



3.5.4 Oto-neurosurgery Research Group

Publications: **22**

Q1: **5**

COMPOSITION

Luis Lassaletta Atienza. Jefe de Sección de Otorrinolaringología. Hospital Universitario La Paz

Carolina Alfonso Carrillo. Facultativo Especialista de Área en Otorrinolaringología. Hospital Universitario La Paz

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Alejandro Castro Calvo. Facultativo Especialista de Área en Otorrinolaringología. Hospital Universitario La Paz

Isabel García López. Facultativo Especialista de Área en Otorrinolaringología. Hospital Universitario La Paz

Javier Gavilán Bouzas. Jefe de Servicio de Otorrinolaringología. Hospital Universitario La Paz. Catedrático. De-

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Teresa González Otero. Facultativo Especialista de Área en Cirugía Maxilofacial. Hospital Universitario La Paz

José Manuel Morales Puebla. Facultativo Especialista de Área en Otorrinolaringología. Hospital Universitario La Paz

Silvia Murillo Cuesta. Investigadora Postdoctoral. Ilb "Alberto Sols"

María Fernanda Pedrero Escalas. Facultativo Especialista de Área en Otorrinolaringología. Hospital Universitario La Paz

Isabel Pilar Sánchez Cuadrado. Facultativo Especialista de Área en Otorrinolaringología. Hospital Universitario La Paz



María Isabel Varela Nieto. Profesor de Investigación. Ilb "Alberto Sols"

Antonio Villalobo Polo. Profesor de Investigación. Ilb "Alberto Sols"

STRATEGIC OBJECTIVE

The systematic use of magnetic resonance imaging (MRI) has dramatically increased the diagnosis of patients with vestibular schwannoma (VS). The majority of patients with VS complain of hypoacusis or tinnitus, and very few present more debilitating symptoms. Therefore, the approach with a patient with VS is complex because the treatment of the tumour is directed towards avoiding complications arising from its growth and not necessarily towards improving the patient's quality of life. Currently, there are no factors that allow us to predict the growth of vestibular schwannoma.

Recent advances in the field of oncogenetics have allowed us to better understand the development of VS.

The study of the correlation between clinical variables related to the biological behaviour of VS and its genetic and epigenetic disorders aims to find the factors that predict the behaviour of

VS. This will help us identify patients who need active treatment of the tumour and avoid the morbidity associated with the treatment in those who do not need it.

The cochlear implant (CI) is currently the only solution for relieving the condition in patients with severe or profound hypoacusis who do not benefit from a prosthetic adaptation with a conventional hearing aid. It is estimated that there are currently 120,000 adults in Spain with profound sensorineural hypoacusis. In recent years, new hearing implants have been developed including osseointegrated implants and active middle ear implants. It's excellent and often spectacular results and its low rate of complications have transformed CI from an innovative technology in the experimental phase to a routine, safe and effective procedure, capable of returning deaf individuals to the hearing world and ending their isolation, increasing their quality of life. Over the past decade the relationship between hearing loss and cognitive decline in the older population has become the subject of research. We also explore the relationships



between the cognitive function and the audiometric performances in patients wearing a CI.

Moderate to severe hypoacusis is one of the most prevalent medical problems. Ciliated sensory cells and neurons do not regenerate in mammals, which is the main cause of sensorineural hearing loss (SNHL). Mutations altering the levels of Insulin like growth factor type 1 (IGF-1) cause SNHL in humans and mice. IGF-1 is an essential factor in the postnatal development of mammals, and its level decreases with ageing. We are studying the participation of IGF-1 in the pathophysiology of SNHL, as well as the molecular signalling networks conferring specificity in the otic cellular response to IGF-1. We are studying the signals that regulate otic damage with the objective of identifying the key factors implicated in functional repair and regeneration of

inner ear cells. In short, our work contributes to the study of auditory pathophysiology, with the ultimate objective of investigating the potential clinical usefulness of IGF-1 and downstream signalling in human sensorineural deafness.

Bell's palsy is the most common diagnosis associated with facial nerve weakness or paralysis. However, not all patients with facial paresis / paralysis have Bell's palsy. Other common causes include treatment of vestibular schwannoma, head and neck tumors, iatrogenic injuries, Herpes zoster, or trauma. The approach to each of these conditions varies widely. The addition of adjunctive major or minor facial procedures in the context of a multidisciplinary Facial Paralysis Unit improves the final facial outcome.

RESEARCH LINES

- Tumors of the CNS: vestibular schwannoma, meningiomas, gliomas, and other: surgery, oncogenetics, quality of life, etc.
- Auditory implants: cochlear implants, middle ear implants, bone-conduction implants: surgical aspects, telephone use, quality of life, perception of music, cognitive decline, anatomy based fitting, etc.
- IGF-I deficiency: a rare syndromic human deafness.
- Neurobiology of hearing: molecular and cellular bases of hearing loss of different aetiology (genetic, noise exposure, malnutrition, and ototoxic drugs). Identification of transcriptional networks.
- Development of experimental models of deafness (genetic, noise exposure, malnutrition, ototoxic drugs and surgery associated trauma) for pre-clinical studies with po-

tential therapeutic molecules, thus identifying possible therapeutic targets, potential markers for diagnosis and generation of vital guidelines.

- Head and Neck tumors and voice pathology.
- The role of cellular senescence in the development of the inner ear and the auditory pathology.
- Studies on three systems implicated in the development of tumor metastasis: the tyrosine kinase receptors EGFR/ErbB2; the non-receptor tyrosine kinase c-Src; and the adaptor protein Grb7.
- Facial paralysis: evaluation, diagnosis and surgery
- Thyroid cancer.

RESEARCH ACTIVITY

● Doctoral theses

Bermúdez Muñoz JM. Factores de protección contra la hipoacusia neurosensorial progresiva: mecanismos de regulación de la respuesta al daño y modulación de la defensa antioxidante [dissertation]. Madrid: UAM: 2022(29/03/2022).

Director: Varela Nieto I.

● Publications

- Acle-Cervera L, González-Aguado R, Bauer M, Bernal-Lafuente C, Drake-Pérez M, Manrique-Rodríguez M, de Lucas EM, Roperio-Romero F, Sambola-Cabrer I, Sánchez-Fernández R, Lassa-

letta L. Checklist of the temporal bone and lateral skull base CT-scan. Acta Otorrinolaringol Esp. 2022; 73(6): 394-405. Article. IF: 1; Q4

- Alsina B, Heller S, Varela-Nieto I. Editorial: Inner ear biology: Development, physiopathology, repair and recovery. Front Cell Dev Biol. 2022; 10: 1049463. Editorial Material. IF: 5.5; Q1
- Andries E, Bienkowska K, Swierniak W, Skarzynski PH, Skarzynski H, Calvino M, Cuadrado IS, Muñoz E, Gavilán J, Lassaletta L, Tavora-Vieira D, Acharya A, Killan C, Ridgwell J, Raine C, Van de Heyning P, Van Rompaey V, Mertens G. Evolution of type D personality traits after cochlear implantation in severely hearing impaired adults 55 years and older: an exploratory prospective, longitudinal, controlled, multicenter study. Otol Neurotol. 2022; 43(8): E865-71. Article. IF: 2.1; Q3

- Andries E, Lorens A, Skarzynski PH, Skarzynski H, Calvino M, Gavilán J, Lassaletta L, Tavora-Vieira D, Acharya A, Kurz A, Hagen R, Anderson I, Amann E, Van de Heyning P, Van Rompaey V, Mertens G. Evaluating the revised work rehabilitation questionnaire in cochlear implant users cochlear implant outcome assessment based on the international classification of functioning, disability, and health (ICF). Otol Neurotol. 2022; 43(5): E571-77. Article. IF: 2.1; Q3
- Aragón-Ramos P, García-López I, Santiago S, Martínez A, Gavilán J. Laryngeal electromyography, a useful tool in difficult cases of pediatric laryngeal mobility disorders. Int J Pediatr Otorhi. 2022; 161: 111264. Article. IF: 1.5; Q3
- Calvino M, Sánchez-Cuadrado I, Gavilán J, Gutiérrez-Revilla MA, Polo R, Lassaletta L. Effect of

- cochlear implantation on cognitive decline and quality of life in younger and older adults with severe-to-profound hearing loss. Eur Arch Otorrhino-L. 2022; 279(10): 4745-9. Article. IF: 2.6; Q2
- Calvino M, Sánchez-Cuadrado I, Gavilán J, Lassaletta L. The effect of risk factors on cognition in adult cochlear implant candidates with severe to profound hearing loss. Front Psychol. 2022; 13: 837366. Article. IF: 3.8; Q1
- da Silva RS, de Moraes LS, da Rocha CAM, Ferreira-Fernandes H, Yoshioka FKN, Rey JA, Pinto GR, Burbano RR. Telomere length and telomerase activity of leukocytes as biomarkers of selective serotonin reuptake inhibitor responses in patients with major depressive disorder. Psychiat Genet. 2022; 32(1): 34-6. Article. IF: 0.9; Q4
- Hagen R, Rak K, Kurz A, Baumgartner WD, Gavi-



3 Information Groups by Area



3.5 Cancer and Human Molecular Genetics Area

Ián J, van de Heyning P. The online HEARING counselling 1.0 platform provides clinicians with comprehensive information on hearing device solutions for conductive, mixed, and sensorineural hearing loss. *J Pers Med.* 2022; 12(12): 2027. Article. Not Indexed

- Landegger LD, Fujita T, Jan TA, Varela-Nieto I. Editorial: otologic trauma, pathology, and therapy. *Front Cell Neurosci.* 2022; 16: 900074. Editorial Material. IF: 5.3; Q1
- Lassaletta L, Calvino M, Sánchez-Cuadrado I, Skarzynski PH, Cywka KB, Czajka N, Kutyla J, Tavora-Vieira D, van de Heyning P, Mertens G, Staecker H, Humphrey B, Zernotti M, Zernotti M, Magele A, Ploder M, Zabeu JS. Using generic and disease-specific measures to assess quality of life before and after 12 months of hearing implant use: a prospective, longitudinal, multicenter, observational clinical study. *Int J Env Res Pub He.* 2022; 19(5): 2503. Article. IF: 2.468; Q2
- Luque J, Mendes I, Gómez B, Morte B, de Heredia ML, Herreras E, Corrochano V, Bueren J, Gallano P, Artuch R, Fillat C, Pérez-Jurado LA, Montoliu L, Carracedo A, Millan JM, Webb SM,

Palau F, Lapunzina P. CIBERER: Spanish national network for research on rare diseases: A highly productive collaborative initiative. *Clin Genet.* 2022; 101(5-6): 481-93. Review. IF: 3.5; Q2

- Maier H, Lenarz T, Agha-Mir-Salim P, Agterberg MJH, Anagnostos A, Arndt S, Ball G, Bance M, Barbara M, Baumann U, Baumgartner W, Bernardeschi D, Beutner D, Bosman A, Briggs R, Busch S, Caversaccio M, Dahm M, Dalhoff E, Devez A, Ebrahimi-Madiseh A, Frayse B, Frenzel H, Gavilán J, Ghoncheh M, Hakansson BEV, Hodgetts W, Hol M, Hol-land J, Holmberg M, Huber AM, Jenkins H, Katiri R, Kheirkhah K, Koitschev A, Kompis M, Lanting C, Lassaletta L, Lerut B, Leuwer R, Linder T, Lowenheim H, Lustig L, Mandavia R, Manrique M, Martins JH, Mertens G, Mlynski R, Mojallal H, Monini S, Monksfield P, Muller A, Mylanus E, Nakajima H, Neudert M, Officiers E, Pfiffner F, Pietsch M, Plontke SK, Prenzler N, Proffant M, Tors-ten Rahne, Rajan G, Ratuszniak A, Raufer S, Ray J, Reinfeldt S, Roosli C, Rosenbom T, Salcher R, Schonermark M, Schwab B, Skarzynski H, Skarkynski PH, Snapp H, Sprinzel G, Spearman M, Stenfelt S, Stieger C, Tringali S, Truy E, Tyso-

me J, Van de Heyning P, Verhaert N, Wesarg T, Westerkull P, Wollenberg B, Zahnert T, Zarowski A, Snik A. Consensus statement on bone conduction devices and active middle ear implants in conductive and mixed hearing loss. *Otol Neurotol.* 2022; 43(5): 513-29. Article. IF: 2.1; Q3

- Mato-Patino T, Morales-Puebla JM, Moraleda S, Sánchez-Cuadrado I, Calvino M, González-Otero T, Penarocha J, Hernández B, Gavilán J, Lassaletta L. Contribution and safety of the side-to-end hypoglossal-to-facial transfer in multidisciplinary facial reanimation. *Head Neck-J Sci Spec.* 2022; 44(7): 1678-89. Article. IF: 2.9; Q1
- Mertens G, Andries E, Kurz A, Tavora-Vieira D, Calvino M, Amann E, Anderson I, Lorens A. Towards a consensus on an ICF-based classification system for horizontal sound-source localization. *J Pers Med.* 2022; 12(12): 1971. Article. Not Indexed
- Munk M, Villalobo E, Villalobo A, Berchtold MW. Differential expression of the three independent CaM genes coding for an identical protein: Potential relevance of distinct mRNA stability by different codon usage. *Cell Calcium.* 2022; 107: 102656. Review. IF: 4; Q3
- Palmero I, Gorgoulis V, Varela-Nieto I. Editorial: The role of cellular senescence in health and disease. *Front Cell Neurosci.* 2022; 16: 882417. Editorial Material. IF: 5.3; Q1
- Topsakal V, Agrawal S, Atlas M, Baumgartner WD, Brown K, Bruce IA, Dazert S, Hagen R, Lassaletta L, Mlynski R, Raine CH, Rajan GP, Schmutzhard J, Sprinzel GM, Staecker H, Usami SI, Van Rompaey V, Zernotti M, Van de Heyning P. Minimally traumatic cochlear implant surgery: expert opinion in 2010 and 2020. *J Pers Med.* 2022; 12(10): 1551. Article. Not Indexed
- Van de Heyning P, Gavilán J, Godey B, Hagen R, Hager A, Kameswaran M, Li YX, Manoj M, Mlynski R, O'Driscoll M, Pillsbury H, Raine CH, Rajan G, Schmutzhard J, Staecker H. Worldwide variation in cochlear implant candidacy. *J Int Adv Otol.* 2022; 18(3): 196-202. Article. IF: 1; Q4
- van de Heyning P, Roland P, Lassaletta L, Agrawal S, Atlas M, Baumgartner WD, Brown K, Caversaccio M, Dazert S, Gstöettner W, Hagen R, Hager A, Jablonski GE, Kameswaran M, Kuzovkov V, Leinung M, Li YX, Loth A, Magele A, Mlynski R, Mueller J, Parnes L, Radloff A, Raine C, Rajan G, Schmutzhard J, Skarzynski H, Skarzynski PH, Sprinzel G, Staecker H, Stoeve T, Tavora-Vieira D, Topsakal V, Usami SI, Van Rompaey V, Weiss NM, Wimmer W, Zernotti M, Gavilán J. Suitable

electrode choice for robotic-assisted cochlear implant surgery: a systematic literature review of manual electrode insertion adverse events. *Front Surg.* 2022; 9: 823219. Review. IF: 1.8; Q3

- van de Heyning PH, Dazert S, Gavilán J, Lassaletta L, Lorens A, Rajan GP, Skarzynski H, Skarzynski PH, Tavora-Vieira D, Topsakal V, Usami SI, Van Rompaey V, Weiss NM, Polak M. Systematic literature review of hearing preservation rates in cochlear implantation associated with medium- and longer-length flexible lateral wall electrode arrays. *Front Surg.* 2022; 9: 893839. Review. IF: 1.8; Q3
- Villalobo E, Gutiérrez G, Villalobo A. Calmodulin in paramecium: Focus on genomic data. *Microorganisms.* 2022; 10(10): 1915. Review. IF: 4.5; Q2

Research projects

Castro Calvo A. Towards A better paradigm for head and neck Cancer Treatment applying artificial Intelligence: an international Cohort study of electronic health records. HNC-TACTIC. (PI-5150). Head and Neck Cancer International Group y Savana. 2022-Ongoing.

Managment centre:

García-López I. Parálisis bilateral de las cuerdas vocales: epidemiología y posibilidades terapéuticas aplicadas (PI-3780). Med-El Elektromedizinische Geräte Gesellschaft M. B. H.. 2019-Ongoing.

Managment centre: FIBHULP

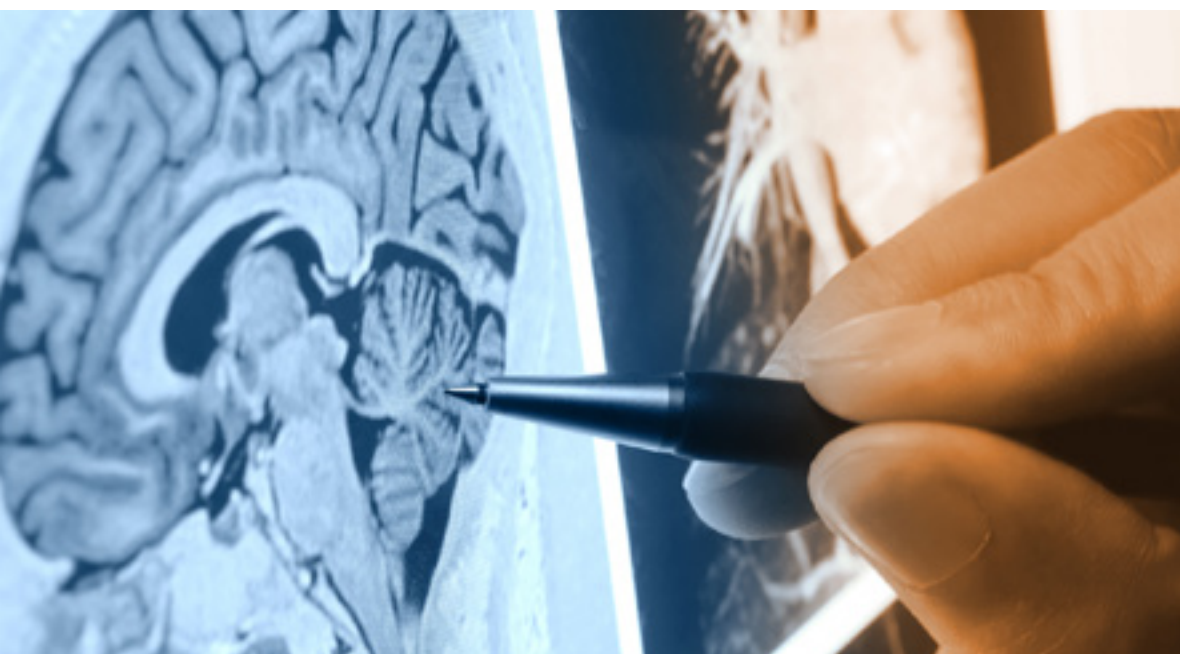
Lassaletta Añienza L. Análisis de las habilidades musicales y de la voz en niño y adultos con IC (PI21/0147). ISCIII. 2022-2024.

Managment centre: FIBHULP

Lassaletta Añienza L. Leespq en niños con implante coclear en español (PI-4725). Med-El Elektromedizinische Geräte GmbH. 2021-Ongoing.

Managment centre: FIBHULP

Lassaletta Añienza L. Programación Remota para implante coclear MED-EL durante la pandemia por la COVID-19 (PI-4985). Med-El Ele-





3 Information Groups by Area



3.5 Cancer and Human Molecular Genetics Area

ktromedizinische Geräte GmbH. 2021-2022.

Management centre: FIBHULP

Murillo Cuesta S. Delivery of Antisense RNA Therapeutics (CA17103). EU Framework Programme Horizon 2020. COST. 2018-2022.

Management centre: Biocruces Bizkaia Health Research Institute

Murillo Cuesta S. Grupo de Trabajo Modelos murinos para el estudio de enfermedades raras (ERP1PDI761). CIBERER. 2020-2022.

Management centre: CIBERER

Rey Herranz JA. Contrato Miguel Servet Categoría A (CES05/027). ISCIII. 2006-2025.

Management centre: FIBHULP

Rodríguez de la Rosa L. Grupo de Trabajo Edición Genómica y Terapia Génica (ERP1PDI755). CIBERER. 2020-2022.

Management centre: CIBERER

Sánchez Cuadrado I. Validación al español de la escala de valoración clínica eFACE y del SunnyBrook Facial Grading System (PI20/01032). ISCIII. 2020-2023.

Management centre: FIBHULP

Sánchez Cuadrado I. Validación al español de la escala de valoración clínica eFACE y del sunnybrook facial grading system (PI20/01032). ISCIII. 2021-2024.

Management centre: FIBHULP

Varela Nieto I. Bench to bedside transition for pharmacological regulation of NRF2 in noncommunicable diseases (BenBedPhar) (CA20121). EU Framework Programme Horizon 2020. COST. 2021-2024.

Management centre: UAM

Varela Nieto I, Marco-Contelles JL. Prueba de concepto para determinar el efecto de la Colesteronitrona F2 en el tratamiento de la Presbiacusia (NITROPROHEAR). Fundación General CSIC. 2020-2022.

Management centre: IIBM CSIC

Varela Nieto I, Murillo Cuesta S. Addendum to the contract by and between Consorcio Centro de Investigación Biomédica en Red, M.P. (CIBER) and Spiral Therapeutics Inc (SPIRAL) on April 26 2017 for scientific research and development services in the field of hearing loss. Spiral Therapeutics. 2017-Ongoing.

Management centre: CIBERER

Varela Nieto I, Murillo Cuesta S. Bases genéticas y moleculares de la sordera neurosensorial y del daño auditivo: exploración de nuevas dianas y estrategias terapéuticas (T-HEARPY) (PID2020-115274RB-I00). MCIN. 2021-2024.

Management centre: CSIC

Varela Nieto I. A sound proteome for a sound body: targeting proteolysis for proteome remodeling (ProteoCure). (CA20113). EU Framework Programme Horizon 2020. COST. 2021-2025.

Management centre: Centro de Investigación Príncipe Felipe

Varela Nieto I. Ayuda para la realización de doctorado industrial para la Agencia Estatal Consejo Superior de Investigaciones Científicas y la empresa Alodia Farmaceutica S.L. (IND2020/BMD-17454). Agencia Estatal CSIC. Alodia Farmacéutica S.L. 2020-2023.

Management centre: CSIC

Varela Nieto I. Conexión Nanomedicina del CSIC (NANOMED-CSIC). Agencia Estatal CSIC. 2021-2024.

Management centre: Instituto de Química Médica CSIC

Varela Nieto I. Grupo de Trabajo Desarrollo de nuevas herramientas terapéuticas basadas en RNA para el tratamiento de enfermedades raras (ERP1PDI756). CIBERER. 2020-2022.

Management centre: CIBERER

Varela Nieto I. Imagen multimodal de la respuesta terapéutica a estrategias multidiana en enfermedades neurológicas (MULTITARGET&VIEWCM) (B2017/BMD-3688). CAM. 2018-2022.

Management centre: IIBM (CSIC)

Varela Nieto I. Senescencia celular: mecanismos y terapias (SENESTHERAPY) (RED2018-102698-T). Ministerio de Ciencia, Innovación y Universidades. 2018-2022.

Management centre: Fundació Institut de Recerca Biomèdica

● Cibers and Retics

Varela Nieto I. Centro de Investigación en Red de Enfermedades Raras. (CIBERer) (CB06/07/1021). ISCIII. (31/12/2022). FIBHULP

● Clinical trials

Sánchez Cuadrado IP. Estudio multicéntrico, de tres brazos, doble ciego, doblemente en-

mascarado, de grupos paralelos, controlado con placebo para la evaluación de la eficacia y la seguridad de la formulación de liberación prolongada de betahistina pr 48 mg una vez al día en comparación con la formulación de liberación convencional de betahistina ir 24 mg, enfermedad de meniere.

Type: Clinical Trials, phase III. 6063 0796-19 / BERTIGO.

Sponsored by: Intas Pharmaceuticals, Ltd.

Signed date: 28/03/2022.

● Patents and trademarks

Polak M, Roca-Ribas Serdà F, Gavilán Bouzas J, Lassaletta Atienza L, Miró Castillo N, Rodrigo Dacosta J, inventors; MED-EL Elektromedizinische Geräte GmbH, assignee. Hearing treatment in patients with questionable cochlear nerve functionality. US2011275953, PCT/US2011/035312; 2010 May 05.

Cobo Parra P, Varela Nieto I, Murillo-Cuesta S, Navares Zaera R, Martínez Vega R, Cediélgovia R, inventors; CSIC, UCM, assignees. Anechoic acoustic chamber for evaluating the auditory function in laboratory animals. P201031720; 2010 November 23.

Cobo Parra P, Varela Nieto I, Murillo-Cuesta S, Cediélgovia R, inventors; CSIC, UCM, assignees. Method for designing a reverberating acoustic chamber for hearing test with animals. Procedimiento para diseñar una cámara acústica reverberante para ensayos auditivos con animales. P200802895, PCT/ES2009/070433; 2008 October 14.