CURRICULUM VITAE

ISTRUZIONE E FORMAZIONE

01/06/2008 – 31/12/2010	*Postdoctoral Fellow*, Dipartimento di "Gene and Cell Medicine", Mount Sinai School of Medicine New York, NY, USA
01/06/2006 – 23/05/2008	*Visiting student*, Dipartimento di "Gene and Cell Medicine", Mount Sinai School of Medicine New York, NY, USA
2009	Dottorato di ricerca (Ph.D.) in "Biotecnologie dello sviluppo e della riproduzione" University of Bologna, Italia
2005	Laura magistrale (vecchio ordinamento) in Biotecnologie Farmaceutiche Università di Bologna, Italia (*summa cum laude*)
1997	Diploma di maturità scientifica (60/60), Liceo Scientifico P. Paleocapa, Rovigo

ESPERIENZA LAVORATIVA

2016 – ad oggi	Senior Research Investigator, Istituto di ricerca "New York Stem Cell Foundation" (NYSCF), New York, NY, USA
03/01/2011 - 2016	NYSCF-Helmsley Principal Investigator, The New York Stem Cell Foundation, NY, NY, USA
16/09/2003-15/09/2004	Assegnista di ricerca, Università di Bologna, Italia

AFFILIAZIONE AD ACCADEMIE E ASSOCIAZIONI DI RICONOSCIUTO PRESTIGIO NEL SETTORE

2020 – ad oggi	Membro della *International Society for Stem Cell Research* (ISSCR)
2015	Membro dell'Associazione di biologia cellulare e del differenziamento (ABCD)
2014 – ad oggi	Membro della *Initiative on Women in Science and Engineering* (IWISE)
2009 - 2014	Eletto *probiviro* per l'Associazione Nazionale Biotecnologi Italiani (ANBI)
2006 - 2014	Membro della *International Society for Stem Cell Research* (ISSCR).
2005 - 2015	Membro della l'Associazione Nazionale Biotecnologi Italiani (ANBI).

PUBBLICAZIONI SCIENTIFICHE

Citation report (Scopus)

1. Numero di pubblicazioni: 41
2. Numero totale di citazioni: >3000
3. Hirsch index: 23.

ARTICOLI SU RIVISTE INTERNAZIONALI *PEER-REVIEWED*

1. Ionescu RB, Nicaise AM, Reisz JA, Williams EC, Prasad P, Willis CM, Simoes-Abade M, Sbarro L, Dzieciatkowska M, Stephenson D, Suarez Cubero M, Rizzi S, Pirvan L, Cory, Peruzzotti-Jametti L, Fossati V, Edenhofer F, Leonardi T, Frezza C, Mohorianu I, D'Alessandro A, Pluchino S. "*Increased cholesterol synthesis drives neurotoxicity in patient stem cell-derived model of multiple sclerosis*". **Cell Stem Cell** 2024; Oct 14:S1934-5909(24)00328-X. doi: 10.1016/j.stem.2024.09.014. Online ahead of print. PMID: 39437792. Selezionato come articolo di copertina
2. Clayton BLL, Barbar L, Sapar M, Rusielewicz T, Kalpana K, Migliori B; NYSCF Global Stem Cell Array® Team; Paull D, Brenner K, Moroziewicz D, Sand IK, Casaccia P, Tesar PJ, Fossati V. "*Patient iPSC models reveal glia-intrinsic phenotypes in multiple sclerosis*". **Cell Stem Cell** 2024; Aug 22:S1934-5909(24)00288-1. doi: 10.1016/j.stem.2024.08.002. PMID: 39191254 Selezionato come articolo di copertina
3. Marotta D, Ijaz L, Barbar L, Nijsure M, Stein J, Pirjanian N, Kruglikov I, Twyman C, Stoudemire J, Grisanti P,Noggle S, Loring J, Fossati V. "*Effects of microgravity on human iPSC-derived neural organoids on the*

International Space Station". **Stem Cell Translational Medicine** 2024; Oct 23 doi: 10.1093/stcltm/szae070. Online ahead of print. PMID: 39441987

4. Prakash P, Erdjument-Bromage H, O'Dea MR, Munson CN, Labib D, Fossati V, Neubert TA, Liddelow SA. "*Proteomic profiling of interferon-responsive reactive astrocytes in rodent and human*". **Glia** 2024; Epub Nov 30. doi: 10.1002/glia.24494. PMID: 38031883

5. Frazel PW, Labib D, Fisher T, Brosh R, Pirjanian N, Marchildon A, Boeke JD, Fossati V, Liddelow SA. "*Longitudinal scRNA-seq analysis in mouse and human informs optimization of rapid mouse astrocyte differentiation protocols*". **Nat Neurosci**. 2023; Sep 11. doi: 10.1038/s41593-023-01424-2. PMID: 37697111 Selezionato per la raccolta *Innovations in stem cell biology 2024* di Nature Portfolio e EMBO Press

6. Fossati V, Peruzzotti-Jametti L, Pluchino S. "*A neural stem-cell treatment for progressive multiple sclerosis*". N&V article. **Nat Med.** 2023; Jan;29(1):27-28. doi: 10.1038/s41591-022-02164-9.PMID: 36639562

7. Fossati V, Greco V, Arlotta P, Aiyar RS. "*Susan L. Solomon (1951-2022): Advocate, Innovator, Catalyst*". **Stem Cell Reports** 2022;17(12):2579-2581. doi: 10.1016/j.stemcr.2022.11.013. PMID: 36516737

8. Smith MD, Chamling X, Gill AJ, Martinez H, Li W, Fitzgerald KC, Sotirchos ES, Moroziewicz D, Bauer L, Paull D, Gharagozloo M, Bhargava P, Zack DJ, Fossati V, Calabresi PA. "*Reactive Astrocytes Derived From Human Induced Pluripotent Stem Cells Suppress Oligodendrocyte Precursor Cell Differentiation*". **Front Mol Neurosci**. 2022; May 6;15:874299. eCollection 2022. doi: 10.3389/fnmol.2022.874299. PMID: 35600072

9. Labib D, Wang Z, Prakash P, Zimmer M, Smith MD, Frazel PW, Barbar L, Sapar ML, Calabresi PA, Peng J, Liddelow SA, Fossati V. "*Proteomic Alterations and Novel Markers of Neurotoxic Reactive Astrocytes in Human Induced Pluripotent Stem Cell Models*". **Front Mol Neurosci**. 2022; May 3;15:870085. eCollection 2022. doi: 10.3389/fnmol.2022.870085. PMID: 35592112

10. Neff RA, Wang M, Vatansever S, Guo L, Ming C, Wang Q, Wang E, Horgusluoglu-Moloch E, Song WM, Li A, Castranio EL, Tcw J, Ho L, Goate A, Fossati V, Noggle S, Gandy S, Ehrlich ME, Katsel P, Schadt E, Cai D, Brennand KJ, Haroutunian V, Zhang B. "*Molecular subtyping of Alzheimer's disease using RNA sequencing data reveals novel mechanisms and targets*". **Sci Adv.** 2021; Jan 6;7(2):eabb5398. doi: 10.1126/sciadv.abb5398. PMID:33523961

11. Barbar L, Rusielewicz T, Zimmer M, Kalpana K, Fossati V. "*Isolation of Human CD49f+ Astrocytes and In Vitro iPSC-Based Neurotoxicity Assays*". **STAR Protoc.** 2020; Nov 10;1(3):100172. eCollection 2020 Dec 18. doi: 10.1016/j.xpro.2020.100172. PMID: 33523961

12. Wang M, Li A, Sekiya M, Beckmann ND, Quan X, Schrode N, Fernando MB, Yu A, Zhu L, Cao J, Lyu L, Horgusluoglu E, Wang Q, Guo L, Wang YS, Neff R, Song WM, Wang E, Shen Q, Zhou X, Ming C, Ho SM, Vatansever S, Kaniskan HÜ, Jin J, Zhou MM, Ando K, Ho L, Slesinger PA, Yue Z, Zhu J, Katsel P, Gandy S, Ehrlich ME, Fossati V, Noggle S, Cai D, Haroutunian V, Iijima KM, Schadt E, Brennand KJ, Zhang B. "*Transformative Network Modeling of Multi-omics Data Reveals Detailed Circuits, Key Regulators, and Potential Therapeutics for Alzheimer's Disease*". **Neuron** 2021; Jan 20;109(2):257-272.e14. PMCID: PMC7855384. doi: 10.1016/j.neuron.2020.11.002. PMID:33238137

13. Espinosa-Hoyos D, Burstein SR, Cha J, Jain T, Nijsure M, Jagielska A, Fossati V, Van Vliet KJ. "*Mechanosensitivity of human oligodendrocytes*". **Front Cell Neurosci**. 2020; Jul 24;14:222. doi: 10.3389/fncel.2020.00222. PMID:32848617

14. Barbar L, Jain T, Zimmer M, Kruglikov I, Sadick J, Wang M, Kalpana K, Rose IVL, Burstein S, Rusielewicz T, Nijsure M, Guttenplan KA, di Domenico A, Croft G, Zhang B, Nobuta H, Hébert JM, Liddelow S, Fossati V. "*CD49f is a novel marker of functional and reactive human iPSC-derived astrocytes*". **Neuron** 2020; Aug 5;107(3):436-453.e12. PMCID: PMC8274549. doi: 10.1016/j.neuron.2020.05.014. PMID: 32485136. Selezionato come articolo di copertina

15. Inda MC, Joshi S, Wang T, …, Fossati V, et al. "*The epichaperome is a mediator of toxic hippocampal stress and leads to protein connectivity-based dysfunction*". **Nat. Comm.** 2020; 11, 319; doi:10.1038/s41467-019-14082-5. PMID: 31949159

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17. Nicaise AM, Wagstaff LJ, Willis CM, Paisie C, Chandok H, Robson P, Fossati V, Williams A, Crocker SJ. "*Cellular senescence in progenitor cells contributes to diminished remyelination potential in progressive multiple sclerosis*". **Proc Natl Acad Sci USA** 2019; Apr 30;116(18):9030-9039. doi: 10.1073/pnas.1818348116. PMID: 30910981

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20. Madhavan M, Nevin ZS, Shick HE, Garrison E, Clarkson-Paredes C, Karl M, Clayton BLL, Factor DC, Allan KC, Barbar L, Jain T, Douvaras P, Fossati V, Miller RH, Tesar PJ. "*Induction of myelinating oligodendrocytes in human cortical spheroids*". **Nat Methods** 2018 Jul 25. doi: 10.1038/s41592-018-0081-4. PMID: 30046099

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26. Dimidschstein J, Chen Q, Tremblay R, Rogers SL, Saldi GA, Guo L, Xu Q, Liu R, Lu C, Chu J, Grimley JS, Krostag AR, Kaykas A, Avery MC, Rashid MS, Baek M, Jacob AL, Smith GB, Wilson DE, Kosche G, Kruglikov I, Rusielewicz T, Kotak VC, Mowery TM, Anderson SA, Callaway EM, Dasen JS, Fitzpatrick D, Fossati V, Long MA, Noggle S, Reynolds JH, Sanes DH, Rudy B, Feng G, Fishell G. "*A viral strategy for targeting and manipulating interneurons across vertebrates species*". **Nat Neurosci.** 2016; Dec;19(12):1743-1749. doi: 10.1038/nn.4430. PMID: 27798629

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29. Lee Y, Carvalho CMB, Douvaras P, Ho SK, Hartley BJ, Zuccherato LW, Ladran AG, Siegel AJ, McCarthy S, Malhotra D, Sebat J, Rapoport J, Fossati V, Lupski JR, Levy DL, Brennand KJ. "*Characterization of molecular and cellular phenotypes associated with a heterozygous CNTNAP2 deletion using patient-derived hiPSC neural cells*". **NPJ Schizophrenia** 2015; Jun 24;1. 1:15019. doi: 10.1038/npjschz.2015.19. PMID: 26985448

30. Smith KA, Arlotta P, Watt FM; Initiative on Women in Science and Engineering Working Group., Solomon SL. "*Seven actionable strategies for advancing women in science, engineering, and medicine*". **Cell Stem Cell** 2015; Mar 5;16(3):221-4. doi: 10.1016/j.stem.2015.02.012. PMID: 25748929

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Pharmacol. 2005; Jul-Sep;18(3):445-55. PubMed PMID: 16164827. doi: 10.1177/039463200501800305. PMID: 16164827

LIBRI SCIENTIFICI E CAPITOLI

1. Pirjanian NA, Kalpana K, Kruglikov I, Mesci P, Stoudemire J, Grisanti P, Noggle SA, Loring JF, Fossati V. "*Establishing neural organoid cultures for investigating the effects of microgravity in low-Earth orbit (LEO)*". **Methods Mol Biol.** 2024 May 28. doi: 10.1007/7651_2024_550. PMID: 38801498
2. Kalpana K, Rao C, Semrau S, Zhang B, Noggle S, Fossati V. "*Generating neuroimmune assembloids using human induced pluripotent stem cell (iPSC) derived cortical organoids*". **Methods Mol Biol.** 2024 Jul 9. doi: 10.1007/7651_2024_554. PMID: 38976205
3. Capitolo "*Cellule Staminali pluripotenti e riprogrammazione*", parte del libro "Cellule Staminali", II Edizione. 2016. ISBN: 9788874889976. Esculapio (versione Italiana e Inglese)
4. Capitolo *"Space renaissance and neurodegeneration"*, parte del libro "***Spaceflight and the central nervous system***", Springer 2021.
5. Marotta D, Rao C, Fossati V. "*Human Induced Pluripotent Stem Cell (iPSC) Handling Protocols: Maintenance, Expansion, and Cryopreservation*". **Methods Mol Biol**. 2021 Apr 10. doi: 10.1007/7651_2021_358
6. Ijaz L, Nijsure M, Fossati V. "*Human Pluripotent Stem Cell Differentiation to Microglia*". **Methods Mol Biol.** 2021 Mar 28; doi: 10.1007/7651_2021_359
7. Capitolo *"Pluripotent Stem Cells and Reprogramming"*, parte del libro "***Stem Cells***". Edizione in inglese. Esculapio. 2020. ISBN: 9788893851718
8. Fossati, Simone. *Curarsi nel futuro. Come staminali e terapia genica stanno cambiando la medicina*. Collana "**Chiavi di Lettura**" Zanichelli 2017
9. Capitolo *"Cellule Staminali pluripotenti e riprogrammazione"*, parte de libro "**Cellule Staminali**", II Edizione. ISBN: 9788874889976. Esculapio 2016.

ESPERIENZA MANAGERIALE

RESPONSABILITÀ RISORSE UMANE

2011- ad oggi Direzione di 8 ricercatori Post-dottorati, 6 scienziati, oltre 25 studenti in"*internship*".

PARTECIPAZIONE A COMITATI EDITORIALI DI RIVISTE SCIENTIFICHE

2015 – ad oggi Membro dell'Editorial Board di *Molecular and Cellular Oncology*, per la rivista *Frontiers in Cell and Developmental Biology and Oncology*.

2011- ad oggi Attività di revisore per molteplici giornali scientifici internazionali: *Stem Cell reports, The Journal of Multiple Sclerosis, Cell Biology International, Neuropharmacology, Development, Stem Cells International, Molecular neurodegeneration, Npj Parkinson, Scientific Reports, Stem Cells Translational Medicine, Stem Cell Research, Experimental Neurology, Current Medicinal Chemistry, Stem Cell Research, CNS drugs, Stem Cell Reports, Nature Neuroscience, PNAS, Molecular Psychiatry, Trends in Immunology*

RESPONSABILITÀ DI REVISORE PER FONDI FEDERALI, EUROPEI, NAZIONALI E PRIVATI

2025 Revisore per NIH, *Special emphasis Panel* "ZRG1 AN Q55", che valuta progetti relativi a AD/ADRD e invecchiamento per lo sviluppo di nuovi farmaci, nuovi modelli, l'identificazione di nuovi marcatori biologici, o studio di circuiti e del comportamento.

2024 Revisore per NIH, *Neurological sciences training* NST-3 *study section*;
Revisore per *Congressionally Directed Medical research* Program (CDMRP), RR-1

2023	Revisore per *Congressionally directed Medical research* Program (CDMRP), RR-3
2022	Revisore per European starting grant (ERC) 2022 *call*
2020	Revisore per NIH *Neurological sciences training* NST-3 *study section*.
2019 - 2023	Membro della commissione per la borsa di studio post-dottorato NYSCF-Druckenmiller, New York
2021	Revisore per NIH, *Cellular and Molecular Biology of Glia* (CMBG) *study session*. Revisore per *Brain K99; Diversity K01; Mosaic K99*.
2020	Revisore per NIH: *Neural Differentiation, Plasticity, and Regeneration study session,* Revisore per (NIH) NIAID *Special Emphasis Panel* "ZAI1-AMC-I-M1" Revisore per NIH, *Neural Cell Fate (NCF) study session*.
2019	Revisore per (NIH) NIAID *Resource-related research project*.
2019	Revisore per NIH, *Neurogenesis and Cell Fate* (NCF) *study section*
2018	Reevisore per il *Fond Nationale de la Recherche*, Luxembourg.
2017	Revisore per il *Medical Research Council*, UK.
2017	Revisore per la *Thierry Latran Foundation*, France
2014 - 2015	Revisore per la Federazione Italiana Sclerosi Multipla (FISM)
2012	Revisore per NIH-NIEHS, "*Environmental Influences on Stem Cells in Development, Health, and Disease*".

RESPONSABILITÀ DI REVISORE PER CONFERENZE E COMMISSIONI PREMI

2022-ad oggi	Membro del comitato per la valutazione dei poster e la selezione delle presentazioni orali alla conferenza annuale di ISSCR
2023-ad oggi	Membro del comitato per la valutazione dei poster e la selezione delle presentazioni orali alla Spring Brain Conference
2024	Membro della commissione per il **"***2025 Outstanding Young Investigator Award*"

BRIEF TRACK RECORD

I suoi interessi scientifici si concentrano sullo sviluppo di modelli umani per lo studio del sistema nervoso centrale e delle malattie correlate, con un focus particolare sulle patologie degenerative e demielinizzanti. Dal 2011 ha lavorato presso il New York Stem Cell Foundation Research Institute (NYSCF), un istituto privato finanziato principalmente dalla filantropia, che in 15 anni ha raccolto oltre 450 milioni di dollari per sostenere la ricerca sulle cellule staminali. In questo contesto, ha affiancato il CEO in eventi di raccolta fondi, interagendo con potenziali donatori per illustrare l'importanza delle attività di ricerca svolte presso NYSCF. Ha inoltre partecipato ad attività di lobbying presso lo Stato di New York per promuovere finanziamenti pubblici a sostegno della ricerca. Ha ottenuto finanziamenti attraverso bandi altamente competitivi provenienti da enti federali (NIH), statali (NYSTEM) e privati (per esempio National Multiple Sclerosis Society). L'istituto NYSCF è una realtà multidisciplinare in cui biologi, ingegneri software e hardware e bioinformatici collaborano sinergicamente per studiare un ampio spettro di patologie, con un focus principale sulle malattie neurologiche, oltre che sul diabete, i tumori ovarici, la ricostruzione ossea e le terapie cellulari per la degenerazione maculare. I progetti di ricerca condividono l'impiego di cellule umane, spesso derivate da pazienti, e l'utilizzo di tecnologie avanzate per l'analisi dei dati. In qualità di *Senior Research Investigator* collabora costantemente con colleghi appartenenti a diverse discipline. Ha contribuito ai primi studi pionieristici per generare *in vitro* cellule della glia, inclusi astrociti, oligodendrociti e microglia. Ha prodotto le prime cellule staminali pluripotenti indotte (iPSC) da pazienti affetti da sclerosi multipla primaria progressiva e ha identificato per la prima volta fenotipi infiammatori nelle cellule della glia, utilizzando tecnologie a risoluzione di singola cellula per l'analisi

del profilo trascrittomico. Ha inoltre sviluppato le prime colture di organoidi cerebrali mantenute per un mese a bordo della Stazione Spaziale Internazionale per studiare gli effetti della microgravità sulle cellule del sistema nervoso. Come si evince dalle pubblicazioni, ha avviato numerose collaborazioni con neurologi e scienziati di fama mondiale (Prof. Peter Calabresi, Johns Hopkins University; Prof. Stefano Pluchino, Cambridge University; Prof. Paul Tesar, Case Western University, Prof. Bibi Bielekova, NIH; Prof. Shane Liddelow, New York University; Prof. Lee Rubin, Harvard University, Dr. Vikram Khurana. Harvard University) ed esperti di settori complementari come bioinformatica (Prof. Bin Zhang, Mount Sinai), bioingegneria (Prof. Krystyn Van Vliet, MIT) per sviluppare linee di ricerca innovative che richiedono necessariamente un approccio multidisciplinare, integrando i più recenti avanzamenti tecnologici e l'intelligenza artificiale per migliorare la sensibilità e l'accuratezza delle analisi. Nel corso degli anni ha gestito un gruppo di scienziati composto sia da giovani ricercatori e tecnici (pre-dottorato) sia da ricercatori senior (post-dottorato). Sebbene NYSCF non sia affiliato a un'università e non offra formalmente opportunità di insegnamento, ha organizzato numerosi seminari per corsi universitari e incontri divulgativi rivolti sia a studenti più giovani sia a un pubblico non specialista. Ha partecipato come relatore su invito a numerosi congressi internazionali e la sua ricerca ha ottenuto ampia visibilità su siti web e riviste scientifiche. Riceve frequentemente inviti a contribuire come revisore in commissioni che valutano importanti finanziamenti federali per studi nell'ambito delle neuroscienze, oltre che da enti di ricerca europei.

ACQUISIZIONE DI FONDI PUBBLICI E PRIVATI TRAMITE BANDI COMPETITIVI

Co-responsabile (PI Dr. Paula Grisanti) per il progetto riguardante lo sviluppo di modelli di organoidi cerebrali in microgravità per lo studio della neurodegenerazione. Titolo: *Human organoid models for neurodegenerative disease and drug discovery*. Ente finanziatore: ISS National Lab (*NLRA 2021-6: In-Space Production Applications: Tissue engineering and biomaterials*); grant numero: MIPC-2021-9081**;** Inizio: 01/01/2023 – Fine: 31/08/2024 Importo: $650,000

Responsabile per il progetto sullo studio di astrociti umani reattivi in risposta a molecole infiammatorie. Titolo: *Investigating the biology of human neurotoxic reactive astrocytes using induced pluripotent stem cells*. Ente finanziatore: NIH/NINDS; grant numero: 1R21NS111186-01**;** Inizio: 01/05/2019– Fine: 30/04/2021 Importo: $520,914

Responsabile per il progetto sullo sviluppo di una piattaforma cellulare umana per testare farmaci e terapie rimielinizzanti. Titolo: *A patient-based cellular platform for clinical translation of chemical remyelinating therapies.* Ente finanziatore: NYSTEM; grant numero: DOH01-STEM5-2016-00114 . Inizio 01/07/2017 – Fine: 30/06/2020. Importo: $247,373

Co-responsabile (MPI con Dr. Scott Noggle e Prof. Samuel Gandy) per il progetto riguardante la creazione di cellule staminali pluripotenti indotte per lo studio di geni espressi dalla microglia e coinvolti nella malattia di Alzheimer. Titolo: *Use of iPSC systems to define roles of microglial TREM2/DAP12 and CR3/DAP12 complexes and their genetic variants in specifying risk for late onset sporadic Alzheimer's disease* Ente finanziatore: NIH/NIA; grant numero: 5R01AG061894-03**;** Inizio: 30/09/2018– Fine: 30/04/2023**;** Importo: $4,150,732

Co-investigator per un *Cooperative Agreement* finanziato al Mount Sinai (PI Dr. Bin Zhang, Mount Sinai) per il progetto sulla stratificazione della malattia di Alzheimer basata su caratterizzazione molecolare. Titolo: *Integrative Network Biology Approaches to Identify, Characterize and Validate Molecular Subtypes in Alzheimer's Disease.* Ente finanziatore: NIH/NIA; grant numero: U01 AG046170-08; Inizio: 01/09/2018 – Fine: 31/08/2023 Importo: $ 203,880 (fondi diretti*-esclusi indiretti–per NYSCF; fondi totali=$26.0M)

Co-Investigator per un progetto finanziato al Mount Sinai (PI Dr. Bin Zhang, Mount Sinai) sullo studio della vulnerabilità dell'ippocampo nella malattia di Alzheimer. Titolo: *Towards a comprehensive signaling pathway map of parahippocampal vulnerability in Alzheimer's Disease.* Ente finanziatore: NIH/NIA; grant numero:

1RF1AG057440-01; Inizio: 15/09/2017 -Fine: 31/08/2020. Importo: $196,905 (fondi diretti*-esclusi indiretti– per NYSCF; fondi totali=$3,514,658)

Subaward PI (PI Dr. David Pitt, Yale University). Responsabile per gli studi basati su cellule staminali pluripotenti indotte nell'ambito del progetto sulla caratterizzazione della microglia infiammatoria nella sclerosi multipla. Titolo: "*Detection, characterization and treatment of chronic microglial inflammation in established MS lesions*". Ente finanziatore: NIH; grant numero: R01 NS102267-01; Inizio: 01/08/2017 – Fine: 30/06/2022; Importo: $31,412.50 (fondi diretti*, per NYSCF)

Subaward PI (PI Dr. Patrizia Casaccia, CUNY). Responsabile per tutti gli studi basati su cellule staminali pluripotenti indotte nell'ambito del progetto sul liquido cefalorachidiano da pazienti affetti da sclerosi multipla di forme progressive. Titolo: *Mitochondrial dysfunction and disease progression.* Ente finanziatore: Dipartimento della Difesa; grant numero: W81XWH-15-1-0448; Inizio: 01/09/2015 - Fine:31/08/2018; importo: $75,000 (per NYSCF; fondi tot= US$412,942.00)

Responsabile per il progetto sullo studio delle proprietà meccaniche degli oligodendrociti ed in particolare la risposta e substrati di durezza variabile che mimano il microambiente della lesione nella sclerosi multipla. Titolo: *Mechanobiology of oligodendrocyte differentiation in lesion-like environments of multiple sclerosis.* Ente finanziatore Conrad Hilton Foundation; grant numero: 17321. Inizio: 01/07/2017 – Fine: 30/06/2019; importo: $120,000

Subaward PI (PI Dr. Krystyn Van Vliet, MIT) e responsabile per tutti gli studi basati su cellule staminali pluripotenti indotte nell'ambito del progetto su come migliorare il differenziamento di cellule staminali pluripotenti indotte a oligodendrociti usando substrati di durezza variabile che ricapitolino la durezza delle aree cerebrali. Titolo: *Improving in vitro generation of human oligodendrocyte lineage cells by mechanical stimulation.* Ente finanziatore: NIH/NINDS. Grant numero: R21 NS102762-01; Inizio: 01/07/2017 – Fine 30/06/2019; import: $73,154 (fondi diretti* per nyscf; tot funds: $385,146)

Responsabile per il progetto sullo studio degli astrociti nella sclerosi multipla. Titolo: *Investigating the role of astrocytes in multiple sclerosis and in the process of myelination.* Ente finanziatore: National Stem Cell Foundation. Inizio:01/01/2016 - Fine: 31/12/2017. Importo: $152,000

Responsabile per il progetto sullo sviluppo di una piattaforma per studiare il processo di mielinizzazione con oligodendrociti umani. Titolo: *In vitro human myelination platform based on stem cell-derived oligodendrocyte progenitor cells.* Ente finanziatore: National MS Society; grant numero: PP-1509-06386. Inizio: 01/04/2016 – Fine: 31/03/2017. Importo: $44,000

Responsabile per sviluppare una linea di ricerca su malattie demielinizzanti a NYSCF. Premio alla carriera, non specifico per un progetto. Ente finanziatore: NYSCF-Helmsley Trust; Inizio: 03/01/2011 – Fine: 02/01/2016. Importo: $1,000,000

*NYSCF ha un tasso di costi indiretti negoziato dell''83% con NIH

TITOLI FORMATIVI E PROFESSIONALI

- Seminari per studenti delle scuole medie inferiori e superiori nell' ambito del programma "*Science and Technology Entry Program*" (STEP): Harlem Children Zone (NYC), Spence School (NYC), Urban Assembly School for Wildlife Conservation (NYC),
- Seminari presso licei italiani: Liceo Scientifico "P. Paleocapa", Rovigo; Liceo Scientifico Copernico, Bologna

PARTECIPAZIONE A COMMISSIONI DI TESI ED ESAMI PER DOTTORATI DI RICERCA

- Dr. Talia Oranburg, discussione tesi di dottorato nel 2023 presso la *University of Pittsburg*, Pittsburg, PA, USA
- Ace Alcantara, studente di dottorato presso la *City University of New York*, New York, NY, USA
- Giovannamaria Petrocelli, discussione tesi nel 2024 presso l'Università di Bologna, Bologna, Italy
- Søren-William Hardam Nohns, studente di dottorato presso la *University of Copenhagen*, Danimarca

PARTECIPAZIONE COME RELATORE SU INVITO PER SEMINARI O WORKSHOP NELL'AMBITO DELLE NEUROSCIENZE PRESSO UNIVERSITÀ E CORSI DI DOTTORATO

2025	Dipartimento di *Neurodegenerative science* presso il *Van Andel Institute*, Grand Rapids, MI, USA
2025	*Tufts University school of Medicine. Neuroscience seminar series*. Boston, MA, USA
2024	*Neuroscience school for advanced studies, workshop "Cell based-therapeutic of brain disease*", Crans-Montana, Switzerland
2024	*Houston Methodist Research Institute Center for Neuroregeneration*, *CNR Lecture Series*, Houston, TX, USA
2023	Indiana University. Indianapolis, IN, USA
2023	*Organoid school, AchucarroBAsque Center for Neuroscience* Bilbao, Spain
2022	University of Wisconsin. Madison, WI, USA
2022.	*National Institute on Aging Workshop: "Microphysiological Systems to Advance Precision Medicine for AD/ADRD Treatment and Prevention*"
2021	Corso **"***Current topics in the cell biology of neurons and glia*", UPenn, Philadelphia, PA, USA
2021	*Neuroscience seminar series, University of Montreal*, seminario virtuale, Montreal, QC Canada
2020	NSC-Reconstruct workshop. Seminario virtuale
2020	Dipartimento di Biologia *Seminar series*, Georgetown University**,** Washington, DC, USA
2018	*Grand rounds Children's hospital at Philadelphia* (CHOP), Philadelphia, PA, USA
2016	Istituto San Raffaele, Milano, Italia
2016	IFOM/IEO Milano, Italia
2016	*University of Connecticut Health*, Farmington, CT, USA
2015	*Rutger, The State University of New Jersey*, NJ, USA
2015	*Hunter College*, New York, NY, USA

BREVETTI (CO-INVENTORE)

2020	**"***Functional astrocytes derived from pluripotent stem cells and methods of making and using the same*". WO2020243618A1
2017	"*Microglia derived from pluripotent stem cells and methods of making and using the same*". US11149250B2.

2015	"*Functional oligodendrocytes derived from pluripotent stem cells and methods of making and using the same*". WO 2015179822 A1

RELATORE SU INVITO PER CONFERENZE INTERNAZIONALI E PRESSO BIOTECH NEL SETTORE NEUROSCIENZE

2025	Merck, seminario virtuale
2025	ECTRIMS2025 meeting. Barcellona, Spagna
2025	NYSCF Conferenza annuale, New York NY, USA
2025	ISSCR *Athens International Symposium "Neural Stem Cell: capturing complexity and plasticity from the cell to the organism*"
2024	Keynote seminario**,** 1° simposio dell' *Italian Glia Network* (virtuale)
2024	Bit.Bio webinar "*Human iPSC-based models of glial cells for studying neurodegenerative diseases*"
2024	EMBO meeting "*Unlocking human brain complexity using 3D culture and single cell omics*", Capri, Italy.
2024	ISSCR panel "*Stem cells in low Earth orbit: the next frontier*"
2024	Sartorius webinar: *Harnessing iPSCs and Cytometry in Neurological disease research*. on demand
2024	*World Organoid Research Day*, Cambridge, UK
2023	*10th Panhellenic Congress of Hellenic Academy of Neuroimmunology*, virtuale
2023	IBRO (*International Brain Research Organization*) conference, Granada, Spagna
2023	*Spring Brain Conference*. Chair of "*iPSC modeling" session*
2023	*Organoid day*, conferenza virtuale
2023	*Neuroimmune talks*, virtuale (MS Center Catalonia, Spagna)
2022	SNF *Conference on Health*. Athens, Greece
2022.	Thermofisher "stem cell", virtuale
2021	NYSCF Conferenza annuale, virtuale
2021	ISSCR *Stem Cells in Space*, virtuale
2020	ISS&RD, virtuale
2019	*First stem cells and brain organoid symposium*, Lausanne, Switzerland
2019	7th *Mediterranean Neuroscience Conference*. Marrakech, Morocco
2018	NECTAR Meeting, Paris, France
2018	*New York Stem Cell Symposium*, Thermofisher, New York, NY, USA
2018	NIH AD Summit, Bethesda, DC, USA https://videocast.nih.gov/summary.asp?Live=26922&bhcp=1
2017	NYSCF Conferenza annuale, New York, NY, USA
2017	*Inaugural Symposium on myelin and glial cells*, CUNY ASRC New York, NY, USA
2017	*Tokyo NYSCF Stem Cells Summit*, New York, NY, USA
2017	*Tokyo NYSCF Stem Cells Summit*, round table panelist, New York, NY, USA.
2016	ARSEP meeting, Paris, France
2015	ABCD meeting, Bologna, Italy

2015	Inception 5, Pharmaceutical Company, San Diego, USA, CA, USA
2015	ASRC CUNY, New York, NY, USA
2014	*Tisch MS Research Center of New York*, New York, NY, USA
2004	Conferenza “Stem Cells for a new Medicine”, Rapallo, Italy

RICONOSCIMENTI IN AMBITO NAZIONALE E INTERNAZIONALE

2023	Vincitore Medaglia “Laura Bassi” per alunni che si sono distinti nella categoria *life science/medicine*, Università di Bologna, Italia
2010	Vincitore del premio *Helmsley Foundation-NYSCF Innovator* per ricercatori a inizio carriera, New York, NY, USA
2009	Vincitore della borsa di studio post-dottorato *Druckenmiller* New York, NY, USA.
2006	Vincitore della borsa di studio Marco Polo per ricerca svolta all’estero, Università di Bologna, Italia
2003 - 2004	Vincitore di un Assegno di Ricerca, presso il dipartimento di Istologia dell’Università di Bologna, Italia
2002	Vincitore del Premio Rotari riservato all’alunno che ha conseguito con il miglior curriculum la laurea presso la Facoltà di Farmacia (che include i Corsi di laurea in Farmacia, Biotecnologie farmaceutiche e Chimica e tecnologie Farmaceutiche) nell’ anno accademico 2001/2002

APPARIZIONI PUBBLICHE E INIZIATIVE DI DIVULGAZIONE SCIENTIFICA (RIVISTE, RADIO, PODCAST, WEBINAR, SEMINARI)

2025	Spotlight sulla rivista di ECTRIMS (European Committee for treatment and research of multiple sclerosis), Intervista riguardo l’uso di cellule staminali nella sclerosi multipla
2025	Intervista per la rivista “*Pitt Pulse*” dell’Università di Pittsburg
2025	Intervista per la rivista **“***Undark*” del Massachusetts Institute of Technology (MIT)
2025	Intervista per la sezione **“***Member spotlight*” dell' *International Society fo Stem Cell Research* (ISSCR)
2023	Webinar: *The future of brain disease research: a patient-centric perspective* (https://nyscf.org/events/the-future-of-brain-disease-research-a-patient-centric-perspective/)
2023	Seminario e discussine nell’ambito dell’evento ‘Davide Giri talks’ presso il Consolato Italiano a New York
2022	Intervista per la rivista scientifica *Cellular Reprogramming*. “*Reprogramming Star #9: Spacing out the cellular reprogramming-An interview with Dr. Valentina Fossati” Cell Reprogram*. 2022 Dec;24(6):317-323. doi: 10.1089/cell.2022.29074
2022	Webinar: *Unproven Stem Cell Therapies: A Growing Global Health Issue* (https://nyscf.org/events/unproven-stem-cell-therapies-a-growing-global-health-issue/)

2021	Webinar: *Patients and scientists united to accelerate multiple sclerosis treatments* (https://nyscf.org/events/patients-and-scientists-unite-to-accelerate-multiple-sclerosis-treatments/)
2021	Articolo sulla rivista **"**Civiltà delle macchine" numero 3-2021, Fondazione Leonardo riguardante gli studi su organoidi cerebrali condotti a bordo della Stazione Spaziale Interazionale
2020	Webinar: *How can brain inflammation lead to neurodegeneration?* (https://nyscf.org/events/conversation-with-experts-how-can-brain-inflammation-lead-to-neurodegeneration/)
2020	Webinar: *Stem cells go to space*. (Parte del NYSCF *education program*) https://nyscf.org/events/stem-cells-go-to-space-grades4to8/
2019	Diretta dalla NASA in concomitanza del lancio di SpaceX CTS-18: *SpaceX CRS-18 What's on board Science briefing* https://images.nasa.gov/details-KSC-20190723-VP-MMS01-0001-SpaceX_CRS_18_Whats_On_Board_Science_Briefing-3225865.html
2019	Intervista per Radio3 Scienza, Rai Radio 3
2019	Biblioteca comunale di Modena, Mese della Scienza. Modena, Italia
2019	"Curarsi nel futuro", presentazione del libro e discussione sulla medicina rigenerativa, Fondazione Bassetti, Milano, Italy **(**https://www.fondazionebassetti.org/archi_vivo/2020/01/curarsi_nel_futuro_incontro_co#vimeo-section)
2018	Webinar: *Ask the experts: emerging therapies in multiple sclerosis*. Neuro Central
2017	Seminario divulgativo presso l'Associazione Italiana Sclerosi Multipla (AISM), sezione di Rovigo, Italia
2016	Articolo su *Momentum* il giornale della *National Multiple Sclerosis Society* (NMMS)
2016	Webinar: *Spotlighting International Multiple Sclerosis Awareness Month*
2015	NYSCF webinar series: *Multiple sclerosis*
2015	Seminario divulgativo presso il Jewish Community Center, New York, NY
2015	Seminario divulgativo presso il Rotary club Rovigo, Italia
2014	Webinar sulla Sclerosi Multipla, Google Hangout by TrialReach
2014	Partecipazione allo *Stem Cells* podcast, Ep.27
2014	Podcast: *Advances in multiple sclerosis* (AIMS)
2014	Articolo su Neurology Today
2014	Seminario divulgativo presso il Knickerbocker Club, New York, NY
2013	Articolo intitolato "*The oligodendrocyte whisperer*" sul sito *Multiple Sclerosis Discovery Forum*
2013	Seminario divulgativo presso l'*Accademia dei Concordi,* biblioteca comunale di Rovigo, Italia
2012	Apparizione al programma televisivo Nantucket 228 di Kate Brosnan
2011	Relatore nel *panel The kids are alright*" all'evento *Partnering for Cures*
2005	co-organizzatore del progetto Biopop Bologna, Italia. *A pilot study on innovative approaches to biotech communication by students and young researchers*.

CURRICULUM VITAE

ENGLISH VERSION

EDUCATION

2009	Ph.D. in Stem Cell Biology ("*Biotecnologie dello sviluppo e della riproduzione*") - University of Bologna, Italy.
2005	M.Sc. in Pharmaceutical Biotechnology (Faculty of Pharmacy) - University of Bologna (full marks cum laude), Italy.

ACADEMIC APPOINTMENTS

2016 – present	Senior Research Investigator, The New York Stem Cell Foundation Research Institute, NY, NY, USA.
03/01/2011 - 2016	NYSCF-Helmsley Principal Investigator, The New York Stem Cell Foundation, NY, NY, USA.
01/06/2008 – 31/12/2010	Postdoctoral Fellow, Department of Gene and Cell Medicine, Mount Sinai School of Medicine NY, NY, USA.
01/06/2006 – 23/05/2008	Visiting Student, Department of Gene and Cell Medicine, Mount Sinai School of Medicine NY, NY, USA.

RESEARCH AND PROFESSIONAL EXPERIENCE

01/10/2004 – 23/05/2008	PhD Student, University of Bologna, Italy.
16/09/2003-15/09/2004	Research fellow, University of Bologna, Italy.
2003 - 2006	Teaching assistant, Histology, Embryology and Stem cells for Biotechnology, University of Bologna, Italy.

AFFILIATIONS AND MEMBERSHIPS

2020 - current	Associate member**,** The International Society for Stem Cell Research (ISSCR).
2015	Associate member, The Italian Scientific community of Cell Biology and Differentiation (ABCD).
2014 - current	Member, Initiative on Women in Science and Engineering (IWISE).
2009 - 2014	Elected *probiviro* (member of the Board of Arbitration) for the National Association of Italian Biotechnologists (ANBI).
2006 - 2014	Associate member, The International Society for Stem Cell Research (ISSCR).
2005 - 2015	Associate member, National Association of Italian Biotechnologists (ANBI).

PUBLICATIONS

Citation Report (Scopus):

4. Number of publications: 41
5. Total number of Citations: >3000
6. Hirsch index: 23.

PEER REVIEWED ARTICLES

1. Ionescu RB, Nicaise AM, Reisz JA, Williams EC, Prasad P, Willis CM, Simoes-Abade M, Sbarro L, Dzieciatkowska M, Stephenson D, Suarez Cubero M, Rizzi S, Pirvan L, Cory, Peruzzotti-Jametti L, Fossati V, Edenhofer F, Leonardi T, Frezza C, Mohorianu I, D'Alessandro A, Pluchino S. "*Increased*

cholesterol synthesis drives neurotoxicity in patient stem cell-derived model of multiple sclerosis". **Cell Stem Cell** 2024; Oct 14:S1934-5909(24)00328-X. doi: 10.1016/j.stem.2024.09.014. Online ahead of print. PMID: 39437792 Featured in the cover

2. Clayton BLL, Barbar L, Sapar M, Rusielewicz T, Kalpana K, Migliori B; NYSCF Global Stem Cell Array® Team; Paull D, Brenner K, Moroziewicz D, Sand IK, Casaccia P, Tesar PJ, Fossati V. "*Patient iPSC models reveal glia-intrinsic phenotypes in multiple sclerosis*". **Cell Stem Cell** 2024; Aug 22:S1934-5909(24)00288-1. doi: 10.1016/j.stem.2024.08.002. PMID: 39191254 Featured in the cover
3. Marotta D, Ijaz L, Barbar L, Nijsure M, Stein J, Pirjanian N, Kruglikov I, Twyman C, Stoudemire J, Grisanti P, Noggle S, Loring J, Fossati V. "*Effects of microgravity on human iPSC-derived neural organoids on the International Space Station*". **Stem Cell Translational Medicine** 2024; Oct 23 doi: 10.1093/stcltm/szae070. Online ahead of print. PMID: 39441987
4. Prakash P, Erdjument-Bromage H, O'Dea MR, Munson CN, Labib D, Fossati V, Neubert TA, Liddelow SA. "*Proteomic profiling of interferon-responsive reactive astrocytes in rodent and human*". **Glia** 2024 Epub Nov 30. doi: 10.1002/glia.24494. PMID: 38031883
5. Frazel PW, Labib D, Fisher T, Brosh R, Pirjanian N, Marchildon A, Boeke JD, Fossati V, Liddelow SA. "*Longitudinal scRNA-seq analysis in mouse and human informs optimization of rapid mouse astrocyte differentiation protocols*". **Nat Neurosci**. 2023; Sep 11. doi: 10.1038/s41593-023-01424-2. PMID: 37697111 Featured in Innovations in stem cell biology 2024 by Nature Portfolio and EMBO Press journals
6. Fossati V, Peruzzotti-Jametti L, Pluchino S. "*A neural stem-cell treatment for progressive multiple sclerosis*". N&V article. **Nat Med.** 2023; Jan;29(1):27-28. doi: 10.1038/s41591-022-02164-9.PMID: 36639562
7. Fossati V, Greco V, Arlotta P, Aiyar RS. "*Susan L. Solomon (1951-2022): Advocate, Innovator, Catalyst*". **Stem Cell Reports**. 2022;17(12):2579-2581. doi: 10.1016/j.stemcr.2022.11.013. PMID: 36516737
8. Smith MD, Chamling X, Gill AJ, Martinez H, Li W, Fitzgerald KC, Sotirchos ES, Moroziewicz D, Bauer L, Paull D, Gharagozloo M, Bhargava P, Zack DJ, Fossati V, Calabresi PA. "*Reactive Astrocytes Derived From Human Induced Pluripotent Stem Cells Suppress Oligodendrocyte Precursor Cell Differentiation*". **Front Mol Neurosci**. 2022; May 6;15:874299. doi: 10.3389/fnmol.2022.874299. eCollection 2022.PMID: 35600072
9. Labib D, Wang Z, Prakash P, Zimmer M, Smith MD, Frazel PW, Barbar L, Sapar ML, Calabresi PA, Peng J, Liddelow SA, Fossati V. "*Proteomic Alterations and Novel Markers of Neurotoxic Reactive Astrocytes in Human Induced Pluripotent Stem Cell Models*". **Front Mol Neurosci**. 2022; May 3;15:870085. eCollection 2022. doi: 10.3389/fnmol.2022.870085. PMID: 35592112
10. Neff RA, Wang M, Vatansever S, Guo L, Ming C, Wang Q, Wang E, Horgusluoglu-Moloch E, Song WM, Li A, Castranio EL, Tcw J, Ho L, Goate A, Fossati V, Noggle S, Gandy S, Ehrlich ME, Katsel P, Schadt E, Cai D, Brennand KJ, Haroutunian V, Zhang B. "*Molecular subtyping of Alzheimer's disease using RNA sequencing data reveals novel mechanisms and targets*". **Sci Adv.** 2021; Jan 6;7(2):eabb5398. doi: 10.1126/sciadv.abb5398. PMID: 33523961
11. Barbar L, Rusielewicz T, Zimmer M, Kalpana K, Fossati V. "*Isolation of Human CD49f+ Astrocytes and In Vitro iPSC-Based Neurotoxicity Assays*". **STAR Protoc.** 2020; Nov 10;1(3):100172. eCollection 2020 Dec 18. doi: 10.1016/j.xpro.2020.100172. PMID:33377066
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17. Nicaise AM, Wagstaff LJ, Willis CM, Paisie C, Chandok H, Robson P, Fossati V, Williams A, Crocker SJ. "*Cellular senescence in progenitor cells contributes to diminished remyelination potential in progressive multiple sclerosis*". **Proc Natl Acad Sci USA** 2019; Apr 30;116(18):9030-9039. doi: 10.1073/pnas.1818348116. PMID: 30910981
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BOOKS AND CHAPTERS

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2. Kalpana K, Rao C, Semrau S, Zhang B, Noggle S, Fossati V. "*Generating neuroimmune assembloids using human induced pluripotent stem cell (iPSC) derived cortical organoids*". **Methods Mol Biol.** 2024 Jul 9. doi: 10.1007/7651_2024_554. PMID: 38976205
3. "*Cellule Staminali pluripotenti e riprogrammazione*", chapter. "Cellule Staminali", III Edizione. 2022. ISBN: 9788874889976. Esculapio (Italian and english)
4. *« Space renaissance and neurodegeneration »*, chapter. "**Spaceflight and the central nervous system**", Springer 2021.
5. Marotta D, Rao C, Fossati V. "*Human Induced Pluripotent Stem Cell (iPSC) Handling Protocols: Maintenance, Expansion, and Cryopreservation*". **Methods Mol Biol**. 2021 Apr 10. doi: 10.1007/7651_2021_358
6. Ijaz L, Nijsure M, Fossati V. "*Human Pluripotent Stem Cell Differentiation to Microglia*". **Methods Mol Biol.** 2021 Mar 28;. doi: 10.1007/7651_2021_359
7. *"Pluripotent Stem Cells and Reprogramming"*, chapter. "**Stem Cells**". III Edizione. Esculapio. 2019.
8. Fossati, Simone. Book: *"Curarsi nel futuro. Come staminali e terapia genica stanno cambiando la medicina"*. Zanichelli (Italian language) 2017.
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MENTORSHIP AND MANAGERIAL EXPERIENCE

2011- current	Supervisor for 8 Postdoctoral Fellows, 6 Associate Scientists, >25 internship students.

EDITORIAL ACTIVITIES

2015 - current	Editorial Board Member for Molecular and Cellular Oncology, a specialty of Frontiers in Cell and Developmental Biology and Oncology.
2011- current	Reviewer for several peer-reviewed international journals: Stem Cell reports, The Journal of Multiple Sclerosis, Cell Biology International, Neuropharmacology, Development, Stem Cells International, Molecular neurodegeneration, Npj Parkinson, Scientific Reports, Stem cells translational medicine, Stem Cell Research, Experimental neurology, Current Medicinal Chemistry, Stem Cell Research, CNS drugs, Stem Cell Reports, Nature Neuroscience, PNAS, Molecular Psychiatry, Trends in Immunology

REVIEWER FOR FEDERAL, STATE, EUROPEAN AND PRIVATE GRANTING AGENCIES

2025	Reviewer for Special emphasis Panel ZRG1 AN Q55, which focuses on AD/ADRD- and aging-related novel therapeutics, new models, and biomarker identification in human samples, circuits, and behavior.
2024	Ad hoc reviewer NIH, Neurological sciences training NST-3 study section; Ad hoc reviewer for Congressionally directed Medical research Program (CDMRP), RR-1.
2023	Ad hoc reviewer for Congressionally directed Medical research Program (CDMRP), RR-3.
2022	European starting grant (ERC) 2022 call
2020	Ad hoc reviewer for Neurological sciences training NST-3 study section, NIH.
2019 - 2023	NYSCF-Druckenmiller fellowship Jury, NYSCF.

2021	Ad hoc reviewer for NIH, Cellular and Molecular Biology of Glia (CMBG) study session. Ad hoc reviewer for Brain K99; Diversity K01; Mosaic K99.
2020	Ad hoc reviewer for NIH: Neural Differentiation, Plasticity, and Regeneration study session, Reviewer for (NIH)NIAID Special Emphasis Panel ZAI1-AMC-I-M1 Ad hoc reviewer for NIH, Neural Cell Fate (NCF) study session.
2019	Ad hoc reviewer for NIAID Resource-related research project.
2019	Ad hoc reviewer for NIH, Neurogenesis and Cell Fate (NCF) study section
2018	Invited reviewer for Fond Nationale de la Recherche Luxembourg.
2017	Invited reviewer for Medical Research Council, UK.
2017	Invited reviewer for Thierry Latran Foundation (France).
2014 - 2015	Invited reviewer for Italian Society for Multiple Sclerosis (FISM).
2012	NIH-NIEHS, Review committee "Environmental Influences on Stem Cells in Development, Health, and Disease".

REVIEWER FOR CONFERENCES AND AWARD COMMITTEES

2022-current	ISSCR Annual conference, poster selection for neuroscience area
2023-current	Spring Brain Conference, Oral talks selection
2024	2025 Outstanding Young Investigator Award selection committee

BRIEF TRACK RECORD

Their scientific interests focus on the development of human models for studying the central nervous system and related diseases, with a particular emphasis on degenerative and demyelinating conditions. Since 2011, they have worked at the New York Stem Cell Foundation Research Institute (NYSCF), a private institution primarily funded by philanthropy, which has raised over $450 million over 15 years to support stem cell research. In this role, they have supported the CEO in fundraising events, engaging with potential donors to explain the importance of NYSCF's research activities. They have also participated in lobbying efforts with the State of New York to promote public funding for research. They have successfully secured competitive grants from federal agencies (NIH), state programs (NYSTEM), and private organizations (e.g., National Multiple Sclerosis Society). NYSCF is a multidisciplinary institution where biologists, software and hardware engineers, and bioinformaticians work synergistically to study a wide range of diseases, with a primary focus on neurological disorders as well as diabetes, ovarian cancer, bone reconstruction, and cell therapies for macular degeneration. The research projects share a common approach involving the use of human cells, often derived from patients, and the application of advanced technologies for data analysis. As Senior Research Investigator, they are highly engaged in collaborations with colleagues from various disciplines. They have contributed to pioneering studies for the in vitro generation of glial cells, including astrocytes, oligodendrocytes, and microglia. They generated the first patient-derived induced pluripotent stem cells (iPSCs) from individuals affected by primary progressive multiple sclerosis and were the first to identify inflammatory phenotypes in glial cells using single-cell resolution technologies to analyze their transcriptomic profile. Furthermore, they developed the first brain organoid cultures, which were maintained for a month aboard the International Space Station to study the effects of microgravity on nervous system cells. As evident from their publications, they have initiated numerous collaborations with renowned neurologists and scientists (Prof. Peter Calabresi, Johns Hopkins University; Prof. Stefano Pluchino, Cambridge University; Prof. Paul Tesar, Case Western University; Dr. Bibi Bielekova, NIH; Dr. Shane Liddelow, New York University; Prof. Lee Rubin, Harvard University; Dr. Vikram Khurana, Harvard University) and experts from complementary fields such as bioinformatics (Prof. Bin Zhang, Mount Sinai), and bioengineering (Prof. Krystyn Van Vliet, MIT) to develop cutting-edge research lines.

These increasingly require a multidisciplinary approach, integrating recent technological advances and artificial intelligence to improve analysis sensitivity and accuracy. Over the years, they have managed a team of scientists, including young researchers and technicians (pre-doctorate) as well as senior researchers (post-doctorate). Although NYSCF is not affiliated with a university and does not formally offer teaching opportunities, they have been invited to numerous universities for seminars and workshops, and they frequently speak at outreach events for younger students and non-specialist audiences. They have been invited as a speaker at numerous international conferences, and their research has received extensive coverage on scientific websites and journals. They are frequently invited to serve as a reviewer for committees evaluating major federal grants for neuroscience research, as well as by European research institutions.

GRANT ACQUISITION FROM FEDERAL, STATE AND PRIVATE SOURCES

MIPC-2021-9081
01/01/2023-31/08/2024
Role: Co-PI; Grisanti (PI)
NLRA 2021-6: In-Space Production Applications: Tissue engineering and biomaterials
Human organoid models for neurodegenerative disease and drug discovery. $650,000

1R21NS111186-01
01/05/2019-30/04/2021
Role: PI
NIH/NINDS
Investigating the biology of human neurotoxic reactive astrocytes using induced pluripotent stem cells. $520,914

5R01AG061894-03
30/09/2018-30/04/2023
Role: Noggle, Fossati, Gandy (MPI)
Use of iPSC systems to define roles of microglial TREM2/DAP12 and CR3/DAP12 complexes and their genetic variants in specifying risk for late onset sporadic Alzheimer's disease. $4,150,732

5U01AG046170-07
30/09/2018-31/08/2023
Role: Co-I; Zhang (PI);
NIH/NIA
The major goal is to identify and characterize molecular subtypes of AD by employing state-of-the-art network biology approaches to all existing large-scale genetic, gene expression, proteomic and functional MRI data. $ 203,880 (NYSCF, directs* –Total funds=$26.0M)

NIH R01 NS102267-01
01/08/2017-30/06/2022
Role: subaward PI; Pitt (PI)
Detection, characterization and treatment of chronic microglial inflammation in established MS lesions.
The goal of this project is to understand the role of iron metabolism in microglia cells in MS lesions.
$31,412.50 (NYSCF, directs*)

NYSTEM DOH01-STEM5-2016-00114
01/07/2017-30/06/2020
Role: Fossati (PI)
A patient-based cellular platform for clinical translation of chemical remyelinating therapies
The goal of this study is to develop a drug screen for myelinating compounds, comparing human and mouse platforms

DoD W81XWH-15-1-0448

01/09/2015-31/08/2018
Role: Subaward PI; Casaccia (PI)
Mitochondrial dysfunction and disease progression
The goal of this study is to investigate intrinsic and extrinsic factors that drive progression of neurodegeneration in multiple sclerosis. $75,000 (NYSCF, directs*; total funds= US$412,942.00)

1RF1AG057440-01
15/09/2017-31/08/2020
Role: Co-I; Zhang (PI)
Towards a comprehensive signaling pathway map of parahippocampal vulnerability in Alzheimer's Disease
The main goal of this project is to identify multiscale gene regulatory networks and key drivers of parahippocampal vulnerability in AD and validate them using iPS-derived cells. $196,905 (NYSCF, directs* – Total funds=$3,514,658)

Conrad Hilton Foundation #17321
01/07/2017-30/06/2019
Role: PI
Mechanobiology of oligodendrocyte differentiation in lesion-like environments of multiple sclerosis
The goal of this project is to determine whether altered mechanical properties of damaged white matter in MS influence the behavior of oligodendrocytes engaged in remyelination. $120,000

R21 NS102762-01 NIH/NINDS
01/07/2017-30/06/2019
Role: subaward PI; Van Vliet (PI)
Improving in vitro generation of human oligodendrocyte lineage cells by mechanical stimulation.
The main goal of this project is to explore novel approaches to increase efficiency and cut time of production of human oligodendrocytes by using mechanical stimulation of cells. $73,154 (NYSCF, directs*; total funds= $385,146)

National Stem Cell Foundation
01/01/2016-31/12/2017
Role: PI
Investigating the role of astrocytes in multiple sclerosis and in the process of myelination
The major goals of this project are to investigate the intrinsic deficiencies in astrocytes from primary progressive MS patients and to evaluate the effect of activated astrocytes during oligodendrocyte differentiation. $152,000

National MS Society
01/04/2016-31/03/2017
Role: PI
In vitro human myelination platform based on stem cell-derived oligodendrocyte progenitor cells
The goal of this study is to develop an *in vitro* myelination assay using 3D plates, containing axonal-like micro-cones and hiPSC-derived OPCs. $44,000

Conrad N. Hilton Foundation
01/01/2015-31/12/2016
Role: PI
Modeling MS using iPS cells
This award provides unrestricted support to the research conducted in the Fossati laboratory.

NYSCF-Helmsley Trust
03/01/2011-02/01/2016
Role: PI
NYSCF-Helmsley Investigator

This was a career award and not specific to one project. $1,000,000

*NYSCF has a negotiated indirect cost rate of 83% with the NIH

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

- Science and Technology Entry Program (STEP). Introducing stem cell biology and the applications of regenerative medicine to students in New York City: Harlem Children Zone, Spence School, Urban Assembly School for Wildlife Conservation
- Seminars for Italian schools: *Liceo Scientifico "P.Paleocapa*", Rovigo, Italy, *Liceo Scientifico Copernico*, Bologna, Italy.

THESIS COMMITTEE (2011 – CURRENT)

- Dr. Talia Oranburg, graduated in 2023 from University of Pittsburg, Pittsburg, PA, USA.
- Ace Alcantara, PhD candidate, City University of New York, New York, NY, USA
- Giovannamaria Petrocelli, Graduated in 2024 from University of Bologna, Bologna, Italy.
- Søren-William Hardam Nohns, PhD candidate at University of Copenhagen.

INVITED LECTURES AND SEMINARS AT UNIVERSITIES AND PHD COURSES

2025	Dept of Neurodegenerative science at Van Andel Institute, Grand Rapids, MI, USA
2025	Tufts University school of Medicine. Neuroscience seminar series. Boston, MA, USA
2024	Neuroscience school for advanced studies, workshop "Cell based-therapeutic of brain disease", Crans-Montana, Switzerland
2024	Houston Methodist Research Institute Center for Neuroregeneration, CNR Lecture Series, Houston, TX, USA
2023	Indiana University. Indianapolis, IN, USA
2023	Organoid school, Bilbao, Spain
2022	University of Wisconsin. Madison, WI, USA
2022.	National Institute on Aging Workshop: "Microphysiological Systems to Advance Precision Medicine for AD/ADRD Treatment and Prevention"
2021	Current topics in the cell biology of neurons and glia course, UPenn, Philadelphia, PA, USA
2021	Neuroscience seminar series, University of Montreal, virtual talk, Montreal, QC Canada
2020	NSC-Reconstruct workshop. Virtual
2020	Dept of Biology Seminar series, Georgetown University**,** Washington, DC, USA
2018	Grand rounds Children's hospital at Philadelphia (CHOP), Philadelphia, PA, USA
2018	NIH AD Summit, Bethesda, DC, USA https://videocast.nih.gov/summary.asp?Live=26922&bhcp=1
2016	IFOM-IEO Research Institute, Milan, Italy
2016	San Raffaele Institute, Milan, Italy

2016	University of Connecticut Health, Farmington, CT, USA
2015	Rutger, The State University of New Jersey, NJ, USA
2015	Hunter College, New York, NY, USA
2015	ASRC CUNY, New York, NY, USA
2014	Tisch MS Research Center of New York, New York, NY, USA

INVITED LECTURES AT INTERNATIONAL CONFERENCES AND BIOTECH

2025	Merck, guest lecturer virtual talk
2025	ECTRIMS2025 meeting. Barcellona, Spain
2025	NYSCF Annual Conference, New York NY, USA
2025	ISSCR Athens International Symposium “Neural Stem Cell: capturing complexity and plasticity from the cell to the organism”
2024	Keynote talk**,** 1st symposium of Italian Glia Network (virtual)
2024	Bit.Bio webinar “Human iPSC-based models of glial cells for studying neurodegenerative diseases” virtual
2024	EMBO meeting “Unlocking human brain complexity using 3D culture and single cell omics”, Capri, Italy.
2024	ISSCR panel “Stem cells in low Earth orbit: the next frontier”
2024	Sartorius webinar: Harnessing iPSCs and Cytometry in Neurological disease research. Virtual, on demand
2024	World Organoid Research Day, Cambridge, UK
2023	10th Panhellenic Congress of Hellenic Academy of Neuroimmunology, virtual talk.
2023	IBRO conference, Granada, Spain
2023	Spring Brain conference. Speaker and Chair of iPSC modeling session
2023	Organoid day, virtual conference
2023	Neuroimmune talks, virtual (MS Center Catalonia, Spain)
2022	SNF Conference on Health. Athens, Greece
2022.	Thermofisher stem cell virtual seminar
2021	NYSCF Annual Conference, virtual meeting
2021	ISSCR Stem Cells in Space, virtual meeting
2020	ISS&RD, virtual meeting
2019	First stem cells and brain organoid symposium, Lausanne, Switzerland
2019	7th Mediterranean Neuroscience Conference. Marrakech, Morocco.
2018	NECTAR Meeting, Paris, France
2018	New York Stem Cell Symposium, Thermofisher, New York, NY, USA
2017	NYSCF Annual Conference, New York, NY, USA
2017	Inaugural Symposium on myelin and glial cells, CUNY ASRC New York, NY, USA
2017	Tokyo NYSCF Stem Cells Summit, New York, NY, USA
2017	Tokyo NYSCF Stem Cells Summit, round table panelist, New York, NY, USA.
2016	ARSEP meeting, Paris, France

2015	ABCD meeting, Bologna, Italy
2015	Inception 5, Pharmaceutical Company, San Diego, USA, CA, USA
2004	"Stem Cells for a new Medicine "Conference, Rapallo, Italy

PATENTS AND TECHNOLOGY TRANSFER (CO-INVENTOR)

2020	**"**Functional astrocytes derived from pluripotent stem cells and methods of making and using the same". WO2020243618A1
2017	"Microglia derived from pluripotent stem cells and methods of making and using the same". US11149250B2.
2015	"Functional oligodendrocytes derived from pluripotent stem cells and methods of making and using the same". WO 2015179822 A1

FELLOWSHIPS, AWARDS AND HONORS

2023	"Laura Bassi" medal for distinguished alumni in the field of life science/medicine, University of Bologna, Italy.
2010	Helmsley Foundation-NYSCF Innovator award for early career investigator, New York Stem Cell Foundation (NYSCF), New York, NY, USA.
2009	Druckenmiller Postdoctoral Research Fellowship Award, New York Stem Cell Foundation (NYSCF), New York, NY, USA.
2006	Marco Polo fellowship for research projects abroad, University of Bologna, Italy.
2003 - 2004	Research fellowship, University of Bologna, Italy.
2002	Rotary Foundation Award for "Top of the class 2002" for the Faculty of Pharmacy (including Pharmacy, Pharmaceutical Biotechnology, Pharmaceutical Chemistry and Technology).

PUBLIC APPEARANCES/OUTREACH (MAGAZINES, NEWSPAPERS, TELEVISION, PODCASTS, WEBINARS, LAY-AUDIENCE SEMINARS)

2025	Spotlight for ECTRIMS magazine, Interview on stem cells for MS
2025	Interview for "Pitt Pulse" Magazine, University of Pittsburg
2025	Interview for **"**Undark" magazine (MIT)
2025	**"**Member spotlight" series for ISSCR
2023	Webinar: "The future of brain disease research: a patient-centric perspective" (https://nyscf.org/events/the-future-of-brain-disease-research-a-patient-centric-perspective/)
2023	'*Davide Giri talks'*, Italian Consulate New York
2022	Reprogramming Star #9: Spacing out the cellular reprogramming-An interview with Dr. Valentina Fossati Cell Reprogram. 2022 Dec;24(6):317-323. doi: 10.1089/cell.2022.29074

2022	Webinar: **"**Unproven Stem Cell Therapies: A Growing Global Health Issue" (https://nyscf.org/events/unproven-stem-cell-therapies-a-growing-global-health-issue/)
2021	Webinar: "Patients and scientists united to accelerate multiple sclerosis treatments" (https://nyscf.org/events/patients-and-scientists-unite-to-accelerate-multiple-sclerosis-treatments/)
2021	Italian magazine **"***Civiltà delle macchine*" numero 3-2021, Fondazione Leonardo. Article about research in space with neural cells
2020	Webinar: "Live conversation with experts: How can brain inflammation lead to neurodegeneration?" (https://nyscf.org/events/conversation-with-experts-how-can-brain-inflammation-lead-to-neurodegeneration/)
2020	"Stem cells go to space". Virtual classroom (NYSCF education program) https://nyscf.org/events/stem-cells-go-to-space-grades4to8/
2019	SpaceX CRS-18 What's on board Science briefing https://images.nasa.gov/details-KSC-20190723-VP-MMS01-0001-SpaceX_CRS_18_Whats_On_Board_Science_Briefing-3225865.html
2019	Interview for *Radio3 Scienza*, Rai Radio 3
2019	Seminar at Public library, *Mese della Scienza*. Modena, Italy
2019	Seminar "Curarsi nel futuro, Fondazione Bassetti, Milano, Italy **(**https://www.fondazionebassetti.org/archi_vivo/2020/01/curarsi_nel_futuro_incontro_co#vimeo-section)
2018	"Ask the experts: emerging therapies in multiple sclerosis". Neuro Central
2017	Seminar "Multiple Sclerosis" AISM, Rovigo Italy
2016	Article in Momentum magazine from the National Multiple Sclerosis Society (NMMS)
2016	Spotlighting International Multiple Sclerosis Awareness Month
2015	NYSCF webinar series
2015	Jewish Community Center, New York, NY. Lay seminar
2015	Rotary club Rovigo, Italy. Lay seminar
2014	Google Hangout by TrialReach
2014	"The Stem Cells" podcast, Ep.27
2014	"Advances in multiple sclerosis (AIMS)" podcast
2014	Article in Neurology Today
2014	Knickerbocker Club, New York, NY. Lay seminar
2013	Multiple Sclerosis Discovery Forum, featured article "The oligodendrocyte whisperer"
2013	*Accademia dei Concordi,* Public library, Rovigo, Italy. Lay seminar
2012	Nantucket television program 228 by host Kate Brosnan
2011	Panelist at Partnering for Cures, Panel "The kids are alright"
2005	Biopop Bologna, Italy. A pilot study on innovative approaches to biotech communication by students and young researchers.