## BIOGRAPHICAL SKETCH

| NAME | POSITION TITLE |
|---|---|
| Bubacco, Luigi | Full Professor of Physiology<br>Department of Biology, University of Padua, Padua, Italy |

EDUCATION/TRAINING

| INSTITUTION AND LOCATION | DEGREE | YEAR(s) | FIELD OF STUDY |
|---|---|---|---|
| Sue Golding Graduate Division of the Albert Einstein College of Medicine of Yeshiva University, Bronx, NY, USA. | PhD | 1992-1995 | Physiology and Biophysics |
| Sue Golding Graduate Division of the Albert Einstein College of Medicine of Yeshiva University, Bronx, NY, USA. | M.S | 1990-1992 | Physiology and Biophysics |
| University of Padua | BS/MS cum laude | 1985-1989 | Biology |

### A. Positions and Honors.

**Professional experience**

2019 Chairman of the Department of Biology, University of Padua, Italy.

2018 Full professor in Physiology, Department of Biology, University of Padua, Italy.

2014- 2017 Coordinator of the Biomedical Sciences Center "A. Vallisneri", University of Padua, Italy

2009- 2014 Deputy Director, Department of Biology, University of Padua, Padua, Italy.

2008- Visiting Professor (3/08 -4/08), ISM2/Biosciences UMR CNRS, Paul Cèzanne University Aix-Marseille III Faculty of Sciences and Technology, Marseille, France.

2005- Associate Professor, Physiology and Biophysics, Department of Biology, University of Padua, Italy.

2002- NATO, Advanced Fellowships in Science CARB (Center for Advanced Research in Biotechnology), University of Maryland, Rockville, MD USA.

1999- Visiting Professor (3/99 -7/99) Leiden Institute of Chemistry, Rijks Universitet Leiden, The Netherlands

1995-1998- Post-doctoral Fellow, Gorleus Laboratory, Rijks Universitet Leiden, The Netherlands

1995- SON (Stichting Scheikunding Onderzoek Nederland) Fellowship 1/1995 at the Gorleus Laboratory, Rijks Universitet Leiden, The Netherlands

1989- 1990 Research assistant Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY, USA

**Honors and awards**

2002- NATO, Advanced Fellowships in Science (7/02 -l 9/02) CARB (Center for Advanced Research in Biotechnology), University of Maryland, Rockville, MD USA.

**Professional Memberships**

2000-2010 European Biophysical society
1999- 2015 SIBPA (Italian Society of Pure and Applied Biophysics (secretary 2002-2006)
2000-present SIF (Italian Physiology Society)
2013- present Society for Neurosciences

**Editorial experience:**

- Editorial Board, Cell Biology section of Biology Direct (2014-2017)
- Editorial Board Scientific Reports NPG
- Associated Editor for the Neurodegeneration section of Frontiers of Neurosciences

**Publications**


1: Masato A, Plotegher N, Boassa D, Bubacco L. Impaired dopamine metabolism in Parkinson's disease pathogenesis. Mol. Neurodegener. 2019 Aug 20;14(1):35.

2: Bloch DN, Kolkowska P, Tessari I, Baratto MC, Sinicropi A, Bubacco L, Mangani S, Pozzi C, Valensin D, Miller Y. Fibrils of α-Synuclein Abolish the Affinity of Cu(2+)-Binding Site to His50 and Induce Hopping of Cu(2+) Ions in the Termini. Inorg Chem. 2019 Aug 19;58(16):10920-10927.

3: Capucciati A, Galliano M, Bubacco L, Zecca L, Casella L, Monzani E, Nicolis S. Neuronal Proteins as Targets of 3-Hydroxykynurenine: Implications in Neurodegenerative Diseases. ACS Chem Neurosci. 2019 Aug 21;10(8):3731-3739.

4: Biosa A, De Lazzari F, Masato A, Filograna R, Plotegher N, Beltramini M, Bubacco L, Bisaglia M. Superoxide Dismutases SOD1 and SOD2 Rescue the Toxic Effect of Dopamine-Derived Products in Human SH-SY5Y Neuroblastoma Cells. Neurotox Res. 2019 Jun 21.

5: Russo I, Kaganovich A, Ding J, Landeck N, Mamais A, Varanita T, Biosa A, Tessari I, Bubacco L, Greggio E, Cookson MR. Transcriptome analysis of LRRK2 knock-out microglia cells reveals alterations of inflammatory- and oxidative stress-related pathways upon treatment with α-synuclein fibrils. Neurobiol Dis. 2019 Sep;129:67-78.

6: Plotegher N, Bubacco L, Greggio E, Civiero L. Ceramides in Parkinson's Disease: From Recent Evidence to New Hypotheses. Front Neurosci. 2019 Apr 2;13:330.

7: von Stockum S, Sanchez-Martinez A, Corrà S, Chakraborty J, Marchesan E, Locatello L, Da Rè C, Cusumano P, Caicci F, Ferrari V, Costa R, Bubacco L, Rasotto MB, Szabo I, Whitworth AJ, Scorrano L, Ziviani E. Inhibition of the deubiquitinase USP8 corrects a Drosophila PINK1 model of mitochondria dysfunction. Life Sci Alliance. 2019 Apr 15;2(2). pii: e201900392.

8: Menegollo M, Tessari I, Bubacco L, Szabadkai G. Determination of ATP, ADP, and AMP Levels by Reversed-Phase High-Performance Liquid Chromatography in Cultured Cells. Methods Mol Biol. 2019;1925:223-232.

9: Russo I, Di Benedetto G, Kaganovich A, Ding J, Mercatelli D, Morari M, Cookson MR, Bubacco L, Greggio E. Leucine-rich repeat kinase 2 controls protein kinase A activation state through phosphodiesterase 4. J Neuroinflammation. 2018 Oct 27;15(1):297.

10: Chakraborty J, von Stockum S, Marchesan E, Caicci F, Ferrari V, Rakovic A, Klein C, Antonini A, Bubacco L, Ziviani E. USP14 inhibition corrects an in vivo model of impaired mitophagy. EMBO Mol Med. 2018 Nov;10(11). pii: e9014.

11: De Lazzari F, Bubacco L, Whitworth AJ, Bisaglia M. Superoxide Radical Dismutation as New Therapeutic Strategy in Parkinson's Disease. Aging Dis. 2018 Aug 1;9(4):716-728. doi: 10.14336/AD.2017.1018. eCollection 2018 Aug. Review.

12: Faustini G, Longhena F, Varanita T, Bubacco L, Pizzi M, Missale C, Benfenati

F, Björklund A, Spano P, Bellucci A. Synapsin III deficiency hampers α-synuclein aggregation, striatal synaptic damage and nigral cell loss in an AAV-based mouse model of Parkinson's disease. Acta Neuropathol. 2018 Oct;136(4):621-639.

13: Biosa A, Arduini I, Soriano ME, Giorgio V, Bernardi P, Bisaglia M, Bubacco L. Dopamine Oxidation Products as Mitochondrial Endotoxins, a Potential Molecular Mechanism for Preferential Neurodegeneration in Parkinson's Disease. ACS Chem Neurosci. 2018 Nov 21;9(11):2849-2858.

14: Medeiros AT, Bubacco L, Morgan JR. Impacts of increased α-synuclein on clathrin-mediated endocytosis at synapses: implications for neurodegenerative diseases. Neural Regen Res. 2018 Apr;13(4):647-648.

15: Biosa A, Outeiro TF, Bubacco L, Bisaglia M. Diabetes Mellitus as a Risk Factor for Parkinson's Disease: a Molecular Point of View. Mol Neurobiol. 2018 Nov;55(11):8754-8763. doi: 10.1007/s12035-018-1025-9.

16: Biosa A, Sanchez-Martinez A, Filograna R, Terriente-Felix A, Alam SM, Beltramini M, Bubacco L, Bisaglia M, Whitworth AJ. Superoxide dismutating molecules rescue the toxic effects of PINK1 and parkin loss. Hum Mol Genet. 2018 May 1;27(9):1618-1629. doi: 10.1093/hmg/ddy069. PubMed PMID: 29529199; PubMed Central PMCID: PMC5905640.

17: Longhena F, Faustini G, Varanita T, Zaltieri M, Porrini V, Tessari I, Poliani PL, Missale C, Borroni B, Padovani A, Bubacco L, Pizzi M, Spano P, Bellucci A. Synapsin III is a key component of α-synuclein fibrils in Lewy bodies of PD brains. Brain Pathol. 2018 Nov;28(6):875-888.

18: Medeiros AT, Soll LG, Tessari I, Bubacco L, Morgan JR. α-Synuclein Dimers Impair Vesicle Fission during Clathrin-Mediated Synaptic Vesicle Recycling. Front Cell Neurosci. 2017 Dec 11;11:388.

19: Civiero L, Cogo S, Kiekens A, Morganti C, Tessari I, Lobbestael E, Baekelandt V, Taymans JM, Chartier-Harlin MC, Franchin C, Arrigoni G, Lewis PA, Piccoli G, Bubacco L, Cookson MR, Pinton P, Greggio E. PAK6 Phosphorylates 14-3-3γ to Regulate Steady State Phosphorylation of LRRK2. Front Mol Neurosci. 2017 Dec 14;10:417. doi: 10.3389/fnmol.2017.00417. eCollection 2017.

20: Piccirilli F, Plotegher N, Ortore MG, Tessari I, Brucale M, Spinozzi F, Beltramini M, Mariani P, Militello V, Lupi S, Perucchi A, Bubacco L. High-Pressure-Driven Reversible Dissociation of α-Synuclein Fibrils Reveals Structural Hierarchy. Biophys J. 2017 Oct 17;113(8):1685-1696.

21: Biosa A, Sandrelli F, Beltramini M, Greggio E, Bubacco L, Bisaglia M. Recent findings on the physiological function of DJ-1: Beyond Parkinson's disease. Neurobiol Dis. 2017 Dec;108:65-72.

22: Piccirilli F, Plotegher N, Spinozzi F, Bubacco L, Mariani P, Beltramini M, Tessari I, Militello V, Perucchi A, Amenitsch H, Baldassarri E Jr, Steinhart M, Lupi S, Ortore MG. Pressure effects on α-synuclein amyloid fibrils: An experimental investigation on their dissociation and reversible nature. Arch Biochem Biophys. 2017 Aug 1;627:46-55.

23: Blanca Ramírez M, Lara Ordóñez AJ, Fdez E, Madero-Pérez J, Gonnelli A, Drouyer M, Chartier-Harlin MC, Taymans JM, Bubacco L, Greggio E, Hilfiker S. GTP binding regulates cellular localization of Parkinson's disease-associated LRRK2. Hum Mol Genet. 2017 Jul 15;26(14):2747-2767.

24: Civiero L, Russo I, Bubacco L, Greggio E. Molecular Insights and Functional Implication of LRRK2 Dimerization. Adv Neurobiol. 2017;14:107-121.

25: Longo F, Mercatelli D, Novello S, Arcuri L, Brugnoli A, Vincenzi F, Russo I, Berti G, Mabrouk OS, Kennedy RT, Shimshek DR, Varani K, Bubacco L, Greggio E, Morari M. Age-dependent dopamine transporter dysfunction and Serine129 phospho-α-synuclein overload in G2019S LRRK2 mice. Acta Neuropathol Commun. 2017 Mar 14;5(1):22. doi: 10.1186/s40478-017-0426-8.

26: Ferrari E, Capucciati A, Prada I, Zucca FA, D'Arrigo G, Pontiroli D, Bridelli MG, Sturini M, Bubacco L, Monzani E, Verderio C, Zecca L, Casella L. Synthesis, Structure Characterization, and Evaluation in Microglia Cultures of Neuromelanin Analogues Suitable for Modeling Parkinson's Disease. ACS Chem Neurosci. 2017 Mar 15;8(3):501-512.

27: Greggio E, Bubacco L, Russo I. Cross-talk between LRRK2 and PKA: implication for Parkinson's disease? Biochem Soc Trans. 2017 Feb 8;45(1):261-267. doi: 10.1042/BST20160396. Review.

28: Haudecoeur R, Carotti M, Gouron A, Maresca M, Buitrago E, Hardré R, Bergantino E, Jamet H, Belle C, Réglier M, Bubacco L, Boumendjel A. 2-Hydroxypyridine-N-oxide-Embedded Aurones as Potent Human Tyrosinase Inhibitors. ACS Med Chem Lett. 2016 Nov 17;8(1):55-60.

29: Plotegher N, Berti G, Ferrari E, Tessari I, Zanetti M, Lunelli L, Greggio E, Bisaglia M, Veronesi M, Girotto S, Dalla Serra M, Perego C, Casella L, Bubacco L. DOPAL derived alpha-synuclein oligomers impair synaptic vesicles physiological function. Sci Rep. 2017 Jan 13;7:40699.

30: Kikis EA. The struggle by Caenorhabditis elegans to maintain proteostasis during aging and disease. Biol Direct. 2016 Nov 3;11(1):58. Review.

31: Cartelli D, Aliverti A, Barbiroli A, Santambrogio C, Ragg EM, Casagrande FV, Cantele F, Beltramone S, Marangon J, De Gregorio C, Pandini V, Emanuele M, Chieregatti E, Pieraccini S, Holmqvist S, Bubacco L, Roybon L, Pezzoli G, Grandori R, Arnal I, Cappelletti G. α-Synuclein is a Novel Microtubule Dynamase. Sci Rep. 2016 Sep 15;6:33289. doi: 10.1038/srep33289.

32: Ferrazza R, Cogo S, Melrose H, Bubacco L, Greggio E, Guella G, Civiero L, Plotegher N. LRRK2 deficiency impacts ceramide metabolism in brain. Biochem Biophys Res Commun. 2016 Sep 23;478(3):1141-6.

33: Russo I, Berti G, Plotegher N, Bernardo G, Filograna R, Bubacco L, Greggio E. Erratum to: Leucine-rich repeat kinase 2 positively regulates inflammation and down-regulates NF-κB p50 signaling in cultured microglia cells. J Neuroinflammation. 2016 Apr 1;13(1):70. doi: 10.1186/s12974-016-0535-5.

34: Filograna R, Godena VK, Sanchez-Martinez A, Ferrari E, Casella L, Beltramini M, Bubacco L, Whitworth AJ, Bisaglia M. Superoxide Dismutase (SOD)-mimetic M40403 Is Protective in Cell and Fly Models of Paraquat Toxicity: IMPLICATIONS FOR PARKINSON DISEASE. J Biol Chem. 2016 Apr 22;291(17):9257-67. doi: 10.1074/jbc.M115.708057.

35: Buitrago E, Hardré R, Haudecoeur R, Jamet H, Belle C, Boumendjel A, Bubacco L, Réglier M. Are Human Tyrosinase and Related Proteins Suitable Targets for Melanoma Therapy? Curr Top Med Chem. 2016;16(27):3033-3047.

36: Belluzzi E, Gonnelli A, Cirnaru MD, Marte A, Plotegher N, Russo I, Civiero L, Cogo S, Carrion MP, Franchin C, Arrigoni G, Beltramini M, Bubacco L, Onofri F, Piccoli G, Greggio E. LRRK2 phosphorylates pre-synaptic N-ethylmaleimide

sensitive fusion (NSF) protein enhancing its ATPase activity and SNARE complex disassembling rate. Mol Neurodegener. 2016 Jan 13;11:1.

37: Plotegher N, Bubacco L. Lysines, Achilles' heel in alpha-synuclein conversion to a deadly neuronal endotoxin. Ageing Res Rev. 2016 Mar;26:62-71. doi: 10.1016/j.arr.2015.12.002. Epub 2015 Dec 9. Review.

38: Russo I, Berti G, Plotegher N, Bernardo G, Filograna R, Bubacco L, Greggio E. Leucine-rich repeat kinase 2 positively regulates inflammation and down-regulates NF-κB p50 signaling in cultured microglia cells. J Neuroinflammation. 2015 Dec 9;12:230. doi: 10.1186/s12974-015-0449-7. Erratum in: J Neuroinflammation. 2016;13(1):70.

39: Filograna R, Beltramini M, Bubacco L, Bisaglia M. Anti-Oxidants in Parkinson's Disease Therapy: A Critical Point of View. Curr Neuropharmacol. 2016;14(3):260-71. Review.

40: Fedeli C, Segat D, Tavano R, Bubacco L, De Franceschi G, de Laureto PP, Lubian E, Selvestrel F, Mancin F, Papini E. The functional dissection of the plasma corona of $SiO_2$-NPs spots histidine rich glycoprotein as a major player able to hamper nanoparticle capture by macrophages. Nanoscale. 2015 Nov 14;7(42):17710-28.

41: Civiero L, Cirnaru MD, Beilina A, Rodella U, Russo I, Belluzzi E, Lobbestael E, Reyniers L, Hondhamuni G, Lewis PA, Van den Haute C, Baekelandt V, Bandopadhyay R, Bubacco L, Piccoli G, Cookson MR, Taymans JM, Greggio E. Leucine-rich repeat kinase 2 interacts with p21-activated kinase 6 to control neurite complexity in mammalian brain. J Neurochem. 2015 Dec;135(6):1242-56.

42: Filograna R, Civiero L, Ferrari V, Codolo G, Greggio E, Bubacco L, Beltramini M, Bisaglia M. Analysis of the Catecholaminergic Phenotype in Human SH-SY5Y and BE(2)-M17 Neuroblastoma Cell Lines upon Differentiation. PLoS One. 2015 Aug 28;10(8):e0136769.

43: Ruzza P, Hussain R, Biondi B, Calderan A, Tessari I, Bubacco L, Siligardi G. Effects of Trehalose on Thermodynamic Properties of Alpha-synuclein Revealed through Synchrotron Radiation Circular Dichroism. Biomolecules. 2015 May 4;5(2):724-34. doi: 10.3390/biom5020724.

44: Plotegher N, Stringari C, Jahid S, Veronesi M, Girotto S, Gratton E, Bubacco L. NADH fluorescence lifetime is an endogenous reporter of α-synuclein aggregation in live cells. FASEB J. 2015 Jun;29(6):2484-94.

45: Sivanesam K, Byrne A, Bisaglia M, Bubacco L, Andersen N. Binding Interactions of Agents That Alter α-Synuclein Aggregation. RSC Adv. 2015;5(15):11577-11590.

46: Ruzza P, Gazziero M, Marchi MD, Massalongo G, Marchiani A, Autiero I, Tessari I, Bubacco L, Calderan A. Peptides as modulators of α-synuclein aggregation. Protein Pept Lett. 2015;22(4):354-61.

47: De Ricco R, Valensin D, Dell'Acqua S, Casella L, Gaggelli E, Valensin G, Bubacco L, Mangani S. Differences in the binding of copper(I) to α- and β-synuclein. Inorg Chem. 2015 Jan 5;54(1):265-72

48: Fogal S, Carotti M, Giaretta L, Lanciai F, Nogara L, Bubacco L, Bergantino E. Human tyrosinase produced in insect cells: a landmark for the screening of new drugs addressing its activity. Mol Biotechnol. 2015 Jan;57(1):45-57.

49: Vicario M, Zagari A, Granata V, Munari F, Mammi S, Bubacco L, Skaper SD, Negro A. A novel prion protein-tyrosine hydroxylase interaction. CNS Neurol Disord Drug Targets. 2014;13(5):896-908. Review

50: Cirnaru MD, Marte A, Belluzzi E, Russo I, Gabrielli M, Longo F, Arcuri L, Murru L, Bubacco L, Matteoli M, Fedele E, Sala C, Passafaro M, Morari M, Greggio E, Onofri F, Piccoli G. LRRK2 kinase activity regulates synaptic vesicle trafficking and neurotransmitter release through modulation of LRRK2 macro-molecular complex. Front Mol Neurosci. 2014 May 27;7:49.

51: Plotegher N, Kumar D, Tessari I, Brucale M, Munari F, Tosatto L, Belluzzi E, Greggio E, Bisaglia M, Capaldi S, Aioanei D, Mammi S, Monaco HL, Samo B, Bubacco L. The chaperone-like protein 14-3-3η interacts with human α-synuclein aggregation intermediates rerouting the amyloidogenic pathway and reducing α-synuclein cellular toxicity. Hum Mol Genet. 2014 Nov 1;23(21):5615-29.

52: Haudecoeur R, Gouron A, Dubois C, Jamet H, Lightbody M, Hardré R, Milet A, Bergantino E, Bubacco L, Belle C, Réglier M, Boumendjel A. Investigation of binding-site homology between mushroom and bacterial tyrosinases by using aurones as effectors. Chembiochem. 2014 Jun 16;15(9):1325-33.

53: Russo I, Bubacco L, Greggio E. LRRK2 and neuroinflammation: partners in crime in Parkinson's disease? J Neuroinflammation. 2014 Mar 21;11:52. doi: 10.1186/1742-2094-11-52. Review.

54: Girotto S, Cendron L, Bisaglia M, Tessari I, Mammi S, Zanotti G, Bubacco L. DJ-1 is a copper chaperone acting on SOD1 activation. J Biol Chem. 2014 Apr 11;289(15):10887-99.

55: Plotegher N, Gratton E, Bubacco L. Number and Brightness analysis of alpha-synuclein oligomerization and the associated mitochondrial morphology alterations in live cells. Biochim Biophys Acta. 2014 Jun;1840(6):2014-24.

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57: Bisaglia M, Filograna R, Beltramini M, Bubacco L. Are dopamine derivatives implicated in the pathogenesis of Parkinson's disease? Ageing Res Rev. 2014 Jan;13:107-14.

58: Fecchio C, De Franceschi G, Relini A, Greggio E, Dalla Serra M, Bubacco L, Polverino de Laureto P. α-Synuclein oligomers induced by docosahexaenoic acid affect membrane integrity. PLoS One. 2013 Nov 29;8(11):e82732.

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60: Ruzza P, Siligardi G, Hussain R, Marchiani A, Islami M, Bubacco L, Delogu G, Fabbri D, Dettori MA, Sechi M, Pala N, Spissu Y, Migheli R, Serra PA, Sechi G. Ceftriaxone blocks the polymerization of α-synuclein and exerts neuroprotective effects in vitro. ACS Chem Neurosci. 2014 Jan 15;5(1):30-8.

61: Marchiani A, Mammi S, Siligardi G, Hussain R, Tessari I, Bubacco L, Delogu G, Fabbri D, Dettori MA, Sanna D, Dedola S, Serra PA, Ruzza P. Small molecules interacting with α-synuclein: antiaggregating and cytoprotective properties. Amino Acids. 2013 Aug;45(2):327-38.

62: Bisaglia M, Greggio E, Beltramini M, Bubacco L. Dysfunction of dopamine homeostasis: clues in the hunt for novel Parkinson's disease therapies. FASEB J. 2013 Jun;27(6):2101-10.

63: Russo I, Bubacco L, Greggio E. Exosomes-associated neurodegeneration and progression of Parkinson's disease. Am J Neurodegener Dis. 2012;1(3):217-25. Epub 2012 Nov 18.

64: Codolo G, Plotegher N, Pozzobon T, Brucale M, Tessari I, Bubacco L, de Bernard M. Triggering of inflammasome by aggregated α-synuclein, an inflammatory response in synucleinopathies. PLoS One. 2013;8(1):e55375.

65: Bochot C, Favre E, Dubois C, Baptiste B, Bubacco L, Carrupt PA, Gellon G, Hardré R, Luneau D, Moreau Y, Nurisso A, Réglier M, Serratrice G, Belle C, Jamet H. Unsymmetrical binding modes of the HOPNO inhibitor of tyrosinase: from model complexes to the enzyme. Chemistry. 2013 Mar 11;19(11):3655-64.

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71: Civiero L, Vancraenenbroeck R, Belluzzi E, Beilina A, Lobbestael E, Reyniers L, Gao F, Micetic I, De Maeyer M, Bubacco L, Baekelandt V, Cookson MR, Greggio E, Taymans JM. Biochemical characterization of highly purified leucine-rich repeat kinases 1 and 2 demonstrates formation of homodimers. PLoS One. 2012;7(8):e43472.

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Bubacco L, Mammi S. Dopamine-derived quinones affect the structure of the redox sensor DJ-1 through modifications at Cys-106 and Cys-53. J Biol Chem. 2012 May 25;287(22):18738-49.

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