

## **Curriculum Vitae et Studiorum**

### **Personal informations:**

Name Surname: Claudio Frank  
E-mail: claudio.frank@iss.it  
Italian nationality  
Date and place of birth: 05/03/1955, Rome

### **Work and study experiences:**

#### **Actual Position:**

Senior Researcher, Centro Nazionale delle Malattie Rare, Istituto Superiore di Sanità, Roma.

#### **Study experience:**

1980 - University of Rome "La Sapienza" graduated with full marks and honors as MD  
1980 - Rome, Ministry of Health, General Practitioner  
1988 - Rome, University of Rome "La Sapienza", Board in Neurology with full marks and honors

#### **Scientific Formation:**

1980-1981: research activity at Istituto di Fisiologia Umana, Università di Roma "La Sapienza", and afterwards at Istituto di Fisiologia Umana, Università di Roma "Tor Vergata".  
January-April 1982: visiting professor at Laboratory of Neurophysiology, Neurosensory Center of Baylor College of Medicine, Houston, Texas.  
1986- 1991: research activity at Neuopharmacology Section, Laboratorio di Farmacologia, Istituto Superiore di Sanità.  
June 1993to January 1995: Postdoctoral Research Fellow at the Group of Neurophysiology (Prof. H.D. Lux), Abteilung Neurophysiologie, Max-Planck-Institut für Psychiatrie, München-Martinsried, Germany.

#### **Professional Activity:**

1981-1990: Professional training allowance funded by Consiglio Nazionale delle Ricerche, at Istituto di Fisiologia Umana, Università di Roma "La Sapienza", and afterwards at Istituto di Fisiologia Umana, Università di Roma "Tor Vergata".  
March 1990-May 1991: Assistant Research, Cattedra di Neurofisiologia, Università di Roma "Tor Vergata", Roma.  
May 1991-February 2001 Researcher, and since February 2001 to now Senior Researcher at Laboratorio di Farmacologia, Dipartimento del Farmaco and later at Centro Nazionale delle Malattie Rare, Istituto Superiore di Sanità, Roma.  
2009-2018 Director of Section of Orfan Drugs, Centro Nazionale delle Malattie Rare.

#### **Scientific Interests:**

##### **Research Experience**

Role of excitatory aminoacids on neuronal transmission and excitotoxicity, with particular interest on changes of intracellular calcium homeostasis. Neurodegeneration and mechanisms involved in muscular cells pathology. Functional changes in composition of lipid rafts in plasma membrane of neuronal cells. Analysis of pathological mechanisms in experimental models in vitro of rare diseases.

Effects of plasma membrane cholesterol changes on inhibition of synaptic transmission and synaptic plasticity in rat hippocampus. Role of lipid rafts in neuropathological aspects of Niemann-Pick C Disease.

### **Current Research Work**

Study of the neurotoxic action of calcitonin oligomers

### **Teaching activity**

1980-1982: University of Rome "Sapienza", Faculty of Medicine and Surgery, Lessons at the Chair of Tecnica Fisiologica,

1992-1993: Course of Neurophysiology, Degree Course in Physiotherapy C.T.O., Rome.

18.9.1997: Seminary at Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste.

1997-2008: Seminars and practical exercises at : University of Rome "Sapienza", Advanced Course in Neurobiology, Faculty of Sciences (M.F.N.).

2005-2006: Seminars at Course of Methodologies of Study of Nervous System, University of Rome "Sapienza", Advanced Course of Neurobiology, Faculty of Sciences (M.F.N.).

2007-2009: University of Rome "Tor Vergata", Faculty of Medicine and Surgery, Physiology, Degree Course in Physiotherapy

2012-2018: Supplementary seminars for the course of Cellular Neurophysiology, University of Rome "Sapienza", Course of Neurobiology, Faculty of Sciences (M.F.N.).

2015-2019: Course of University of Rome "Tor Vergata", Faculty of Medicine and Surgery, Physiology, Degree Course in Motor Sciences

### **Publications**

1) F.Teneriello, A.Giuliani, A.Ioppolo, L.Caramanico, A.Giuliani, G.C.Busacchi, C.Frank, G.Daddi jr.: Comportamento del liquido interstiziale polmonare durante circolazione extracorporea prolungata; Il Policlinico, Sez. Chirurgica, Vol.87, 1-2, 1980.

2) P.F.A.Barra, A.Brancati, M.Avoli, C.Frank, V.Tancredi: Effects of halogenated volatile anaesthetics upon snail nerve cell activity; Comp. Biochem. and Physiol., 73, 1, 1, 1981.

3) C.Frank: La valutazione numerica e dimensionale degli elementi corpuscolati del sangue; Elettromedicali, 3, 1981.

4) V.Tancredi, C.Frank, A.Brancati, M.Avoli, P.White: Interactions between aminoacid neurotransmitters and flurazepam in the neocortex of anaesthetized rats; J. Neurosci. Res., 9, 159, 1983.

5) C.Frank: Acquisizione di forze, pressioni e spostamenti mediante trasduttori in biomedicina; Elettromedicali, 9, 1982.

6) C.Frank, M.Ch.Mura, P.Pizzi; La significatività dei dati nella ricerca biomedica; Elettromedicali 6, 4, 28-30, 1986.

7) M.C.Mura, C.Frank: Proyecto para un sistema automatizado de gestion de datos para el control de la presion arterial. Revista de Sanidad e Higiene Publica; Julio-Agosto, Ano LXI, 1987.

8) S.Sagratella, C.Frank, A.Scotti de Carolis: Effects of ketamine and (+)cyclazocine on 4-aminopyridine and "magnesium free" epileptogenic activity in hippocampal slices of rats; Neuropharmacology, 26, 8, 1181-1184, 1987.

9) M.C.Mura, G.Sesti, C.Frank, G.Redda, N.Di Daniele, G.Ceccarelli, R.Lauro: Pressione arteriosa nei bambini italiani di età compresa tra i 6 ed i 13 anni: indagine su 1.600 studenti romani della scuola dell'obbligo. Ricerca medica: 9, 517-534, Settembre 1987.

10) S.Sagratella, C.Frank, M.Benedetti, A.Scotti de Carolis: Modulatory action of purinergic drugs on high-potassium-induced epileptiform bursting in rat hippocampal slices; Pharmacol. Res. Commun., 19, 11, 819-826, 1987.

- 11) C.Frank, S.Sagratella, M.Benedetti, A.Scotti de Carolis: Comparative influence of calcium blocker and purinergic drugs on epileptiform bursting in rat hippocampal slices; *Brain Res.*, 441, 393-397, 1988.
- 12) C.Frank, S.Sagratella, M.Benedetti, A.Scotti de Carolis: Pharmacology of calcium-induced long-term potentiation in rat hippocampal slices ; *Pharmacol. Biochem. Behav.*, 33, 3, 713-715, 1989.
- 13) C.Frank, S.Sagratella, A.Scotti de Carolis: Cd<sup>2+</sup> ions block Calcium-induced long-term potentiation in rat hippocampal slices; Proceedings of the 2th interregional meeting of the Italian Pharmacological Society, in: *Pharmacol. Res.*, 21, 5, 635-636, 1989.
- 14) S.Sagratella, C.Frank, A.Scotti de Carolis: Antiepileptic effects of the excitatory amino acid antagonist CIS-2,3 piperidine-dicarboxylic acid depend on non-N-Methyl-D-Aspartate receptors; *Arch. Int. Pharmacodyn.*, 229, 1/2, 28-34, 1989.
- 15) C.Frank, S.Sagratella, A.Scotti de Carolis: An electrophysiological study on the common antitussive drug dextromethorphan in hippocampal slices in the rat; *Neuropharmacology*, 28, 11, 1199-1202, 1989.
- 16) S.Sagratella, C.Frank, A.Scotti de Carolis: Inhibitory influence of excitatory amino acid antagonists on penicillin-induced epileptiform bursting in rat hippocampal slices; *Pharmacol. Biochem. Behav.*, 35, 991-1001, 1990.
- 17) S.Sagratella, M.L.Proietti, C.Frank, A.Scotti de Carolis: High calcium solutions prevent the depressive effects of aminoglycoside antibiotics on central synaptic transmission in rat hippocampal slices. *Gen. Pharmacol.*, 21, 635-638, 1990.
- 18) S.Sagratella, M.L.Proietti, C.Frank, A.Scotti de Carolis: Effects of some calcium antagonists and of changes of calcium concentrations on CA1 paired pulse inhibition in rat hippocampal slices. *Gen. Pharmacol.*, 22, 227-230, 1991.
- 19) S.Sagratella, Y.C.Zeng, C.Frank, A.Scotti de Carolis: Diversified electrophysiological properties of morphinans drugs in rats. *Gen. Pharmacol.*, 22, 231-236, 1991.
- 20) C.Frank, S.Sagratella, A.Scotti de Carolis: Effects of calcium and potassium extracellular concentration changes on the CA1 hippocampal activity of purinergic drugs. *Gen. Pharmacol.*, 22, 237-241, 1991.
- 21) A.Scotti de Carolis, S.Sagratella, C.Frank, M.Trampus and M.L. Proietti: An in vitro study on the hippocampal epileptogenic properties of enkephalins and enkephalinase inhibitors. *Gen. Pharmacol.*, 22, 651-657, 1991.
- 22) M.L.Proietti, A.Scotti de Carolis, C.Frank, Y.C. Zeng and S.Sagratella: *In vitro* depressant effects of U-54494A, an anticonvulsant related to kappa opioids in the hippocampus. *Neuropharmacology*, 30, 637-642, 1991.
- 23) M.L.Proietti, A.Scotti de Carolis, C.Frank, M.Trampus and S. Sagratella: An in vitro study on the hippocampal electrophysiological properties of enkephalinase inhibitors in rats. *Pharmac. Biochem. Behav.*, 39, 119-121, 1991.
- 24) C.Frank, Y.C.Zeng, S.Sagratella and A.Scotti de Carolis: Aminoglycoside antibiotics affect hippocampal LTP: a comparative study with the N-type calcium antagonist omega-conotoxin GVIA. *Life Sci.*, 48, 1575-1583, 1991.
- 25) C.Frank, S.Sagratella, T.Niglio, M.G. Caporali, E. Bronzetti, A. Scotti de Carolis: Hippocampal long-term potentiation in nucleus basalis magnocellularis-lesioned rats. *Brain Res. Bull.* 29, 847-851, 1992.
- 26) Y.C.Zeng, M.R.Domenici, C.Frank, S.Sagratella, A.Scotti de Carolis: Effects of adenosinergic drugs on hypoxia-induced electrophysiological changes in rat hippocampal slices. *Life Sci.*, 51, 1073-1082, 1992.
- 27) S.Sagratella, Y.C.Zeng, C.Frank, A.Scotti de Carolis: Effects of calcium and paired pulse stimulation on hypoxia-induced hippocampal electrical changes. *Brain Res. Bull.*, 31, 375-379, 1993.

- 28) A.L.Scotti, C.Frank, S.Sagratella, C.Nitsch, A.Scotti de Carolis: Absence of calcium induced LTP-like response in dentate area of seizure-prone gerbils and its relation to parvalbumin in the enthorinal perforant path synapse of this species. *Brain Res. Bull.*, 31, 501-507, 1993.
- 29) M.R.Domenici, S.Sagratella, C.Frank, A.Scotti de Carolis: Effects of non-opioid antitussives on hypoxia-induced electrical changes in rat hippocampal slices: a comparative study with anticonvulsant drugs. *Gen. Pharmacol.*, 24, 4, 991-998, 1993.
- 30) M.R.Domenici, R.Longo, A.Scotti de Carolis, C.Frank, S.Sagratella: Protective actions of 21-aminosteroids and MK 801 on hypoxia-induced electrophysiological changes in rat hippocampal slices. *Eur. J. Pharmacol.* 233, 291-193, 1993.
- 31) C.Frank, A.Scotti de Carolis and S.Sagratella: Influence of adenosinergic drugs on the epileptiform and neurotoxic effects of N-methyl-D-aspartate : comparison with the effects of MK 801. *Arch. Int. Pharmacodyn.*, 327, 3-12, 1994.
- 32) C.Frank, R.Longo and S.Sagratella: Pertussis toxin prevents neomycin-induced calcium-dependent electrophysiological effects in rat hippocampal slices. *Gen. Pharmacol.*, 25, 957-961, 1994.
- 33) G.Diana, A.Scotti de Carolis, C.Frank, M.R.Domenici and S.Sagratella: Selective reduction of hippocampal dentate frequency-potential in aged rats with impaired place learning. *Brain Res. Bull.* 35, 107-111, 1994.
- 34) C.Frank, F.Engert, N.Tokutomi, H.D.Lux: Different effects of baclofen and GTP $\gamma$ S on voltage-activated Ca<sup>2+</sup> currents in rat hippocampal neurons in vitro. *Eur. J. of Pharmacol.*, 295, 87-92, 1996.
- 35) C. Frank: Effects of opioids on glutamate induced calcium intracellular increase in individually perfused rat hippocampal neurons in vitro. *Progress in Neuropsychopharmacology & Biological Psychiatry*, 22 (8), 1331-1339, 1998.
- 36) A. Fabbri, L. Falzano, C. Frank, G. Donelli, P. Matarrese, F. Raimondi, A. Fasano, C. Fiorentini: *Vibrio parahaemolyticus* thermostable direct hemolysin modulates cytoskeletal organization and calcium homeostasis in intestinal cultured cells. *Infect. Immun.*, 67(3), 1139-48, 1999.
- 37) S. Visentin, M. Renzi, C. Frank, A. Greco, G. Levi: Two different ionotropic receptors are activated by ATP in rat microglia. *J. Physiol. (Lond)*, 519(3), 723-736, 1999.
- 38) C. Frank: Patch Clamp (voce bibliografica) in: *Enciclopedia Medica*, Ed. UTET, 1999.
- 39) C. Frank and S. Sagratella: Neuroprotective effects of allopregnenolone on hippocampal irreversible neurotoxicity in vitro. *Neuro-psychopharmacology & biological psychiatry*, 2000 Oct;24(7):1117-26.
- 40) S. Ceruti, A.M. Giammarioli, A. Camurri, L. Falzano, S. Rufini, C. Frank, C. Fiorentini, W. Malorni and M.P. Abbracchio: Adenosine- and 2-chloro-adenosine-induced cytopathic effects on myoblastic cells and myotubes: involvement of different intracellular mechanisms. *Neuromuscular Disorders*, 10, 436-446, 2000.
- 41) C. Frank, A.M. Giammarioli, L. Falzano, S. Rufini, S. Ceruti, A. Camurri, W. Malorni, M.P. Abbracchio and C. Fiorentini: 2-Chloro-Adenosine induces a glutamate-dependent calcium response in C2C12 myotubes. *Biochemical and Biophysical Research Communications*, 2000, Nov 2;277(3):546-551.
- 42) Popoli P, Pintor A, Domenici MR, Frank C, Tebano MT, Pezzola A, Scarchilli L, Quarta D, Reggio R, Malchiodi-Albedi F, Falchi M, Massotti M. Blockade of striatal adenosine A2A receptor reduces, through a presynaptic mechanism, quinolinic acid-induced excitotoxicity: possible relevance to neuroprotective interventions in neurodegenerative diseases of the striatum.: *J Neurosci* 2002 Mar 1;22(5):1967-75
- 43) Frank C, Giammarioli A, Falzano L, Fiorentini C, Rufini S. Glutamate-induced calcium increase in myotubes depends on up-regulation of a sodium-dependent transporter. *FEBS Lett.* 2002 Sep 11;527(1-3):269.

- 44) Popoli P, Frank C, Tebano MT, Potenza RL, Pintor A, Domenici MR, Nazzicone V, Pezzola A, Reggio R. Modulation of glutamate release and excitotoxicity by adenosine A<sub>2A</sub> receptors. *Neurology*. 2003 Dec 9;61(11 Suppl 6):S69-71.
- 45) Frank C, Giammarioli AM, Pepponi R, Fiorentini C, Rufini S. Cholesterol perturbing agents inhibit NMDA-dependent calcium influx in rat hippocampal primary culture. *FEBS Lett*. 2004 May 21;566(1-3):25-9.
- 46) Popoli P, Pintor A, Tebano MT, Frank C, Pepponi R, Nazzicone V, Grieco R, Pezzola A, Reggio R, Minghetti L, De Berardinis MA, Martire A, Potenza RL, Domenici MR, Massotti M. Neuroprotective effects of the mGlu5R antagonist MPEP towards quinolinic acid-induced striatal toxicity: involvement of pre- and post-synaptic mechanisms and lack of direct NMDA blocking activity. *JNeurochem*. 2004 Jun;89(6):1479-89.
- 47) Tebano MT, Pintor A, Frank C, Domenici MR, Martire A, Pepponi R, Potenza RL, Grieco R, Popoli P. Adenosine A<sub>2A</sub> receptor blockade differentially influences excitotoxic mechanisms at pre- and postsynaptic sites in the rat striatum. *J Neurosci Res*. 2004 Jul 1;77(1):100-7.
- 48) Popoli P., Blum D., Pintor A., Tebano M.T., Frank C., Gianfriddo M., Domenici M.R., Schiffmann S.N., Pedata F: The Controversial Role of Adenosine A<sub>2A</sub> Receptor Antagonists as Neuroprotective Agents. *Current Medicinal Chemistry - Central Nervous System Agents*, March 2004,4(1):35-45(11).
- 49) Matteucci A, Frank C, Domenici MR, Balduzzi M, Paradisi S, Carnovale Scalzo G, Scoria G, Malchiodi Albedi F.: Curcumin treatment protects rat retinal neurons against excitotoxicity: effect on N-methyl-D-aspartate-induced intracellular Ca<sup>2+</sup> increase. *Experimental brain research*. 2005; 167(4):641-648.
- 50) Matarrese P., Falzano L., Fabbri A., Gambardella L., Frank C., Geny B., Popoff M.R., Malorni W. and Fiorentini C., *Clostridium Difficile* Toxin B Causes Apoptosis In Epithelial Cells By Thrilling Mitochondria: Involvement Of Atp-Sensitive Mitochondrial Potassium Channels. *J. Biol. Chem*. 2007 Mar 23;282(12):9029-41. Epub 2007 Jan 12.
- 51) C. Frank: Bupropione (voce bibliografica) in: *Enciclopedia Medica, III Aggiornamento della Seconda edizione*, Ed. UTET, 2007.
- 52) C. Frank: Membrane biologiche (voce bibliografica) in: *Enciclopedia Medica, III Aggiornamento della Seconda edizione*, Ed. UTET, 2008.
- 53) C. Frank: Neuralterapia (voce bibliografica) in: *Enciclopedia Medica, III Aggiornamento della Seconda edizione*, Ed. UTET, 2008.
- 54) C. Frank: Neurosteroidi (voce bibliografica) in: *Enciclopedia Medica, III Aggiornamento della Seconda edizione*, Ed. UTET, 2008.
- 55) C. Frank: Neurotrasmettitori (voce bibliografica) in: *Enciclopedia Medica, III Aggiornamento della Seconda edizione*, Ed. UTET, 2008.
- 56) C. Frank: Recettori (voce bibliografica) in: *Enciclopedia Medica, III Aggiornamento della Seconda edizione*, Ed. UTET, 2008.
- 57) Severini C., Ciotti M.T., Biondini L., Quaresima S., Rinaldi A.M., Levi A., Frank C., Possenti R., TLQP-21, a neuroendocrine VGF-derived peptide, prevents cerebellar granule cells death induced by serum and potassium deprivation. *Journal of Neurochemistry*, 2008, 104 (2), 534–544.
- 58) Frank C, Rufini S, Tancredi V, Forcina R, Grossi D, D'Arcangelo G., Cholesterol depletion inhibits synaptic transmission and synaptic plasticity in rat hippocampus. *Exp. Neurol.*, 2008, Aug;212(2):407-14. Epub 2008 Apr 25.
- 59) Tebano MT, Martire A, Chiodi V, Pepponi R, Ferrante A, Domenici MR, Frank C, Chen JF, Ledent C, Popoli P., Adenosine A<sub>2A</sub> receptors enable the synaptic effects of cannabinoid CB<sub>1</sub> receptors in the rodent striatum. *Journal of Neurochemistry* 2009 Sep;110(6):1921-30.
- 60) Rufini S, Grossi D, Luly P, Tancredi V, Frank C, D'Arcangelo G. Cholesterol depletion inhibits electrophysiological changes induced by anoxia in CA1 region of rat hippocampal slices. *Brain Res*. 2009 Nov 17;1298:178-85.

- 61) Zanni E, Farina F, Ricci A, Mancini P, Frank C, Palleschi C, Uccelletti D. The Golgi alpha-1,6 mannosyltransferase KIOch1p of *Kluyveromyces lactis* is required for Ca<sup>2+</sup>/calmodulin-based signaling and for proper mitochondrial functionality. *BMC Cell Biol.* 2009 Dec 14;10:86.
- 62) Malchiodi-Albedi F, Contruscieri V, Raggi C, Fecchi K, Rainaldi G, Paradisi S, Matteucci A, Santini MT, Sargiacomo M, Frank C, Gaudio MC, Diociaiuti M. Lipid raft disruption protects mature neurons against amyloid oligomer toxicity. *Biochim Biophys Acta.* 2010 Apr;1802(4):406-415. Epub 2010 Jan 12.
- 63) Matteucci A., Cammarota R., Paradisi S., Varano M., Balduzzi M., Leo L., Bellenchi G.C., De Nuccio C., Carnovale-Scalzo G., Scoria G., Frank C., Mallozzi C., Di Stasi A.M., Visentin S., Malchiodi-Albedi F. Curcumin protects against NMDA-induced toxicity: a possible role for NR2A subunit. *Invest Ophthalmol Vis Sci.* 2011 Feb 22;52(2):1070-7.
- 64) Malchiodi-Albedi F., Paradisi S., Matteucci A., Frank C., and Diociaiuti M. Amyloid Oligomer Neurotoxicity, Calcium Dysregulation, and Lipid Rafts SAGE-Hindawi Access to Research *International Journal of Alzheimer's Disease*, Volume 2011, Feb 8, Article ID 906964, 17 pages
- 65) D'Arcangelo G., Grossi D., De Chiara G., de Stefano M.C., Cortese G., Citro G., Rufini S., Tancredi V., Merlo D., Frank C., Glutamatergic neurotransmission in a mouse model of Niemann-Pick Type C Disease. *Brain Res.* 2011 Jun 17;1396:11-9. Epub 2011 Apr 19.
- 66) Taruscio D., Capozzoli F. and Frank C., Rare diseases and orphan drugs. *Ann Ist Super Sanità.* 2011, Vol. 47, No. 1: 83-93.
- 67) Malchiodi-Albedi F., Paradisi S., Di Nottia M., Simone D., Travaglione S., Falzano L., Guidotti M., Frank C., Cutarelli A., Fabbri A. and Fiorentini C., CNF1 improves astrocytic ability to support neuronal growth and differentiation in vitro. *PLoS ONE*, 2012;7(4):e34115. Epub 2012 Apr 16.
- 68) Petrocchi Passeri P, Biondini L, Mongiardi MP, Mordini N, Quaresima S, Frank C, Baratta M, Bartolomucci A, Levi A, Severini C, Possenti R., Neuropeptide TLQP-21, a VGF Internal Fragment, Modulates Hormonal Gene Expression and Secretion in GH3 Cell Line. *Neuroendocrinology.* 2013;97(3):212-24
- 69) Petrini S., Minnone G., Coccetti M., Frank C., Aiello C., Cutarelli A., Ambrosini E., Lanciotti A., Brignone M.S., D'Oria V., Strippoli R., De Benedetti F., Bertini E., Bracci-Laudiero L. Monocytes and macrophages as biomarkers for the diagnosis of megalencephalic leukoencephalopathy with subcortical cysts. *Molecular and Cellular Neuroscience* 56 (2013) 307–321
- 70) Taruscio D, Agresta L, Amato A, Bernardo G, Bernardo L, Braguti F, Carbone P, Carta C, Ceccarini M, Censi F, Coppola S, Crialesi P, De Santis M, Diemoz S, Donati C, Gainotti S, Ferrari G, Florida G, Frank C, Frazzica RG, Gentile AE, Granata O, Kodra Y, Latrofa M, Laricchiuta P, Magrelli A, Morciano C, Polizzi A, Razeto S, Salvatore M, Sanseverino A, Savini D, Torreri P, Tosto F, Villani F, Vincenti G, Vittozzi L. The Italian National Centre for Rare Diseases: where research and public health translate into action. *Blood Transfus.* 2014 Apr;12 Suppl 3:s591-605. *Impact Factor (2014): 2.372*
- 71) Diociaiuti M., Macchia G., Paradisi S., Frank C., Camerini S., Chistolini P., Gaudio MC., Petrucci TC., Malchiodi-Albedi F.: Native metastable prefibrillar oligomers are the most neurotoxic species among amyloid aggregates. *Biochim Biophys Acta.* 2014 Sep;1842(9):1622-9. Epub 2014 Jun 14.
- 72) Petrocchi Passeri P., Cero C., Cutarelli A., Frank C., Severini C., Bartolomucci A., Possenti R.:The VGF-derived peptide TLQP-62 modulates insulin secretion and glucose homeostasis. *J Mol Endocrinol.* 2015 Apr 27. pii: JME-14-0313. [Epub ahead of print]
- 73) D'Arcangelo G., Grossi D, Racaniello M., Cardinale A., Zaratti A., Rufini S., Cutarelli A., Tancredi V., Merlo D., Frank C.: Miglustat reverts the impairment of synaptic plasticity in a mouse model of NPC disease. *Neural Plasticity.* Volume 2016 (2016), Article ID 3830424, 9 pages

- 74) Chieppa G., Zaratti A., Taurisano R., Deodato F., Carozzo R., Piemonte F., D'Arcangelo G., Frank C., Dionisi Vici C. and Rufini S.: Sticholysin II Identifies Intracellular Lipid Deposits in Niemann Pick C Fibroblasts. *J. Toxins*. January 2016 Volume 3, Issue 1
- 75) Cutarelli A, Marini M, Tancredi V, D'Arcangelo G, Murdocca M, Frank C, Tarantino U.: Adenosine Triphosphate stimulates differentiation and mineralization in human osteoblast-like Saos-2 cells. *Dev Growth Differ*. 2016 May;58(4):400-8. doi: 10.1111/dgd.12288. Epub 2016 May 18
- 76) Lo Castro A, Murdocca M, Pucci S, Zaratti A, Greggi C, Sangiuolo F, Tancredi V, Frank C, D'Arcangelo G.: Early Hippocampal i-LTP and LOX-1 Overexpression Induced by Anoxia: A Potential Role in Neurodegeneration in NPC Mouse Model. *Int J Mol Sci*. 2017 Jul 5;18(7). pii: E1442. doi: 10.3390/ijms18071442.
- 77) Maroccia Z., Loizzo S., Travaglione S., Frank C., Fabbri A., Fiorentini C.: New therapeutics from Nature: The odd case of the bacterial cytotoxic necrotizing factor 1. *Biomedicine & Pharmacotherapy*. Volume 101, May 2018, Pages 929–937
- 78) Belfiore M., Cariati I., Matteucci A., Gaddini L., Macchia G., Fioravanti R., Frank C., Tancredi V., D'Arcangelo G., Diociaiuti M.: Calcitonin native prefibrillar oligomers but not monomers induce membrane damage that triggers NMDA-mediated Ca<sup>2+</sup>-influx, LTP impairment and neurotoxicity. *Scientific Reports*. (2019) 9:5144
- 79) Palmieri M., Cariati I., Scimeca M., Pallone G., Bonanno E., Tancredi V., D'Arcangelo G., and Frank C.: Effects of short-term aerobic exercise in a mouse model of Niemann-Pick type C Disease on synaptic and muscle plasticity. *Annali dell'Istituto Superiore di Sanità*. In press.