLO, P. PIZZO & **F. DI VIRGILIO**. Chelation of cytoplasmic  $Ca^{2+}$  increases plasma membrane permeability in murine macrophages. (1990) **J. Biol. Chem.** 265, 5635-5639
- 37) - D. PITTET, **F. DI VIRGILIO**, T. POZZAN, A. MONOD & D. P. LEW. Correlation between plasma membrane potential and second messenger generation in the promyelocytic cell line HL-60. (1990) **J. Biol. Chem.** 265, 14256-14263.
- 38) P. ZANOVELLO, V. BRONTE, A. ROSATO, P. PIZZO & **F. DI VIRGILIO**. Responses of mouse lymphocytes to extracellular adenosine 5'-triphosphate (ATP). II. Extracellular ATP causes cell type-dependent lysis and DNA fragmentation. (1990) **J. Immunol.** 145, 1545-1550.
- 39) P. PIZZO, P. ZANOVELLO, V. BRONTE & **F. DI VIRGILIO**. Extracellular ATP causes lysis of mouse thymocytes and activates a plasma membrane ion channel. (1991) **Biochem. J.** 274, 139-144.
- 40) S. GREENBERG, J. EL KHOURY, **F. DI VIRGILIO**, E. M. KAPLAN & S. C. SILVERSTEIN.  $Ca^{2+}$ -independent F-actin assembly and disassembly during Fc receptor-mediated phagocytosis in mouse macrophages. (1991) **J. Cell Biol.** 113, 757-767.
- 41) F. MICHELANGELI, **F. DI VIRGILIO**, A. VILLA, P. PODINI, J. MELDOLESI & T. POZZAN. Identification, kinetic properties and intracellular localisation of the ( $Ca^{2+}$ - $Mg^{2+}$ )-ATPase from the intracellular stores of chicken cerebellum. (1991) **Biochem. J.** 275, 555-561.
- 42) M. MURGIA, P. PIZZO, D. SANDONA', P. ZANOVELLO, R. RIZZUTO & **F. DI VIRGILIO**. Mitochondrial DNA is not fragmented during apoptosis. (1992) **J. Biol. Chem.** 267, 10939-10941.
- 43) C. FORESTA, M. ROSSATO & **F. DI VIRGILIO**. Extracellular ATP is a trigger for the acrosome reaction in human spermatozoa. (1992) **J. Biol. Chem.** 267, 19443-19447.
- 44) M. MURGIA, P. PIZZO, T. H. STEINBERG & **F. DI VIRGILIO**. Characterization of the cytotoxic effect of extracellular ATP in J774 mouse macrophages. (1992) **Biochem. J.** 288, 897-901.
- 45) P. PIZZO, M. MURGIA, A. ZAMBON, P. ZANOVELLO, V. BRONTE, D. PIETROBON & **F. DI VIRGILIO**. Role of P2Z purinergic receptors in ATP-mediated killing of TNF-sensitive and TNF-resistant fibroblasts. (1992) **J. Immunol.** 149, 3372-3378.
- 46) M. MURGIA, S. HANAU, P. PIZZO, M. RIPPA & **F. DI VIRGILIO**. Oxidized ATP: an irreversible inhibitor of the macrophage purinergic P2Z receptor. (1993) **J. Biol. Chem.** 268, 8199-8203.
- 47) C. FORESTA, M. ROSSATO & **F. DI VIRGILIO**. Ion fluxes through the progesterone-activated channel of sperm plasma membrane. (1993) **Biochem. J.** 294, 279-283.
- 48) V. BRONTE, A. ZAMBON, P. PIZZO, **F. DI VIRGILIO**, P. ZANOVELLO & D. COLLAVO. Synergistic effect of extracellular ATP and TNF on DNA degradation. (1993) **Cell. Immunol.** 152, 110-119.
- 49) S. TREVES, P. L. TRENTINI, M. ASCANELLI, G. BUCCI & **F. DI VIRGILIO**. Apoptosis is dependent on intracellular zinc and independent of intracellular calcium in lymphocytes. (1994) **Exp. Cell Res.** 211, 339-343.
- 50) A. ZAMBON, V. BRONTE, **F. DI VIRGILIO**, S. HANAU, T. H. STEINBERG, P. ZANOVELLO & D.

COLLAVO. Role of extracellular ATP in cell-mediated cytotoxicity: a study with ATP-sensitive and ATP-resistant macrophages. (1994) **Cell. Immunol.** 156, 458-467.

51) D. FERRARI, M. MUNERATI, L. MELCHIORRI, S. HANAU, **F. DI VIRGILIO** & O. R. BARICORDI. Responses to extracellular ATP of lymphoblastoid cell lines from Duchenne muscular dystrophy patients. (1994) **Am. J. Physiol.**, 267, C886-C892.

52) M. MUNERATI, R. CORTESI, D. FERRARI, **F. DI VIRGILIO** & C. NASTRUZZI. Macrophages loaded with doxorubicin by ATP-mediated permeabilization: potential carriers for antitumor therapy. (1994) **Biochim. Biophys. Acta.** 1224, 269-276.

53) L. MELCHIORRI, S. CARTURAN, D. FERRARI, **F. DI VIRGILIO** & O.R. BARICORDI. Increased sensitivity of DMD lymphoblastoid cells to low doses of X-irradiation. (1994) **Dis. Markers.** 12, 99-107.

54) S. FALZONI, M. MUNERATI, D. FERRARI, S. SPISANI, S. MORETTI & **F. DI VIRGILIO**. The purinergic P2Z receptor of human macrophage cells: characterization and possible physiological role. (1995) **J. Clin. Invest.** 95, 1207-1216.

55) C. FORESTA, M. ROSSATO & **F. DI VIRGILIO**. Differential modulation by protein kinase C of progesterone-activated responses in human sperm. (1995) **Biochem. Biophys. Res. Commun.** 206, 408-413.

56) D. FERRARI, S. FALZONI, M. MUNERATI, S. HANAU & **F. DI VIRGILIO**. Up-regulation of calcium responses to extracellular nucleotides in gamma interferon-treated human monocytes. (1995) **Res. Commun. Mol. Path. Pharmac.** 87, 65-66.

57) C. FORESTA, M. ROSSATO, P. BORDON & **F. DI VIRGILIO**. Extracellular ATP activates different signalling pathways in rat Sertoli cells. (1995) **Biochem. J.** 311, 269-274.

58) M. VILLALBA, D. FERRARI, A. BOZZA, L. DEL SENNO & **F. DI VIRGILIO**. Ionic regulation of endonuclease activity in PC12 cells. (1995) **Biochem. J.** 311, 1033-1038.

59) O.R. BARICORDI, D. FERRARI, L. MELCHIORRI, P. CHIOZZI, S. HANAU, E. CHIARI, M. RUBINI & **F. DI VIRGILIO**. An ATP-activated channel is involved in mitogenic stimulation of human T lymphocytes. (1996) **Blood.** 87, 682-690.

60) S. DEAGLIO, U. DIANZANI, A. L. HORENSTEIN, J. E. FERNANDEZ, C. VAN KOOTEN, M. BRAGARDO, A. FUNARO, **F. DI VIRGILIO**, J. BANCHERAU & F. MALAVASI. Identification of a 120 kD ligand for human CD38 predominantly expressed by endothelial cells. (1996) **J. Immunol.** 156, 727-734.

61) P. CHIOZZI, M. MURCIA, S. FALZONI, D. FERRARI & **F. DI VIRGILIO**. Role of the purinergic P2Z receptor in spontaneous cell death in J774 macrophage cultures. (1996) **Biochem. Biophys. Res. Commun.** 218, 176-181.

62) C. FORESTA, M. ROSSATO, P. CHIOZZI & **F. DI VIRGILIO**. Mechanism of human sperm activation by extracellular ATP. (1996) **Am. J. Physiol.** 39, C1709-C1714.

63) D. FERRARI, M. VILLALBA, P. CHIOZZI, S. FALZONI, P. RICCIARDI-CASTAGNOLI & **F. DI VIRGILIO**. Mouse microglial cells express a plasma membrane pore gated by extracellular ATP. (1996) **J. Immunol.** 156, 1531-1539.

64) A. SOLINI, **F. DI VIRGILIO**, A. SFRISO, M. BRUSEGHIN, G. CREPALDI & R. NOSADINI. Intracellular calcium handling by fibroblasts from non insulin dependent diabetic patients with and without hypertension and microalbuminuria. (1996) **Kidney Int.** 50, 618-626.

65) C. FORESTA, M. ROSSATO, A. NOGARA, F. GOTTARDELLO, P. BORDON & **F. DI VIRGILIO**. Role of P2-purinergic receptors in rat leydig cell steroidogenesis. (1996). **Biochem. J.** 320, 499-504.

66) R. TREVISAN, E. DUNER, M.R. CIPOLLINA, **F. DI VIRGILIO**, M. TREVISAN & R. NOSADINI. Enhanced effects of insulin and angiotensin II on intracellular pH and free cytosolic calcium in fibroblasts from microalbuminuric patients with non-insulin-dependent diabetes mellitus. (1996) **Clinical Science.** 91, 703-710.

67) M. ROSSATO, P. BORDON, **F. DI VIRGILIO** & C. FORESTA. Capacitative calcium entry in rat Sertoli cells. (1996) **J. Endocrinol. Invest.** 19, 516-523.

68) C. FORESTA, **F. DI VIRGILIO** & M. ROSSATO. Involvement of osmo-sensitive calcium influx in human sperm activation. (1996) **Mol. Hum. Reprod.** 2, 903-909.

69) E. DUNER, **F. DI VIRGILIO**, R. TREVISAN, M.R. CIPOLLINA, G. CREPALDI & R. NOSADINI. Intracellular free calcium abnormalities in fibroblasts from non-insulin-dependent diabetic patients with and without arterial hypertension. (1997) **Hypertension.** 29, 1007-1013.

70) D. FERRARI, P. CHIOZZI, S. FALZONI, S. HANAU & **F. DI VIRGILIO**. Purinergic modulation of interleukin-1 $\beta$  release from microglial cells stimulated with bacterial endotoxin. (1997) **J. Exp. Med.** 185, 579-582.

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98) SPH ALEXANDER , A MATHIE , JA PETERS , EL VEALE , J STRIESSNIG , E KELLY , JF ARMSTRONG , E FACCENDA , SD HARDING , AJ PAWSON , JL SHARMAN , C SOUTHAN , JA DAVIES , CGTP COLLABORATORS: RW ALDRICH, E BECIROVIC, M BIEL, WA CATTERALL, AC CONNER, P DAVIES, M DELLING, **F DI VIRGILIO**, S FALZONI, C GEORGE, SA GOLDSTEIN, S GRISSMER, K HA, V HAMMELMANN, I HANUKOGLU, M JARVIS, AA JENSEN, LK KACZMAREK, S KELLENBERGER, C KENNEDY, B KING, JW LYNCH, E PEREZ-REYES, LD PLANT, LD RASH, D REN, LG SIVILOTTI, TG SMART, TP SNUTCH, J TIAN, C VAN DEN EYNDE, J VRIENS, AD WEI, BT WINN, H WULFF, H XU, L YUE, X ZHANG, M ZHU. (2019) The concise guide to Pharmacology. 2019-2020 Ion Channels. **Br J Pharmacol**, 176:S142-S228.

- 99) **F. DI VIRGILIO**, K A. JACOBSON AND M WILLIAMS. (2021) Geoffrey Burnstock – An Accidental Pharmacologist. **Biochem Pharmacol**, 187:114421. doi: 10.1016/j.bcp.2021.11442.1
- 100) P ILLES, CE. MÜLLER, KA. JACOBSON, T GRUTTER, A NICKE, SJ. FOUNTAIN, C KENNEDY, G SCHMALZING, M JARVIS, SS. STOJILKOVIC, BF. KING, **F DI VIRGILIO**. (2021) Update of P2X receptor properties and their pharmacology: IUPHAR review. **Br J Pharmacol**, 178:489-514.
- 101) V VULTAGGIO-POMA, AC SARTI, & **F DI VIRGILIO** (2020) Extracellular ATP: a feasible target for cancer therapy. **Cells**, 9(11):2496.
- 102) **F DI VIRGILIO**, V VULTAGGIO-POMA, & AC SARTI (2021) P2X receptors in cancer growth and progression. **Biochem Pharmacol**, 187:114350. doi: 10.1016/j.bcp.2020.114350
- 103) Z HUANG, N XIE, P ILLES, **F. DI VIRGILIO**, H ULLRICH, A SEMYANOV, A. VERKHRATSKY, B SPERLAGH, S-G YU, C. HUANG, & Y TANG (2021) From purines to purinergic signalling: molecular function and human diseases. **Signal Transd Targ Ther**, 6(1):162. doi: 10.1038/s41392-021-00553-z.
- 104) CE GALLENGA, M LONARDI, S PACETTI, SS VIOLANTI, P TASSINARI, **F DI VIRGILIO**, M TOGNON, P PERRI (2021) Molecular Mechanisms Related to Oxidative Stress in Retinitis Pigmentosa. **Antioxidants**, 10(6):848. doi: 10.3390/antiox10060848.
- 105) M TASSETTO, A SCIALDONE, A SOLINI, **F DI VIRGILIO** (2021) The P2X7 Receptor: A Promising Pharmacological Target in Diabetic Retinopathy. **Int J Mol Sci**, 22(13):7110. doi: 10.3390/ijms22137110.
- 106) O KEPP, L BEZU, T YAMAZAKI, **F DI VIRGILIO**, MJ SMYTH, G KROEMER, L GALLUZZI (2021) ATP and cancer immunosurveillance. **EMBO J**, 40(13):e108130. doi: 10.15252/embj.2021108130.
- 107) C VERDERIO, M LOMBARDI & **F DI VIRGILIO** (2021) Differential impact of inflammasome-induced EVs on immune cells: key control by the functional state of the recipient cell. **ExRNA**, in press.

### CAPITOLI DI LIBRI/BOOK CHAPTERS.

- 1) - G.F.AZZONE, T.POZZAN, **F.DI VIRGILIO** & V.MICONI. The three proton pumps of the mitochondrial respiratory chain. (1979) in : Frontiers of Biological Energetics. (P.L.Dutton et al eds.) pp 275-283, Academic Press.
- 2) - G.F.AZZONE, T.POZZAN, **F.DI VIRGILIO** & V.MICONI. Mechanism of H<sup>+</sup> pump in rat liver mitochondria. (1979) in : Cation flux across biomembranes. (Y.Mukohata and L.Packer eds.) pp 331-341, Academic Press.
- 4) - **F.DI VIRGILIO**. Cytoplasmic pH and free Mg<sup>2+</sup> in tumor cells. (1982) in : Membranes in Tumor Growth. (T.Galeotti et al.eds) pp 527-532 Elsevier Biomedical Press
- 5) - T.POZZAN, P.ARSLAN & **F.DI VIRGILIO**. Measurement of free cytoplasmic Ca<sup>2+</sup> concentration in Ehrlich and Yoshida ascites carcinomas. (1982) in : Membranes in Tumor Growth. (T.Galeotti et al.eds.) pp 353-358, Elsevier Biomedical Press.
- 6) - **F.DI VIRGILIO**, D.P.LEW & T.POZZAN. Dependence of exocytosis on cytosolic Ca<sup>2+</sup> and protein kinase C activation in human neutrophils. (1984) Biochem.Soc.Trans. vol 12,1078.
- 7) - T.POZZAN, **F.DI VIRGILIO**, G.GATTI, N.DOZIO & J.MELDOLESI. Relationship between neurotransmitter release and cytosolic Ca<sup>2+</sup> in PC12 cells. (1984) Biochem.Soc.Trans. vol 12,1077.
- 8) - T.POZZAN, **F.DI VIRGILIO**, L.M.VICENTINI, G.SALVIATI, P.VOLPE & J.MELDOLESI. Cytosolic free calcium in cell activation: a pivotal role for phosphoinositide metabolites and protein kinase C. (1986) in : Ion Channels in Neural Membranes. (L.Bolis et al.) eds. pp 205-212, Alan R.Liss Inc. New York.
- 9) - T.POZZAN, **F.DI VIRGILIO**, S.TREVES, D.MILANI & D.P.LEW. Stimulus-activation coupling in neutrophils. (1986) in : Advances in Immunopharmacology. (L.Chedid et al.eds.) pp 109-113. Pergamon Press, Oxford.
- 10) - T.POZZAN, **F.DI VIRGILIO**, S.TREVES, D.MILANI, L.M.VICENTINI, D.P.LEW, B.JACOPETTA & J.L.CARPENTIER. Role of protein kinase C in initiation and termination of cell functions. (1986) in : Hormones and Cell Regulation. Vol.139 (J.Nunez et al.eds.) pp.131-140. John Libbey Eurotext Ltd.
- 11) - L.CALO, S.CANTARO, **F.DI VIRGILIO**, S.FAVARO & A.BORSATTI. Altered free cytosolic Ca<sup>2+</sup> changes if fMet-Leu-Phe stimulated neutrophils from patients with Bartter's syndrome. (1986) Ann. N.Y. Acad.Sci., 488, 527-529.
- 12) **F.DI VIRGILIO**, P.D.LEW, T.ANDERSSON, S.TREVES & T.POZZAN. Role of plasma membrane potential in granulocyte activation. (1986) Ann. N.Y. Acad. Sci. 488, 525-526.
- 13) - L.M.VICENTINI, A.AMBROSINI, **F.DI VIRGILIO**, T.POZZAN & J.MELDOLESI. Second messenger generation and secretion in PC12 cells. Role of Ca<sup>2+</sup> and phosphoinositide hydrolysis. (1986) in "Phospholipid Research and the Nervous System. Biochemical and Molecular Pharmacology" (L.Freysz, L.A.Horrocks and G.Toffano eds.) pp 19-29, Liviana Press, Padova.
- 14) - S.TREVES, **F.DI VIRGILIO** & T.POZZAN. Cytochalasins increase the intracellular free Ca<sup>2+</sup> concentration in human neutrophils. (1986) Cell Biol.Int.Rep. 10, 158.
- 15) - P.VOLPE, **F.DI VIRGILIO**, G.BRUSCHI & T.POZZAN. Phosphoinositide metabolism and excitation-contraction coupling in smooth, cardiac and skeletal muscle. (1988) in "Inositol lipids in cell signalling" (R.H.Michell, A.H.Drummond and C.P.Downes eds.) pp 377-403, Academic Press (London).
- 16) - J.MELDOLESI, A.MALGAROLI, A.PANDIELLA, A.AMBROSINI, L.M.VICENTINI, D.MILANI, **F.DI VIRGILIO** & T.POZZAN. Studies on voltage-gated calcium channels by means of fluorescent [Ca<sup>2+</sup>]<sub>i</sub> indicators. (1988) in "Calcium and calcium-binding proteins" (Ch.Gerday et al.eds), pp 236-242, Springer-Verlag, Berlin.
- 17) - T.POZZAN, D.MILANI, A.LEON, J.MELDOLESI & **F.DI VIRGILIO**. Mechanism of calcium channel inactivation in PC12 cells and its importance for controlling neurotransmitter secretion. (1988) in "Voltage-sensitive ion channels: modulation by neurotransmitters and drugs" (G.Biggio et al.eds), pp 85-95, Liviana Press-Springer Verlag, Padova-Berlin.
- 18) - **F.DI VIRGILIO**, S.TREVES, D.P.LEW & T.POZZAN. The role of intracellular calcium in neutrophil activation. (1989) in : The Neutrophil: Cellular Biochemistry and Physiology. (M.B.Hallet ed.) pp 199-218, CRC Press (Boca Raton, Fla).
- 19) - J.MELDOLESI, A.MALGAROLI, A.PANDIELLA, A.AMBROSINI, C.DETTORRI, G.GATTI, L.VALLAR, L.M.VICENTINI, **F.DI VIRGILIO**, D.MILANI & T.POZZAN. Receptor-triggered hydrolysis of phosphoinositides in neurons and neurosecretory cells. Physiological and pathological implications. (1989) in "Phospholipids in the Nervous System" (N.Bazan et al eds.) pp 21-33, Liviana Press, Padova.
- 20) - P.VOLPE, T.POZZAN & **F.DI VIRGILIO**. Is inositol 1,4,5-trisphosphate the chemical transmitter for excitation-contraction coupling in skeletal muscle? (1989) in : Neuromuscular Junction. (L.C.Sellin, R.Libelius and S.Thesleff eds.) pp 381-393, Elsevier Science Publishers, Amsterdam.
- 21) - P.VOLPE, **F.DI VIRGILIO** & T.POZZAN. What we know and what we would like to know about the role of inositol 1,4,5-trisphosphate in skeletal muscle. (1989) in "Transduction in Biological Systems", pp 429-437, Plenum Press.

- 22) - S.C.SILVERSTEIN,S.GREENBERG,**F.DI VIRGILIO** & T.H.STEINBERG. Phagocytosis. (1989) in "Fundamental Immunology" 2nd edition (W.P.Paul ed.)pp 703-720,Raven Press,New York.
- 23) - **F.DI VIRGILIO**,E.PICELLO,V.BRONTE,P.ZANOVELLO & D.COLLAVO. Extracellular ATP causes changes in plasma membrane permeability of mouse lymphocytes. (1990) Ann.N.Y.Acad.Sci.,603, 427-428.
- 24) - **F.DI VIRGILIO**. Misurazione di parametri intracellulari fisiologici in cellule quiescenti e sotto stimolo ormonale. (1990) Atti della Societa' Italiana di Biochimica Clinica, pp 1-7.
- 25) - **F.DI VIRGILIO**,P.PIZZO & E.PICELLO. Mechanisms of macrophage and neutrophil motility. (1991) in "New aspects of human polymorphonuclear leukocytes",(W.H.Horl ed), Vol. 297, pp 13-22, Plenum Press.
- 26) **F. DI VIRGILIO**. Recettori Cellulari. (1993) in "Enciclopedia Medica Italiana", Vol. IV, Aggiornamento I, Edizioni UTET, pp 6311-6330.
- 27) **F. DI VIRGILIO**, P. ZANOVELLO & D. COLLAVO. Cell permeabilizing properties of extracellular ATP in relation to lymphocyte-mediated cytotoxicity. (1993) in "Cytotoxic Cells: Generation, Triggering, Effector Functions, Methods" (M.V. Sitkovsky & P. Henkart eds.), pp 314-320, Birkhauser Press.
- 28) **F. DI VIRGILIO** & D. FERRARI. Ioni e Membrana Cellulare. (1994) in "Apoptosi 1993" (G. Bonelli & F. Baccino eds.) pp 19-22, EDI-ERMES, Torino.
- 29) M. ROSSATO, **F. DI VIRGILIO**, A. VAROTTO, A. BETTELLA & C. FORESTA. Role of P2-purinergic receptors in the acrosome reaction of human sperm. (1994) in "Frontiers in Endocrinology" (M. Andreoli and M. Shields eds.) Ares-Serono Symposia Publications, pp 273-276.
- 30) **F. DI VIRGILIO**, D. FERRARI, M. MUNERATI, S. FALZONI, M. VILLALBA, V. BRONTE, A. ZAMBON, P. ZANOVELLO & T.H. STEINBERG. The P2Z receptor and its regulation of macrophage function. (1995) in "Adenosine & Adenine Nucleotides" (A. Pelleg et al. eds) Kluver, pp 329-336.
- 31) **F. DI VIRGILIO**, D. FERRARI, S. FALZONI, P. CHIOZZI & M. VILLALBA. Recettori di membrana ed eventi metabolici dell' apoptosi. (1996) in "Prospettive cliniche dell' apoptosi" (G. Scambia et al, editors), pp 51-65.
- 32) **F. DI VIRGILIO** , D. PIETROBON & T. POZZAN. Principles of Ca<sup>2+</sup> homeostasis in eukariotic cells. (1996). In "Principles of Medical Biology" (E.E. Bittar ed), Vol. 5, pp 303-325, JAI Press,.
- 34) **F. DI VIRGILIO**. Le Proteine G. (1996) In Enciclopedia Medica Italiana USES.
- 35) **F. DI VIRGILIO**. Meccanismi dell' apoptosi. (1996) in "Carcinoma prostatico ed apoptosi" (F. Pagano ed.).
- 36) **F. DI VIRGILIO** Recettori Cellulari. (1997) in Enciclopedia Medica Italiana, USES.
- 37) S. HOURANI, M. LOUBATIERES-MARIANI & **F. DI VIRGILIO**. Emerging new physiological roles of nucleotide receptors. (1998) In "The P2 Nucleotide Receptors" (J. S. Fedan et al. eds) pp 361-411, Humana Press, (Totowa)
- 38) **F. DI VIRGILIO** & S. FALZONI. P2 purinoceptors and regulation of the function of platelets, erythrocytes and mast cells. (1998) In "Cardiovascular Biology of Purines" (J.G. Dobson et al., eds) Kluver Academic Publishers, pp 290-301.
- 39) R. MANNUCCI, **F. DI VIRGILIO** & I. NICOLETTI. Common methods for measuring apoptotic cell dath by flow cytometry. (1998) In "Imaging living cells" (C. Fasolato and R. Rizzuto eds) Springer-Verlag, pp 156-172.
- 40) **F. DI VIRGILIO**, V. VISHWANATH & D. FERRARI. On the role of the P2X7 receptor in the immune system. (1999) In "Handbook of Experimental Pharmacology" (M.P. Abbracchio and M. Williams eds) Springer-Verlag, pp 355-369.
- 41) **F. DI VIRGILIO**. Il concetto di malattia focale. (2000) In "Malattia parodontale e stato di salute del paziente" (L. Trombelli ed) Dental Cadmos, Masson Spa Milano, pp 24-27.
- 42) **F. DI VIRGILIO** & D. FERRARI. Macrophages targets in inflammation: b)- Purinergic Receptors (2002) Handbook of Experimental Pharmacology, 158, 131-146.
- 43) **F. DI VIRGILIO** & I. LEMAIRE. Purinergic signalling in inflammation and immunomodulation. (2006) in "The role of nucleotides in the regulation of bone formation and resorption". G. Burnstock and T. Arnett Eds. CRC Press, pgs 159-194.

**BREVETTI/PATENTS.**1) **F. DI VIRGILIO** & C. FORESTA.

Method for inducing the acrosome reaction in human and animal spermatozoa.

Patent number: 5,474,890, date: December 12, 1995, United States Department of Commerce.

Australian Patent Application no. 666,011. Allowed on January 18, 1996.

2) SILVERSTEIN, S.C., LOIKE, J.D., & **DI VIRGILIO, F.**

Method for using phagocytic particles and ATP receptors to deliver antigens to MHC class I receptors to induce immunity against microbial pathogens or tumors or to suppress immunity.

US Patent n. 7,037,500 B1, date May 2, 2006.

3) **F. DI VIRGILIO**, R. RIZZUTO, P. PELLEGGATTI, S. FALZONI, P. PINTON.

Chimeric proteins for measuring ATP concentrations in the pericellular space and related screening method. Filed 24/05/2005 European Patent Office n. RM2005A000252-SG/IC.

**ATTIVITA' DI TRASFERIMENTO TECNOLOGICO/TECHNOLOGY TRANSFER**

- 1) Member of the Scientific Advisory Board (SAB) of Duska Therapeutics Inc (USA) from 01-01-2000 to 31-12-2005.
- 2) Member of the Scientific Advisory Board (SAB) della Affectis Pharmaceuticals AG (Germany) from 01-01-2010 to 31-12-2014.
- 3) Member of the Scientific Advisory Board (SAB) of Biosceptre Ltd (UK) from 27-07-2016-current.
- 4) Member of the Scientific Advisory Board (SAB) of Axxam SpA (UK) from 27-06-2021-current.
- 5) Consultant Janssen Pharmaceutica (Belgium), from 30/03/2017-30/09/2017.

### RELAZIONI SU INVITO/INVITED LECTURES.

- 1) 1<sup>st</sup> International Workshop on Membranes in Tumour Growth, Rome, Italy, giugno 1982.
- 2) 18<sup>th</sup> Annual Meeting of the European Society for Clinical Investigation, Milan, Italy, aprile 1984.
- 3) 3<sup>rd</sup> Annual Meeting of the Italian Society for Cell Biology, Siena, Italy, ottobre 1984.
- 4) 19<sup>th</sup> Annual Meeting of the European Society for Clinical Investigation, Toulouse, France, aprile 1985.
- 5) 4<sup>th</sup> Annual Meeting of the Italian Society for Cell Biology, Bardonecchia, Italy, ottobre 1985.
- 6) International Symposium on Ca<sup>2+</sup> and Ca<sup>2+</sup> binding proteins, Crans sur Sierre, France settembre 1986.
- 7) EMBO Course on Transmembrane Signalling, Pavia, Italy, settembre 1987.
- 8) Zyma Foundation Symposium on Phagocyte Biology, Ginevra, Switzerland, giugno 1988.
- 9) 7<sup>th</sup> Annual Meeting of the Italian Society for Cell Biology, Organizzatore della tavola rotonda su "Trasduzione dei Segnali". Spoleto, Italy, ottobre 1988.
- 10) Symposium on "Membrane Regulation of Dynamic Intracellular Events", Leiden, Holland, novembre 1988.
- 11) International Symposium on "New Aspects of Human Polymorphonuclear Leukocytes", Freiburg, Germany, novembre 1989.
- 12) 18<sup>th</sup> Aharon Katzir-Katchalsky Conference on Receptor Pharmacology, S. Maria Imbaro, Italy, settembre 1990.
- 13) IX Convegno della Societa' Italiana di Biochimica Clinica, Padova, Italy, maggio 1990.
- 14) Riunione congiunta delle Societa' Italiane di Fisiologia e di Biologia Sperimentale, Perugia, Italy, settembre 1990.
- 15) Conference on "Molecular and Cellular Basis of Innate Immunity", Catania, Italy, maggio 1991.
- 16) Ninth Course on Respiratory Physiopathology, Padova, Italy, giugno 1991.
- 17) 36<sup>th</sup> National Meeting of the Italian Society of Biochemistry, Ferrara, Italy, settembre 1991.
- 18) Course on "Calcium channels: role in physiology and pathology in the nervous and cardiovascular systems", Scuola Superiore di Oncologia e Scienze Biomediche, S. Margherita Ligure, Italy, settembre 1991.
- 19) 1<sup>st</sup> Meeting on "New trends in Clinical Pathology", University of Ferrara, Italy, settembre 1991.
- 20) 1<sup>st</sup> Italian-German Conference on "Ions and Cell Regulation", Lovenno di Menaggio, Italy, ottobre 1991.
- 21) Tenth Course on Respiratory Physiopathology, Ferrara, Italy, dicembre 1991.
- 22) XIX National Congress of the Italian Group of Bioenergetics and Biomembranes, Rome, Italy, maggio 1992.
- 23) V Meeting of Allergology, Bormio, Italy, marzo 1993.
- 24) II International Course on Neuropharmacology, Milano, Italy, maggio 1993.
- 25) XXI Meeting of the Italian Cooperation Group in Immunology, Viterbo, Italy, giugno 1993.
- 226) EMBO Cell-Mediated Cytotoxicity Workshop, Neve Ilan Hilltop Resort, Israel, agosto 1993.
- 27) XII Meeting of the Italian Association for Cell Biology, Milan, Italy, settembre 1993.
- 28) I Simposio sull' impiego del sangue povero di leucociti, Ferrara, Italy, settembre 1993.
- 29) II German-Italian Conference on "Ions and Cell Regulation", Lovenno di Menaggio, Italy, ottobre 1993.
- 30) I Meeting sulla Morte Cellulare, Roma, Italy, ottobre 1993.
- 31) 5<sup>th</sup> International Meeting on Pathophysiology of Pulmonary Cells, Torino, Italy, febbraio 1994.
- 32) 5<sup>th</sup> International Symposium on Adenosine and Adenine Nucleotides: From Molecular Biology to Integrative Physiology. Philadelphia, USA, maggio 1994.
- 33) Joint Meeting ABCD-AGI-SIBBM-SIMGBM, Pescara, Italy, settembre 1994.
- 34) II Ponza Workshop "Citochine e risposta immunitaria", Ponza, Italy, settembre 1994.
- 35) The Calcium Club, European Chapter, Firenze, Italy, ottobre 1994.
- 36) The Purine Club, III Scientific Meeting, Chieti, Italy, ottobre 1994.
- 37) IV Course on Monoclonal Antibodies, School of Oncology and Biomedical Science, Bologna, Italy, novembre 1994.
- 38) 2<sup>nd</sup> Post-graduate course on "Mountain Medicine", Bressanone, Italy, marzo 1995.
- 39) First European Congress of Pharmacology, Milan, Italy, giugno 1995.
- 40) Ciba Foundation Symposium on P2-purinergic receptors, London, UK, luglio 1995.
- 41) III German-Italian Conference on "Ions and Cell Regulation". Lovenno di Menaggio, Italy, ottobre 1995.
- 42) I Meeting on "Clinical Perspectives of Apoptosis in Oncology". Roma, Italy, novembre 1995.
- 43) International Workshop on "Extracellular Nucleotides: A novel and universal class of signalling molecules. From receptors to clinical functions", Magdeburg, Germany, dicembre 1995.
- 44) First Workshop on Prostatic Carcinoma and Apoptosis, Sirmione, Italy, aprile 1996.
- 45) Postgraduate School of Clinical Immunology, University of Padova, Padova, Italy, aprile 1996.
- 46) Postgraduate course on "Tumoral Growth", Department of Pharmacology, University of Milano, Italy, giugno 1996.
- 47) XXIII Meeting of the Italian Society of Pathology, Milano, Italy, giugno 1996.
- 48) International Meeting "Purines 96". Milano, Italy, luglio 1996.
- 49) CNR-UNESCO AIDS Meeting, St. Vincent, Italy, dicembre 1996.

- 50) Meeting of the Italian Association for Neuroscience on Physiopathology of Glial Function. Genova, Italy, maggio 1997.
- 51) New Perspectives in Mitochondrial Research, Padova, Italy, settembre 1997.
- 52) 5th Neuropharmacology Meeting, Meeting of the American Society for Neuroscience, New Orleans, USA, ottobre 1997.
- 53) 6th International Symposium on Adenosine and Adenine Nucleotides, Ferrara, Italy, maggio 1998.
- 54) XIII International Congress of Pharmacology, Munchen, Germany, luglio 1998.
- 55) Symposium on Nucleotides and their Receptors in the Nervous System, Leipzig, Germany, agosto 1998.
- 56) 43° Meeting of the Italian Society of Biochemistry, Bari, Italy, settembre 1998.
- 57) Keystone Symposium on Macrophage Biology, Keystone, USA, gennaio 1999.
- 58) Joint Symposium of the Italian and Spanish Societies of Biochemistry, Alghero, Italy, settembre 1999.
- 59) First Symposium of the Italian Federation of Life Sciences, Riva del Garda, Italy, ottobre 1999.
- 60) International School on the Immunology of Asthma, European Academy of Allergy and Clinical Immunology, Ferrara, Italy, giugno 2000.
- 61) Joint Symposium Italian Society of Immunology, Italian Society of Immunology and Clinical Immunology, British Cytokine Group, Ferrara, Italy, giugno 2000.
- 62) 3rd International Symposium on Nucleotides and Nucleosides, Madrid, Spain, luglio 2000.
- 63) Meeting of the Italian Association of Neuropathology, Intra di Verbania, Italy, maggio 2001.
- 64) National Meeting of the Target Project on Biotechnology of the National Research Council, Genova, Italia, ottobre 2001.
- 65) Next Neuroscience Generation Symposium “Cell-to-cell communication in the central nervous system”, Berlin, Germany, dicembre 2001.
- 66) 7th International Symposium on Adenosine and Adenine Nucleotides, Surface Paradise, Australia, maggio 2002.
- 67) Annual Meeting of the American Society for Neurochemistry, Palm Beach, USA, giugno 2002.
- 68) Woods Hole Meeting “Metabolism of extracellular nucleotides: secretion, hydrolysis, signalling”, Woods Hole, USA, settembre 2002.
- 69) 26th Meeting of the Italian Society of Pathology, Catania, Italy, settembre 2002.
- 70) 2nd International Meeting “The Platelet ADP Receptors”, Santa Margherita di Pula, Cagliari, Italy, ottobre 2002.
- 71) Annual Meeting of the Purine Club of Italy, Bertinoro, Forlì, Italy, ottobre 2002.
- 72) First Meeting on Medicinal Chemistry and Pharmacology of Purinergic Receptors, Camerino, settembre 2003.
- 73) Residential Course on “Innate Immunity”, National Academy of Medicine, Milano, ottobre 2003.
- 74) Joint Meeting of the French and Italian Immunological Societies, Antibes, November 2003.
- 75) Annual Meeting of the Brazilian Federation of Societies for Experimental Biology (FeSBE) (Plenary Lecture), Aguas de Lindoia, August 2004.
- 76) Annual Meeting of the Brazilian Federation of Societies for Experimental Biology (FeSBE) (Symposium Talk), Aguas de Lindoia, August 2004.
- 77) Novartis Foundation Symposium “Purinergic signalling in neuron-glia interactions”, London UK, June 2005.
- 78) Royal Physiological Society-Novartis Foundation Open Meeting “Purinergic signalling in neuron-glia interactions”, London UK, June 2005.
- 79) FENS Summer School “Neuro-glia interaction in aging and disease”, Ofir (Portugal), July 2005.
- 80) 20<sup>th</sup> Meeting of the International Society of Neurochemistry, Innsbruck (Austria), August 2005.
- 81) 5<sup>th</sup> International Congress of Pathophysiology, Peking (China), June 2006.
- 82) VIII FISV Meeting, Riva del Garda (Italy), September 2006.
- 83) 4<sup>th</sup> International ADP Meeting, Le Bischenberg (France) October 2006.
- 84) National Academy of Medicine, Course on “Difficult Issues in Rheumatology”, Ferrara (Italy), October 2006.
- 85) First Meeting on Ultrafine Particles and Nanoparticles, Ferrara (Italy), November 2006.
- 86) 8<sup>th</sup> International Symposium on Adenosine and Adenine Nucleotides, Ferrara May 2006.
- 87) 5th International Aachen Symposium on Cytokine Signalling, Aachen (Germany), March 2007.
- 88) Second joint German-Italian Purine Club Meeting, Leipzig (Germany), September 2007.
- 89) First Workshop on Gastrointestinal Purinergic Neurotransmission, Mechelen (Belgium), September 2007.
- 90) National Congress of the Italian Society for Neurosciences, Verona (Italy), September 2007.
- 91) UCB Pharma Research Day “Glia-neuron interactions and purinergic receptors in neurological diseases”, Chateau de Limelette (Belgium), October 2007.
- 92) PhD School “Complex systems in medicine and life sciences”, University of Torino (Italy), March 2008.
- 93) Purines 2008, Copenhagen (Denmark), June 2008.
- 94) International Symposium on Purinergic Signalling in New Strategy of Drug Discovery, Fukuoka (Japan), July 2009.
- 95) 2<sup>nd</sup> European Congress of Immunology, Workshop “Imaging Immunity”, Berlin (Germany), September 2009.
- 96) FEPS 2009. Joint Meeting of the European Physiological Societies, the Austrian Physiological Society, the



- Slovenian Physiological Society, Ljubljana (Slovenia), November 2009.
- 97) Festschrift in honour of Professor James S. Wiley, University of Sydney, Sydney (Australia) April 2010.
  - 98) Purines 2010, Tarragona (Spain), June 2010.
  - 99) ATPBone Symposium "ATP and Purinergic Signalling", Maastricht (The Netherlands), June 2010.
  - 100) II Meeting of the Purine Club of Brazil, Aguas do Lindoia (Brazil) August 2010.
  - 101) ATPBone Symposium "P2 Receptors: new targets for the treatment of osteoporosis", Keynote Speaker, Bruxelles (Belgium), November 2010.
  - 102) Second International Conference on Immunochemotherapy, Philadelphia (USA), March 2011.
  - 103) Ramon Areces Foundation Meeting on "Extracellular nucleotides and P2 receptors: Relevance in physiopathology and therapeutic applications", Madrid (Spain) March 2011.
  - 104) International Meeting on "IL-1 $\alpha$  in metabolic diseases", Siena, June 2011.
  - 105) IRGT Symposium "Proteases in Pathophysiology", Kiel (Germany) September 2011.
  - 106) 2<sup>nd</sup> International Symposium "Autoinflammatory Days", Padova (Italy) December 2011.
  - 107) Kickoff Meeting "ERA-NET NANOSTROKE", Hamburg April 2012.
  - 108) 3<sup>rd</sup> Meeting of the Brazilian Purine Club (Plenary Speaker), Ouro Preto, Brazil, September 2012.
  - 109) 10<sup>th</sup> Meeting on Acne and related pathologies (Plenary Speaker), Ferrara, Italy, October 2012.
  - 110) Course on "Problematiche difficili in reumatologia", (Plenary Speaker), Ferrara, Italy, October 2012.
  - 111) International Symposium on "Genotype-phenotype relationship in the cardiovascular system", Dusseldorf, October 2012.
  - 112) 4<sup>th</sup> European Workshop on Crystals and Human Diseases, Paris (France) March 2013.
  - 113) Annual Meeting of the Italian Society of Dermatology. Venice (Italy) May 2013.
  - 114) 45<sup>th</sup> Congress of the Italian Society of Clinical Biochemistry and Clinical Molecular Biology, Satellite Meeting on "Plasma proteins: from the basic to optimal clinical application", Pavia (Italy) May 2013.
  - 115) 1<sup>st</sup> REM-TECH Meeting on Endocrine Disruptor, Ferrara (Italy) September 2013.
  - 116) 5<sup>th</sup> Joint Meeting of German and Italian Purine Clubs, Rimini (Italy) September 2013.
  - 117) 57<sup>th</sup> National Meeting of the Italian Society of Biochemistry and Molecular Biology, Ferrara (Italy) September 2013.
  - 118) Jornadas Academicas, 20<sup>th</sup> Anniversary of the Institute of Neurobiology, Universidad Nacional Autonoma De Mexico, Queretaro (Mexico) September 2013.
  - 119) 4<sup>th</sup> Workshop in Translational Hematology, Bologna (Italy), November 2013.
  - 120) 4<sup>th</sup> "Autoinflammatory Days" Meeting, Padova (Italy), December 2013.
  - 121) ERA-NEURON "Nanostroke" Mid-Term Meeting, Barcelona (Spain), December 2013.
  - 122) International Meeting "Purines 2014" "Burnstock Lecturer", Bonn, Germany, July 2014.
  - 123) V International Meeting Brazilian "Clube de Purinas", Sao Sebastiao, Brasil, June 2015.
  - 124) International Conference on Purinergic Signalling, Hamburg, Germany, July 2015.
  - 125) First COST Action BM1406 Meeting "Ion Channels and Immune Response", Warsawa (Poland), September 2015.
  - 126) Joint Keystone Symposium on Purinergic Signalling and Cancer Immunotherapy, Vancouver (Canada), January 2016.
  - 127) Special Symposium in Honor of Samuel Silverstein "Deciphering the Language of the Leukocyte". Columbia University, New York (USA), April 2016.
  - 128) First UK/Italian Purine Club Meeting. Plenary Lecturer. Bristol (UK), September 2016.
  - 129) "Le Malattie Autoinfiammatorie", Plenary Lecture, Siena (Italy) December 2016.
  - 130) International Meeting on Autoinflammatory Diseases, Siena (Italy) December 2017.
  - 131) 6<sup>th</sup> International Symposium-cum-Training Course on Molecular Medicine and Drug Research, Karachi (Pakistan), November 2017.
  - 132) Brabraham Distinguished Lecture, Cambridge (UK), April 2018.
  - 133) Monogenic and Multifactorial Autoinflammatory Disorders: International Advanced Course, Siena (Italy), December 2017.
  - 134) Purines 2018 International (Plenary Lecturer), Foz de Iguacu (Brazil), June 2018.
  - 135) XV Congress of the Italian Federation of Life Sciences (FISV), Rome (Italy), September 2018.
  - 136) XV Meeting of the Italian Society for Experimental Hematology, Rimini (Italy), October 2018.
  - 137) V Zjazd Naukowy Polskiego Towarzystwa Biologii Medycznej, Biologia-Medycyna-Terapia", Krakow (Poland), May 2019.
  - 138) XVIII Teofilo Hernando's International Summer School of Pharmacology, Santander (Spain), July 2019.
  - 139) International Meeting "Lighting up cell signalling", Padova (Italy), October 2019.
  - 140) Problematiche difficili in Reumatologia (Accademia Nazionale di Medicina), Ferrara (Italy), October 2019.
  - 141) VII Cellular signalling and transduction congress, Mexican Society for Biochemistry, Queretaro (Mexico), November 2019.
  - 142) Seminars Series Brazilian Purine Club, Closing Lecture (on-line ), December 2020.

- 143) Annual Meeting of the American Physiological Society, EB2021, (on-line), April 2021.
- 144) PurinesDX Closing Meeting, Plenary Lecture, (on-line), May 2021.
- 145) DFG Collaborative Research Consortium on Adenine Nucleotides in Inflammation and Immunity, (on-line), May 2021.
- 146) Brazilian Purine Club, Plenary Lecture, (on-line), June 2021.
- 147) 2021 University Horizon Programme. Chengdu University of Traditional Chinese Medicine (on line), November 2021.

**SEMINARI/SEMINARS**

- 1) Departmental Seminar on the Physiopathology of Inflammatory Cells, Department of Immunology, Farmington, CT, USA, settembre 1986.
- 2) Departmental Seminar on Ion Transport across the Membrane of Polymorphonuclear Leukocytes, Department of Medicine, Columbia University, New York, USA, ottobre 1986.
- 3) Seminars de la division des maladies infectieuses. Hopital Cantonal de Geneve. Ginevra, Switzerland, settembre 1990.
- 4) Seminars in Cell Biology, Department of Cell Biology and Physiology. Washington University School of Medicine. St. Louis, MO, USA, dicembre 1990.
- 5) Seminars of the Infectious Diseases Division. Washington University School of Medicine. St. Louis, MO, USA, dicembre 1990.
- 6) Departmental Seminar, Department of Biochemistry, University of Ferrara, Italy, marzo 1991.
- 7) Departmental Seminar, Department of Biochemistry, University of Modena, Italy, maggio 1991.
- 8) Biological Seminars, Universita' Cattolica del Sacro Cuore, Roma, Italy, maggio 1991.
- 9) Departmental Seminar, Institut fur Experimental Dermatology, University of Munster, Germany, gennaio 1992.
- 10) Departmental Seminar, Institut of Genetics, University of Torino, Italy, gennaio 1992.
- 11) Departmental Seminar, Department of Dermatology, University of Modena, Italy, marzo 1992.
- 12) Departmental Seminar, Department of General Pathology, University of Siena, Italy, giugno 1992.
- 13) Departmental Seminar, Department of Physiology and Cellular Biophysics, Columbia University, New York, USA, luglio 1992.
- 14) Special Guest Seminar, Department of Cell Biology, the Weizmann Institute of Science, Rehovot, Israel, agosto 1993.
- 15) Guest Seminar, Istituto Superiore di Sanità, Roma, Italy, marzo 1994.
- 16) Departmental Seminar, DIBIT, S. Raffaele Scientific Institution, Milano, Italy, maggio 1994.
- 17) Departmental Seminar, Department of Physiology and Cellular Biophysics, Columbia University, New York, USA, maggio 1994.
- 18) Departmental Seminar, Department of Physiology, University of Chieti, Italy, giugno 1994.
- 19) Departmental Seminar, Department of Biomedicine, University of Padova, Italy, ottobre 1994.
- 20) Departmental Seminar, Department of General Pathology, University of Siena, Italy, ottobre 1994.
- 21) Guest Seminar, Glaxo Institute for Molecular Biology, Geneva, Switzerland, febbraio 1995.
- 22) Departmental Seminar, Institut de Biochimie Clinique, Universite de Geneve, Geneve, Switzerland, febbraio 1995.
- 23) Departmental Seminar, Department of Genetics and Cell Biology, University of Torino, Torino, Italy, giugno 1995.
- 24) Departmental Seminar, Department of Pharmacology, University of Oxford, Oxford, U.K., luglio 1995.
- 25) Departmental Seminar, Center for Advanced Biotechnology and Department of Pharmacology, University of Genova, Genova, Italy, marzo 1996.
- 26) Guest Seminar, Pfizer Central Research, Groton CT, USA, aprile 1996.
- 27) Departmental Seminar, Department of Internal Medicine, Washington University School of Medicine, St. Louis MO, USA, aprile 1996.
- 28) Guest Seminar, NIAID-NIH, Bethesda MD, USA, aprile 1996.
- 29) Departmental Seminar, Department of Pharmacy, University of Milano, Italy, giugno 1996.
- 30) Departmental Seminar, Department of Immunology, University of Verona, Verona, Italy, giugno 1997.
- 31) Departmental Seminar, San Raffaele Hospital and Department of Biotechnology, Milano, Italy, settembre 1997.
- 32) Departmental Seminar, Department of Immunology University of Genova, Genova, Italy, ottobre 1997.
- 33) Departmental Seminar on Apoptosis and Immune Diseases, Sant' Anna Hospital, Ferrara, Italy, febbraio 1998.
- 34) Departmental Seminar, Heinrich Heine University, Dusseldorf, Germany, dicembre 1998.
- 35) Departmental Seminar, Case Western Reserve University, Cleveland, USA, gennaio 1999.
- 36) Departmental Course on Macrophage Biology, Washington University School of Medicine, St. Louis, USA, febbraio 1999.
- 37) Departmental Seminar Abbott Research Laboratories, Abbott Park, USA, gennaio 1999.
- 38) Departmental Seminar, Glaxo-Wellcome Institute for Applied Pharmacology, Cambridge, UK, febbraio 1999.
- 39) Departmental Seminar, Serono Institute for Biomedical Research, Geneva, Switzerland, marzo 1999.
- 40) Departmental Seminar, University of Verona, Italy, aprile 1999.
- 41) Departmental Seminar, Department of Molecular Physiology, University of Sheffield, UK, Sheffield, U.K., novembre 1999.
- 42) Departmental Seminar, Division of Internal Medicine, University of Padova, Italy, febbraio 2000.
- 43) Departmental Seminar, Department of Physiology, University of Cologne, Germany, marzo 2000.
- 44) Departmental Seminar, Department of Pharmacology, University of Milano, Italy, maggio 2000.

- 45) Departmental Seminar, Department of Pathology, University of Siena, Italy, ottobre 2000.
- 46) Departmental Seminar, Department of Pathology, University of Catania, Italy, maggio 2001.
- 47) Departmental Seminar, Department of Pharmacology and Toxicology, University of Leipzig, Germany, dicembre 2001.28
- 48) Departmental Seminar, Department of Pharmacology, University of Padova, Italy, giugno 2002.
- 49) Departmental Seminar, Institute for Research in Biomedicine, Bellinzona, Switzerland, luglio 2002.
- 50) Departmental Meeting, Catholic University of Rome, Department of General Pathology, gennaio 2003.
- 51) Departmental Meeting, Department of Biomedicine, Section of Pharmacology, University of Chieti, maggio 2003.
- 52) Department of Immunology/Hematology, Gaslini Hospital, University of Genova, Genova, November 2003.
- 53) Scuola Normale Superiore, Pisa, April 2004.
- 54) Center of Neuroscience and Cellular Biology, University of Coimbra, Portugal, April 2004.
- 55) Instituto de Biofisica Carlos Chagas Filho, University of Rio de Janeiro, Brazil, August 2004.
- 56) Departmental Seminar, Department of General Pathology, University of Siena, Italy, November 2004.
- 57) Departmental Seminar, Department of Immunology, University of Hamburg, November 2005.
- 58) Departmental Seminar, Department of Biochemistry, University of Liverpool, November 2005.
- 59) Meetings in Rheumatology, Departmental Seminar, Section of Rheumatology, University of Ferrara, February 2006.
- 60) PhD Course in Cell Biology and Experimental Pathology, University of Siena, February 2006.
- 61) Departmental Seminar, Department of Cell Biology, University of Modena, April 2006.
- 59) Departmental Seminar, Department of Internal Medicine, University of Padova, March 2006.
- 60) Departmental Seminar, Department of Genetics and Biochemistry, University of Torino, March 2008.
- 61) Research Seminar, Affectis Pharma S.A.G., Munchen (Germany) April 2008.
- 62) Department of Neuroscience, Eli Lilly, Erl Wood Manor, (UK), April 2008.
- 63) Departmental Seminar, The University of Siena, October 2009.
- 64) Spring Seminars, The University of Udine, May 2010.
- 65) Venetian Institute of Molecular Medicine (VIMM) Annual seminars, Plenary Speaker, Marostica (Italy), November 2010.
- 66) Istituto Universitario di Studi Superiori (IUSS) Ferrara, Marzo 2011.
- 67) Departmental Seminar, Section of Anesthesiology, University of Ferrara, March 2012.
- 68) "Le Patologie Autoinfiammatorie: un Approccio Multidisciplinare", Società Medico-Chirurgica di Ferrara, Maggio 2012.
- 69) Departmental Seminar, Istituto Oncologico Veneto, Padova, May 2013.
- 70) Keynote Lecture, Istituto Scientifico Gaslini, Genova, May 2013.
- 71) Departmental Seminar, Human Genetic Foundation (HuGeF) Institute, Torino, June 2013.
- 72) Research Seminar, Biosceptre Ltd, Cambridge, UK, March 2014.
- 73) Departmental Seminar, Basque Center for Neuroscience Bizkaia Science and Technology Park, Bilbao, Spain, May 2014.
- 74) UniSR Graduate School of Molecular Medicine, Milano, Italy, June 2014.
- 75) Departmental Seminar, Department of Diagnostics and Laboratory Medicine, Ferrara University Hospital, Ferrara, Italy, June 2014.
- 76) Institute for Biomedical Research, Bellinzona (Switzerland), April 2016.
- 77) National Research Council Institute of Neurobiology and Cell Biology, Monterotondo (Italy), May 2016.
- 78) School of Pharmacy and Biomedical Sciences, Portsmouth (UK), March 2017.
- 79) Klinikum Aachen (Germany), Physiologisches Kolloquium, 23 giugno 2017.
- 80) Università di Bologna, Seminari in Reumatologia, giugno 2017.
- 81) Università di Torino, HUGEF, Departmental Seminar, July 2017.
- 82) Harvard Medical School, Beth Israel Deaconess Medical Center, Departmental Seminar, Boston February 2020.
- 83) North Eastern University Medical School, Section Seminar, Boston February 2020.
- 84) International Webinar Series One Health Over Borders. Universidade Federal de Santa Maria, Brazil, November 2021.

Autorizzo il trattamento dei miei dati personali presenti nel curriculum vitae ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 e del GDPR (Regolamento UE 2016/679).

Date: Ferrara January 18, 2022

Francesco Di Virgilio

