

**Parte A. INFORMACIÓN PERSONAL**

Fecha 2025

Nombre y apellidos	Eduardo Domínguez del Toro		
DNI/NIE/pasaporte		Edad	

**A.1. PROFESIONAL SITUATION**

Organismo	Universidad Pablo de Olavide		
Dpto./Centro	Dpto. Anatomía, Biología y Biología Celular		
Dirección	Ctra. De Utrera, Km 1 41013 Sevilla		
Telefono		e-mail	
Categoría Profesional	Profesor titular de Universidad	Comienzo	17/11/2009
cod. UNESCO	249001, 240113, 240107		
Palabras clave	Associative learning, adrenergic receptor, locus coeruleus, postnatal development, sleep-wake cycle, Down syndrome		

**A.2. ACADEMIC FORMATION (title, institution, date)**

Grado / PhD	University	Year
Licenciado en CC Biológicas	Universidad de Sevilla	Junio 1991
Doctor en CC Biológicas	Universidad de Alicante	Diciembre 1996

**Parte B. Méritos relevantes**

**B.1. Publicaciones**

Domínguez del Toro, E., Juíz, J.M., Peng, X., Lindstrom, J. y Criado, M. "Immunocytochemical localization of the a7 subunit of the nicotinic acetylcholine receptor in the rat central nervous system". **J. Comp. Neurol.** **349:325-342 (1994)**

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Domínguez del Toro, E., Juíz, J.M., Smillie, F.I., Lindstrom, J. y Criado, M. "Expression of a7 neuronal nicotinic receptors during postnatal development of the rat cerebellum". **Dev. Brain Res.** **98:125-133 (1997)**

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Campos-Caro, A., Smillie, F.I., Domínguez del Toro, E., Rovira, J.C., Vicente-Agulló, F., Chápuli, J., Juíz, J.M., Sala, S., Sala, F., Ballesta, J.J. y Criado, M. "Neuronal nicotinic acetylcholine receptors on bovine chromaffin cells: cloning, expression and genomic organization of receptor subunits". **J. Neurochem.** **68:488-497 (1997)**

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Criado, M., Domínguez del Toro, E., Smillie, F.I., Juíz, J.M., Viniestra, S. y Ballesta, J. "Differential expression of a-Bungarotoxin-sensitive neuronal nicotinic receptors in adrenergic chromaffin cells of the adrenal gland: a role for transcription factor Egr-1". **J. Neurosci.** **17(17):6554-6564. (1997)**

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Gruart, A., Schreurs, B.G., Domínguez del Toro, E. y Delgado-García, J.M. "Kinetic and frequency-domain properties of reflex and conditioned eyelid responses in the rabbit". **J. Neurophysiol.** **83:836-852. (2000)**

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Fortin, G., Domínguez del Toro, E., Abadie, V., Guimarães, L., Foutz, A.S., Denavit-Saubié, M., Rouyer, F. y Champagnat, J. "Genetic and developmental models for the neural control of breathing in vertebrates" **Respir. Physiol.** **122(2-3):247-257. (2000)**

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Juiz, J.M., Luján, R., Domínguez del Toro, E., Fuentes, V., Ballesta, J.J. y Criado, M. "Subcellular compartmentalization of a potassium channel (Kv1.4): preferential distribution in dendrites and dendritic spines of neurons in the dorsal cochlear nucleus" **Eur. J. Neurosci.** **12:4345-4356. (2000)**

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Domínguez del Toro, E., Borday, V., Davenne, M., Neun, R., Rijli, F.M. y Champagnat J. "Generation of a Novel Functional Neuronal Circuit in Hoxa1 Mutant Mice" **J. Neurosci.** **21(15):5637-5642. (2001)**

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Chatonnet, F.\*, Domínguez del Toro, E.\*, Voiculescu, O., Charnay, P. y Champagnat, J. "Different Respiratory Control Systems are affected in Homozygous And Heterozygous kreisler Mutant Mice" **Eur. J. Neurosci.** **15(4):684-692. (2002)**

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Chatonnet, F., Thoby-Brisson, M., Abadie, V., Dominguez del Toro, E., Champagnat, J. y Fortin, G. "Early development of respiratory rhythm generation in mouse and chick." **Respir Physiol Neurobiol.** **131(1-2):5-13. (2002)**

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Luján, R., de Cabo de la Vega, C., Dominguez del Toro, E., Ballesta, J.J., Criado, M. y Juiz, J.M. "Immunohistochemical localization of the voltage-gated potassium channel subunit Kv1.4 in the central nervous system of the adult rat." **J. Chem. Neuroanat.** **26:209:224 (2003)**

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Chatonnet, F., Dominguez del Toro, E., Thoby-Brisson, M., Champagnat, J., Fortin, G., Rijli, F.M. y Thaeron-Antono, C. « From hindbrain segmentation to breathing after birth: developmental patterning in rhombomeres 3 and 4". **Mol. Neurobiol.** **28:277-294 (2003)**

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Rodríguez-Moreno, A., Domínguez-del-Toro, E., Porrás-García, E. y Delgado-García, J.M. "The use of alert behaving mice in the study of learning and memory processes". **Neurotox.Res.** **6(3):225-232 (2004)**

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Dominguez-del Toro, E, Rodríguez-Moreno, A., Porrás-García, E., Sánchez-Campusano, R., Blanchard, V., Laville, M., Bohme, G.A., Benavides, J., Delgado-García, J.M. "An in vitro and in vivo study of early deficits in associative learning in transgenic mice that over-express a mutant form of human APP associated with Alzheimer's disease". **Eur. J. Neurosci.** **20(7): 1945-1952 (2004)**

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Porrás-García, E.\*, Cendelin, J.\*, Domínguez-del-Toro, E.\*, Vozeh, F., y Delgado-García, J.M. "Purkinje cell loss affects differentially the execution, acquisition, and prepulse inhibition of skeletal and facial motor responses in Lurcher mice". **Eur. J. Neurosci.** **21: 979-988 (2005)**

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Ortiz, J.A., Castillo, M., Domínguez del Toro, E., Mulet, J., Gerber, S., Valor, L.M., Sala, S., Sala, F., Gutierrez, L.M., Criado, M. "The cysteine-rich with EGF-Like domains 2 (CRELD2) protein interacts with the large

cytoplasmic domain of human neuronal nicotinic acetylcholine receptor alpha4 and beta2 subunits". **J. Neurochem. 95: 1585-1596 (2005)**

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Guimarães, L., Domínguez-del-Toro, E<sup>CA</sup>, Chatonnet, F., Wrobel, L., Pujades, C., Monteiro, L.S. y Champagnat, J. "Exposure to retinoic acid at the onset of hindbrain segmentation induces episodic breathing in mice". **Eur J Neurosci. 25: 3526-3536 (2007)**

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Castelán, F., Castillo, M., Mulet, J., Sala, S., Sala, F., Domínguez del Toro, E. y Criado, M. "Molecular Characterization and Localization of the RIC-3 Protein, an Effector of Nicotinic Acetylcholine Receptor Expression". **J. Neurochem. (2008) 105, 617-627**

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Porras-García E, Sánchez-Campusano R, Martínez-Vargas D, Domínguez-del-Toro E, Cendelín J, Vozeh F, Delgado-García JM. "Behavioral characteristics, associative learning capabilities, and dynamic association mapping in an animal model of cerebellar degeneration".. **J Neurophysiol. (2010) 104:346-65**

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Voituron N, Frugière A, Mc Kay LC, Romero-Granados R, Domínguez-Del-Toro E, Saadani-Makki F, Champagnat J, Bodineau L. "The kreisler mutation leads to the loss of intrinsically hypoxia-activated spots in the region of the retrotrapezoid nucleus/parafacial respiratory group". **Neuroscience. (2011) 194:95-111**

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Calvino-Núñez C y Domínguez-del-Toro E<sup>CA</sup>. "Clonidine treatment delays postnatal motor development and blocks short term memory in young mice". **PLoS ONE 9(12): e114869. doi:10.1371/journal.pone.0114869 (2014)**

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Prados-Pardo A, Prieto-Soler SY and Domínguez-del-Toro E<sup>CA</sup>. "**Postnatal Development of Sleep-Wake Cycle in Wild-Type Mice**". **Advances in Cognitive Neurodynamics (VI)**. ISBN: 978-981-10-8853-7. Springer. (2018).

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Vázquez-Fonseca L, Schaefer J, Navas-Enamorado I, Santos-Ocaña C, Hernández-Camacho JD, Guerra I, Cascajo MV, Sánchez-Cuesta A, Horvath Z, Siendones E, Jou C, Casado M, Gutiérrez P, Brea-Calvo G, López-Lluch G, Fernández-Ayala DJM, Cortés-Rodríguez AB, Rodríguez-Aguilera JC, Matté C, Ribes A, Prieto-Soler SY, Domínguez-Del-Toro E, Francesco AD, Aon MA, Bernier M, Salviati L, Artuch R, Cabo R, Jackson S, Navas P. " ADCK2 Haploinsufficiency Reduces Mitochondrial Lipid Oxidation and Causes Myopathy Associated with CoQ Deficiency ". **J Clin Med (2019) Sep 2;8(9). pii: E1374. doi: 10.3390/jcm8091374.**

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Hernández-Jasso I, Domínguez-del-Toro E, Delgado-García JM y Quintanar JL. "Recovery of sciatic nerve with complete transection in rats treated with leuprolide acetate: A gonadotropin-releasing hormone agonist"- **Neurosci Lett . (2020) Nov 20;739:135439. doi: 10.1016/j.neulet.2020.135439.**

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Porras-García E, Mas-Nieto M, Delgado-García JM, **Domínguez-Del-Toro E<sup>CA</sup>**. Noradrenergic projections regulate the acquisition of classically conditioned eyelid responses in wild-type and are impaired in kreisler mice. **Sci Rep. 2023 Jul 15;13(1):11458. doi: 10.1038/s41598-023-38278-4. PMID: 37454229; PMCID: PMC10349844.**

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Hernandez Barrera M.P., Domínguez-del-Toro E<sup>CA</sup>. Nutrition and Exercise as Factors to Consider in Down Syndrome (Spanish). **RevDisCliNeuro**. 2023; 10(1), 39-50. <https://doi.org/10.14198/DCN.23724>.

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Prados Pardo A y Domínguez-del-Toro E<sup>CA</sup>. Early postnatal development heart rate, oxygen consumption and sleep-wake cycle in Ear2 mice. (2025, **Scientific Reports**, submitted).

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**Domínguez-Del-Toro E<sup>CA</sup>**, Leal-Campanario R., López-Ramos J.C. "Electrophysiological recordings for neuronal degeneration investigation". **Models of Neurodegenerative Diseases** (from a series edited by Mario Manto, Springer Nature; Contemporary Clinical Neurosciences <https://www.springer.com/series/7678>) (in press 2025).

## **B.2. Proyectos**

"Study of sleep-wake cycle and cardiac and respiratory impairments in Ts65Dn and Dp1Yey mice along early postnatal development". Fondation Jérôme Lejeune, referencia: Grant #2313 – 2023b.

From: 01/12/23 to: 01/12/25 Quantity: 50000€

Responsible Searcher: **Eduardo Domínguez-del-Toro** (Universidad Pablo de Olavide, Sevilla)

"Extracting cognitive versus behavioral patterns from cooperating animal brains". MICINN, referencia: PID2021-122446NB-I00.

From: 01/01/22 to: 31/12/25 Quantity: 413820€

Responsible Searchers: **Agnés Gruart i Massó** and **José María Delgado-García** (Universidad Pablo de Olavide, Sevilla)

"Cuándo, dónde y bajo qué circunstancias ocurre el aprendizaje " MEC (I+D+i), referencia: BFU2017-82375-R.

From: 01/03/18 to: 31/03/20 Quantity: 484000€

Responsible Searchers: **Agnés Gruart i Massó** and **José María Delgado-García** (Universidad Pablo de Olavide, Sevilla)

"El aprendizaje como estado funcional cerebral: estudios en mamíferos silvestres y manipulados genéticamente". MEC (I+D+i), referencia: BFU2014-56692-R.

From: 01/05/15 to: 31/05/17 Quantity: 450000€

Responsible Searchers: **Agnés Gruart i Massó** and **José María Delgado-García** (Universidad Pablo de Olavide, Sevilla)

"Generación y almacenamiento de respuestas motoras aprendidas en estructuras corticales de ratones y ratas silvestres o manipulados genéticamente" MEC (I+D+i), referencia: BFU2011-29089.

From: 01/01/12 to: 31/12/14 Quantity: 475000€

Responsible Searcher: **José María Delgado-García** (Universidad Pablo de Olavide, Sevilla)

Implicación de los sistemas alfa y beta adrenérgicos en la adquisición de respuestas motoras condicionadas" MEC (I+D+i), referencia: BFU2007-67173.

From: 01/01/08 to: 31/12/10 Quantity: 90750€

Responsible Searcher: **Eduardo Domínguez del Toro** (Universidad Pablo de Olavide, Sevilla)

"Desarrollo del sistema noradrenérgico y su implicación en el Trastorno por Déficit de Atención con Hiperactividad (TDAH)". Fundación Conocimiento y Cultura

From: 01/01/07 to: 31/12/09 Quantity: 69000€

Responsible Searcher: **Eduardo Domínguez del Toro** (Universidad Pablo de Olavide, Sevilla)

"Mecanismos neuronales implicados en la adquisición de nuevas habilidades motoras en el mutante del desarrollo *kreisler*: correlación de estudios *in vivo* e *in vitro*" MCyT (I+D+I) (2000-2003), referencia: SAF2002-02731.

From: 01/01/03 to: 31/12/05 Quantity: 29000€

Responsible Searcher: **Eduardo Domínguez del Toro** (Universidad Pablo de Olavide, Sevilla)

"Developmental Brainstem Reorganization and Facial Motor Control in Kreisler Mice" V Programa Marco Europeo Marie Curie. Beca Retorno  
From: 01/01/01 to: 31/12/01 Quantity: salary + 14400€  
Responsible Searcher: José María Delgado-García (Universidad Pablo de Olavide, Sevilla)

"Mise en place de groupes neuronaux pontiques fonctionnels par mutation des gènes de développement Kreisler et Hoxa1" Fondation pour la Recherche Medicale (France)  
From: 01/12/99 to: 01/12/00 Quantity: salary  
Responsible Searcher: Jean Champagnat (I.N.A.F., C.N.R.S., France)

"Function of Rhythmic Neuronal Network After Modification of the Hindbrain Segmentation" IV Programa Marco Europeo Marie Curie. Programa Biotech.  
From: 15/12/97 to: 14/12/99 Quantity: salary + 19920€  
Responsible Searcher: Jean Champagnat (I.N.A.F., C.N.R.S., Francia)

### **B.3. Contratos**

Title: Experimental design for the in vivo study of motor learning and memory capabilities of wild and transgenic mice with Alzheimer-like deficits

Tipo: **Colaboración científica**

Financial interprise: **Aventis-Pharma**

Entidades: **Univ. Pablo de Olavide y Aventis-Pharma**

Duration, From: **2002** to: **2004**

Responsible Searcher: **J.M. Delgado García**

Participants: **9**

**Quantity: 100000 €**

Title: Experimental design for the in vivo study of learning, memory and behavioral capabilities of wild and transgenic mice

Tipo: **Colaboración científica**

Financial interprise: **Aventis-Pharma**

Entidades: Univ. Pablo de Olavide y Aventis-Pharma

Duration, From: **2003** to: **2005**

Responsible Searcher: **J.M. Delgado García**

Participants: **13**

**Quantity: 300000 €**

### **B.4. PhD Tesis dirigidas**

Title: "CORRELACIÓN DE LAS CONCENTRACIONES DE LACTATO SANGUÍNEO Y MEDICIÓN DE LA FRECUENCIA CARDÍACA PARA DETERMINAR EL UMBRAL ANAERÓBICO POR MEDIO DE UN TEST ESCALONADO EN PATINADORES DE RESISTENCIA DE LA CIUDAD DE PAMPLONA"

Student: Oscar Antonio Palomino Gamboa

Universidad Pablo de Olavide, 30 de July 2007.

Title: "PARTICIPACIÓN DEL CEREBELO EN EL APRENDIZAJE ASOCIATIVO"

Student: María Elena Porras García

Universidad: Universidad Pablo de Olavide, 03 de march 2008.

Premio extraordinario de doctorado (2008-2009)

Title: "EFECTOS DE LA ESTIMULACIÓN ELÉCTRICA DE AFERENTES VAGALES SOBRE LA EPILEPTOGÉNESIS Y LAS CRISIS EPILÉPTICAS ESTABLECIDAS MEDIANTE LA ESTIMULACIÓN ELÉCTRICA REPETIDA (kindling amigdalino) DE LA AMÍGDALA DEL LÓBULO TEMPORAL"

Student: Víctor Manuel Magdaleno Madrigal

Universidad: Universidad Pablo de Olavide, 24 de january 2011.

Title: "CONSECUENCIAS FUNCIONALES A LARGO PLAZO DE TRATAMIENTOS POSTNATALES CON METILFENIDATO Y CON IDAZOXAN EN UN MODELO DE RATON PARA EL ESTUDIO DEL TRASTORNO POR DEFICIT DE ATENCION CON HIPERACTIVIDAD"

Student: Manuel Ramos Castilla

Universidad: Universidad Pablo de Olavide, 12 de july 2013.

Title: "EFECTO DE LA DOSIS FISIOLÓGICA DE NORADRENALINA SOBRE LA MADURACION POSTNATAL DEL SISTEMA RESPIRATORIO Y EL DESARROLLO POSTNATAL DE LA CODUCTA COGNITIVA Y MOTORA EN RATONES. CARACTERIZACION DEL MUTANTE EAR2 ADULTO"

Student: Cristina Calvino Núñez

Universidad: Universidad Pablo de Olavide, 26 de july 2013.

Title: "EFECTO DE LA ESTIMULACIÓN ELÉCTRICA DEL NERVIIO VAGO Y DEL NÚCLEO DEL TRACTO SOLITARIO SOBRE LA ACTIVIDAD ELECTROENCEFALOGRÁFICA Y LA DISTRIBUCIÓN TEMPORAL DEL CICLO SUEÑO-VIGILIA EN EL GATO"

Student: David Martínez Vargas

Universidad: Universidad Pablo de Olavide, 17 october 2014.

Title: "EFECTO DEL DESARROLLO DEL SISTEMA NORADRENÉRGICO SOBRE EL APRENDIZAJE ASOCIATIVO EN RATONES ADULTOS"

Student: Janet Mabel Angulo López

Universidad: Universidad Pablo de Olavide, 5 february 2016.

**B.5. Otros:** Premio extraordinario de doctorado (1997).