Fabian Feiguin, MD-PhD.

Citizenship: Italian - Argentinian.

Current Position

Group Leader, International Center for Genetic Engineering and Biotechnology (ICGEB), Trieste, Italy.

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http://www.icgeb.org/neurobiology.html

Research Interest

Molecular mechanisms behind neuron degeneration, regeneration and aging. To answer these questions, we have modulated the expression of conserved proteins in Drosophila to recapitulate, *in vivo,* the main pathological characteristics of the most common human neurodegenerative diseases like Alzheimer's disease (AD), Amyotrophic Lateral Sclerosis (ALS), and Spastic Paraplegia. We are now utilizing the genetic tools developed in Drosophila to perform genome wide genetics and pharmacological screenings for therapeutic discovery *in vivo.* The results registered in flies are validated in neuronal tissues derived from iPSC cells obtained from affected patients.

EDUCATION

PhD, Instituto Mercedes y Martin Ferreyra, CONICET - Universidad Nacional de Cordoba. Cordoba, Argentina. (1992-1995).

- Title: "Participation of kinesin in transport and organization of tubulovesicular organelles". Score: 10 (ten) over a scale ranging from 0-10.

Medical Doctor, Facultad de Medicina Universidad Nacional de Cordoba. Cordoba, Argentina (1984-1990).

- Score: 8 (eight) over a scale ranging from 0-10.

SCIENTIFIC RESEARCH EXPERIENCE

Group Leader, International Center for Genetic Engineering and Biotechnology (ICGEB), Trieste, Italy. (2007-present).

Senior Scientific Consultant, National Institute of Mental Health (NIMH), Prague, Czech Republic. (2020-present).

Group Leader, Neuroscience Institute Cavalieri Ottolenghi. University of Turin, Turin, Italy. (2003-2006).

Research Scientist, Institute of Molecular Pathology (IMP). Vienna, Austria. (2000-2002).

Postdoctoral Fellow, European Molecular Biology Laboratory (EMBL). Heidelberg, Germany (1996-2000).

Visiting Fellow, Brigham and Women's Hospital, Harvard Medical School, Kenneth S. Kosik Laboratory, Boston, USA (1994).

PhD student, Instituto de Investigacion Medica Mercedes y Martin Ferreyra. Cordoba, Argentina (1991-1995).

FELLOWSHIPS AWARD

Alexander Von Humboldt Foundation, Bonn, Germany.

- Postdoctoral fellowship at the EMBL, Heidelberg, Germany (1996-1998).

National Scientific and Technical Research Council (CONICET), Buenos Aires, Argentina.

- PhD consolidation fellowship at the Instituto "Mercedes y Martin Ferreyra". Cordoba, Argentina (1993-1995).

National Scientific and Technical Research Council (CONICET), Buenos Aires, Argentina.

- PhD initiation fellowship at the Instituto "Mercedes y Martin Ferreyra". Cordoba, Argentina (1991-1993).

LANGUAGES

- English (fluent)
- Italian (fluent)
- German (good)
- Spanish (native)

RESEARCH GRANTS OBTAINED

- Beneficentia Stiftung, Vaduz. 25.000,00 €
  31/12/2017-31/12/2018, Fabian Feiguin (PI).
- Agenzia di Ricerca per la Sclerosi Laterale Amiotrofica 180.000,00 €
  (AriSLA) 30/04/2015-30/04/2018, Fabian Feiguin (PI).
- Fondation Thierry Latran, France. 120.000,00 €
  30/09/2013-30/09/2016, Fabian Feiguin (co-PI).
- Agenzia di Ricerca per la Sclerosi Laterale Amiotrofica 158.000,00 €
  (AriSLA) 30/04/2011-30/09/2014, Fabian Feiguin (PI).
- Ministerio dell'Universita e della Ricerca 180.000,00 €
  (MIUR-GGP06147) 2006/2009, Fabian Feiguin (co-PI).
- Glaxo Smith Kline, UK. 460.000,00 €
  Drosophila Models of Neurodegenerative Diseases.
  01/2002 – 12/2006, Fabian Feiguin (co-PI).

JOURNAL and EDITORIAL ACTIVITIES

- Review Editor, Frontiers in Neuroscience.
- Peer-reviewer for: FASEB, Brain, BMC Biology, Glia, HMG, NBD, DMM, Sci. Rep, Acta Neuropathologica Communications, FEBS letters, Plos One, Int. J. Mol. Science, Brain Research, Exp. Neurology, BBA-Gene Regulatory Mechanisms, Frontiers in Genetics, Frontiers in Neuroscience, Neuroscience, Neuroscience Letters, Neuroscientist.

STUDENTS SUPERVISION and ACADEMIC ACTIVITIES

- PhD Students, 8 (eight).
- Postdoctoral Students, 5 (five).
- Graduate Students, 16 (sixteen, at least one year training).

Grant Review Committees

- Motor Neuron Disease Association (www.mndassociation.org) London, UK.
- Istituto Pasteur, Fondazione Cenci Bolognetti, France – Italy
- International Foundation for Science (IFS), Stockholm, Sweden.

External Review of Promotion/Tenure and Doctorate Committees

- Research Council of the Katholieke Universiteit. Leuven, Belgium
- Università degli studi di Roma "la Sapienza" Dipartimento di Biologia e Biotecnologie "Charles Darwin". Rome, Italy.

University Teaching Habilitation

- Associated Professor 05/B2 – Comparative Anatomy & Cytology, SSD BIO/06.
- Associated Professor 05/E2 – Molecular Biology, SSD BIO/11.
- Associated Professor 05/F1 – Applied Biology, SSD BIO/13.

Scientific Organizer/International Meetings

- Organizer, Practical Course "Drosophila *melanogaster* models for neurodegenerative diseases", April 17 – 20, 2018. Trieste, Italy.
- Research presentation at the 14th International Conference on Drosophila Heterochromatin, June 09-15, 2019. Spoleto, Italy.
- Research presentation at the 17th European *Drosophila* Neurobiology Conference – Neurofly, September 03-07, 2018. Krakow, Poland.
- Faculty at the DrosAfrica-ICGEB Workshop "Drosophila *melanogaster* in biomedical research: low-cost and profitable", July 17-28, 2017. Ibadan, Nigeria.
- Faculty at the DrosAfrica Workshop "Drosophila in Biomedical Research: an effective and affordable model". September 5 –17, 2016. Nairobi, Kenya.
- Invited speaker at "Focus on ALS AriSLA Symposium" September 27-29, 2018. Genova, Italy.
- Invited speaker at The 9th FENS Forum on Neuroscience, July 05-09, 2014. Milan, Italy.
- Invited speaker at Conference RNA Metabolism: Changing Paradigms in Neurodegeneration, May 26-29, 2014. Trieste, Italy.
- Faculty at the Workshop "Mechanisms of Development" Depart. of Molecular Biology, University of Khartoum. February 11–14, 2011. Khartoum, Sudan.
- Invited speaker at 3rd EURASNET WP12 Interdisciplinary Focus Meeting on "Alternative and Aberrant Splicing in neuromuscular and neurodegenerative processes", March 26-27, 2009. Trieste, Italy.
- Invited speaker at RNA processing in Biology and Medicine, October 20-22, 2010. Beijing, China.

Organization Memberships

- Italian Genetics Society (http://www.associazionegeneticaitaliana.it/)
- International Advisory Board of the African Society of Drosophilists (ASD).
- DrosAfrica http://drosafrica.org/

Invited Speaker

- XIX IDRC, Italian Drosophila Research Conference, June 20-22, 2018. Padova, Italy.
- "Focus on ALS", September 27-29, 2018. Genova, Italy
- Centro Interdipartimentale per le Neuroscienze (BRAIN), University of Trieste, 2010-2019.
- Centro Dino Ferrari, University of Milan, November 22nd, 2017. Milan, Italy.
- Department CBIO, University of Trento, February 10th, 2017. Trento, Italy.
- Dipartimento di Biologia e Biotecnologie "Charles Darwin" University of Rome La Sapienza, May 10th, 2016. Rome, Italy.

- Dipartimento di Scienze e Tecnologia, University of Palermo, November 3rd, 2014. Palermo, Italy.
- Institute of Molecular Genetics and Genetic Engineering (IMGGE), University of Belgrade, April 5th, 2013. Belgrade, Serbia.
- CICbioGUNE, June 15th, 2012. Bilbao, Spain.
- Fondazione Italiana Fegato, University of Trieste, April 14th, 2011. Trieste, Italy.

Lecturer

- Department of Pharmacology, Facultad de Ciencias Quimicas, Universidad Nacional de Cordoba. Cordoba, Argentina (1991-1992).
- Center of Electronic Microscopy, Facultad de Medicina, Universidad Nacional de Cordoba. Cordoba, Argentina (1991-1992).

PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

Romano G, Klima R, and Feiguin F. (2020). TDP-43 prevents retrotransposons activation in the Drosophila motor system through regulation of Dicer-2 activity. BMC Biology, Jul 3;18(1):82. doi: 10.1186/s12915-020-00816-1.

Strah N, Romano G, Introna C, Klima R, Marzullo M, Ciapponi L, Megighian A, Nizzardo M and Feiguin F. (2020). TDP-43 promotes the formation of neuromuscular synapses through the regulation of Disc-large expression in Drosophila skeletal muscles. BMC Biology, Mar 26; 18(1): 34. https://doi.org/10.1186/s12915-020-00767-7.

Langellotti S, Romano G, Feiguin F, Baralle FE, Romano M. (2018) RhoGAPp190: A potential player in tbph-mediated neurodegeneration in Drosophila. PLoS One. 2018 Apr 13;13(4):e0195845. doi: 10.1371/journal.pone.0195845. eCollection 2018.

Lo Piccolo L, Bonaccorso R, Attardi A, Li Greci L, Romano G, Sollazzo M, Giurato G, Ingrassia AMR, Feiguin F, Corona DFV, Onorati MC. (2018) Loss of ISWI Function in Drosophila Nuclear Bodies Drives Cytoplasmic Redistribution of Drosophila TDP-43. Int J Mol Sci. Apr 4;19(4). pii: E1082. doi: 10.3390/ijms19041082.

Romano G, Holodkov N, Klima R, Grilli F, Guarnaccia C, Nizzardo M, Rizzo F, Garcia R, Feiguin F. (2018) Downregulation of glutamic acid decarboxylase in Drosophila TDP-43-null brains provokes paralysis by affecting the organization of the neuromuscular synapses. Sci Rep. doi:10.1038/s41598-018-19802-3.

Appocher C, Mohagheghi F, Cappelli S, Stuani C, Romano M, Feiguin F*, Buratti E*. (2017) Major hnRNP proteins act as general TDP-43 functional modifiers both in Drosophila and human neuronal cells. Nucleic Acids Res. 2017 May 31. doi: 10.1093/nar/gkx477. *corresponding authors.

Di Giorgio ML, Esposito A, Maccallini P, Micheli E[1], Bavasso F, Gallotta I, Vernì F, Feiguin F, Cacchione S, McCabe BD, Di Schiavi E, Raffa GD. (2017) WDR79/TCAB1 plays a conserved role in the control of locomotion and ameliorates phenotypic defects in SMA models. Neurobiol Dis. 2017 May 11. pii: S0969-9961(17)30108-0. doi: 10.1016/j.nbd.2017.05.005.

Langellotti S, Romano V, Romano G, Klima R, Feiguin F, Cragnaz L, Romano M, Baralle FE. (2016) A novel fly model of TDP-43 proteinopathies: N-terminus sequences combined with the Q/N domain induce protein functional loss and locomotion defects. Dis Model Mech. 2016 Apr 21. pii: dmm.023382.

Romano M, Feiguin F, Buratti E. (2016) TBPH/TDP-43 modulates translation of Drosophila futsch mRNA through an UG-rich sequence within its 5'UTR.
Brain Res. 2016 Feb 18. pii: S0006-8993(16)30081-6. doi:10.1016/j.brainres.2016.02.022.

Cragnaz L, Klima R, De Conti L, Romano G, Feiguin F, Buratti E, Baralle M, Baralle FE. (2015) An age-related reduction of brain TBPH/TDP-43 levels precedes the onset of locomotion defects in a Drosophila ALS model. Neuroscience. 17; 311:415-21.

Romano G, Appocher C, Scorzeto M, Klima R, Baralle FE, Megighian A, Feiguin F. (2015) Glial TDP-43 Regulates Axon Wrapping, GluRIIA Clustering and Fly Motility by Autonomous and Non-Autonomous Mechanisms. Hum Mol Genet. Nov 1;24(21):6134-45.

Appocher C, Klima R, Feiguin F. (2014) Functional screening in Drosophila reveals the conserved role of REEP1 in promoting stress resistance and preventing the formation of Tau aggregates. Hum Mol Genet. Dec 20;23(25):6762-72.

Romano G, Klima R, Buratti E, Verstreken P, Baralle FE, Feiguin F. (2014) Chronological requirements of TDP-43 function in synaptic organization and locomotive control. Neurobiol Dis. Nov;71:95-109.

Cragnaz L, Klima R, Skoko N, Budini M, Feiguin F, Baralle FE. (2014) Aggregate formation prevents dTDP-43 neurotoxicity in the Drosophila melanogaster eye. Neurobiol Dis. 2014 Nov;71:74-80.

Miskiewicz K, Jose LE, Yeshaw WM, Valadas JS, Swerts J, Munck S, Feiguin F, Dermaut B, Verstreken P. (2014) HDAC6 Is a Bruchpilot Deacetylase that Facilitates Neurotransmitter Release. Cell Rep. 2014 Jul 10;8(1):94-102.

Romano M, Buratti E, Romano G, Klima R, Del Bel Belluz L, Stuani C, Baralle F, Feiguin F. (2014) Evolutionarily-conserved hnRNP A/B proteins functionally interact with human and Drosophila TAR DNA-binding protein 43 (TDP-43). J Biol Chem. 289:7121-7130.

Llamusi B, Bargiela A, Fernandez-Costa JM, Garcia-Lopez A, Klima R, Feiguin F, Artero R. (2013) Muscleblind, BSF and TBPH are mislocalized in the muscle sarcomere of a Drosophila myotonic dystrophy model. Dis Model Mech. Jan;6(1):184-96.

Maurizio Romano, Fabian Feiguin and Emanuele Buratti. (2012) Drosophila Answers to TDP-43 Proteinopathies. Journal of Amino Acids, 2012;2012:356081.

Michaki V, Guix FX, Vennekens K, Munck S, Dingwall C, Davis JB, Townsend DM, Tew KD, Feiguin F, de Strooper B, Dotti CG, Wahle T. (2012) Downregulation of the ATP-binding cassette transporter 2 (Abca2) reduces Amyloid-β production by altering Nicastrin maturation and intracellular localization. J Biol Chem. Jan 6;287(2):1100-11.

Nesic I, Guix F, Vennekens K, Michaki V, Van Veldhoven PP, Feiguin F, de Strooper B, Dotti CG, Wahle T. (2012) Alterations in Phosphatidylethanolamine levels affect the generation of Aβ. Aging Cell. Feb11(1):63-72.

Vinay K. Godena, Giulia Romano, Maurizio Romano, Chiara Appocher, Raffaella Klima, Emanuele Buratti, Francisco E. Baralle, Fabian Feiguin (2011) TDP-43 Regulates Drosophila Neuromuscular Junctions Growth by Modulating *futsch*/MAP-1B Levels and Synaptic Microtubules Organization. PLoS ONE, 11;6(3):e17808.

Fabian Feiguin*, Vinay K. Godena, Giulia Romano, Andrea D'Ambrogio, Raffaella Klima, Francisco E. Baralle (2009) Depletion of TDP-43 Affects Drosophila Motoneurons Terminal Synapsis and Locomotive Behavior. FEBS *letters* (2009), 1586-1592. *corresponding author.

Roberto Marcucci, Maurizio Romano, Fabian Feiguin, Mary A. O'Connell and Francisco E. Baralle. (2009) Dissecting the splicing mechanism of the Drosophila editing enzyme dADAR. Nucleic Acids Research, 2009, 1–9.

Hector Herranz, Evangelina Stamataki, Fabian Feiguin and Marco Milan. (2006) Self-refinement of Notch activity through the transmembrane protein Crumbs: modulation of gamma-Secretase activity. EMBO Rep. 7; 297-302.

Froylan Calderon de Anda, Giulia Pollarolo, Jorge Santos Da Silva, Paola Camoletto, Fabian Feiguin*, and Carlos G. Dotti*. (2005) Centrosome localization determines neuronal polarity. Nature. 4;436(7051):704-8. *corresponding authors.

Hannus M, Feiguin F, Eaton S. (2002) Asymmetric PP2A activation by Widerborst directs the formation of polarized cortical domains. Development. 129 (14): 3493-3503.

Feiguin F, Hannus M, Mlodzik M, Eaton S. (2001) The ankyrin repeat protein Diego mediates Frizzled-dependent planar polarization. Developmental Cell. 1(1): 93-101.

Paricio, N., Feiguin, F., Boutros, M., Wilson, C., and Mlodzik, M., (1999) The Drosophila STE20-like kinase Misshapen is required down stream of Frizzled in planar polarity signaling. EMBO J. 1;18(17):4669-78.

DiTella, M., Feiguin, F., Carri, N., Kosik, K., and Caceres, A. (1995) MAP-1b/Tau functional redundancy during laminin-enhanced axonal growth. J. Cell Science. 109; 467-477.

Feiguin, F., Ferreira, A., Kosik, K., and Caceres, A. (1994) Kinesin-mediated organelle translocations revealed by specific cellular manipulations. J. Cell Biology 127: 1021-1039.

Morfini, G., DiTella, M., Feiguin, F., Carri, N., and Caceres, A. (1994) NT-3 enhances neurite outgrowth in cultured hipocampal pyramidal neurons. J Neurosci Res 39: 219-232.

DiTella, M., Feiguin, F., Morfini, G., and Caceres, A. (1993) A microfilament-associated grow cone component depends upon Tau for its localization. Cell Motility & Cytoskeleton 29: 117-130.

BOOK CHAPTERS

Feiguin, F., Llamazares, S., and Gonzalez, C. (1998) Methods in Drosophila Cell Cycle Biology. Curr Top Dev Biol. 36:279-91.

DiTella, M., Feiguin, F., Pigino, G., and Caceres, A. (1995) MAP-1b and Tau functional redundancy in cerebelar neurons growing on a laminin containing substrate. Molecular Biology of Cell Differentiation and Embrionic Development, Vol III, pp: 21-25, Eds. J Allende & E de Robertis.