

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Patricia		
Family name	Ybot González		
Gender (*)		Birth date	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID)			

A.1. Current position

Position	Scientific Researcher		
Initial date	01.12.2021		
Institution	Spanish National Research Council (CSIC)		
Department/Center	<u>Instituto de Biomedicina de Sevilla</u>		
Country	Spain	Teleph. number	
Key words	Neurodevelopment, Wnt-PCP pathway, neural tube defects, mouse model, Vangl2.		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2009-2021	Principal Investigator-Miguel Servet/Nicolas Monardes. IBIS-Sevilla Spain. (154 months)
1996-2008	Junior/Senior Research Fellow. Neural Development Unit, Institute of Child Health, University College United Kingdom (155 months)
1991-1995	Research assistant/PhD student. University of Liverpool, United Kingdom (60 months)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciada in Biology. Speciality Biochemistry and Molecular Biology.	Universidad Autónoma de Madrid. Spain	1989
PhD in Cell Biology	University of Liverpool, United Kingdom	1995

Part B. CV SUMMARY

Since my early career, I have focused on the early development of the central nervous system (CNS) at the cellular and molecular level, exploring how genetic or environmental abnormalities interfere with this process. **PhD thesis:** Univ. Liverpool, UK, Funding: CEC (1991-1995): "*Role of the basement membrane in the development of the peripheral nervous system*". 3 publications, 1 conference: poster. **Postdoctoral:** 1996-2008: research on early CNS development at the cellular and molecular level, in particular neural tube closure. I worked as a junior research fellow and was promoted to senior research fellow on merit at the Inst. Child Health (UCL, London, UK); funding: Wellcome Trust Foundation. 9 papers; 6 oral presentations, 6 posters; 5 invited talks. co-direction of 5 master thesis. Mother of three children: 1999, 2002 and 2008.

Principal Investigator: In 2009 I obtained a Miguel Servet contract at the hospital V. Rocio hospital in Seville (2009-2018) creating my own group from scratch: search for space and infrastructure, funding, recruitment of staff and collaborations. In this field of Biomedicine, I broadened my scientific interests towards the aetiology and prevention of diseases associated with neural tube closure. 19 articles; PI in 5 national and regional projects, collaboration in 4 international projects, 2 competitive contracts, 2



training contracts abroad; Congresses: 6 oral presentations 14 posters; 4 invited talks. 2 doctoral theses, 13 master thesis, 1 Erasmus project, 1-degree thesis.

At the end of the Miguel Servet I and II contract (A rating) I obtained a Nicolás Monardes contract in the CMU of Neurology of the Hospital V. Macarena Hospital (2019-2021). To adapt to the research lines of the CMU, I extended my scientific interest to 2 neuropaediatric diseases whose pathology could be modulated through prevention strategies, neural tube defects (NTDs), and neuroprotection, neonatal stroke through maternal diet. 5 articles; PI in 1 national and 1 regional project, collaboration in 4 national and 1 international; Congresses 4 oral presentations and 1 poster; 2 invited lectures. 1 doctoral thesis, 6 master thesis. Due to the lack of stabilization and the peculiarities of the Nicolás Monardes contract, I applied for a position as Senior Scientist at the CSIC (**2021-present**). I continue my career in the study of the aetiology of NTDs using CRISPR gene editing techniques, implication of regulatory elements in development and disease, strategies for the prevention of neuropaediatric diseases and characterisation of deregulated blood cell populations after paediatric stroke using Single-Cell RNA-seq analysis aimed at the search for biomarkers. 5 articles, 4 projects as PI, 1 patent; 2 post-doctoral researcher contracts; 3 oral presentations and 8 posters; 2 invited talks. 1 thesis in progress, 2 ERASMUS projects, 11 master thesis (+2 in progress), 1 bachelor thesis.

OTHER MERITS: 4 six year-period in research (ANECA). **Teaching:** 5 five-year periods in teaching (ANECA); 8 PhD tribunals, 6 master's degree tribunals. External lecturer: US, UNIA and UPO. Accreditation as Assistant Professor Dr by the AAC. **Awards:** Marcy C. Speer Memorial (2007), California. USA; Jerónimo Soriano, AEP 2015. SAEDYN Award 2018. 1st prize, I IBIS Scientific Photography Competition, 2021. **Reviewer** of articles in international journals. **Independent expert** for international, national and regional Authentication Services. **Editor** for Front Cell and Developmental Biology. **Dissemination:** Participation in: Science Fairs; university orientation days; "International Day of Women and Girls in Science" day; and "Pint of Science"; collaboration with the media (press and TV); organisation of events for junior researchers (Wow Science and ENABLE).

Scopus: H Index: 23; cumulative IF: 181,2; 1,702 Citations by 2466 documents; 40.0% International collaboration: 10 documents in the top 25% most cited documents worldwide.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications

- 1.- Reyes-Corral M, Gil-González L, González-Díaz Á, Tovar-Luzón J, Ayuso MI, Lao-Pérez M, Montaner J, de la Puerta R, Fernández-Torres R, **Ybot-González, P***. (2024). Pretreatment with oleuropein protects the neonatal brain from hypoxia-ischemia by inhibiting apoptosis and neuroinflammation. *J Cereb Blood Flow Metab.* Aug. doi: 10.1177/0271678X241270237 (IF: 4.9, Q1)
- 2.- Cordero-Varela JA; Reyes-Corral, M. Lao-Pérez M; Fernández-Santos, B.; Montenegro-Elvira, F.; Sempere, L; **Ybot-González, P***. (2023) Analysis of gut characteristics and microbiota changes with maternal supplementation in a neural tube defect mouse model. *Nutrients*, 15(23), 4944. (IF: 5,9, Q1).
- 3.- Fernández-Santos, B., Reyes-Corral, M., Caro-Vega. (...) **Ybot-González, P***. (2023). The loop-tail mouse model displays open and closed caudal neural tube defects. *Disease Models and Mechanisms.* Aug 1;16(8) (IF: 4,3, Q1).
- 4.- **Ybot-González P. ***, Greene N.D.E., Copp A.J., Henderson D.J, Massa, V. (2023) Maternal-Foetal Crosstalk Impacts on Offspring Development. *Front. Cell Dev. Biol.*, 17 January; Sec. Cellular Biochemistry. Editorial article (IF: 6.081, Q1).
- 5.- Reyes-Corral, M., Sola-Idígora N., de la Puerta R., Montaner J. and **Ybot-González P.** (2021) Nutraceuticals in the Prevention of Neonatal Hypoxia-Ischemia: A Comprehensive Review of their Neuroprotective Properties, Mechanisms of Action, and Future Directions. *International Journal Molecular Science.* Mar 3;22(5):2524 (IF: 4,55, Q1).
- 6.- Fernández-Santos, B., Caro-Vega, J. M., Sola-Idígora, N., ... **Ybot-González, P***. (2021). Molecular similarity between the mechanisms of epithelial fusion and fetal wound healing during the closure of the caudal NT in mouse embryos. *Developmental Dynamics*, 250(7), 955-73. (IF: 3,78, D1).



- 7.- Menéndez Valladares, P., Sola-Idígoras, N., Fuerte Hortigón, A., Alonso Pérez, I., Duque Sánchez, C., Domínguez Mayoral, AM., **Ybot-González, P. ***, Montaner, J. Lessons Learned from Proteome Analysis of Pediatric Neurovascular Pathologies (2020) Expert Review Proteomics. Jun;17(6):469-481. (IF: 3,6, Q1).
- 8.- López-Escobar, B., Fernández-Torres, R., Vargas-López, V., (...) **Ybot-González, P***. (2020). Lacosamide intake during pregnancy increases the incidence of foetal malformations and symptoms associated with schizophrenia in the offspring of mice. Scientific Reports 10(1) 1-14. (IF: 4.4, Q1).
- 9.- Mole, M. A., (...) **Ybot-González, P.** & Copp, A. J. (2020). Integrin-mediated focal anchorage drives epithelial zippering during mouse neural tube closure. Developmental Cell: Feb 10;52(3):321-334 (IF: 9.19, D1).
- 10.- López-Escobar, B., Wlodarczyk, B. J., Caro-Vega, J., Lin, Y., Finnell, R. H., & **Ybot-González, P***. (2019). The interaction of maternal diabetes with mutations that affect folate metabolism and how they affect the development of neural tube defects in mice. Developmental Dynamics, 248(10), 900-917. (IF: 3,27, Q1).
- 11.- López-Escobar, B., Caro-Vega, J. M., Vijayraghavan, D. S., (...) **Ybot-González, P***. (2018). The non-canonical Wnt-PCP pathway shapes the mouse caudal neural plate. *Development*, 145(9), dev157487. (IF: 5.8, D1).
- 12.- López-Escobar, B., Cano, D. A., Rojas, A., (...) **Ybot-González, P***. (2015). The effect of maternal diabetes on the Wnt-PCP pathway during embryogenesis as reflected in the developing mouse eye. *Disease Models & Mechanisms*, 8(2), 157-168. (IF:6,3, D1).

C.2. Congress

1. *Poster*. Fernández-Santos, MV. Ruiz-Florido, Z. Kibar; V. Capra, P. Ybot-González. Unraveling the regulatory landscape of VANGL2 in Neural Tube Defects. 18th Spanish Society for Developmental Biology Meeting. Sant Feliu de Guíxols, Girona. 16-18 October 2024.
2. *Oral presentation*. **P.Ybot González**. Epigenetic Elements in the Regulation of VANGL2- Understanding Neural Tube Defects. 13th International Conference on Neural Tube Defects. Vancouver. Canada August. 2024
3. *Poster*. **P.Ybot González**. The Gut Microbiota: A Potential Player in Neural Tube Defect Prevention Strategies. 13th International Conference on Neural Tube Defects. Vancouver. Canada August. 2024
- 4.- *Poster*. **Sánchez MJ**, Saez Goñi ME, Reyes Corral M, Tebar J, Lao Perez M; Rangel C, Juarez Calvillo C and **Ybot-Gonzalez P**. scRNAseq transcriptomic analysis of circulating immune and progenitor cells in an experimental model of hypoxic/ischemic neonatal brain damage. XX Congreso de la Sociedad Española de Biología Celular. Cordoba 13-15 noviembre 2023.
- 4.- *Flash talk* **M. Reyes-Corral**, L. Gil-González, Á. González-Díaz, J. Tovar-Luzón, R. de la Puerta, **P.Ybot-González**. Pretreatment with a plant-derived phenolic compound confers neuroprotection in a mouse model of neonatal hypoxia-ischemia. 22nd FEBS Young Scientists' Forum (YSF 2023). 06-08 July 2023. Tours, Francia.
- 5.- *Poster*. **M. Reyes-Corral**, L. Gil-González, Á. González-Díaz, J. Tovar-Luzón, R. de la Puerta, **P.Ybot-González**. Pretreatment with a plant-derived phenolic compound confers neuroprotection in a mouse model of neonatal hypoxia-ischemia. 22nd FEBS Young Scientists' Forum (YSF 2023). 06-08 July 2023. Tours, Francia
- 6.- *Oral presentation*. **P.Ybot González**. Designing an Objective Method to Assess the Severity of Spina Bifida Occulta in Mouse Models. 12th International Conference on Neural Tube Defects. Nov., 2022. AT&T Executive Conference Center in Austin, Texas, USA.
- 7- *Poster*. - F. Montenegro Elvira, B. Fernández, J. Tovar, L. Sempere Bordes, M. Reyes Corral, **P. Ybot González**. Prevention of neural tube defects through maternal dietary supplementation and assessment of its impact on the microbiota. 12th International Conference on Neural Tube Defects. November 1st, 2022. AT&T Executive Conference Center in Austin, Texas, EEUU.
- 8- *Poster*. **P.Ybot González**. New mouse model for spina bifida occulta; design of an objective method for evaluation of disease severity. International Society of Developmental Biologists. ISDB - 19th International Congress of Developmental Biology. Oct. 2022. Algarve, Portugal.



- 9- *Poster*. **M. Reyes-Corral**, J. Tovar-Luzón, Á. González-Díaz, **P. Ybot-González**. Neuroprotective strategies for neonatal hypoxiaischemia. The Biochemistry Global Summit Lisbon. 2022, 9-14 July.
- 12.- *Oral presentation*. **P. Ybot González**. Understanding NTDs linked with the Wnt-PCP signalling pathway. Virtual/International: Developmental Disorders: From Mechanism to Treatment. Sep. 2021.
- 13.- *Oral presentation*. **P. Ybot González**. Prevention from NTDs linked with WNT-PCP signalling pathway. SRHSB Society for Research into Hydrocephalus and Spina Bifida; 64th Annual Meeting Webinar, Doha, Qatar Nov. 2020.
- 14- *Oral presentation*. **Fuerte Hortigón A**, Alonso Pérez I, Domínguez Mayoral A, Montaner J, **Ybot P** Implementación de una consulta monográfica de ictus infantil: resultados y ventajas del abordaje multidisciplinar integral. Congreso SEN 2020.
- 15.- *Oral presentation*. **P. Ybot González**. Prevention from NTDs linked with WNT-PCP signaling pathway. 11th International Neural Tube Defects Conference. Boston. USA. September, 2019.

C.3. Research projects, indicating your personal contribution.

- 1.- **PI-0082-2024**. Identificación de biomarcadores en sangre para encefalopatía hipoxico-isquémica neonatal: estudio de poblaciones celulares desreguladas mediante Single-Cell RNA-seq. Consejería de Salud y Consumo para la “financiación de la investigación, desarrollo e innovación (I+D+i) en Biomedicina y en Ciencias de la Salud en Andalucía. **PI: P. Ybot González. (2024-27)**. 119.830,00 €.
- 2.- **FORT23/00008**. Marco de oportunidades para reforzar los avances en investigación traslacional en el IBIS (FORTAIBiS). Instituto de Salud Carlos III. Investigadora colaboradora. Total 2.499.995,52€. 40.000€/grupo.
- 3.- **FPS-0053-2022**. Búsqueda de poblaciones celulares sanguíneas desreguladas tras un ictus pediátrico a través del análisis transcripcional de célula única, *Single-Cell* RNA-seq. Fundación Progreso y Salud. Consejería de Salud y familias. Junta de Andalucía. **PI: P. Ybot Gonzalez and M. Rivero Garvia (2022 – 2025)**. 119.887,50 €.
- 4.- **202220/095; 050561**. Estudio del papel de la vía no canónica de Wnt en el desarrollo temprano del sistema nervioso central. CSIC. Ministerio de Ciencia e Innovación. Ayudas de incorporación a Científicos Titulares. **PI: P. Ybot González (2022-2023)**. 5.000.00€.
- 5.- **P20 01267**. Papel de la nutrición y la microbiota materna en el desarrollo embrionario y evaluación de como su modulación puede prevenir enfermedades asociadas al neurodesarrollo. Ayudas Proyectos I+D+i destinadas a universidades y entidades públicas de investigación. Agencia Andaluza del Conocimiento. Consejería de Transformación económica, industria, conocimiento y universidades. Junta de Andalucía. **PI: P. Ybot González (2021-2023)**. 125.800,00€.
- 6.- **PI20/00769**. Supplementation of the maternal diet to prevent neuropediatric diseases and assessment of its impact on the microbiota. Proyecto de Investigación en Salud. Instituto de Salud Carlos III. **PI: P. Ybot González (2021-2024)**. 147.620,00€.
- 7.- **PI17/00693**. Estudio del papel de la vía no canónica de Wnt en la incidencia de lipomielomeningocele en humanos. Proyecto de Investigación en Salud. Instituto de Salud Carlos III. **PI: P. Ybot González (2018- 2022)**. 99.220,00 €.
- 8.- **PI14/01075**. Etiología de los defectos del tubo neural: posible implicación de la vía de señalización no canónica de Wnt en el desarrollo de Lipomielomeningocele en humanos. Proyecto de Investigación en Salud. Instituto de Salud Carlos III. **PI: P. Ybot González (2015-2019)**. 110.715,00€
- 9.- **P11-cts-7634**. Estudio de la interacción de factores genéticos y ambientales implicados en la patogénesis de la espina bífida. Proyecto de Excelencia, 2011. Consejería de Economía, Innovación y Ciencia. Secretaria General de Universidades, Investigación y Tecnología. Junta de Andalucía. **PI: P. Ybot González (2012-2018)**. 178.400,00 €

C.4. Contracts, technological or transfer merits



1. **Patent: P. Ybot González;** M. Reyes Corral; R. Fernández Torres; R. de la Puerta Vázquez. P202430507. Uso de la oleuropeína para la prevención de la encefalopatía hipóxico-isquémica neonatal. 20/06/2024. Servicio Andaluz de Salud / Universidad de Sevilla.
2. **Host laboratory for Dr Dolores Busso;** grant awarded by the Carolina Foundation and the Universidad de los Andes, Chile, corresponding to the Postdoctoral Short Stay Programme at the University of Seville, whose title is "*Prevention of diabetic embryopathy by vitamin E: study of the mechanisms involved*". 2024. **PI: P. Ybot González.**
3. **"BOE" nº 80, 3-April-2021;** Entry into the Scale of Tenured Scientists of Public Research Council, CSIC: **P. Ybot González.**
4. **RH-0033-2020;** Contract for research personnel: category PhD Junior: M. Reyes Corral. Department of Health and Social Welfare. Andalusian Regional Government. Human Resources for Research Line. 115872.96 euros. 3 years 2021-23. **PI: P. Ybot González.**
5. **C-0025-2018;** Nicolas Monardes **Contract for P. Ybot González.** Andalusian Health Service in the action Reinforcement with human resources of the research activity in the UGC of the SAS. 4 years.
6. **F-EF-0084-2016;** Contract for Research Training Stays: JM Caro Vega. Department of Health and Social Welfare. Andalusian Regional Government. Line of Human Resources for Research. 5400€. Feb/2017–May/2017. *Travel centre:* Laboratory of Prof AJ. Copp. Institute of Child Health, University College London, 30 Guilford Street, WC1N 1EH, UK. **PI: P. Ybot González**
7. **CP08/0111 y CPH14/00033;** Miguel Servet **Contract type I and II for P. Ybot González.** Instituto de Salud Carlos III 01/02/2009- 31/01/2018.
8. **F-EF-0084-2016;** Contract for Research Training Stays: B. López-Escobar. Department of Health and Social Welfare. Junta de Andalucía. 5643,56€. 20/03/2013–20/06/2013. Centre of travel: Laboratory of Prof R. Finnell. Department of Chemistry & Biochemistry. The University of Texas at Austin, Austin, Texas, United States. **PI: P Ybot González.**

C.5. Formative activity

- 1.- **Lecturer on the PhD Programme in Molecular Biology,** Biomedicine and Clinical Research. Line of Research in Biomedicine. University of Seville.
- 2.- **External lecturer** on the Official Master's Degree in Neurosciences at the University Pablo de Olavide and the Official Master's Degree in Biomedical Research at the University of Seville.
- 3.- **Accredited Assistant Professor:** Andalusian Knowledge Agency.
- 4.- **5 five-year periods in teaching scientific knowledge accredited by ANECA.** Sections: 1996-2002,2003-2007,2008-2012, 2013-2017, 2018-2022.
- 5.- **Direction of 4 PhD theses,** 3 defended: 1st Pablo de Olavide University 2017; 2nd University College London, UK, 2017; 3rd University of Seville, 2020.
- 6.- **Direction of 35 Master's theses:** a) M. Prenatal Genetics and Fetal Medicine, London University; b) Official M. in Health Biotechnology, Universidad Pablo de Olavide. Seville; c) Official M. in Omic Data Analysis and Systems Biology. University of Seville; d) Official M. in Neurosciences, Pablo de Olavide University; e) Official M. in Biomedical Research, University of Seville.
- 7.- Direction of 3 Erasmus projects and 4 end-of-degree projects.
- 8.- **Dissemination and promotion of initiatives related to the development of scientific careers in young researchers:** a) Wow science IBiS <https://www.ibis-sevilla.es/es/p/formacion/seminarios-wow/>; b) Enable: FEBS-IUBMB-ENABLE 1st International Molecular Bioscience PhD/Postdoc Conference international event to be held at IBiS (2022; <https://cordis.europa.eu/project/id/724115/en>); c) Participation in the Science Fairs, Seville; d) Participation in the university orientation day in schools; e) Participation in the "International Day of Women and Girls in Science"; f) Participation in the "Pint of Science" conference in Seville. g) Dissemination in the media: press and television.